

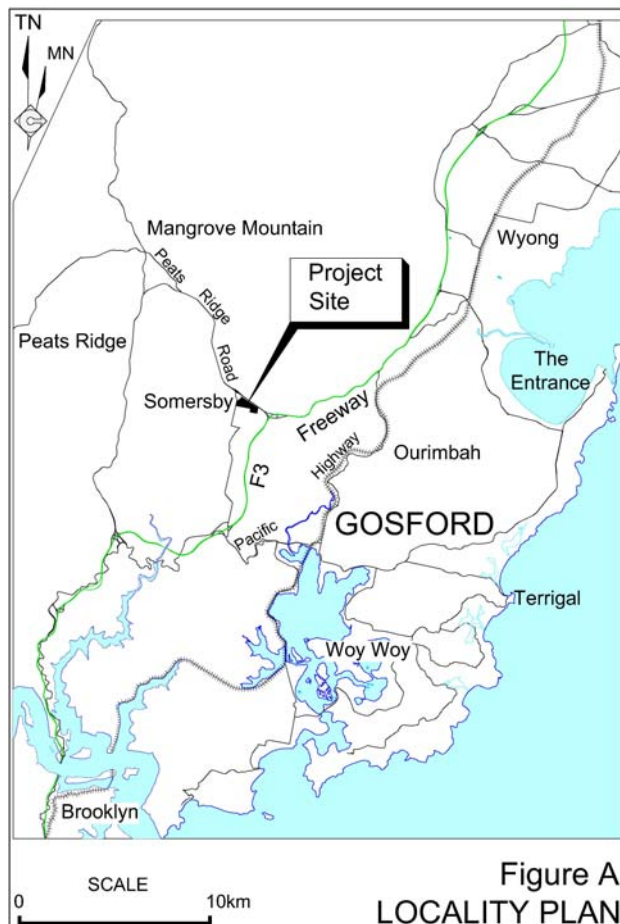
Summary

INTRODUCTION

This *Environmental Assessment* has been prepared by R.W. Corkery & Co. Pty. Limited to accompany an application for project approval by the Somersby Fields Partnership (“the Proponent”) to develop and operate the Somersby Fields Project (“the project”), a sand removal and processing project at Somersby.

The area which is the subject of the project (the “Project Site”) is located on the southern side of Peats Ridge Road, approximately 0.7km west of the Somersby Interchange on the F3 Freeway, and 8km northwest of Gosford on the Central Coast of NSW (see **Figure A**). The Project Site covers an area of approximately 42.3ha, with 39.1ha within Lot 41, DP 1046841 and 3.2ha within Lot 1, DP 302768. The Proponent owns both lots.

Project approval is sought for those activities associated with the removal and on-site processing of the sand, transportation of the sand products to markets in Sydney and the Central Coast via Peats Ridge Road and the F3 Freeway, and the rehabilitation of the Project Site.



As the project proposes to remove more than 200 000 tonnes of sand per year, it is considered a “Major Project” under Schedule 1 of State Environmental Planning Policy (Major Projects) 2005. Therefore, under Part 3A, Section 75 of the *Environmental Planning and Assessment Act 1979*, an *Environmental Assessment* is required and the Minister for Planning is the consent authority.

The *Environmental Assessment* will support the various applications for the approvals and licences needed to develop and operate the Somersby Fields Project.

This summary introduces the Proponent, provides relevant background to the development of the project in its current form, presents an overview of the project design, outlines the consultation undertaken and identification of key issues, and summarises the predicted impacts on the biophysical and social environment.



THE PROPONENT

The Somersby Fields Partnership, a partnership comprising Messrs Michael Hoskins, Geoffrey Kells and John Lockett, who are the owners of the Project Site. Through the experience and personal values of its directors, the Somersby Fields Partnership is committed to developing and operating the project in a manner that would achieve the outcomes predicted in the *Environmental Assessment*. It is their intention that the Somersby Fields Project becomes a best practice venture with benefits for both the local community and the construction industry. The partners have a combined total of some 50 years experience in the construction and building materials industry, with additional experience in land use improvements.

BACKGROUND

The Project Site has been recognised for many years as a potential source of construction materials. During the early 1990s, a range of geological / resource investigations were undertaken and environmental studies commenced for the preparation of an EIS. The proponent at that time chose not to proceed with the project and divested the site in 1999.

