



Department of
Infrastructure, Planning and Natural Resources

ASSESSMENT REPORT

**PROPOSED CLAY/SHALE EXTRACTION OPERATION,
LOT 3 – 275 ADAMS ROAD, LUDDENHAM**

File No: P91/02045

1. SUMMARY

Badger Mining Company Pty. Limited (the Applicant) is proposing to excavate clay/shale from land that is owned by the principals of the company at 275 Adams Road, Luddenham. Figure 1 shows the location of the proposed clay/shale quarry site in a regional context.

The excavated clay/shale will be utilised for the manufacture of dark and light-fired bricks. The clay/shale will be transported by road to up to three brickworks, which are located to the east of the quarry site and within a maximum road haulage distance of 17 kilometres (km).

The Applicant initially proposed to extract clay/shale from an area of 15 hectares (ha) at a nominal rate of 300,000 tonnes per annum (tpa) over 22 years from a 6,800,000 tonne resource that has been identified as suitable for brick manufacture. The resource has been identified in Schedule 1 Sydney Regional Environmental Plan No. 9 as a clay/shale extraction area of regional significance.

The Applicant subsequently modified the proposal, maintaining an extraction rate of 300,000 tpa, halving the area of excavation to 7 ha, halving the resource to be extracted and reducing extraction operations to between 10 and 15 years.

The proposal has a capital cost of approximately \$4 million and would provide employment for up to 13 people under normal operating conditions.

Under the NSW *Environmental Planning and Assessment (EP&A) Act 1979*, the proposal is State significant, integrated and designated development and the Minister is the consent authority.

The Applicant lodged a Development Application (DA) and Environmental Impact Statement (EIS) for the proposal with the Department of Infrastructure, Planning and Natural Resources (the Department) on 9 July 2003. The Department subsequently notified and exhibited the DA and EIS in accordance with the relevant requirements of the *Environmental Planning and Assessment (EP&A) Regulation 2000*.

During the exhibition period, the Department received 47 submissions on the proposal: 8 from Government agencies, 2 from a special interest groups and 37 from members of the public. These submissions raised concerns regarding the following issues:

- Road traffic, especially trucks;
- Amenity and visual impact;
- Air quality;
- Water quality;
- Effects on property values;
- Operational impacts from a landfill;
- Noise; and
- Previous refusals for the same, or similar, proposals.

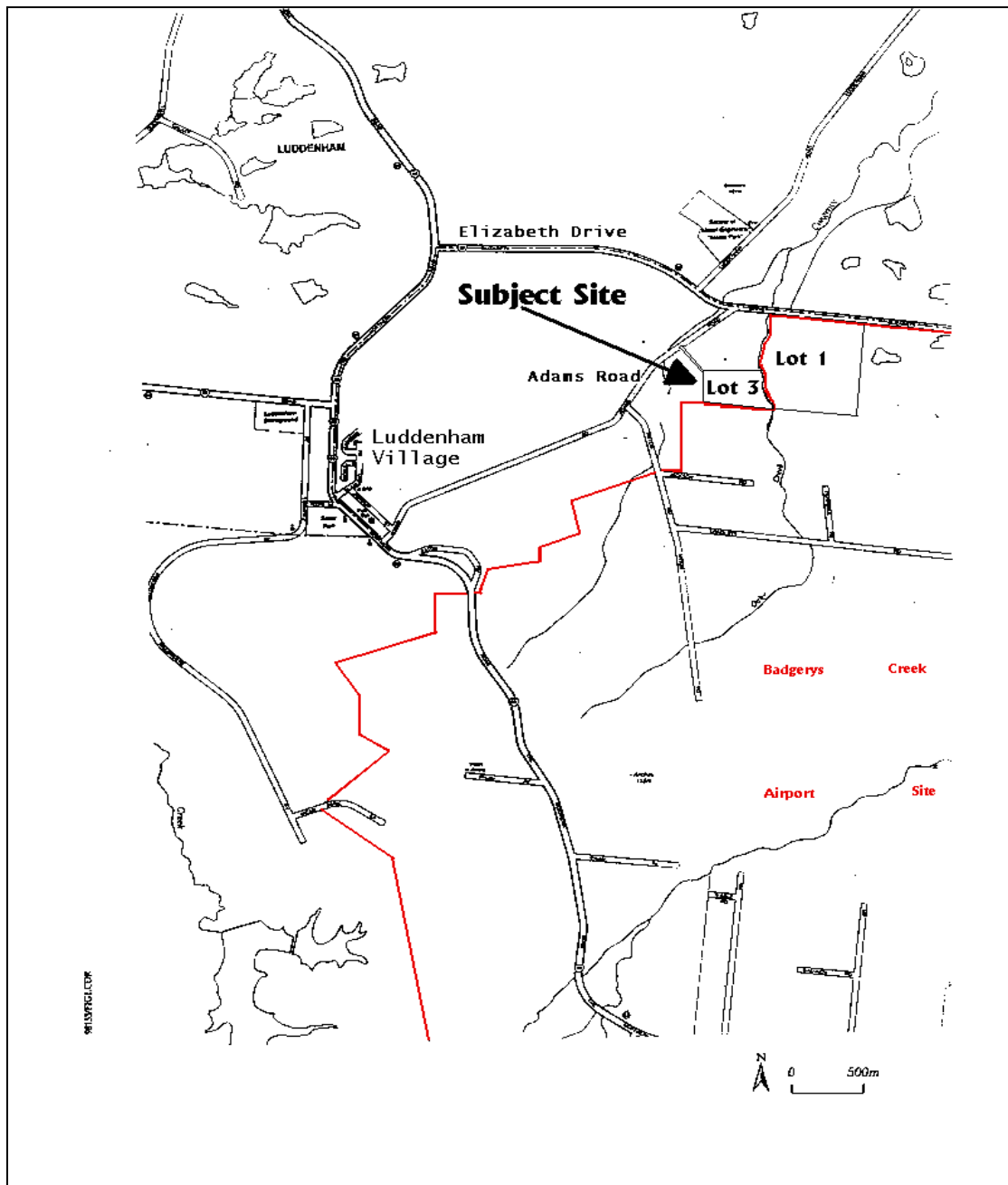


Figure 1: Regional Location of Clay/shale Quarry Site

2. CURRENT SITUATION

The site of the proposed clay/shale quarry (Lot 3) is a 19 ha parcel of land, gently sloping from the south-west to the north-east. Oakey Creek forms the boundary between Lots 1 and 3. An on-line dam has been constructed on Oakey Creek and collects surface water runoff from the property. Oakey Creek is an ephemeral drainage line that joins Cosgroves Creek downstream of the site. The property lies within the Hawkesbury-Nepean catchment.

The property is currently utilised as horse spelling yards and light grazing. Most of the property is covered by grass, or bare earth in the spelling yards (Figure 2). The property is mainly cleared, with remnant trees mostly located in the vicinity of Oakey Creek.

Lot 1 is in the ownership of the Commonwealth, through the Department of Transport and Regional Services. The Commonwealth is a significant owner of adjacent lands, which it holds as a land bank for the proposed Badgerys Creek Airport.



Figure2: Aerial Photograph of the Site

2.1 Prior Development Applications

Liverpool City Council (LCC) refused three successive applications, in 1992, 1994, and 1995, for clay/shale extraction and landfilling on the site (Adams Road, Luddenham).

One of the current owners of Badger Mining Company, Mr L Harpley, lodged a development application with the Minister for Planning on 2 February 2000 for a clay/shale extraction and landfill proposal.

Due to a failure to provide additional requested information, on issues including noise assessment, water management, and landfill management, within a reasonable timeframe, inconsistencies in the proposal and inadequacies in the EIS, the Minister refused the development application on 21 August 2000.

