



Planning &  
Environment

## ***MAJOR PROJECT ASSESSMENT***

### ***Materials Recycling Facility, Moorebank (05-0157)***



Secretary's Environmental Assessment Report  
Section 75I of the  
*Environmental Planning and Assessment Act 1979*

April 2015

Cover photo: Landfill cap of the subject site in panorama  
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## EXECUTIVE SUMMARY

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Moorebank Recyclers Pty Ltd seeks approval to construct and operate a recycling facility in Moorebank. It would process up to 500,000 tonnes per year of masonry construction and demolition waste for re-use in the construction industry. The project has an estimated capital investment value of \$3.5 million and would generate 45 jobs (including jobs for 20 contract truck drivers) during operation.

The proposed facility is on the site of a former landfill. The landfill ceased operation in 1979 and the site was acquired in 1996 and remediated by Moorebank Recyclers with a view to developing a recycling facility. Liverpool City Council prepared a structure plan for the area in 2002, which nominated the site for a recycling facility and the former Boral quarry nearby for a residential zone. The Local Environmental Plan was amended in 2004 and 2005 to permit these uses. The former quarry is now a newly developing residential area known as Georges Fair. The final land release occurred in October 2014 and the completion of all dwellings is expected by 2016. The nearest dwelling is about 280 metres from the site of the proposed recycling facility.

On 19 December 2005 the proposed project was declared a major project under Part 3A of the *Environmental Planning and Assessment Act 1979 (EP&A Act)* as it is development for the purposes of resource recovery or recycling facility that handles more than 75,000 tonnes of waste per year. Part 3A of the Act was repealed on 1 October 2011, however, the project is a 'Transitional Part 3A Project' under Schedule 6A of the Act. Therefore, the provisions of Part 3A continue to apply, despite its repeal.

The Environmental Assessment for the project was publicly exhibited from 28 February 2013 to 5 April 2013. The Department received a total of 1351 public submissions objecting to the project.

On 15 August 2013 the Proponent submitted a Preferred Project Report (**PPR**) responding to issues raised during the public exhibition period. The PPR included additional information and made the following key amendments:

- revisions to the site access from Brickmakers Drive to accommodate the reciprocal right of way arrangements granted by the Land and Environment Court in August 2013.
- additions to the perimeter bunds including increasing the height of the western bund from 4m to 6m, and increasing the northern bund from 4m to 8 m to provide additional visual and noise protection for the project; and
- reductions to the raw material stockpile height from 10m to 7m, to further improve the visual impacts of the project.

The Proponent also submitted addendum reports following the PPR providing additional information about noise impacts and addressing issues associated with Benedict's proposed marina to the north. The noise assessment addendum included a proposal for noise barriers on the private haul route to provide additional noise mitigation to the future residents of Georges Fair.

The Department acknowledges the significant level of community concern raised in public submissions, particularly in relation to traffic, noise and air quality impacts. Liverpool Council also objected on a range of matters with particular emphasis on vehicle access to Brickmakers Drive, traffic impacts, and flooding.

The Department has undertaken a thorough assessment of the proposal in accordance with the EP&A Act and concludes that:

- the project's contribution to local traffic would be minor and there is minimal risk of further deterioration in the serviceability of surrounding roads;
- all aspects of the project can be comfortably carried out within the relevant noise criteria, except for truck noise in the vicinity of the access to Brickmakers Drive. This would result in a minor exceedence of 1dBA only during day time adverse meteorological conditions, which is a minor and acceptable impact;

- predicted air quality impacts are generally below the relevant criteria. There is a small increase in the probability that the criteria for 24-hour average PM<sub>10</sub> air emissions would be exceeded at the nearest receiver from 2 days to 4.5 days per year. However, both the Department and the Environment Protection Authority consider this increased probability to be very minor and acceptable;
- the earthworks for the project would be suitably offset with additional flood storage area to avoid impacts on flooding in the Georges River, up to and including a 1 in 100 year flood; and
- the project is unlikely to be visible from most of Georges Fair, and the project would be appropriately screened by landscaping when viewed from closer vantage points such as the site of Benedict's proposed marina, and the Georges River and its foreshore.

