SYDNEY CONSTRUCTION MATERIALS

Trading name for Newnes Kaolin Pty Ltd
ABN: 71 065 564 794

SUPPLEMENTARY INFORMATION

- ***Enhanced Quarry Plan***
- ***Revised Noise Impact Assessment***
- ***Clarification of Flora and Fauna Study***
- ***Surface Water Management Plan***
- ***Response to NPWS Comments on the Archaeological Assessment***
- ***Conservation, Restoration, and Enhancement Project***
- ***Supplementary Visual Impacts Assessment***
- ***Hydrogeological Impact Report***
- ***Comprehensive Soil and Water Management Plan***
- ***Additional Supplementary Information***

April 2005

Executive Summary

Sydney Construction Materials (SCM) is seeking approval for the development of a construction sand, specialty sand, and Kaolin extraction operation at Newnes Junction, near Lithgow.

In May 2003, after over 10 years of extensive scientific and market research and development, SCM submitted a Development Application (DA) and accompanying Environmental Impact Statement (EIS) to the Department of Infrastructure, Planning, and Natural Resources (DIPNR) for assessment. Following the public display period, SCM received 10 government agency submissions and 28 public submissions on the EIS, addressing a range of issues, and requesting additional information.

One particular area in which additional information was sought was that of hydrogeology. DIPNR requested that further studies be conducted, and in the period during which those investigations were being arranged, approved, and conducted, SCM took the opportunity to make some amendments and enhancements to its original proposal, including:

- development of an Enhanced Quarry Plan,
- revision of the Noise Impact Assessment following quarry plan alterations,
- clarification of Flora and Fauna Study,
- upgrade and enhancement of the Surface Water Management Plan,
- response to NPWS comments on the Archaeological Assessment,
- development of the Newnes Junction Conservation, Restoration, and Enhancement Project, developed under the emerging NSW environmental offsets policy,
- augmentation of the Visual Impacts Assessment,
- preparation of a Hydrogeological Impact Report (as requested by DIPNR), and
- production of a Comprehensive Soil and Water Management Plan.

This paper provides a summary of, and forms a consolidated volume of the above reports.

List of Reports in Supplementary Submission

Following is a list of documents submitted to DIPNR following government agency and public submissions to the Sydney Construction Materials EIS received during the public display period.

A. ***Quarry Plan*** (MineConsult Pty Ltd, May 2004) – **[Document A]**

B. ***Noise Impact Assessment*** (Atkins Acoustics and Associates Pty Ltd, May 2004) – **[Document B]**

C. ***Flora and Fauna Issues*** (Gunninah Consultants, May 2004) – includes revised Section 5A Assessments of Significance, information additional to that in the EIS – **[Document C]** – includes:

   C-a. ***Supplementary Vegetation and Flora Survey*** (HWR Pty Ltd – Andrew Carty, Geoff Winning, and John-Paul King) – **[Appendix A, Document C]**

   C-b. ***Supplementary Survey for the Blue Mountains Water Skink*** (Biosphere Environmental Consultants Pty Ltd – Dr Arthur White) – **[Appendix B, Document C]**

D. ***Surface Water Management Plan*** (Hughes Trueman Pty Ltd, May 2004) – **[Document D]**

E. ***Response to NPWS Comments on the Archaeological Assessment*** (Mills Archaeological and Heritage Services Pty Ltd, August 2003) – **[Document E]**

F. ***Conservation, Restoration, and Enhancement Project***, compiled under the State Government's developing Green Offsets policy (Sydney Construction Materials, November 2004) – **[Document F]**

G. ***Supplementary Visual Impacts Assessment*** (Sydney Construction Materials, December 2004) – **[Document G]**

H. ***Hydrogeological Impact report*** (Kalf and Associates Pty Ltd, December 2004) – **[Document H]**

I. ***Soil and Water Management Plan*** (GSS Environmental, October 2004) – **[Document I]**

J. ***Additional Supplementary Information*** (Sydney Construction Materials, March 2004) – **[Document J]**

Documents A-E were submitted to DIPNR on 26th May 2004. Documents F-I were submitted to DIPNR on 11th January 2005. Document J was submitted to DIPNR on 14th April 2005.

Overview

This section provides an overview of the documents contained in this Supplementary Information Submission.

1. Revised Quarry Plan and Quarrying Method

Following advice by DIPNR for this project to meet the noise assessment criteria at all residential receptors at all stages of the operation, Sydney Construction Materials (SCM) has developed an innovative extraction process that is now included as part of the development proposal (**Document A**).