In January 2003 the Department identified 29 items that should be addressed in any EIS prepared for a clay/shale quarry proposal for the site. A draft EIS was submitted to the Department in April 2003. Outstanding issues were identified for the Applicant to address. The Department advised *"Due to the uncertainty surrounding the tonnage, source and nature of the waste, coupled with the delay in commencing landfilling operations, BMC (Badger Mining) should seek further approval from the Minister at a later date to commence landfilling operations."*

The current development application is for a clay/shale extractive operation and does not seek approval to operate the site as a landfill.

3. PROPOSED DEVELOPMENT

Badger Mining Company Pty. Limited proposes to develop and operate a clay/shale quarry at premises situated at Lot 3, 275 Adams Road Luddenham. The property is owned by Messrs L Harpley Snr, L Harpley jnr and G Harpley. They are also the principals of Badger Mining Company Pty Limited.

Badger Mining Company also holds a lease on Lot 1, 2420 Elizabeth Drive Luddenham for a period of 6 years with the Commonwealth of Australia, the owners of the land. The quarry administration and support facilities and access to the quarry are to be established on Lot 1.

3.1 Available Resource

In respect of the available extractive resource, the EIS states;

- The site has been identified as containing 6,800,000 tonnes of clay/shale suitable for the manufacture of bricks;
- The NSW Department of Mineral Resources has conducted tests on the material and identified that more than 50% of this material will produce light-fired brick colours, a product that is in high demand and short supply in NSW;
- The site has been listed in Schedule 1, Division 1 of *State Regional Environmental Policy (SREP) No. 9, Extractive Industry (No.2 - 1995)*, as being a resource of State significance that should be extracted under relevant planning and environmental controls; and
- The site is included in the Planning NSW document *Shaping Western Sydney* as a significant economic resource that should be utilised before sterilisation by unsympathetic development.

The subsequent reduction, by the Applicant, of the proposed area of extraction from 15 ha to 7 ha reduces the available resource to less than 50% of the tonnages stated in the EIS. The current site layout is shown in Figure 3.

3.2 Extraction Rate

At a nominal 300,000 tonnes per annum extraction rate, the life of the proposal is estimated at approximately 10 years.

3.3 Method of Extraction

The implementation of the project will proceed in three phases: establishment, extraction and rehabilitation.

Establishment Phase

The initial or establishment phase of the project will consist of several components that will commence simultaneously:

- Establishing a 4-metre high earth bund along the western and northern boundaries of the proposed excavation. This bund will be landscaped and form a permanent part of the operational site;
- Establishing the loadout area in the north east corner of the excavation;
- Constructing a bridge across Oakey Creek;
- Constructing a sealed road across Lot 1 from the bridge into Lot 3 to Elizabeth Drive;
- Erecting a two metre chain wire security fence around the extraction area;
- Establishing an on-site nursery for the care of tube stock and advanced plants to be used in the initial landscaping and the propagation of seedlings from seeds sourced from the site as part of the ongoing landscaping plan; and
- Conducting bore tests to define the exact location and specific characterisation of the geological strata within the deposit.

Extraction Phase

The extraction of the deposit will proceed in a single stage. The clay/shale will be extracted from three benches worked into the slope of the site, such that the higher ground on the western boundary assists with shielding the dwellings from sound emissions from these activities. This is expected to take 10 to 15 years to complete (see Figure 3).

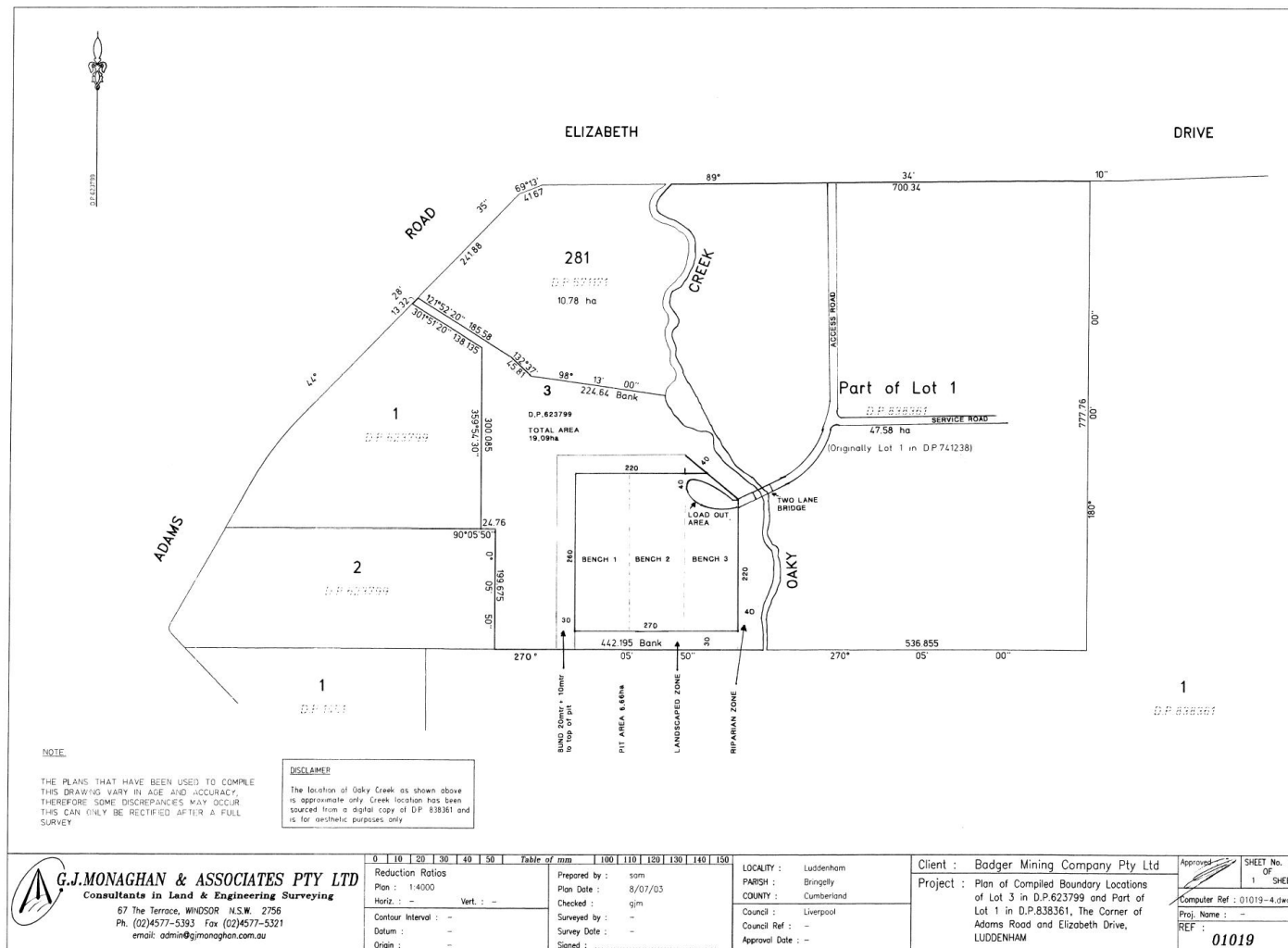


Figure 3: Revised Site Layout

Rehabilitation Phase

The Applicant proposes that material to fill the final void will be sourced from selected and controlled locations such that it satisfies the criteria for Inert Waste Class 2 specified by the NSW EPA. This decision allows the site to be rehabilitated without it becoming a “rubbish dump” with the attendant environmental and management problems. The final rehabilitation layer will be a minimum of 300mm of topsoil into which pasture will be established so that prior, existing land uses can be reinstated.

Due to the time delay to the commencement of rehabilitation activity, and the uncertain source and tonnage of acceptable materials, a separate development application will need to be lodged to seek approval for the rehabilitation activities, closer to the time of such work being possible.