The Department also recognises that the project is in-line with the NSW Government's *Waste Avoidance and Resource Recovery Strategy 2014-2021*, which aims to improve resource recovery in all waste sectors, including construction and demolition waste. The supply of aggregates and sand faces significant challenges in Sydney with the depletion of natural extractive materials from existing sites such as the Penrith Lakes Scheme, and the conflicts and constraints associated with development of new resources within the metropolitan region. The recovery of aggregates and sand from demolition waste and its use as substitute to reduce the demand for natural resources is an important outcome for growth under the NSW Government's *A Plan for Growing Sydney*.

The site is strategically well located for a construction material recycling facility. By road, it is about 4.5 km from the M5 motorway and roughly midway between central Sydney, which is a major source of demolition waste, and the South West Growth Centre, which is identified as a future growth area in *A Plan for Growing Sydney*, and is a significant potential future market for the recycled products. Recycling facilities of this kind will become increasingly important as natural material quarries in the metropolitan area close without being replaced. Further, the proposed development is fully permissible under the *Liverpool Local Environmental Plan 2008* and it is compatible with the site's previous use as a landfill site.

The Department has carefully considered the potential impacts of the project, particularly in regard to residential amenity in Georges Fair. On balance, the Department's assessment concluded that all relevant amenity and environmental criteria can be met and the project would have significant benefits, particularly for the construction industry. The Department has also recommended a suite of strict conditions to ensure any residual impacts are appropriately managed, including requirements for:

- ongoing management of traffic impacts, including the preparation of traffic management plans and a prohibition on using either Maddecks Avenue or Governor Macquarie Drive, Moorebank as haul routes;
- strict noise limits and a range of noise mitigating measures including physical noise barriers, the preparation of a noise management plan and ongoing noise monitoring;
- strict air quality limits and a range of air impact mitigating measures such as site stabilisation and water sprays on the process plant, the preparation of an air quality management plan and ongoing air quality monitoring;
- other impact mitigation measures relating to flooding offsets, stormwater, biodiversity offsets, visual amenity, landscaping, landfill cap management, sewerage management and Aboriginal heritage management; and
- periodic environmental reviews and tri-ennial independent audits of the project.

In accordance with the Minister's delegation of 14 September 2011, the application is referred to the independent Planning Assessment Commission for determination, as there are more than 25 public submissions objecting to the proposal and an objection from Liverpool City Council.

The Department recommends the project be approved, subject to the recommended conditions.