The method involves the use of a surface miner as the primary extraction unit and scrapers to deliver the material to the stockpiling area, rather than dozers, front-end loaders and trucks. This approach will reduce both noise and dust emissions, and will reduce the potential for erosion impacts. A description of the method is contained in the report by MineConsult and photographs of the Surface Miner are attached (Figure 9).

Technical information on the operation of the surface miner was provided by Wirtgen Australia Pty Ltd. Extraction planning and scheduling was reviewed by Don Reed and Associates (DRA).

As shown on the mine plan (Figures 2 to 7), the sequence of the benches remains largely unchanged but the starting point will be at the western end and will move progressively to the east and south. Additionally, the size of each bench will be larger given that it will be worked at the same level throughout. As the excavation expands, final slope batters and berms will be formed and progressively rehabilitated in the same way as previously proposed.

SCM have also included a minor alteration to the mine footprint to protect an area of swampy vegetation in a watercourse in the south-eastern part of the site. This was a result of the additional flora surveys (**Document C**), which addressed *inter alia* the presence or otherwise of the Newnes Plateau Shrub Swamp (NPSS). This community was not recorded on the site but the swampy vegetation in the south-east has some affinities with NPSS, and will therefore be excluded from the mine plan with an additional buffer.

The overall footprint of the extraction area will consequently be slightly smaller than shown in the EIS. The new final footprint is provided in Figure 1.

The following table summarises the primary differences between the quarry plan proposed in the 2003 EIS and that presented in the MineConsult report.

Table 1: Comparison of Current and 2003 EIS Quarry Plan

Item	2003 EIS Quarry Plan	2004 Quarry Plan
Area of quarry	25.4 ha	25 ha
Rock reserves	23.7 Mt	20.6 Mt
Quarry life	21 years	20 years
Pit base	970 mRL	990 mRL
Quarrying sequence	North to south direction in stacked benches	Top to bottom with open, wide benches
Rock fragmentation method	Rip and doze	Surface Miner
Loading	Front-end loader	Self loading scrapers
Pit haulage	Rear dump trucks	Self loading scrapers
Crushing	Jaw Crusher	None required
Surface water management	1 in 50 year design capacity	1 in 100 year design capacity
Marginal swamp vegetation	Some disturbance	No disturbance
Noise mitigation	Rock mound / mound wall	Acoustic barrier

2. Revised Noise Impact Assessment

Atkins Acoustics was engaged by Sydney Construction Materials to conduct noise modelling and prepare a noise impact assessment for the Newnes Junction Project. Atkins Acoustics Report No. 33.5058.R1.Rev03:CF57, dated March 2003, identified noise exceedances during extraction activities under the original mine plan.

A revised study (**Document B**) was commissioned following a redesign of the mine plan, and a modification of the proposed mining method in order to meet project specific noise levels at the referenced residential premises.

The main aims of the study were to:

- review and comment on the existing ambient background noise levels prevailing in the vicinity of the site;
- establish noise assessment goals in accordance with the Department of Environment and Conservation (DEC) Industrial Noise Policy (INP);
- establish noise assessment goals in accordance with the Department of Environment and Conservation (DEC) Environmental Noise Control Manual (ENCM);
- identify and quantify the main noise sources associated with the proposal;

- predict and evaluate the likely range of noise emissions during site establishment phases and extraction;
- assess potential noise impacts; and
- recommend ameliorative noise control measures.

Noise modelling of activities associated with construction has shown that the recommended assessment goals for site preparation, infrastructure development and pollution control can generally be achieved at all reference residential locations. Noise modelling for acoustic barrier construction has confirmed that exceedances of up to 13dB(A) at some reference locations (R1-R3) may occur for an expected duration of two (2) weeks from initial clearing by dozer.

During the initial stages of the mine development, an acoustic/visual barrier will be constructed along the western, south-western, and southern limits of the pit. The barrier will assist in reducing noise emission from infrastructure development, site preparation, pollution control and mining operations.

The findings of the noise modelling for the proposal have shown that with appropriate selection of equipment, effective noise controls, and management procedures, noise during normal mining operations and train loading can be controlled to satisfy the project specific assessment goals under calm and west wind meteorological conditions for all stages at all reference residential assessment locations.

With respect to the Blue Mountains National Park, the assessment has shown under mining operations, the recommended noise goal of 50dB(A) can be satisfied within one hundred and fifty (150) metres of the park boundary.

The assessment also found the predicted noise levels associated with rail movements on the main western rail line satisfy the recommended L_{Amax} 85dB(A) and $L_{Aeq\ 24hour}$ 60dB(A) assessment goals.

Irrespective of being able to meet INP requirements, the Company will honour its commitment to enter into sale and compensation agreements with residents of Newnes Junction.