3.4 Infrastructure

Site Facilities

The offices, workshop, amenities and manager’s residence will be located in the existing buildings on Lot 1. Parking of staff cars will be on the existing sealed area adjacent to the buildings on Lot 1.

Routine daily servicing of vehicles will be conducted in the existing shed buildings on Lot 1.

A demountable building will be positioned alongside the new road, some 150 metres south of the northern boundary. This building will be less than 3 metres high and at a lower elevation than the existing buildings on Lot 1. The demountable will be used to house the scales and controls for the weighbridge.

A new above ground fuel tank will be installed inside a sealed and bunded area.

Services

Lot 1 buildings are supplied with town water through a reticulated network. Sewage will be processed on site using an existing septic sewerage system

The current connection of electricity and telephone landlines to the buildings on Lot 1 is sufficient to meet the needs of the activities that are planned

Under the requirements of the *Occupational Health & Safety Act 2000*, the quarry site will need to be fenced to ensure security of the site and prevent unauthorised access. Vehicular access off Elizabeth Drive will be restricted by the installation of pipe boom gates at the boundary

3.5 Waste Management

The operation will generate minimal quantities of wastes. Wastes generated from the workshops will be limited to used fuel filters and air filters from the earth moving equipment. Licensed waste contractors will be used for removal of oil filters and oily wastes as required.

Wherever possible, appropriate materials will be sorted and sent for recycling using existing Council recycling services.

3.6 Water Management

3.6.1 Surface Water

The proposed development will not interfere with Oakey Creek, with the exception of the construction of a road bridge across the stream channel.

The excavation will capture incident rainwater, which will marginally reduce the flow in the Oakey Creek catchment (by up to 2%). It is proposed that captured rainwater will be combined with any intercepted groundwater and irrigated on pastured land adjacent to the excavation.

Rainwater that has the potential to become sediment-laden during the construction of the access road will be directed through sediment control structures before it is allowed to discharge to Oakey Creek. Clean rainwater falling on the remainder of the site will be directed away from the excavation or road and allowed to flow, unimpeded, to Oakey Creek.

3.6.2 Groundwater

Some groundwater has been identified at various depths in boreholes on the site. The EIS states that groundwater resources are likely to be of a very limited volume and highly saline due to the long residence time of waters contained within the clay/shale strata on the site.

The predicted quantity of groundwater to be intercepted is very low (less than 5 m³/day) and is expected to be mainly lost to evaporation.

The EIS proposes to manage groundwater by its containment within the excavation and combined disposal with accumulated rainwater.

3.6.3 Water Usage

Water supplies will only be required for the irrigation of vegetation on the noise attenuation bund and landscaped areas adjacent to the excavation area, and for dust suppression purposes on short lengths of haul roads within the excavation. Water will be sourced from captured incident rainfall within the excavation, with make-up supplies obtained from the reticulated domestic water supplied to the property.

3.7 Rehabilitation

Most rehabilitation works will not be able to occur until excavation of the clay/shale resource is complete. The final rehabilitation of the excavation is not a component of the current development proposal. A separate development application for the bulk of rehabilitation works is required to be submitted at a time when the likely source, composition and transport arrangements are known with a high degree of certainty.

The EIS indicates that it is the Applicant's intention, at an appropriate future time, to seek development consent to allow the importation of selected inert material to fill the void created by the excavation of clay/shale. The material to be utilised will either be Class 2 Inert Waste or Virgin Excavated Natural Material (VENM) as defined under the appropriate EPA guidelines. The emplaced fill would be compacted and a 300mm layer of topsoil placed over the final filled excavation. The soil would be sown with pasture and the land returned to grazing activities.

In respect of the noise attenuation bund, rehabilitation works will commence as soon as it is constructed (within 6 weeks of commencement of the excavation on site). The bund will be constructed by the placement of the initial excavated material, the topsoil having been previously stripped from the site and conserved. Following the construction of the bund the conserved topsoil will be placed on the surface of the bund and then planted with native trees and shrubs.

Although it is the Applicant's ultimate intention to rehabilitate the site by the infilling of the final void, there are no provisions in the current development application to allow that to occur. In the absence of imported material for final rehabilitation, the development will conform to the requirements of the "Rehabilitation" section of the Planning Report for the *'Sydney Environmental Plan No. 9 –Extractive Industry (No. 2 - 1995)'*. The requirements include the establishment of a stable and safe landform and the protection of streams from sedimentation.

3.8 Workforce

A total of eight employees are expected to be located at the quarry site in extraction activities. Up to five employees are expected to work from the administration buildings on Lot 1. There will also be a revegetation contractor operating in the grounds around the excavation site on an 'as-needed' basis.

3.10 Operating Hours

The project will operate between 7 am and 6 pm Monday to Friday and between 7 am and 1 pm on Saturdays for maintenance activities, with the exception of public holidays.

4. STATUTORY CONTEXT

The proposal is State significant, integrated and designated development.

4.1 Environmental Planning & Assessment Act 1979

4.1.1 State Significant Development

The proposal is classified as State significant development, under a declaration made by the Minister on 3 August 1999. Pursuant to section 76A (7) of the Act, development specified in the Schedule of the declaration was determined to be of State environmental planning significance, and consequently declared to be State significant development. As the Schedule includes extractive industry with an extraction rate greater than 200,000 tonnes per annum, the proposal is considered to be State significant and, pursuant to section 76A (9) of the Act, the Minister is the consent authority for the DA.

4.1.2 Integrated Development

The proposal is classified as integrated development, under Section 91 of the Act because it requires additional approvals under the:

- *Rivers and Foreshores Improvement Act 1948;*
- *Water Act 1912;*
- *Roads Act 1993; and*
- *Protection of the Environment Operations Act 1997.*

4.1.3 Designated Development

The proposal is classified as designated development, under Section 77A of the *EP&A Act*, because it meets the criteria for an extractive industry in Schedule 3 of the *EP&A Regulation 2000*.

4.2 Permissibility

The proposal is permissible with consent under the *Liverpool Local Environmental Plan 1997*.

4.3 Environmental Planning Instruments

The following planning instruments are relevant to the proposal:

- *Liverpool Local Environmental Plan 1997;*
- *Sydney Regional Environmental Plan No. 9 – Extractive Industry (No. 2 – 1995);*
- *Sydney Regional Environmental Plan No. 20 – Hawkesbury Nepean River (No. 2 – 1997);*
- *State Environmental Planning Policy No. 11 – Traffic Generating Developments; and*
- *State Environmental Planning Policy No. 44 – Koala Habitat Protection.*

The Department is satisfied that the proposal has considered, and is consistent with, all the relevant provisions of these planning instruments

5. CONSULTATION

The Applicant lodged a DA, and accompanying EIS, for the proposal with the Department on 9 July 2003.

The Department subsequently:

- Notified all residents, in the vicinity of the proposed quarry, who could be affected by the proposal in writing;
- Notified Liverpool City Council (LCC) and Penrith City Council (PCC) and relevant State Government agencies;
- Advertised the exhibition of the DA and EIS in the *Liverpool Leader* and *Penrith Press* on two separate occasions; and
- Exhibited the DA and EIS at 4 locations between 24 July and 25 August 2003.

This satisfies the requirements for public participation in the *EP&A Regulation 2000*.

During the exhibition period, the Department received 46 submissions on the proposal:

- 6 from Government agencies (NSW Agriculture, National Parks and Wildlife Service (now DEC), Department of Mineral Resources, Environment Protection Authority (now DEC), PCC and Roads and Traffic Authority);

- 2 from special interest groups (Hubertus Country Club and Luddenham Progress Association); and
- 37 from members of the public.