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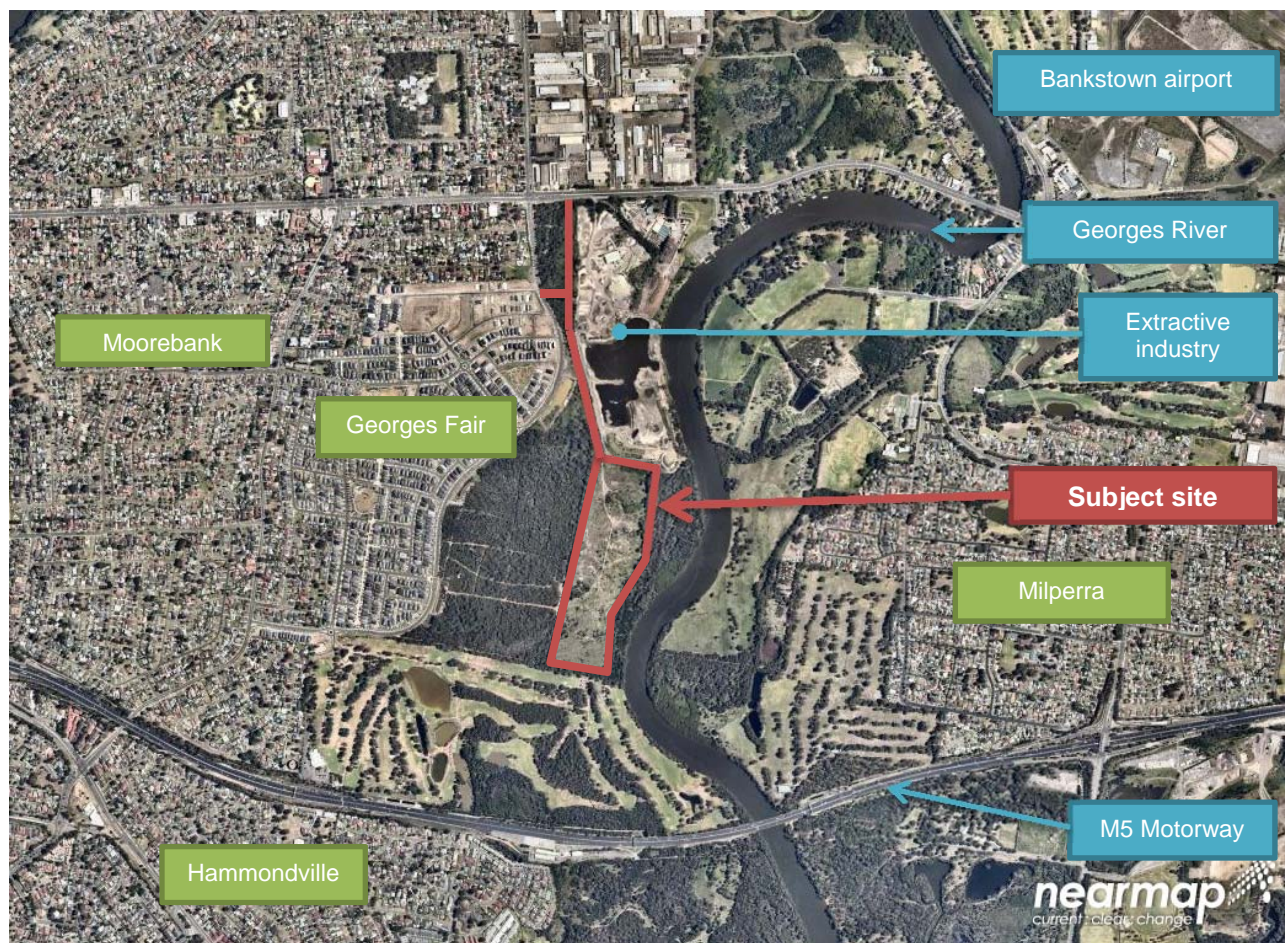
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# 1. BACKGROUND

## 1.1 Background

Moorebank Recyclers Pty Ltd (the **Proponent**) propose to construct and operate a recycling facility to process up to 500,000 tonnes per year of masonry construction and demolition waste such as sand, bricks, asphalt and concrete for re-use in the construction industry. The project is proposed on the site of a former landfill adjacent to Georges Fair in the suburb of Moorebank (see **Figure 1**). The site is within the Liverpool local government area.



**Figure 1** – Locality plan showing the subject site (photo dated 8 January 2015)

## 1.2 Site history

Between 1972 and 1979, Collex (now Veolia) operated a landfill at the site. During this time, non-putrescible waste was imported and filled the site to a depth of about 3 metres (m), with an overall height of 5m above Australian Height Datum (AHD). Following closure of the landfill, the site lay vacant until the Proponent acquired it in 1996.