In late 1999, the Proponent commenced a further program of resource evaluation to confirm the high quality of the sand beneath the property and commenced preparation of the design of a sand project. During the consultation process regarding the initial project design, undertaken in 2000 and 2001, a range of issues identified by the local community prompted the Proponent to commence a program of specialist environmental investigations to identify the

probable level of impact and to assist in the re-design of the project to overcome the issues identified.

All proposed activities on the Project Site are permissible within the provisions of the Gosford / Wyong Local Environmental Plan 2001 – Central Coast Plateau Areas (Gosford / Wyong LEP 2001-CCPA).

The Gosford / Wyong LEP 2001 – CCPA was drafted and gazetted effectively to remove a conflict between areas identified as prime agricultural land within the then Sydney Regional Environmental Plan No 8 (Agriculture) (SREP 8) and areas with extractive resources of regional significance (Sydney Regional Environment Plan No. 9 (2) (Extractive Industry). SREP 8 was subsequently amended with the Project Site identified as permissible for extractive industry.

Following amendment of SREP 8, consultation with the local community and government agencies re-commenced in 2005 regarding the re-designed project. Further refinements to this project design were made throughout 2005 reflecting issues raised by the local community and government agencies and the results of environmental investigations on the Project Site. The project description in its current form reflects all the issues raised by the community, government agencies and specialist consultants.

PROJECT DESCRIPTION

The Proponent has placed emphasis upon designing a project that would, as far as possible, avoid or minimise adverse environmental impacts upon the surrounding environment and local community.



The main elements of the Somersby Fields Project include the following.