Three of the public submissions supported the proposal, while 36 opposed the development on various grounds. These submissions raised concerns about the potential impacts on:

- Road safety;
- Flora and fauna,
- Soil and water including groundwater;
- Noise; and
- Amenity and visual impact.

The frequency with which issues were raised in the 39 private and special interest group submissions is summarised in Table 1 below:

ISSUE	NUMBER OF SUBMISSIONS IN WHICH AN ISSUE WAS RAISED
Roads and traffic	35
Intrusion on rural amenity	32
Air quality	31
Water quality impacts	25
Do not want a landfill	22
Noise	17
Proposal previously rejected	17
Odour of landfill	12
No justifiable demand	11
Impact on property values	7
Impact on tank drinking water	7
Misleading EIS	5
No buffer zone	5
Adverse economic impacts	5
Other impacts	27

Table 1: Frequency of Issues in Public Submissions.

The Department has assessed these concerns in detail in Section 6 of this report.

During the assessment process, the Department consulted with the EPA (now DEC); RTA, LCC and PCC, particularly on road transport, water and noise issues.

6. CONSIDERATION OF KEY ISSUES

The Department has assessed the proposal, EIS, submissions received, and additional information provided by the Applicant, and believes that the following are the key issues.

6.1 TRAFFIC

6.1.1 Traffic Impact Assessment

The traffic impact assessment in the EIS identified that the proposal would:

- Generate 80 product vehicle movements (trucks) per 10 hour day (7 am to 5 pm);
- Generate 12 to 16 private vehicle movements per day;
- Only operate Monday to Friday, with the exception of public holidays; and
- Remove 30 to 40 vehicle movements per day associated with current activities on the site.

Subsequently, the Applicant modified the proposal to extend operation of the quarry to an 11-hour day (until 6 pm), with no change to daily truck movements.

The transport route of the clay/shale product will be to brickworks located at Badgerys Creek, Cecil Park and Horsley Park. The laden product trucks will travel to the east along Elizabeth Drive to gain access to the brickworks. The maximum distance to any of the three brickworks is 17 km. Empty trucks will return to the site by travelling westwards along Elizabeth Drive from the brickworks.

6.1.2 Issues Raised in Submissions

Traffic impacts, in terms of public submissions, are the issue of greatest concern. Of the 39 public submissions, all but four raised some form of traffic impact as an issue of concern. Most of the submissions raised the problems associated with an increase in the usage of roads by heavy vehicles.

The traffic issues raised in the public submissions were the impact that additional truck movements will have on the:

- Condition of the road surface;
- Safety of local children;
- Noise levels experienced by residents close to the proposed site;
- Vibration levels experienced by residences located close to clay/shale haulage routes;
- Property values of the locality;
- Condition of the road surface of Adams Road and Elizabeth Drive;
- Risk of road accidents; and
- Health of residents, especially asthmatics, as a result of elevated dust levels.

RTA Submission

The RTA had no objection in principle to the proposal, provided the following matters were addressed in any consent given:

- Intersection treatment at Elizabeth Drive shown in the EIS is supported;
- Access to Elizabeth Drive will need to be revised after the RTA upgrades it to a divided road;
- Design of the intersection must integrate safe access for neighbouring properties and be to RTA design standards;
- Street lighting, and signposting to be provided;
- All trucks to be covered and suitable truck wheel wash facility installed; and
- Appropriate haulage routes should be specified and Fairfield, Liverpool and Penrith Councils should be consulted on impacts along haulage routes.

Penrith City Council Submission

PCC is an Integrated Approval Body under Section 138 of the *Roads Act 1993* for minor roadworks on the north side of the intersection with Elizabeth Drive with the access road. Council raised no objection to the proposed development on traffic grounds, subject to compliance with the RTA's construction requirements.

Liverpool City Council Submission

LCC made no formal submission on the proposal. Telephone contact with LCC officers established that LCC has no objection to the proposed development on traffic grounds, subject to compliance with the RTA's construction requirements.

6.1.3 Consideration of Key Issues

Intersection of access road and Elizabeth Drive

The Applicant consulted with the RTA during the course of preparing the EIS and has designed the proposed intersection of the access road with Elizabeth Drive to the RTA's standards. The proposed intersection would be constructed to the RTA's standards for a Rural Type AUR Right Turn Treatment, which incorporates;

- An auxiliary left turn deceleration lane;
- Safe access for the property immediately to the east of the intersection;
- Appropriate signage and line marking; and
- Intersection lighting, should the intersection be used outside daylight hours.

The Department has provided a proposed condition of consent to ensure that the intersection is constructed in accordance with the RTA's standards and provides safe access to the property located immediately to the east of the intersection.

Use of Adams Road and other local roads

Several submissions were concerned with the use of Adams Road as an access to the site, potential damage to the surface of the road and road safety concerns.

These concerns relate to previous development applications for the site which proposed to provide access from Adams Road, and consequently, to utilise that road for the transport of clay/shale from the site. The current development application does not propose any access to the site from Adams Road, but rather from Elizabeth Drive. The proposed conditions of consent require all access to the quarry to be from Elizabeth Drive.

The current proposal is to transport clay/shale to several brick manufacturing plants located to the east of the site. All laden trucks leaving the site will travel east along Elizabeth Drive and have no interaction with Adams Road. Consequently, there will be no laden trucks travelling on local roads through the village of Luddenham. The Department received several submissions from residents of Luddenham who expressed this concern.

Other submissions expressed concern that trucks associated with the development would be able to utilise local roads, other than those associated with the transport routes identified in the EIS, to service markets for clay/shale that may develop in the future. The submissions expressed concern that trucks utilising local roads would diminish road safety for other road users and impact on residents through traffic delays, noise and air quality impacts.

The Department has considered these submissions and proposes that the Applicant in consultation with the RTA, PCC, LCC and, if relevant at the time, Fairfield City Council, develop a Road Transport Protocol prior to the commencement of road haulage from the site. The Protocol shall specify the road haulage route(s) to be used, the maximum number of road movements and the haulage hours. The Protocol is to include a Traffic Management Plan that addresses detailed measures to be undertaken to minimise the inconvenience of clay/shale transport on other road users, a complaints procedure and a Code of Conduct to be followed by all truck drivers. The Code of Conduct will include instructions to drivers to adhere to designated transport routes, speed limits, road rules and instructions not to overtake, or travel in convoy with, other trucks.

The Department is satisfied that the Road Transport Protocol provides a mechanism that restricts the Applicant to initially utilising the road transport routes specified in the EIS. Should other markets for clay/shale become available to the Applicant, a modification to the Protocol would be required which could only be achieved after consultation with the RTA, LCC and PCC. The consultation process would necessitate the consideration of all the impacts associated with proposed transport routes. The RTA, PCC and LCC have, between them responsibility for the safety and upkeep of all roads reasonably expected to be utilised by the Applicant. This will ensure that the safety and condition of roads will be comprehensively considered prior to the approval (or rejection) of any new transport route(s).

Increased traffic on Elizabeth Drive

Several submissions raised concerns regarding the increased volume of heavy traffic on Elizabeth Drive that would be generated by the development, and resultant decrease in road safety and inconvenience to other road users by slow moving vehicles that are difficult to overtake.

The Applicant provided data and analysis of the recorded volumes of traffic utilising Elizabeth Drive and the impact that the additional traffic would have to those volumes. These data indicate that traffic generated by the development would increase traffic flow by 0.8 – 1.7% during the period between 7 am and 5 pm. The RTA indicated *“this volume would not have a significant impact on traffic flow along this section of Elizabeth Drive”*. The Department agrees with the RTA’s assessment.

The modified proposal is for transport of clay/shale to occur between the hours of 7 am and 6 pm, Monday to Friday. The additional hour in which to transport clay/shale from the site will reduce the impact on traffic flow, as the truck movements will remain the same in absolute terms, but be spread out over 11 hours rather than 10 hours.