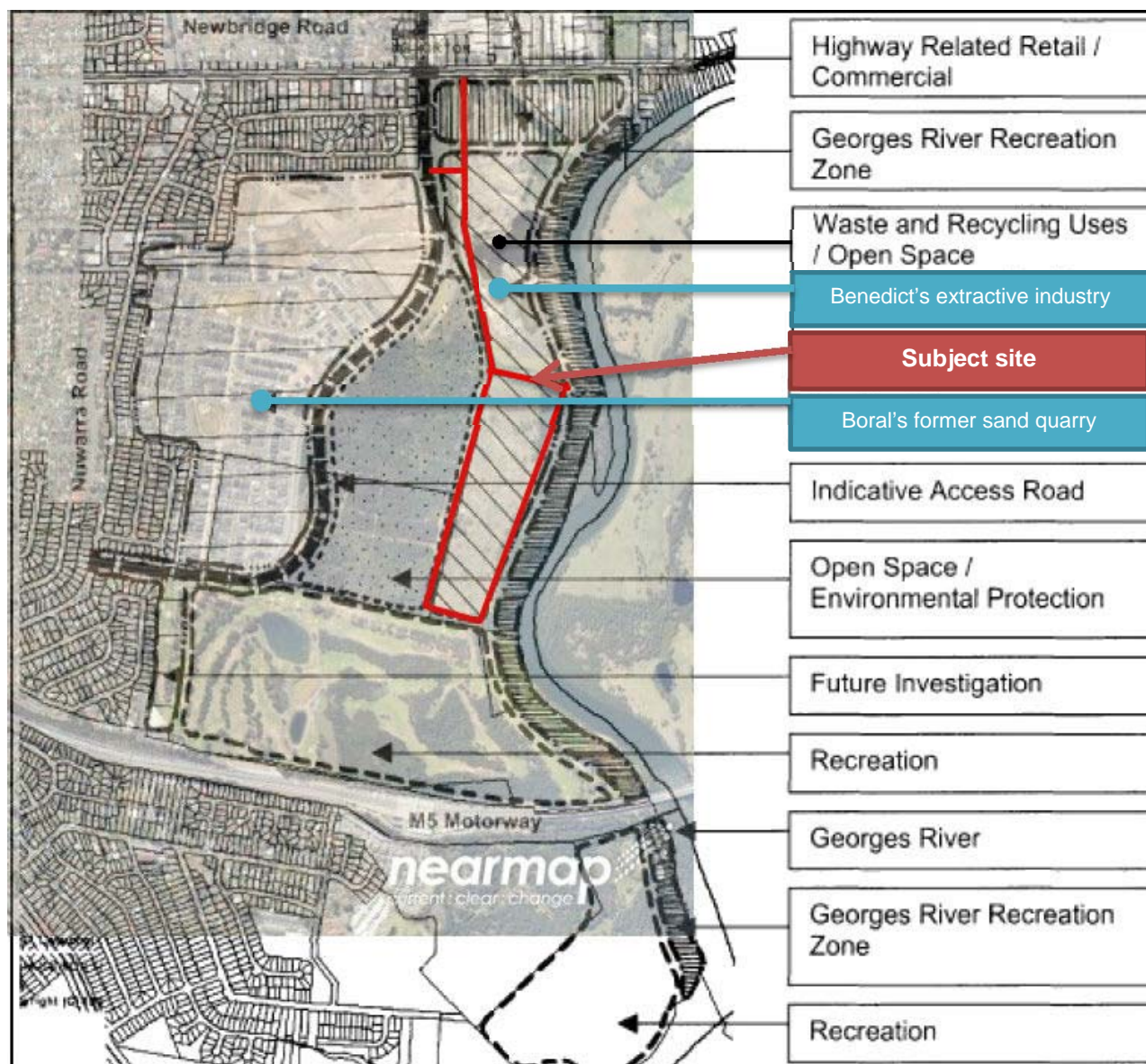
In 1998 the Proponent prepared a Remedial Action Plan for the former landfill, which required a number of landfill cap repairs. The completion of these works led to the issue of a Site Audit Statement under the *Contaminated Land Management Act 1997*. The statement, which was issued in December 2001, certified that the site was suitable for “commercial/industrial uses including a concrete recycling facility”, subject to conditions regarding landfill gas and leachate management and maintaining the landfill cap.

In 2006, the Proponent obtained development consent from Liverpool City Council to excavate the southern extent of the landfill and use the excavated material to raise the northern part of the site to match the 1 in 100 year flood level (about 5.5m AHD). The approved earthworks, which are not yet complete, included construction of 4m high earthen bunds on the site perimeter. The earthworks are intended to protect future land uses (i.e. the concrete recycling facility) from flooding in the Georges River.