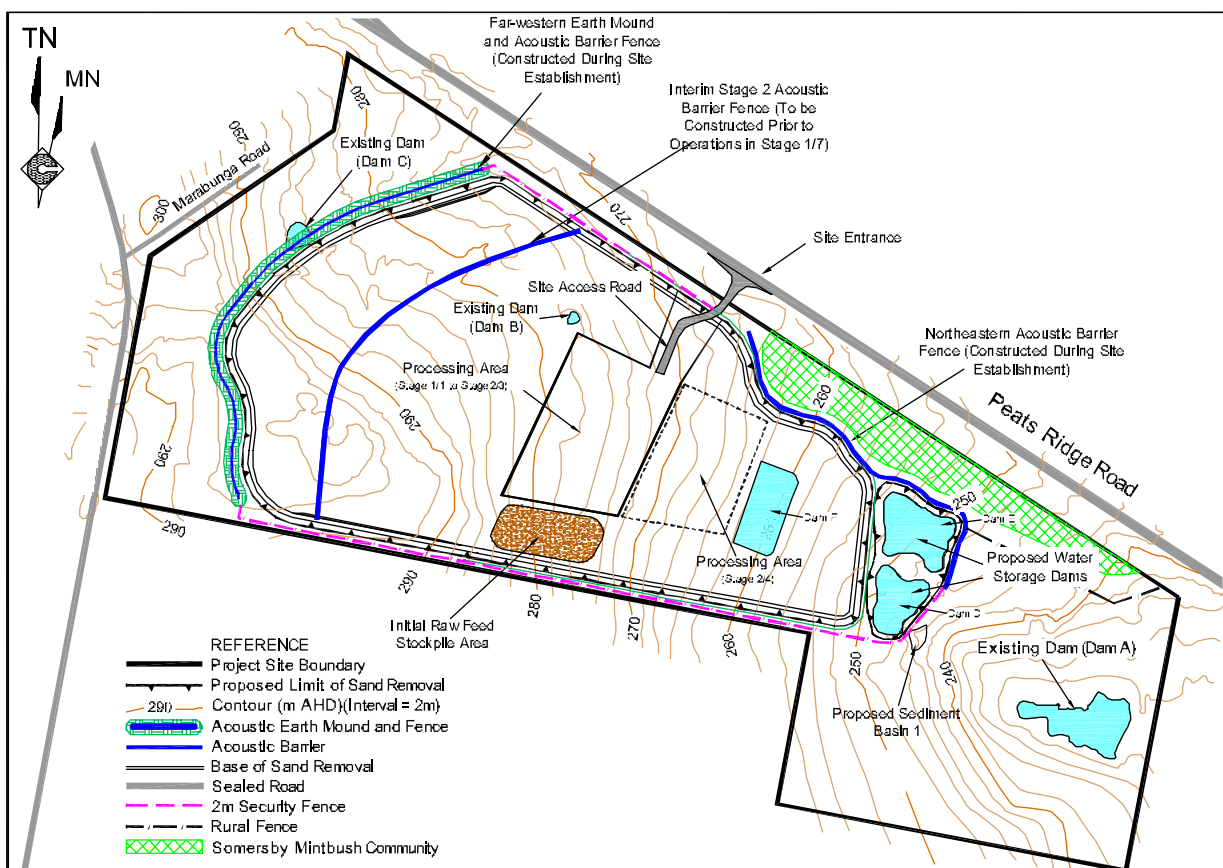
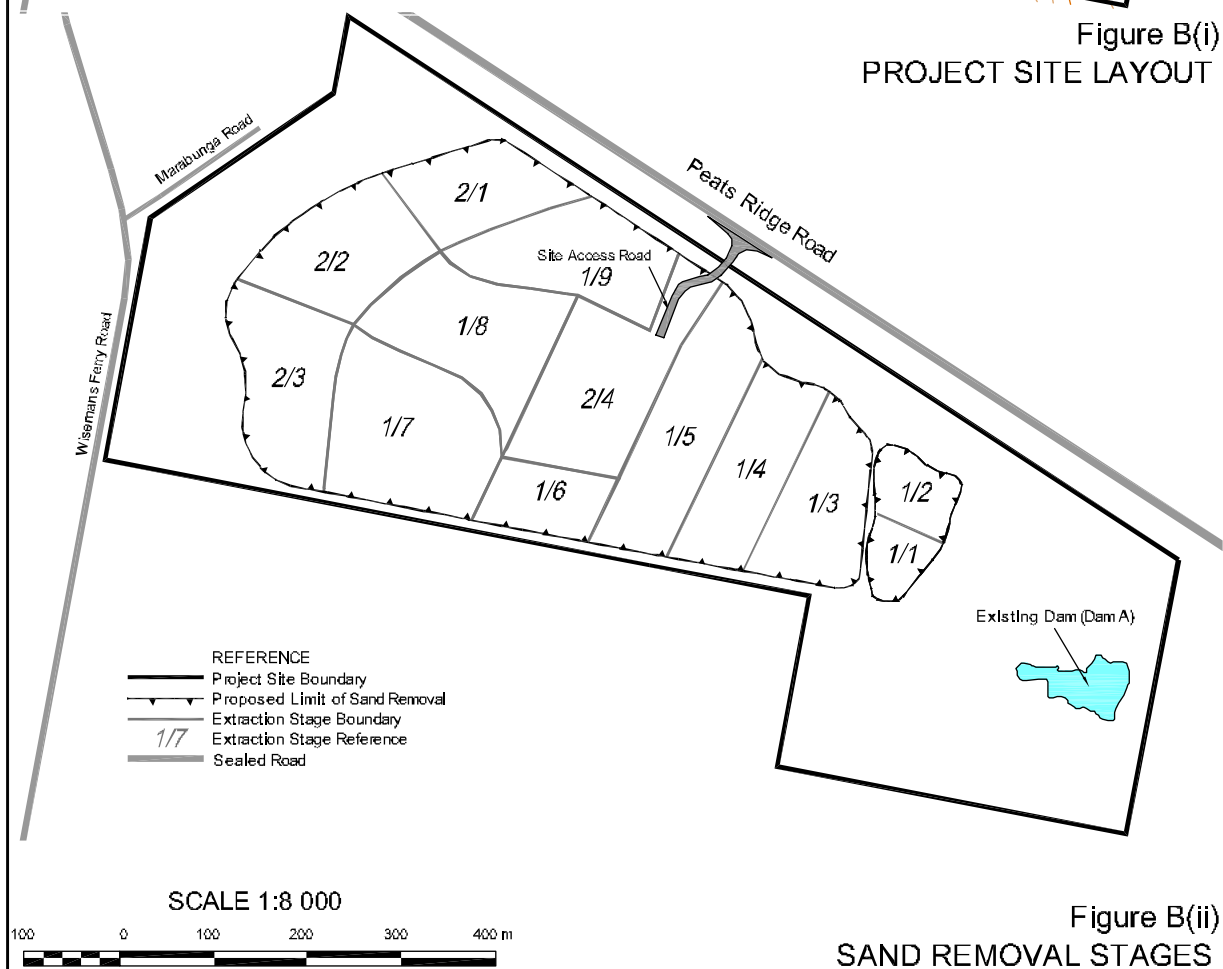
- A conventional sand removal operation is proposed whereby the sand would be excavated, transported to on-site processing plants, processed, stockpiled and despatched to market by conventional highway trucks. No blasting would be required. **Figure B(i)** displays the general site layout for the project.
- Sand removal is proposed to commence on the eastern side of the Project Site. Two bench levels would be developed in order to extract both the orange and grey/white sand. A bulldozer would be required for topsoil / subsoil removal prior to sand removal. Sand removal would be conducted using an excavator near the surface and a bulldozer at depth. The depth of sand removal, based on drilling data, would vary from about 10m near the eastern end of the Project Site, increasing to about 20m near the western end.
- A two-stage approach to the sand removal operations is proposed to enable the environmental performance of the first stage to be evaluated prior to the commencement of operations in the second stage. **Figure B(ii)** displays the areas of sand removal for the proposed nine substages in Stage 1 and four substages in Stage 2.
- The excavated material would be transported by off-road trucks to the processing area located near the centre of the Project Site. Two processing plants would be used, namely an enclosed wash plant with a capacity of 200 tonnes per hour and a mortar sand plant with a capacity of 100 tonnes per hour. All fine residues from the wash plant would be dewatered with a belt filter press and used for landform reconstruction.
- All highway trucks used to deliver sand products would only approach from and depart towards the F3 Freeway. The average daily number of truckloads would vary from 30 to 54. No trucks would travel westwards along Peats Ridge Road or pass Somersby Public School.
- Annual sand production would be likely to commence at 250 000 tonnes during the first year of operations, increasing to 450 000 tonnes by about the end of Year 3. It is envisaged that sand removal would be undertaken over a 15 to 18 year period.
- Progressive rehabilitation, revegetation and enhancement of existing fauna / flora corridors within the Project Site is proposed for a long term rural / residential and nature conservation land use.