Residential amenity impacts

Truck movements have the potential to affect neighbours of the quarry site by way of noise and dust impacts, and for the resident immediately to the east of the site, by way of interference with property access. The latter impact has been considered in the discussion on the intersection of the access road with Elizabeth Drive.

The noise generated by trucks on the site is largely dependant upon their travelling speed. Both the Applicant and the DEC have recognised this impact and proposed a speed limit be set for trucks travelling on the site. The proposed conditions of consent have adopted an internal speed limit of 20 kph, in line with the DEC’s General Terms of Approval.

Trucks may raise dust as they travel over unsealed roads or by the entrainment into the air of material deposited on sealed surfaces. Additionally, dust may result from spillage from laden trucks or by wind action from uncovered loads. The Applicant has recognised these impacts and proposes that all internal roads used by clay/shale transport trucks be sealed (including the loadout facility) and that they be regularly cleaned by a roadsweeper.

The Department has proposed conditions of consent to require that all vehicles carrying loads that may generate dust are covered and that a truck wheelwash facility be utilised to prevent material being tracked onto public roads. The proposed conditions are in accordance with General Terms of Approval provided by the DEC and supported by the RTA.

The transport of clay/shale to brickworks to the east of the quarry site will contribute to the noise and vehicle emissions experienced by residents living close to the transport route(s).

The Department's view is that noise and emissions along major roads will be little changed by the development, as the relative increase in traffic flow is small (up to 1.7% on Elizabeth Drive). The Road Transport Protocol described in the discussion on the impacts on Adams Road and other local roads will ensure that residential amenity issues are considered for the entire length of the proposed transport route(s), including local roads in the vicinity of each of the brickworks. The restrictions applied to the hours available to transport clay/shale ensure that there will be no impact on residents during evening and night-time hours, nor during weekends or public holidays.

Other issues

It is the Department's view that, due to the relatively small increase in traffic flow, the transportation impacts of the proposal will have minimal impact on property values, vibration levels experienced by residents, safety of all road users (including children), health issues (including those associated with asthmatics) and the condition of the roads used by the trucks associated with the development.

6.1.4 Conclusion

The Department supports the assessment of the RTA that the development will not have a significant impact on the traffic flow along Elizabeth Drive, and consequently will not significantly affect public safety or amenity. The RTA has provided its requirements to ensure the intersection of the access road and Elizabeth Drive is constructed to its standards. The RTA's requirements have been supported by LCC and PCC.

Issues related to the use of local roads, residential amenity along designated haulage route(s) and the management of trucking operations to minimise impacts on other road users and residents living near the transport route(s) will be controlled by the provisions of Road Transport Protocol required to be produced prior to the commencement of road haulage from the site. The Protocol requires the production of a Traffic Management Plan and Code of Conduct for truck drivers, all in consultation with the RTA, LCC and PCC.

Impacts from the noise and dust raised by haulage trucks operating on the site will be controlled by the imposition of a 20 kph speed limit, a requirement to cover all loads, the provision and use of a wheelwash facility and a requirement to keep sealed road surfaces clean.

The Department's assessment is that the proposed conditions of consent and hours of operation will minimise the traffic and transport impacts of the development to acceptable levels. There are predicted to be few impacts on neighbours and the increase in traffic flow on regional roads will be no more than 1.7% of existing traffic volumes. A Rural Type AUR Right Turn Treatment intersection will be constructed at the intersection of the access road and Elizabeth Drive to provide safe entry and exit from the site. Conditions of consent provide for the intersection arrangements to be reviewed well in advance of the planned upgrading of Elizabeth Drive to a four lane divided carriageway.

6.2 NOISE

6.2.1 Noise Impact Assessment

The EIS provided a noise impact assessment that stated the acoustic environment of the site has been categorised following site measurements as having a typical quiet semi-rural acoustic environment modified by its proximity to a significant arterial feeder roadway, Elizabeth Drive, and the regular use of the airspace above the site by small aircraft for routine training purposes.

The basic acoustic environment of the site between the hours of 0700 hrs and 1700 hrs varies between 45 and 55 dB(A) Leq with episodes to 60 dB(A) and beyond. Statistical processing of the data identified the Rated Background Level as 35 dB(A) and the Amenity level as 50 dB(A). The recommended LAeq Noise Level from Table 2.1 Amenity Criteria in the EPA INP is 50 dB(A) acceptable level and 55 dB(A) Recommended Maximum.

6.2.2 Potentially Affected Locations

There are two locations of concern in assessing the potential impact of sound levels produced by the establishment and operation of the project. These are two residential dwellings located west and north of Lot 3 respectively. The western house is situated approximately 80 metres west of the common boundary with Lot 3. The residence is located at a Reduced Level (RL) between 6 and 8 metres below the RL of the common boundary. The northern house is situated approximately 37 metres from the north-west corner of Lot 3.

The EIS stated that the following aspects positively affect the extent to which the sound levels of the proposed operation may impact either of the residences:

- The physical separation of the nearby residences from the quarry site;
- A 4-metre high earth bund on the western and northern boundaries of the quarry;
- The natural fall of the land to the east and west of the western boundary, and
- The operational controls that will be exercised over all aspects of the site's operations.

The EIS states that these two residences are the only buildings that are likely to be affected. The EIS provided predicted noise levels at the two residences based on quoted sound power levels for the earthmoving equipment and noise attenuation calculated to be achieved from the construction of 4 m high earthen bunds around the quarry excavation. The noise attenuation was calculated in the range of 11 to 15 dB(A) which predicted received noise levels at the northern residence of up to 39.8 dB(A)_{Leq} for the operation of the elevating scraper.

6.2.3 Initial Submission from the DEC (formerly EPA)

In a submission dated 17 August 2003, the DEC initially refused to provide General Terms of Approval for the development on the grounds that:

1. The noise assessment did not sufficiently predict noise impacts at adjacent properties;
2. Lack of supporting data for claims that noise levels from the site "*will be inaudible at the residences*";
3. Lack of supporting data to demonstrate the noise attenuation effect from the earthen bunds is achievable;
4. Discrepancies within the report;
5. Incorrect use of the amenity criteria as the limiting noise criteria rather than the use of the intrusive criteria (the more limiting criteria) to establish the Project Specific Noise Levels (PSNLs) for the development;
6. Failure of the noise assessment to consider the cumulative effects of several items of plant and equipment operating at the same time; and
7. Omission of meteorological conditions from the assessment.

The Applicant met with the DEC on several occasions (including 4 September 2003 and 21 November 2003) in an effort to provide the DEC with a noise impact assessment for the development that was accurate and based on the Industrial Noise Policy's (INP's) methodologies and the application of criteria derived in accordance with the INP. The Applicant obtained additional data from a noise data logger located on the site.

Agreement was reached that the measured Rating Background Level (RBL) for the site is 36 dB(A)_{Leq}.

Based on the RBL and the intrusive noise criteria, the PSNL for the development is 41 dB(A)_{Leq}.

The Applicant modified the development by reducing the footprint of the excavation from 15 ha to 7 ha. The excavation will be located in the south-east corner of Lot 3, resulting in increased buffer distances to the nearest residences and the Hubertus Club, located to the west of the excavation. The DEC is now satisfied that the development can meet the PSNL of 41 dB(A)_{Leq}, provided the Applicant employs best practice noise reduction methods and on the basis of the supplied sound power levels.

The PSNL will not be achieved under all conditions during the construction of the noise attenuation bund. The maximum construction period of the bund is 6 weeks. The DEC also notes that the supplied sound power levels for the scraper equipment are at the lower range of its expectations and warns that the Applicant will need to ensure that those sound power levels are accurate in order to achieve the PSNL.