### 1.3 Boral-Moorebank Structure Plan

In 2002, Council adopted the Boral-Moorebank Structure Plan. The plan outlined a land-use strategy for former industry lands located between the urban edge of Moorebank and the Georges River. These lands included the subject site, a former sand quarry operated by Boral and an extractive industry operated by Benedict Industries Pty Ltd (see **Figure 2**). Among other things, the structure plan proposed a large residential zone on the former quarry and statutory provisions to allow “waste and recycling uses/open space” on both Benedict’s site and the subject site.



**Figure 2** – 2002 Boral-Moorebank Structure Plan over a 2013 aerial photo

The structure plan led to amendments 75 and 76 to *Liverpool Local Environmental Plan 1997*, which were gazetted in July 2004 and September 2005, respectively. In line with the structure plan, amendment 75 rezoned the former quarry to residential (now known as Georges Fair) and Benedict’s extractive industry to open space, while amendment 76 established an enabling clause over the subject site, which permitted a “materials recycling yard” with development consent.

In August 2008, *Liverpool Local Environmental Plan 2008 (LEP 2008)* for the whole local government area was gazetted following Council’s comprehensive review and repeal of LEP 1997. LEP 2008 did not substantially change the zoning arrangements for the land that was the subject of the structure plan. However, the enabling clause for the subject site, which permits the proposed project with consent, will now automatically repeal on 1 September 2018. Any approval granted to the project before that time will be able to continue into the future, but if the project is not approved by that time, it will become a prohibited use.

#### 1.4 Site description

The site is legally known as Lot 6 DP 1065574 and is located about 4 kilometres (km) southeast of Liverpool. It is a roughly rectangular site of 20.5 hectares (ha), with an 850m access handle to Newbridge Road. Additional vehicular access to the site is via a right of way (ROW) over Council and other privately owned land from Brickmakers Drive to the access handle. The Land and Environment Court granted the ROW to the Proponent in August 2013 under section 88K of the *Conveyancing Act 1919*. The easement is not yet registered on the title of land, and it will need to be registered before any road construction can begin.

The site is generally clear of mature native vegetation because it is a landfill cap. Ironbark trees, which form part of an adjoining Endangered Ecological Community (EEC), stand in the southern portion of the site, although they are beyond the reach of the proposed project. The ROW to Brickmakers Drive is vegetated with River Flat Eucalypt Forest, which is also an EEC. Access construction for the project would require 0.27 ha of this forest to be cleared.

The site is zoned E2 Environmental Conservation, which prohibits the proposed project, but the site is also covered by an enabling clause in Schedule 1 of LEP 2008, which permits resource recovery facilities with development consent. The access handle is zoned SP2 Infrastructure (drainage), and the ROW is zoned part R3 Medium Density Residential and part E2 Environmental Conservation. **Figure 3** below shows a zoning map of the locality from LEP 2008.