CONSULTATION AND IDENTIFICATION OF KEY ISSUES

The Proponent has conducted a comprehensive community consultation program within two distinct periods, 2000/2001 and 2005/2006, leading to the preparation of the *Environmental Assessment*.

Following the development of an initial proposal to remove and process sand from the Project Site in 2000, the Proponent commenced consultation with local landowners, Gosford City Council, the then Department Urban Affairs and Planning (DUAP) (now the Department of Planning) and other NSW government agencies,



Figure B(i)
PROJECT SITE LAYOUTFigure B(ii)
SAND REMOVAL STAGES

representatives of the Somersby Public School and local community representatives and groups. As a result of this consultation, it became evident that there were a number of issues of concern to the local community, Gosford City Council and DUAP. To address these issues, the Proponent commissioned several specialist environmental studies, primarily focussed on the viability of a local population of threatened flora species (the Somersby Mintbush) and the continued access of local landowners to groundwater.

As a result of these specialist environmental studies and an alternate approach to project staging, the Proponent refined its proposal to that now referred to as the “Somersby Fields Project” and re-presented it to the local community, Gosford City Council, and the NSW Government through a renewed consultation program that commenced in March 2005. During this consultation program, the Proponent provided the local community with newsletters on project progress, staged two “information displays”, presented information and answered questions at P&C meetings of the Somersby Public School, presented their project at a Planning Focus Meeting co-ordinated by the Department of Planning, held separate meetings with Gosford City Council, Mangrove Mountain Chamber of Commerce, the Department of Primary Industries (Somersby Field Station), the Department of Education, the Department of Natural Resources and the Somersby Public School, had one-on-one discussions with land owners and residents surrounding the Project Site and commissioned a specialist consultant to conduct a community focus group and undertake their own consultation with local stakeholders.

Based on the results of the consultation, an environmental risk analysis matrix was prepared which identified each issue and compared the frequency with which each was noted against the level of potential impact or noted priority. The environmental risk analysis matrix identified the following major issues, listed in decreasing order of priority.