6.2.4 Issues Raised in Submissions

17 submissions from the public raised noise as an issue. Noise impacts are perceived to be from the operation of the quarry and from trucks servicing the development. A strong submission against the proposal, on the basis of noise impacts, was received from the nearest affected neighbour.

6.2.5 Consideration of Key Issues

The consideration of noise impact associated with truck movements is contained within section 6.1 of this report.

The Department accepts that the development can be operated to meet the PSNL of 41 dB(A)_{Leq}, provided the Applicant employs working methods and best practice to limit noise emissions.

There will be a period of up to six weeks, while the noise attenuation bund is constructed, when the PSNL may not be achieved. The Department's view is that this is a reasonable period of time for noise to exceed the PSNL in order to provide the bund that will be a significant component of noise reduction from the site over the ensuing 10, or more, years. Nevertheless, the Department will require that the Applicant employ best-practice noise reduction techniques during the construction of the bund to limit noise impact on local residents.

The Department views the restriction of operating hours to 7 am to 6 pm, Mondays to Fridays, with maintenance operations permitted on Saturdays from 7 am to 1 pm, as being an important component in the minimisation of noise impacts on the local residents. There will be no impact on normal sleep patterns or the evening or weekend activities of local residents.

The Department shares the DEC's concern that the supplied scraper noise levels need to be achieved in practice. The Department proposes that the Applicant be required to prepare and implement a Noise Management Plan that provides;

- Actions to achieve a PSNL of 41 dB(A)_{Leq};
- Actions to be undertaken during the construction of the noise attenuation bund;
- Circumstances that may lead to an increase in the height of the bund;
- Measurement of the acoustic performance of plant and equipment; and
- Development of a program to monitor noise impacts in the surrounding community.

6.2.6 General Terms of Approval

On 20 January 2004, the DEC provided General Terms of Approval, including terms relating to noise management and monitoring, for an Environmental Protection Licence under the *Protection of the Environment Operations Act 1997 (POEO Act)*.

The Department concurs with the provided General Terms of Approval and has incorporated them into the proposed conditions of consent.

6.2.7 Conclusion

The noise impact assessment contained in the EIS did not correctly identify the PSNL for the development, nor correctly calculate noise attenuation effects likely to be achieved by the noise attenuation bund. Once the PSNL had been correctly established and the development fully assessed in accordance with the INP, the Applicant responded by increasing the buffer distance between the quarry and the nearest residences. This was achieved by reducing the footprint of the quarry from 15 ha to 7 ha.

Both the Department and the DEC require the Applicant to achieve best practice performance in the control of noise emissions from the development. The proposed conditions of consent require the Applicant to prepare and implement a Noise Management Plan, including a regular noise-monitoring program in the surrounding community.

The Department is satisfied that the PSNL of 41 dB(A)_{Leq} can be achieved by the implementation of tight control of noise emissions from trucks and equipment, the provision of the noise attenuation bund, the restricted hours of operation and the use of a monitoring program to measure compliance with the noise criteria.

6.3 AIR QUALITY IMPACTS

6.3.1 Air Quality Impact Assessment

Holmes Air Sciences undertook an air quality impact assessment for the proposed quarrying operations. The assessment is based on the use of a computer-based dispersion model to predict ground-level dust concentrations and deposition levels in the vicinity of the project area. To assess the effect that the dust emissions will have on existing air quality, the dispersion model predictions have been compared to relevant air quality goals. Dispersion modelling procedures follow DEC guidelines.

Predictions of dust concentration and deposition levels have been made using the US EPA's short-term industrial source complex dispersion model known as ISCST3.

For the purposes of the air quality assessment it has been assumed (based on best available regional air quality data) that the following background concentrations apply at the nearest residences:

- Annual average Total Suspended Particulates (TSP) of 45 $\mu\text{g}/\text{m}^3$;
- Annual average PM₁₀ of 18 $\mu\text{g}/\text{m}^3$; and
- Annual average dust deposition of 2 $\text{g}/\text{m}^2/\text{month}$.

In addition, the DEC guidelines require an assessment against 24-hour PM₁₀ concentrations. The assessment adopts the approach that the predicted 24-hour average PM₁₀ concentration from the development should be less than 50 $\mu\text{g}/\text{m}^3$ at the nearest residences.

Table 2 summarises the predicted air quality impacts from the operation of the quarry as originally presented in the EIS. The subsequent reduction to the footprint of the proposed quarry will result in a lesser impact than indicated in Table 2.

Results from the dispersion modelling indicated that off-site dust concentrations and dust deposition levels at all nearby residences due to the proposed operations would be below relevant air quality goals for all stages of the development. The assessment presents "worst-case" scenarios with minimum separation distances between the operations and residences.

The reduction in the footprint of the quarry site has resulted in the modified proposal being more closely represented by the "Stage 1" assessment presented in the EIS. Nevertheless, the predicted impacts from both Stages 1 & 2, are well-within the relevant DEC air quality criteria.

	Prediction at most affected residence	Assumed background level	Project plus existing	Relevant air quality goal
Stage 1				
Maximum 24-hour PM ₁₀ ($\mu\text{g}/\text{m}^3$)	13	-	13	50
Annual PM ₁₀ ($\mu\text{g}/\text{m}^3$)	1.3	18	19.3	30
Annual TSP ($\mu\text{g}/\text{m}^3$)	2.1	45	47.1	90
Annual dust deposition ($\text{g}/\text{m}^2/\text{month}$)	0.3	2	2.3	4
Stage 2				
Maximum 24-hour PM ₁₀ ($\mu\text{g}/\text{m}^3$)	44	-	44	50
Annual PM ₁₀ ($\mu\text{g}/\text{m}^3$)	5.4	18	23.4	30
Annual TSP ($\mu\text{g}/\text{m}^3$)	9.5	45	54.5	90
Annual dust deposition ($\text{g}/\text{m}^2/\text{month}$)	1.1	2	3.1	4

Table 2: Summary of Dispersion Model Predictions Due to Project

During the operational phase of the project, the following measures will ensure that particulate matter emissions are subject to a high level of control:

- Watering of all unsealed trafficked areas to ensure that they are damp when in use;
- Reducing the speed of vehicles on all internal roads;
- Using a sealed loadout area for trucks transporting material from the site;

- Providing bunds and a vegetation screen around the excavation to reduce the incidence of strong winds on exposed areas;
- Covering all loads; and
- Assessing meteorological conditions daily to identify conditions that would be conducive to potentially higher dust impacts, such as very dry and windy conditions.

6.3.2 Issues Raised in Submissions

Air quality concerns were raised in 31 submissions from the public. Mostly the concerns were related to the dust impacts on the amenity of the local area, visible dust plumes, impacts of dust on asthmatics and problems with the entrainment of materials deposited in the conduct of a landfill operation.

Further, 7 submissions were concerned with the impact dust fallout from the development on supplies of drinking water collected from rooves of houses.

Also of note were 12 submissions that were concerned with odour impacts, which are usually allied with air quality impacts.

6.3.3. Assessment of Key Issues

The Department and the DEC accept the air quality impact assessment produced by Holmes Air Sciences as being undertaken in accordance with the relevant guidelines. That assessment demonstrates, in terms of air quality, the proposed quarry will not have a significant impact on any residence. Predicted air quality impacts are all well within the relevant air quality goals and criteria, even under “worst-case” scenarios.

The Department has proposed several conditions of consent, some of which include the DEC’s General Terms of Approval, to ensure that the quarry is operated in a manner that minimises dust emissions. These include:

- Ensuring the development is carried out in accordance with the EIS, including the provision of sealed internal roads for product haulage trucks, a sealed loadout area and watering of unsealed areas within the excavation;
- Minimising the removal of vegetation from the site;
- Restricting vehicle speed on site to 20 kph;
- Providing a meteorological station;
- Covering all truck loads;
- Using a vehicle wheel wash;
- Providing vegetated bunds adjacent to the excavation; and
- Developing and implementing an air quality monitoring program.