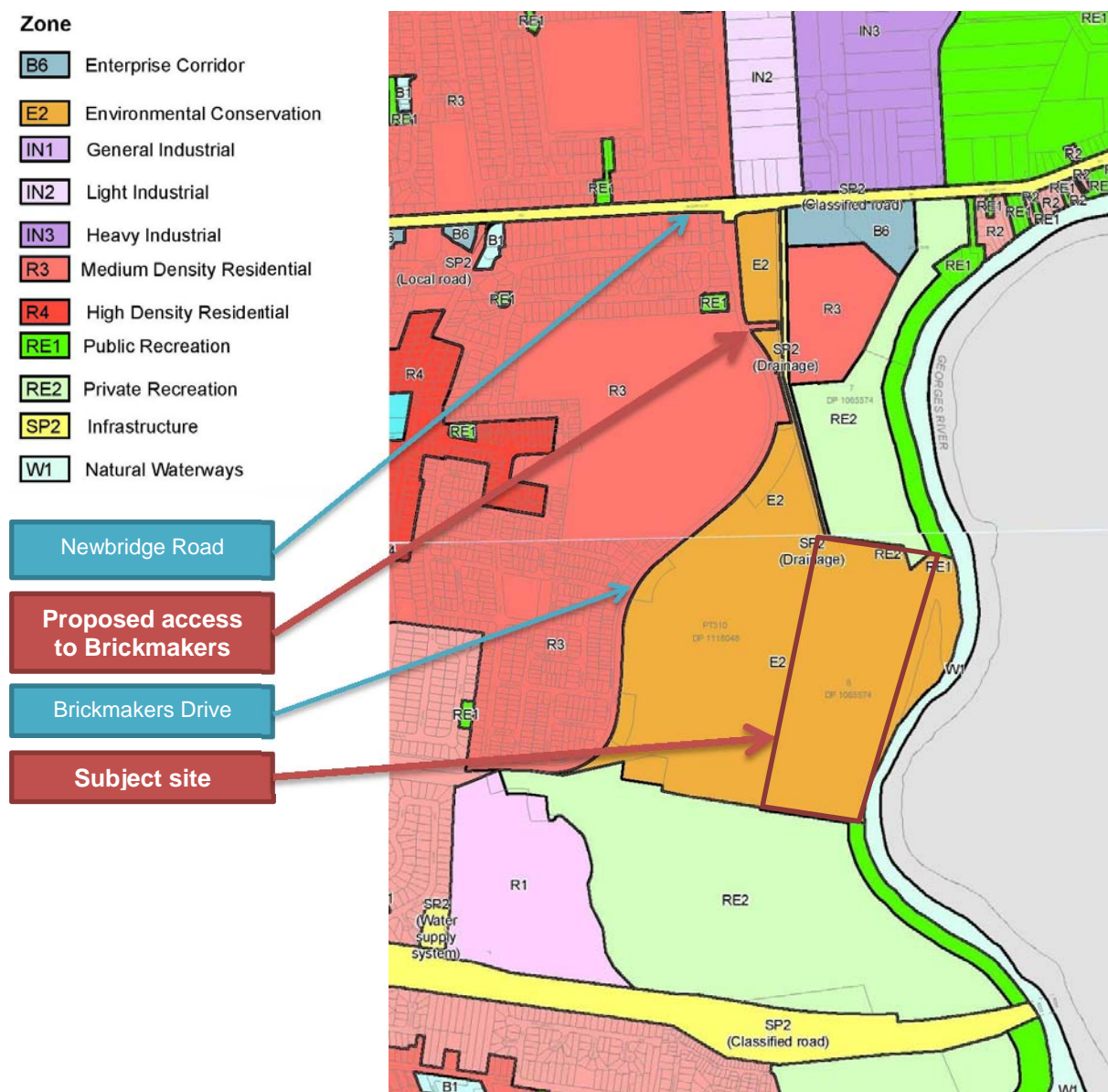


Figure 3 – Zone Map from Liverpool Local Environmental Plan 2008



### 1.5 Surrounding land

The Georges River and its riparian areas lie immediately to the east and west of the site. The subject site would have been part of this riparian land before it was used as a landfill. New Brighton Golf Course adjoins the southern boundary.

The newly developing Georges Fair residential estate is located further to the west on the former Boral sand quarry. Once the estate is fully developed, the nearest dwellings would be 280m from the northwest tip of the site and about 35m from the site entry off Brickmakers Drive.

Immediately to the north, Benedict Industries continues to operate its sand and gravel premises (see **Figure 4**). This site presently has a number of extractive material stockpiles that appear to be up to 8m high, which are visible from Georges Fair.



**Figure 4** – Map of surrounding land uses (photo dated 8 January 2015)

The southern portion of Benedict's land, which is zoned RE2 Private Recreation and adjoins the subject site, recently received development consent from the Joint Regional Planning Panel for redevelopment for a marina. The consent was overturned by the Land and Environment Court in a Class 4 appeal based on the absence of contamination reports. The Department expects that the applicant will lodge another development application for the marina to Council in the near future.