- | | |
|-------------------------|---------------------|
| 1. Groundwater. | 6. Transport |
| 2. Noise. | 7. Threatened Flora |
| 3. Air Quality (Dust) | 8. Social Impacts |
| 4. Air Quality (Health) | 9. Site End Use |
| 5. Surface Water | 10. Visual Impacts |

ENVIRONMENTAL SAFEGUARDS AND IMPACTS

The components and features of the existing environment on and around the Project Site have been studied in detail and the project designed to avoid or minimise impacts on that environment. A brief overview of the main components of the surrounding environment, the proposed safeguards and the assessed level of impact are set out as follows.

Groundwater

The aquifers associated with groundwater resources in the Central Coast are hosted by two principal geological units, namely the Hawkesbury Sandstone and the underlying Terrigal Formation. The Hawkesbury Sandstone has been divided into three groundwater resource units with poor to fair water holding potential but excellent water quality. The aquifers of the underlying Terrigal Formation are high yielding (>40L/s) and dominantly fracture-controlled. Within the Somersby area, groundwater is largely derived from rainfall infiltrating the friable sandstone exposed at or near the ground surface and accessed primarily from



the upper groundwater resource unit of the Hawkesbury Sandstone, typically occurring between approximately 10m and 140m below surface.

Within a 1km radius of the Project Site, 39 groundwater bores were identified. Yields are typically 2L/s or less. The bulk of the water pumped from groundwater bores in the Somersby area is used for horticultural and domestic uses, although the quantity of groundwater harvested annually is not well recorded.

Groundwater investigations within the Project Site have also identified a layer of perched groundwater, approximately 1.5m below the surface in the eastern section of the Project Site, and spring flows within the southern central section of the Project Site which contribute to base flows to Dam A.

The impact of the project on the local groundwater table was modelled at three yearly intervals by specialist groundwater consultants, RCA Australia. The modelling took into account all existing measurable aspects of the groundwater resources, assuming worst case scenarios where information was limited or unavailable. In addition, both the modelling and conclusions of the RCA Australia groundwater assessment were reviewed by Kalf & Associates Pty Ltd, a consultant specialising in groundwater modelling, who concluded the modelling and proposed monitoring was adequate.

The results of the modelling predict the following impacts as a result of the project.

- For the life of the project, the groundwater drawdown outside the boundary of the Project Site is not predicted to exceed 4m. At a distance of approximately 250m and 700m from

the Project Site boundary, the anticipated groundwater drawdown would be 3m and 1m respectively.

- Within 1 year of the cessation of sand removal operations, the long term groundwater level would be re-established typically within 1m to 3m below pre-project levels within 800m of the Project Site.

Of the 39 bores identified within 1km of the Project Site, only two bores (one within the Somersby Public School grounds and one on an adjoining property), are predicted to experience a reduction in saturated thickness (equivalent to available drawdown) of approximately 13% and 10% respectively. A further seven bores were predicted to experience a reduction in standing water level of between 1m and 3m, with this decrease affecting saturated thickness by generally less than 5%.

Of the seven springs identified on properties surrounding the Project Site:

- a significant loss of flow was predicted in two springs west of the Project Site as these are true groundwater springs;
- a moderate loss was predicted in the two springs north of the Project Site; and
- a minor loss was predicted in the three other springs around the Project Site.

In most cases, long term recovery of spring flows would not be expected, although the opportunity would exist to replenish some spring flows through deepening the excavations associated with the springs.

The Proponent has committed to a comprehensive monitoring program to assess progressive impacts. The Proponent also proposes to 'make good' any losses in groundwater availability to local



groundwater users should these be shown to be attributable to the sand removal operations. The Proponent has discussed the predicted drawdowns and losses in saturated thickness and spring flows with potentially affected landowners. Although predictions indicate any losses are unlikely to be observed within 6 years, the Proponent has provided written undertakings to landowners to the deepening of existing bores or drilling of replacement bores. Available hydrogeological data records the presence of significant aquifers at depths of up to 80m and between approximately 110m and 140m within the Hawkesbury Sandstone indicating the likelihood of yield replacement to be highly likely.

Overall, the groundwater assessment has established that the groundwater impacts would be localised and that there are opportunities for the Proponent to “make good” any losses any surrounding landowner experiences as a result of the project.

Noise

The Somersby Fields Project has been designed with consideration given to minimising noise impacts on surrounding residents, enterprises and teachers and students of Somersby Public School. There would be no exceedances of noise criteria at any residence or Somersby Public School during Stage 1 operations. It is also noted that traffic noise criteria would not be exceeded as the Proponent would restrict the number of truck movements during early morning and evening periods.