The level of dust fallout predicted is within the DEC’s guidelines and should not have a significant impact on the quality of drinking water collected from household rooves.

Many of the submissions relating to air quality were, in effect, submissions opposed to the operation of the site as a landfill capable of receiving a wide range of wastes. The proposed development is not for a landfill. A separate development application will need to be lodged, and assessed, for any proposed use of the site for any form of landfill operation.

The submissions that raised concerns over odour and litter seem to relate to previous development applications for the site, and potentially, a future development application should the Applicant propose to use the resultant excavation for those purposes. However, issues of odour and litter are not assessed as being applicable for the current development.

6.3.4 Conclusion

The Department is satisfied that the proposal can be managed in a manner that does not produce significant air quality impacts. Proposed conditions of consent will, upon their implementation, ensure that any residual air quality impacts are minimised.

6.4 WATER IMPACTS

6.4.1 Hydrology

The EIS states that the hydrology of the area will be largely unaffected by the proposed development because the entire surface area of the site is 0.2% of the total catchment of Oakey Creek. As Oakey Creek is at the upper end of the Cosgroves Creek catchment, and is an ephemeral drainage line, there is no regular flow in the creek to be affected. Hydrological impact will therefore be a reduction of less than 0.2% of storm event runoff. Runoff flows from the boundary bunds and riparian zone will be unaffected throughout the life of the proposal.

The total area of the extraction will not exceed 0.2% of the total 402 hectare Oakey Creek catchment. The removal of the land associated with the development from the catchment will have a negligible effect on the volume and quality of water flowing in Oakey Creek following rainfall events.

The Applicant produced flood studies to show that the proposed road bridge across Oakey Creek will have minimal influence on the hydrological behavior of Oakey creek during flood events.

6.4.2 Surface Water Impact Assessment

Surface waters from undisturbed areas of the site will continue to flow to Oakey Creek as uncontaminated stormwater.

All surface water collected within the working area of the excavation site will be retained and used for on-site irrigation of the bund wall and riparian zone vegetation, and dust control spraying, when required.

The quarry will be operated in a manner that does not require discharge of water to Oakey Creek. The quarry excavation will be set back from the creek bank by 40 metres and above the 1 in 100 year flood level. The quarry excavation is unlikely to be flooded and contribute contaminated water (by salt or sediment) to Oakey Creek.

6.4.3 Groundwater Impact Assessment

The EIS states that there is very little groundwater on the site to cause any concern or need for management. The hydro-geological studies conducted on the site have confirmed historical observations of this geological formation that there is limited groundwater in the strata. Consequently there are no aquifers of water resource bearing potential existing beneath the site or within its immediate locality.

The study also identifies that the excavation of the deposit would produce a groundwater sink that has the potential to induce groundwater flow into the site, rather than the potential to affect other water systems.

The permeability of the strata and the borehole tests have shown that seepage from the walls of the excavation can be expected to be significantly less than 0.67 litres per square metre per day.

The rainfall collected in the quarry excavation will mix with any intersected groundwater that does not evaporate. The Applicant intends to use the collected water to irrigate lands on the site, including the vegetated bund and the riparian zone along Oakey Creek.

6.4.4 Erosion and Sediment Control

The Applicant proposes to produce and implement an Erosion and Sediment Control Plan conforming with the publication, '*Managing Urban Stormwater Soils and Construction Manual, 3rd Edition August 1998*', produced by NSW Department of Housing, prior to work commencing on the site. This plan will complement the control measures included in the design of the access road.

The techniques to be employed will include but not be limited to:

- Trapping sediment as close to the source as possible;
- Locating sediment traps and filters below all disturbed areas to intercept and detain sediment laden runoff;
- Reducing runoff velocities by minimising the length of flow paths, constructing channels with gentle gradients and providing rough linings to the steeper channels;
- Applying temporary vegetation or mulch to all disturbed areas, including soil stockpiles if exposed for 14 days or more;

- Stabilising all bunded areas immediately with grasses, hydro mulch or similar and maintain bunds with permanent vegetation;
- Creating and maintain surface water containment capability for all water that falls within the excavation; and
- Limiting the time during which unprotected bunded areas are exposed to wind and rain; and
- Containing all surface runoff generated within the excavation site and disturbed areas.

6.4.5 Issues Raised in Submissions

Water quality issues were raised in 25 submissions received from the public. Many of the submissions were concerned with the effects of leachate from the operation of landfill activities in the quarry excavation. The current development application does not seek approval for landfill operations and consequently these concerns do not relate to the current development application.

Other water-related impacts raised in submissions related to protection of surface waters flowing from the site by way of Oakey Creek, the potential of the quarry excavation to flood (and subsequent problems with disposal of the water from the flooded excavation), changes to the flooding behaviour of Oakey Creek and impacts caused by erosion from the site and sedimentation of the creek.

The Department (water management sections from Penrith, Windsor and Parramatta) provided comment on the water management proposed for the development, and analysis of technical reports related to water issues, contained in the EIS. Meetings were undertaken between the Applicant and the Department to resolve issues associated with the modelling of flood impacts, the assessment of likely groundwater impacts, protection of the riparian zone of Oakey Creek and the requirements of erosion and sediment control plans.

Both the Department and the DEC provided General Terms of Approval for the water related components of the development. These requirements have been incorporated into the conditions of consent.

6.4.6 Assessment of Key Issues

Flooding

The modified clay/shale extraction area is located above the 1 in 100 year flood level and at least 40 metres from the bank of Oakey Creek. The risk of flooding of the excavation is considered by the Department to be low and will be managed as a specific event, should it occur.

The Department is satisfied that the development will have minimal effects on the volume of water entering the Oakey Creek catchment as less than 0.2% of the catchment is affected. The information supplied in respect of predicted flood levels was reviewed. The review confirmed there would be no noticeable effect caused by the construction of an access bridge across Oakey Creek.

Water Quality of Oakey Creek

The revised site layout for the clay/shale extraction does not intrude into the 40 metre riparian zone and so provides protection for the water quality of the creek from erosion and helps ensure the stability of the stream morphology.

The Applicant does not propose to discharge water from the clay/shale excavation to Oakey Creek. Some runoff from the access road will reach the creek, after it has been treated by sediment control structures.

The Applicant proposes to dispose of water from the clay/shale excavation by irrigation of lands on the site.

The Department is concerned at the lack of detail in the EIS on:

- The methodology of the irrigation program;
- Knowledge of the water quality to be irrigated;
- The ability of the soil to accept up to 1800 mm of water each year; and
- Measures to prevent the discharge of irrigation tailwater to Oakey Creek.

Erosion and Sediment Control

It is the Department's view that the Applicant has recognised the importance of erosion and sediment control on the site and has provided the basis of an appropriate Erosion and Sediment Control Plan (section 6.4.4).

6.4.7 Conclusion

The Department has considered the potential impacts on groundwater and surface waters and has included the requirement for a Surface Water Management System and the preparation and implementation of a Site Water Management Plan in the proposed conditions of consent.

The Site Water Management System includes a requirement to design, install, operate and maintain a stormwater management system in accordance with the publication titled *"Managing Urban Stormwater: Soil and Construction, Department of Housing 1998"*. Other components of the Site Water Management System include:

- Installation of bunds around fuel and chemical storages;
- Installation of an oil/ water separator;
- Restrictions on the locations where equipment servicing can be conducted; and
- Diversion of stormwater away from disturbed ground surfaces.