The northern portion of Benedict's land is zoned R3 – Medium Density Residential. There is no application or approval for the residential subdivision of this residential land.

## 2. PROPOSED PROJECT

The proposed project involves construction and operation of a materials recycling facility. The facility would process up to 500,000 tonnes per year of construction waste. The facility would produce recycled products such as road base, aggregate and sand to supplement the availability of natural material from quarries. Access to the site would be via the new ROW to Brickmakers Drive from the access handle. The project has an estimated capital investment value of \$3.5 million and would generate 45 operational jobs (including 20 contract truck drivers) during operation. The main components of the proposed project are summarised in **Table 1**, and depicted in **Figures 5** and **6**.

**Table 1:** Main components of the proposed project

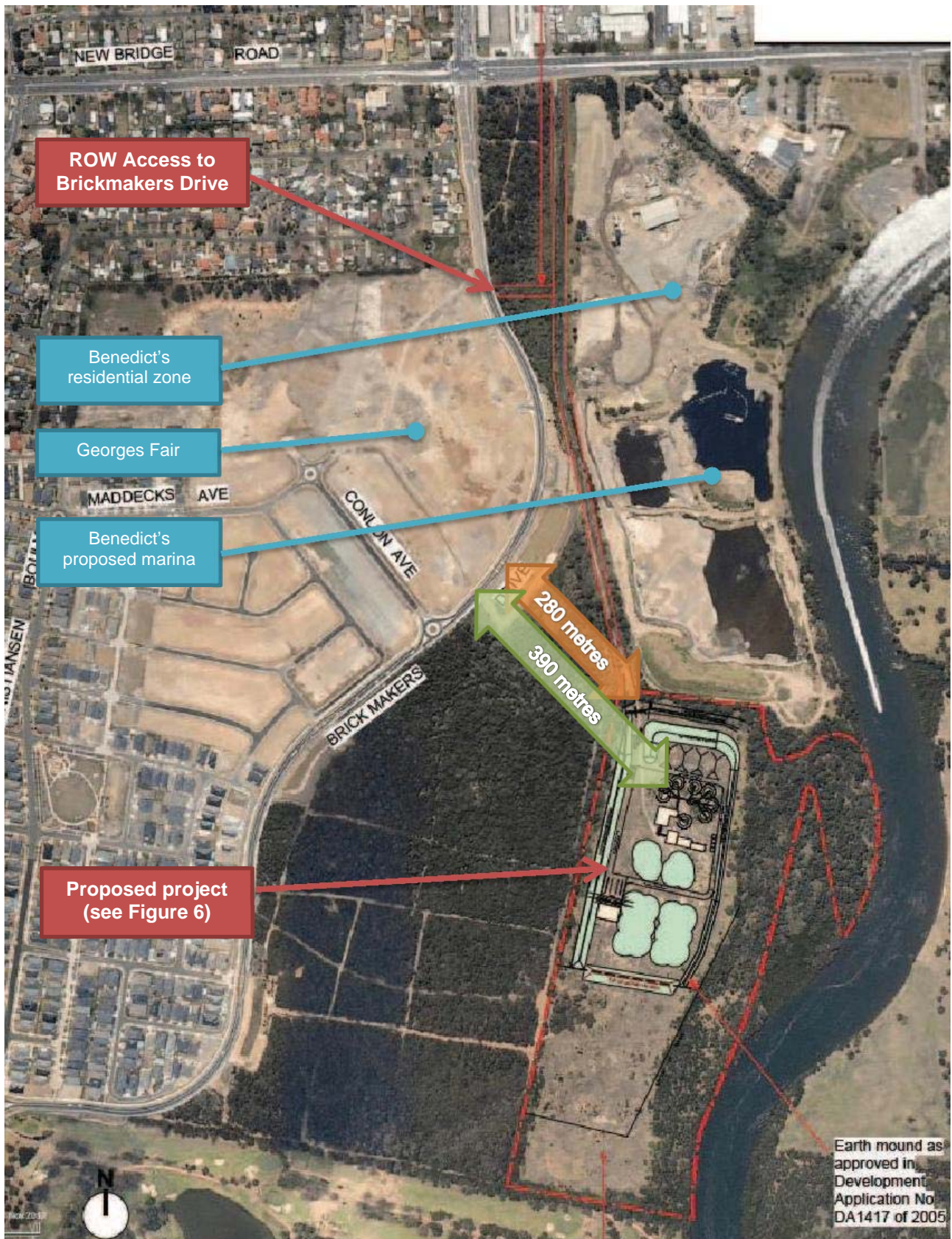
Component	Description
<i>Project Summary</i>	<ul style="list-style-type: none"> <li>construction and operation of a masonry building and demolition waste recycling facility with capacity to process up to 500,000 tonnes per year.</li> </ul>
<i>Final products</i>	<ul style="list-style-type: none"> <li>aggregate, sand, road base.</li> </ul>
<i>Value</i>	<ul style="list-style-type: none"> <li>\$3.5 million.</li> </ul>
<i>Employment</i>	<ul style="list-style-type: none"> <li>45 operational jobs including 20 contract truck drivers.</li> </ul>
<i>Main equipment</i>	<ul style="list-style-type: none"> <li>A picking shed and primary and secondary crushers in enclosed sheds; and</li> <li>3 x loaders; 5 x excavators; 2 x water carts and 1 x 10,000 litre fuel truck.</li> </ul>
<i>Ancillary structures</i>	<ul style="list-style-type: none"> <li>gates, weighbridge and wheel wash; and</li> <li>office, workshop and car park.</li> </ul>
<i>Operating hours</i>	<ul style="list-style-type: none"> <li>7am to 6pm Monday to Saturday (crushers to stop at 5:30pm).</li> </ul>
<i>Site works</i>	<ul style="list-style-type: none"> <li>earthen bunds 8m high on the northern boundary and 6m high on the western boundary.</li> </ul>
<i>Stockpiles</i>	<ul style="list-style-type: none"> <li>raw material stockpiles up to 7m high; and</li> <li>finished product stockpiles up to 4m high.</li> </ul>