With the following exceptions, the incorporation of the design features, operational safeguards and other commitments of the Proponent would restrict noise levels to within the nominated criteria.

- During construction of the far-western earth mound, a 5dB(A) exceedance is predicted at one residence, the closest residence to the western boundary of the Project Site. The construction of this earth mound would only occur during school holidays, and would not impact on the school community.
- An exceedance is predicted at the closest residence to the western boundary of the Project Site during Stage 2/2 when earthmoving equipment is operating at the surface. Noise criteria would be satisfied when the equipment is operating 10m below the land surface.

The Proponent would monitor noise levels at a number of the surrounding residences and the Somersby Public School and maintain dialogue with these residents and the school to ensure that the impacts of noise generated by the project are minimised.

Air Quality and Health Issues

Consultation with the local community indicated that the potential for dust generated by the sand removal and processing activities to adversely affect the health and amenity of the local community, in particular at the Somersby Public School was a major concern. The Proponent has designed the project and committed to a number of design and operational safeguards to minimise the potential increase in dust or other airborne particulates or contaminants. In particular, the sand washing plant would be completely enclosed, with a closed water washing process adopted. Dust suppression watering would be regularly undertaken and any stockpiles of soil, not required for use in rehabilitation, would be immediately grassed.



Two indicative scenarios were modelled by Heggies Pty Ltd, specialist air quality consultants, to predict the likely concentration of dust, particulate matter, respirable silica and other airborne contaminants at surrounding residences and the Somersby Public School. Dust particles are described by their size. Those particles less than $2.5\mu\text{m}$ and $10\mu\text{m}$ are referred to as $\text{PM}_{2.5}$ and PM_{10} while larger dust particles $>35\mu\text{m}$ are referred to as deposited dust. The air quality modelling predicted:

- incremental monthly dust deposition rates would be well below the $2.0\text{g}/\text{m}^2/\text{month}$ goal at all assessment locations;
- maximum 24-hour average PM_{10} concentrations would be less than the site specific goal of $50\mu\text{g}/\text{m}^3$, at all assessment locations;
- total annual average PM_{10} concentrations would be less than $21\mu\text{g}/\text{m}^3$ at all assessment locations, thereby complying with the site specific goal of $30\mu\text{g}/\text{m}^3$;
- worst case 24-hour average $\text{PM}_{2.5}$ levels would be in the order of $14\mu\text{g}/\text{m}^3$ and annual average $\text{PM}_{2.5}$ in the order of $5.8\mu\text{g}/\text{m}^3$, thereby satisfying the 24-hour average $\text{PM}_{2.5}$ goal of $25\mu\text{g}/\text{m}^3$ and annual average $\text{PM}_{2.5}$ goal of $8\mu\text{g}/\text{m}^3$;
- neither the Chronic Reference Exposure Level nor Silicosis Potency criteria would be exceeded as a result of project dust / particulate emissions at any residences or the Somersby Public School;
- time weighted average concentrations for respirable silica would be 19 times less than the recognised health-related goals; and

- all project air quality goals relating to SO_2 and NO_2 would be met.

Accordingly, air quality and health standards at the Somersby Public School are forecast to be at a higher level than the standards set by regulatory authorities.

Surface Water

The Project Site lies in the catchments of Narara, Ourimbah and Mooney Mooney Creeks. Both Narara and Ourimbah Creeks flow uninterrupted towards their outlet points, whereas Mooney Mooney Dam, located at the confluence of Mooney Mooney Creek and Little Mooney Mooney Creek, collects runoff from the upper reaches of this catchment, including the Project Site, for use in supplying mains water for Gosford.

The only drainage line within the Project Site, located in the northwestern corner of the Project Site within the headwaters of Ourimbah Creek, is ephemeral. For the remainder of the Project Site, runoff is typically cross-land flow over the existing landform.

The mitigation measures and management procedures to be adopted with respect to surface water would focus upon the diversion of clean water around active operational areas and the containment of sediment-laden water. This would be undertaken in conjunction with the management of water on site to meet operational requirements as part of a Water Management Plan. Assuming the implementation of a range of mitigation measures and management procedures outlined in the *Environmental Assessment*, impacts would be restricted to the following.