The Site Water Management Plan includes requirements to prepare specific plans to address:

- Surface water monitoring;
- Groundwater monitoring;
- Erosion and sediment control; and
- Irrigation management.

The Department's view is that the proposed conditions of consent provide a rigorous framework to ensure that the environmental impacts associated with water management are quantified and monitored during the life of the development. The conditions are in accordance with the conditions that will be applied to the development when it seeks the appropriate licences under the *Water Act 1912*, the *Rivers and Foreshores Improvement Act 1948* and the *Protection of the Environment Operations Act 1997*.

6.5. AMENITY, VISUAL & ECONOMIC IMPACTS

These issues have been grouped as they are, for this proposal, interrelated issues.

6.5.1 Analysis of Amenity, Visual & Economic Impacts

The EIS provided a visual impact assessment from the three closest neighbours, including the Hubertus Club property. Photo-montages were used to demonstrate the visual impact of the proposed vegetated bund along the northern and western boundaries of the property. The EIS did not provide an analysis of visual impact on more distant viewing points.

The EIS provided data on the number of employees (approximately 12) but only provided brief qualitative analysis of the impact of the proposal on the surrounding community in terms of increased demand for goods and services to supply the quarry and the fact that the quarry would supply a needed raw material for building products. This would help meet the demands of the community as the urban growth of Sydney continues.

The EIS did not specifically address the issue of the impact of the proposal on property values. Information on the socio-economic benefits of the proposal were presented in terms of employment for 12 persons and the income generated in the local area and the importance of a source of clay/shale sand to the regional economy.

The social impact assessment of the EIS states *"no aspect of the proposalwould generate any significant impact on any social aspect of any community in the region"*

6.5.2 Issues Raised in Submissions

32 submissions raised concerns that the rural/semi-rural amenity of the Luddenham area was at risk, should the development proceed. The major concern was that a quarry (and in many submissions the suspicion that the quarry was a landfill operation in disguise) was not in keeping with the character of the area that is dominated by rural activities such as grazing, poultry farms, horse-related activities and some cropping. The proposed quarry was perceived as visually intrusive in the rural landscape and

therefore affecting the rural lifestyle that several of the authors of the submissions had sought, or enjoyed, in the Luddenham area.

The main form of intrusion into the rural amenity would be by way of an out-of-character vista of a quarry operating in the landscape. Some (5) submissions claimed that this would affect property values, and therefore have a direct negative impact upon the property-owners' financial future.

Some (5) submissions claimed that the visual impact analysis presented in the EIS was deficient, inconsistent or misleading. A common issue was that the visual impact on elevated, more distant properties had been ignored in the EIS.

6.5.3 Assessment of Key Issues

Impact on Property Values

The Department does not have knowledge of fluctuations in the property market in the Luddenham area.

The Department does not believe that the proposal will have a significant impact on property values. This view is based on the relatively small increase in truck traffic volumes that the proposal will generate along arterial and local roads, and the buffer to private landowners provided by the land bank acquired for the proposed/potential Badgerys Creek Airport.

The clay/shale resource has been identified in SREP No. 9 as being a resource that should be protected to from unsympathetic development to enable extractive resources to be supplied to the Sydney building industry into the future. Operation of a quarry, at the proposed site will be entirely consistent with SREP No. 9 and the Liverpool LEP. Quarrying, from a land use planning perspective, is an appropriate land use for the site.

The actual operation of the quarry may well have an impact on the perceived value of properties in close proximity to the development. However, the proposal is likely to satisfy all relevant planning criteria. Any impact the quarry may have on property values is likely to be minor, compared to the impact of properties located in proximity to the proposed Badgerys Creek Airport.

Visual Impacts

The Department's assessment is that the noise attenuation bund to be constructed on the northern and western edges of the clay/shale excavation will shield the quarry operation from most viewing points. As the excavation deepens, and equipment is positioned below natural ground level, direct visual impacts will reduce. The Applicant will be required to construct the noise attenuation bund within the first 6 weeks of operation and then vegetate the bund. The vegetated bund is the key component of visual impact mitigation.

While the quarry will be visible from more distant viewing points and the Badgerys Creek Airport land to the south and east, the visual impacts are assessed as being acceptable due to the distances involved.

Economic Impacts

While not quantified in the EIS, the development will have positive economic impacts for the local and regional economies. The development will employ approximately 12 people. The NSW Minerals Council quotes a flow-on employment multiplier of 3 for mining operations, which are very similar in nature to extractive industries. Using this multiplier it can be expected that an additional 36 jobs will be created by this development, bringing the total employment generated to 48.

The development site is well-located, in that it is within 17 kilometres of 3 brickworks, ensuring that transport distances for the product of the quarry are not excessive. The site has the potential to be an economical source of raw material for brickworks that, in turn, will assist in the continued supply of building products to the wider community at economical prices.

6.5.4 Conclusion

The Department's view is that the quarry, by the construction of a vegetated bund, can be operated in a manner that has minimal visual intrusion on the local community.

It is recognised that the proposed development may impact land values in the immediate vicinity of the quarry. However, use of the site for a quarry is consistent with relevant planning instruments.

On balance, the Department's view is that the quarry will have a positive economic impact on the local and regional economies by the provision of approximately 48 jobs, the supply of goods and services to the quarry and the provision of raw materials to the building industry in an economical manner.

6.6 OTHER ISSUES

Other issues raised in the EIS, by government agencies or by way of public submission are considered to be minor issues, components of key issues or of minor environmental impact.

The request for a buffer zone has been achieved, to a degree, by the Applicant's decision to reduce the footprint of the extraction area from 15 ha to 7 ha.

Issues raised relating to odour, litter, dust and many issues relating to water quality, rural amenity and property values were based on opposition to a landfill operation accepting a wide range of wastes. Submissions concerning the landfilling of asbestos are not applicable to the current development application.

The issue of whether there is sufficient demand for clay/shale materials to cause the quarry to be brought into production is viewed as a commercial decision to be made by the Applicant.

The Applicant has satisfied the Department that the lease of Lot 1 from the Commonwealth is such that access to Elizabeth Drive would be expected to exist for the life of the quarry.

The site has very little existing native vegetation. The proposed development would remove less than fifty trees. The DEC (then National Parks and Wildlife Service) indicated that, due to the highly modified environment of the site, it would not provide a formal submission on the development. The Applicant is proposing to revegetate a 40 metre wide riparian zone along Oakey Creek, establish a nursery for native plants and to vegetate the noise attenuation bund.

The Applicant provided sufficient information in the EIS to indicate the proposed development would not impact upon the operation of Badgerys Creek Airport, should it be constructed.

7. SECTION 79C CONSIDERATIONS

Section 79C of the *EP&A Act* sets out the matters that a consent authority must take into consideration when it determines a DA.

The Department has assessed the proposal against these matters, and is satisfied that:

- The proposal is generally consistent with the provisions of the relevant planning instruments;
- The potential impacts of the proposal can either be mitigated or managed; and
- The proposal is generally in the public interest.

8. RECOMMENDED CONDITIONS OF CONSENT

The Department has prepared recommended Conditions of Consent for the proposal.

These conditions are required to:

- Prevent, minimise and/or offset adverse environmental impacts;
- Require regular monitoring and reporting; and
- Provide for the ongoing environmental management of the development.

The Applicant does not object to these recommended conditions.

9. CONCLUSION

The Department has assessed the EIS, and various submissions on the proposal, and recommends that the Minister approve the DA subject to conditions.

10. RECOMMENDATION

It is RECOMMENDED that the Minister:

- (1) Consider the findings and recommendations of this report;
- (2) Approve the DA under Section 80 of the Act; and
- (3) Sign the attached Instrument of Consent.

David Kitto
Manager
Mining and Extractive Industries

Sam Haddad
Deputy Director General

Report prepared by Colin Phillips.