3. Clarification of Flora and Fauna Study

Sydney Construction Materials engaged three additional consultants to undertake further flora and fauna surveys on the site (**Document C**). The results of these assessments confirm the findings of the EIS.

No threatened flora species were detected on the site despite intense targeted searches. Additionally, areas considered by others to be potential Newnes Plateau Shrub Swamp do not satisfy the criteria for that community as they do not contain the necessary structure, floristics, or key swamp species. These areas were described in the EIS and the same conclusions drawn.

Irrespective of this finding, we have proposed to exclude from the mine plan an area of swampy vegetation (with some affinities to Newnes Plateau Shrub Swamp) in the south-east of the site. In addition, the plan includes a buffer and has adopted the additional mitigation measures proposed by Gunninah Consultants, namely, the diversion of clean water from above the mine into the wet area, and additional ongoing vegetation monitoring and management.

4. Enhanced Surface Water Management

As a result of the change in the mining method, the extraction area under the new plan will now expand more quickly. To accommodate this, SCM has modified the timing of construction of the water management controls (**Document D**). These water management controls have also been increased in size to accommodate the 100 year ARI 72 hour storm. However, these structures will still discharge back into the mine void as previously proposed in the EIS.

The new mining method will also allow for the construction of a series of "in-pit" absorption banks to reduce the potential for erosion of the pit floor. The banks will also reduce the time of concentration of water flows, which in turn increases the ability to contain the coarser sand fraction before the water enters the main sediment control structures. This is an added benefit of the proposed mining method, and will increase the efficiency of the water treatment plant.

The original water pollution control system as described in the EIS remains substantially unchanged. It is still proposed to contain the "in-pit" water on site in a series of water retention ponds, and then pass the water through an on-site treatment plant to produce water of ANZECC Code quality, suitable for discharge. In addition it is now proposed that this water be utilised in an on-site nursery, to be developed in conjunction with local residents and the Lithgow Community Nursery, as well as for re-establishment of reservoir water supply to the residents of Newnes Junction.

5. Archaeological Assessment

Submissions to the EIS suggested that the Aboriginal Archaeological Assessment was insufficient. Sydney Construction Materials requested clarification from Mills Archaeological and Heritage Services (**Document E**). The clarification states:

> "Two experienced archaeologists and an experienced field officer from the Bathurst LALC conducted the survey of the Kaolin Mine. It is the professional opinion of the consultants and the LALC representative, that there are no "*heritage values*" located "*on the development area*". This assessment is based on the survey of 38 ha of the Kaolin development area of which, taking an average 30% visibility across the site into account, an estimated 30.8% or 11.6 ha were effectively surveyed."

The clarification paper provides details of how this determination was made.

6. Conservation, Restoration, and Enhancement Project

Consistent with emerging NSW environmental offsets policy, Sydney Construction Materials has prepared a report (**Document F**) to provide the basis for ensuring that the net environmental result of the development is positive.

The project involves the adoption of nine offset objectives, designed with the NSW Government's developing offsets policy in mind. This will provide a framework for the execution of the projects described in this paper, and will enable relevant government authorities to gauge the success of this strategy.

Sydney Construction Materials intends to work with these government authorities to ensure the final result of this operation is a net gain for the community and the environment.

Sydney Construction Materials intends to mitigate the impact of the Newnes Junction development through the provision of both on-site and off-site offsets. On-site offsets include innovative rehabilitation and final landform design techniques that will be employed to create an area that is aesthetically appealing and consistent with the surrounding landscape. Off-site, three separate offset projects will be undertaken:

1. The first project involves the rehabilitation of a nearby area of Newnes Plateau Shrub Swamp, an important plant community in the region, and a potential habitat for endangered fauna species.
2. The second project involves the rehabilitation and on-going management of a scenic and historically significant area of vacant Crown land – the Dargan's Creek Reserve.
3. The third project involves the establishment of a native plant nursery to provide plant stock for the extractive operation's rehabilitation, and to supply the local community with a variety of native flora.

Sydney Construction Materials will provide upfront funding for these offsets, and will continue to fund them for the duration of the development. It is proposed that the Hawkesbury-Nepean Catchment Management Authority (HNCMA) become the Scheme Manager, holding and disbursing the funds, and using its standard project reporting process to report to the Company, DIPNR, NSW EPA, and other relevant stakeholders.

The implementation of this strategy will provide a benchmark for environmentally friendly extractive operations that are capable of delivering significant environmental, economic, and social gains to the wider community.

7. Supplementary Visual Impacts Assessment

Section 5.5 of the Sydney Construction Materials EIS (2004) dealt with the visual implications of the proposed development. Sydney Construction Materials compiled a paper (**Document G**) to supplement that section of the EIS.