Altered Catchments: The final landform would result in minor changes to the catchment areas of Narara Creek, Ourimbah Creek and Mooney Mooney Creek.

Peak Runoff: There would be no increases in peak flows above existing peak flows. This would avoid any adverse impacts on flooding of Narara Creek within the residential areas of Gosford.

On-site Water Storage: The existing Dam A (**Figure B(i)**) would harvest clean water. A pipe would be placed or small diversion channel would be constructed around Dam A to divert low flows around the dam.

Surface Water Quality: Compared with current runoff from the Project Site, the quality of water discharged from the Project Site is predicted to improve, given the anticipated effectiveness of the proposed dams in capturing and settling sediment.

Traffic and Transport

The project would necessitate modification of the existing road network, through construction of an intersection between the Project Site access road and Peats Ridge Road, and would result in an increase in the volume of traffic on Peats Ridge Road.

At full production, the despatch of an average of 54 loads per day, 6 days per week would represent 2.7% of total traffic and 12.3% of heavy vehicle traffic on the 700m section of Peats Ridge Road between the Project Site entrance and the F3 Freeway. As part of a specialist assessment of traffic-related impacts related to the project, one benefit (improved access to the F3 Freeway), 11 minor impacts (including increased noise, dust and vehicle emission generation) and four substantial impacts on the environment (traffic delays resultant from construction of the Project Site entrance (short-term),

increased pavement deterioration, potential mud tracking and elevated vehicle emissions) were identified. Each of these impacts would be mitigated with a range of design and operational safeguards. In all cases, and with implementation of the proposed design features of the site entrance intersection, and operational safeguards and management controls to be enforced by the Proponent, the identified traffic and transport-related impacts associated with the project were assessed as acceptable.

Flora

Two main vegetation communities were identified on the Project Site, namely:

- Somersby Plateau Forest; and
- Hawkesbury Banksia Scrub-Woodland.

The project would require the removal of approximately half of the remaining native vegetation on the Project Site. This would represent 2% of the total Somersby Plateau Forest and 0.1% of the total Hawkesbury Banksia Scrub-Woodland communities mapped throughout the Gosford LGA. This represents a comparatively minor decrease. It is noted that the area of planned revegetation of both communities would marginally exceed the area cleared during the project life.

Three threatened plant species occur within and surrounding the Project Site, namely:

- *Prostanthera junonis* – Somersby Mintbush;
- *Tetradlea glandulosa* – Black Eyed Susan; and
- *Hibbertia procumbens*.

The Proponent has committed to establishing a Voluntary Conservation Area (VCA) on the Project Site (see **Figure B(i)**) to protect



and promote the local populations of these species. A program of translocation would also be undertaken for both *Prostanthera junonis* and *Hibbertia procumbens* for those isolated plants within the area to be disturbed.

The project would result in the removal and translocation of:

- approximately 30 to 40 known *Prostanthera junonis* plants (11 to 16% of the total number of plants on site); and
- ten of the identified *Hibbertia procumbens* plants (25% of the total number of plants on site).

Neither of the two *Tetratheca glandulosa* plants recorded on the Project Site would be disturbed. The VCA would provide protection and security for the main populations of the threatened plants on the Project Site. As such, it has been assessed that the impact of the removal of these plants is not likely to be significant.

Fauna

Five habitat types and 68 species of fauna (including 2 threatened species) were identified on the Project Site. A further 16 listed threatened species were identified as likely to occur on or within the environs of the Project Site.

The disturbance of native vegetation on the Project Site would have a minor impact on the availability of habitat to native fauna. This habitat is not, however, considered of significance such that its removal would have implications to the long-term survival of any the threatened species recorded or likely to be found on, or use, the Project Site and immediate environs.

The project would contribute to the progressive enhancement of both the existing Eastern and Western Fauna/Flora Corridors. Similarly, the existing southern and western boundary corridors would also be enhanced to provide for improved fauna movement around the Project Site and between the areas of native vegetation north and south of the Project Site.

Social Impacts

Since initial investigations for a sand removal and processing operation on the Project Site commenced in the early 1990s, there has been considerable concern from the local Somersby community. The potential impact the project would have on groundwater resources, air quality, health, noise and traffic has been cited as primary reasons for this concern. The perceived impact the project would have on the social values of the local community, eg. lifestyle, school viability, peace and quiet, small community values has been a major influence on community opinions. Ultimately, the major social concerns centred on the impact the project would have on the Somersby Public School, identified as a social hub of the local community.

A social impact assessment of community concerns was conducted in light of the project description, results of specialist environmental investigations, demographic information, and a case study involving a recent and very similar situation involving Dixon Sands (Penrith) Pty Limited and the Maroota Public School. Based on consultation with key local stakeholders and a review of all available information, the following conclusions were drawn.



Noise: Noise modelling predicts compliance with the nominated criteria. As such, there is unlikely to be any adverse noise impact(s) on the teachers and students at Somersby Public School.

Road Safety: Trucks would not present a safety or noise issue for school children or motorists / pedestrians using Wisemans Ferry Road.

Air Quality and Health Issues: With the implementation of the identified air quality controls, and continuous monitoring of air quality, social issues relating to perceptions of air quality and health should diminish.

Reduced School Numbers: Experience at Maroota suggests that future actual impacts are likely to be less pronounced than anticipated by the community, and that the Somersby Public School should continue to function along its typical fluctuating trajectory of growth, peak and trough.

Based on the current social climate within Somersby and experiences at Maroota, it has been assessed that in the short term, the Somersby Fields Project would have some adverse social impacts for the Somersby community. This would lessen to neutral impacts in the mid term, as the local community understands the project operation and its actual impacts become more fully understood. Ultimately, the project may produce positive long-term impacts depending upon the end use(s) of the site developed in consultation with the community and Gosford City Council. Such a conclusion is considered appropriate in light of the Maroota experience, where, despite initial community angst, concern and protest, there is now a reasonably harmonious relationship between the operator of the Maroota quarry (Dixon Sands) and the local school community.

Aboriginal Heritage

No sites of indigenous origin were found during a survey conducted in 2005 over the Project Site. However, in compliance with earlier recommendations of the Darkinjung Local Aboriginal Land Council, a 30m wide buffer zone would be retained along the eastern boundary of the Project Site as part of the Voluntary Conservation Area. This would protect a potentially archaeologically sensitive area identified in a survey and subsequent excavation in that area of the Project Site undertaken in 1995.

Soils and Land Capability

The project would require the removal, relocation and replacement of approximately 150 000m³ of topsoil and subsoil, taken largely from Class VI capability land, throughout the project life. Adherence to the recommended soil stripping, handling, storage and replacement procedures would result in a minimal impact from a soils and land capability perspective at the Project Site.

Visibility

The substantial vegetation surrounding the perimeter of the Project Site would be retained and enhanced, the Project Site access road constructed along a curved alignment and a high standard of house-keeping adopted. As a result, there would be negligible visual impact from the Somersby Fields Project.

CONCLUSIONS

The proposed Somersby Fields Project has, to the extent feasible, been designed to address the issues of concern to the



community and all levels of government. The project provides for the removal, processing and despatch of sand products recognised to be in short and diminishing supply within the Sydney / Central Coast market. The project would contribute to increasing local employment opportunities and boost the local economy of Somersby and other communities on the Central Coast. The final landform would provide for future use of the Project Site, for rural/residential and nature conservation land uses.

The overall environmental assessment process has assisted the Proponent to design a project that would have a range of acceptable residual impacts on the local environment.

Acknowledging these residual impacts on the biophysical and social environment, this document and the range of specialist consultant studies undertaken have identified that the proposed Somersby Fields Project should proceed because it would:

- contribute towards alleviating the diminishing supply of fine to medium-grained sand in the Sydney / Central Coast construction market;
- satisfy sustainable development principles;
- provide for the conservation of threatened plant species within a Voluntary Conservation Area;
- have manageable impacts on the biophysical environment;
- address in the medium to long term, the perceived social impacts;
- contribute to the continued economic activity of Somersby and the Gosford LGA; and

- provide for substantial revegetation and a program to maintain local biodiversity and fauna habitat and improve local fauna/flora corridors.

It is acknowledged that with approval of the project, there would be a perceived negative impact on the social climate of local Somersby community. However, with the implementation of the Proponent's commitments detailed in the *Environmental Assessment*, the actual and perceived negative impacts would reduce and, as is the case at Maroota, a generally harmonious relationship could develop between the Proponent and the Somersby community.