Measures taken to mitigate the potential visual impact in relation to this development include:

- the use of environmentally consistent colour schemes for all visible infrastructure (site office, water treatment facility, conveyor, and train loading system),
- the use of progressive clearing, minimising the total area of land cleared at any given time,
- the use of progressive rehabilitation, further minimising the total area of land cleared ant any given time,
- the use of terraced landscaping, which will ensure that there will be no more than 3 vertical metres of exposed rock wall at any given time, and

- a final landform design inspired by a nearby natural feature, known as "Gooches Crater".

These design features will allow the development to be rapidly integrated into the surrounding landscape both during and after operations.

Sydney Construction Materials engaged MineConsult to prepare visual transects of the proposed development from the areas identified in Section 5.5 of the EIS. These transects provide an understanding of how the development will look at the end of operations from nearby selected vantage points. They demonstrate that the visual impact from those locations will be minimal.

A review of formed bushwalking tracks in the area was also conducted. It revealed that there are no formed bushwalking tracks with a clear view of the development within 5km, indicating that the chance of a recreational bushwalker being visually impacted by the development is minimal.

Due to the mining and rehabilitation methods proposed to be employed by Sydney Construction Materials, the visual impact from the Newnes Junction development will be minimal at all times.

8. Hydrogeological Impact report

The main conclusions drawn from the Hydrogeological Impact report (**Document H**) are:

1. The drilling and testing of three sets of observation bore piezometers around the periphery of the proposed mine pit has indicated low permeability sandstone, validating a previous assessment. Bulk permeability is likely to be in the range of 0.02 – 0.05 m/day, with 0.02 m/day the most likely.
2. Numerical model simulation of the proposed mining over a 20-year period indicates that two years or so after mining stops, the groundwater system would reach equilibrium. The final land form at that time will only influence the water table locally, but will still allow the majority of deeper groundwater flow to reach the river drainage system.
3. Mining at the site will have no influence on the groundwater system at the Clarence Village as this groundwater is well beyond the drawdown influence of the proposed development.
4. Inflow to the pit is unlikely to exceed 0.8 ML/day, with much less inflow likely during operation.
5. Some years after mining ceases the pit will behave as a flow-through system and become an elevated wetland zone of good quality water.
6. The Rocla quarry, which was established in the 1970s, indicates that watertable drawdown around the pit has not influenced vegetation species surrounding the pit as these plants rely mainly on soil moisture conditions for survival. The same conditions would apply to the proposed development and therefore no influence on vegetation surrounding the development would be expected.
7. The development's construction will not measurably influence surface runoff or baseflow in the Wollangambe River system because of the

relatively small area of the total catchment affected. Seepage and surface flow from the area will in time be re-established to the catchment.

8. Once operations commence, water level measurements should be conducted initially on a monthly basis in each hole over time to establish seasonal trends, and then measured approximately every three months. This consideration is suggested to allow the drawdown estimates provided in the report to be verified.

9. Soil and Water Management Plan

Sydney Construction Materials commissioned GSS Environmental to develop a comprehensive Soil and Water Management Plan (**Document I**) to address in detail all aspects of:

- soil disturbance,
- erosion prevention,
- soil storage and movement,
- retention of any mobilised sediments, and
- soil-related aspects of water management on and off the site.

The plan is intrinsically related to the *Surface Water Management Plan* for the development, prepared by Hughes Trueman Pty Ltd (**Document D**).

In addition, the report sets out to address the specific requirements identified by the various government agencies, and as outlined in the Director General's Requirements provided by DIPNR, including specific requirements by (the former) NPWS, now part of DEC.

This SWMP has been formulated by GSS Environmental in accordance with the NSW Department of Housing's "*Managing Urban Stormwater: Soils and Construction Manual*" (2004), or the "Blue Book" as it is known in government circles.

10. Additional Supplementary Information

Following a meeting with DIPNR on 23rd February 2005, Sydney Construction Materials prepared a document containing responses to all outstanding issues and requests for information. It includes responses on:

1. Noise Impact Assessment
2. Visual Impact of Acoustic Barrier
3. Flora and Fauna Assessment
4. Impacts of Vegetation Clearing
5. Surface Water Impacts
6. Final Void
7. Groundwater Assessment
8. Iron Factor
9. Justification of Kaolin Extraction

10. Interactions with Zig-Zag Railway
11. Flora and Fauna Assessment
12. Aboriginal Heritage Assessment
13. Potential Air Quality Impacts
14. Potential Noise Impacts
15. Groundwater Assessment