<i>Stormwater</i>	<ul style="list-style-type: none"> <li>on site storage for 250,000 litres of stormwater for reuse in dust control.</li> </ul>
<i>Access</i>	<ul style="list-style-type: none"> <li>construction of a private haul road and access junction with Brickmakers Drive;</li> <li>construction of entry and exit road "ramps" within ROW on Council land (as per the access design in the Preferred Project Report);</li> <li>erection of a 1.5m high acoustic barrier along part of the private haul route;</li> <li>does not include construction of bridge access to proposed marina; and</li> <li>does not include traffic signals at junction of Brickmakers Drive.</li> </ul>
<i>Transport</i>	<ul style="list-style-type: none"> <li>maximum average daily traffic approximately 324 trucks; and</li> <li>estimated distribution is 55% from/to the east and 45% from/to the west/south.</li> </ul>
<i>Construction</i>	<ul style="list-style-type: none"> <li>2 consecutive periods totaling 10 months overall; and</li> <li>construction of the site access off Brickmakers Drive must occur before site establishment.</li> </ul>

The Proponent submitted a Preferred Project Report (**PPR**) following the public exhibition period, which included additional information and responses to the issues raised during exhibition. The PPR also made the following three key project amendments:

- revisions to the site access from Brickmakers Drive to accommodate the reciprocal right of way arrangements granted by the Land and Environment Court in August 2013. These include entry and exit ramps on either side of the road bridge, which provides access to Benedict's land further to the east (the Proponent would not construct the bridge and it would be constructed by Benedict's in the future);
- additions to the perimeter bunds including increasing the height of the western bund from 4m to 6m, and increasing the northern bund from 4m to 8 m. The northern bund addition also includes a small return to better surround the crushing plant. The revisions provide additional visual and noise protection for the project; and
- reductions to the raw material stockpile height from 10m to 7m, to further improve the visual impacts of the project.

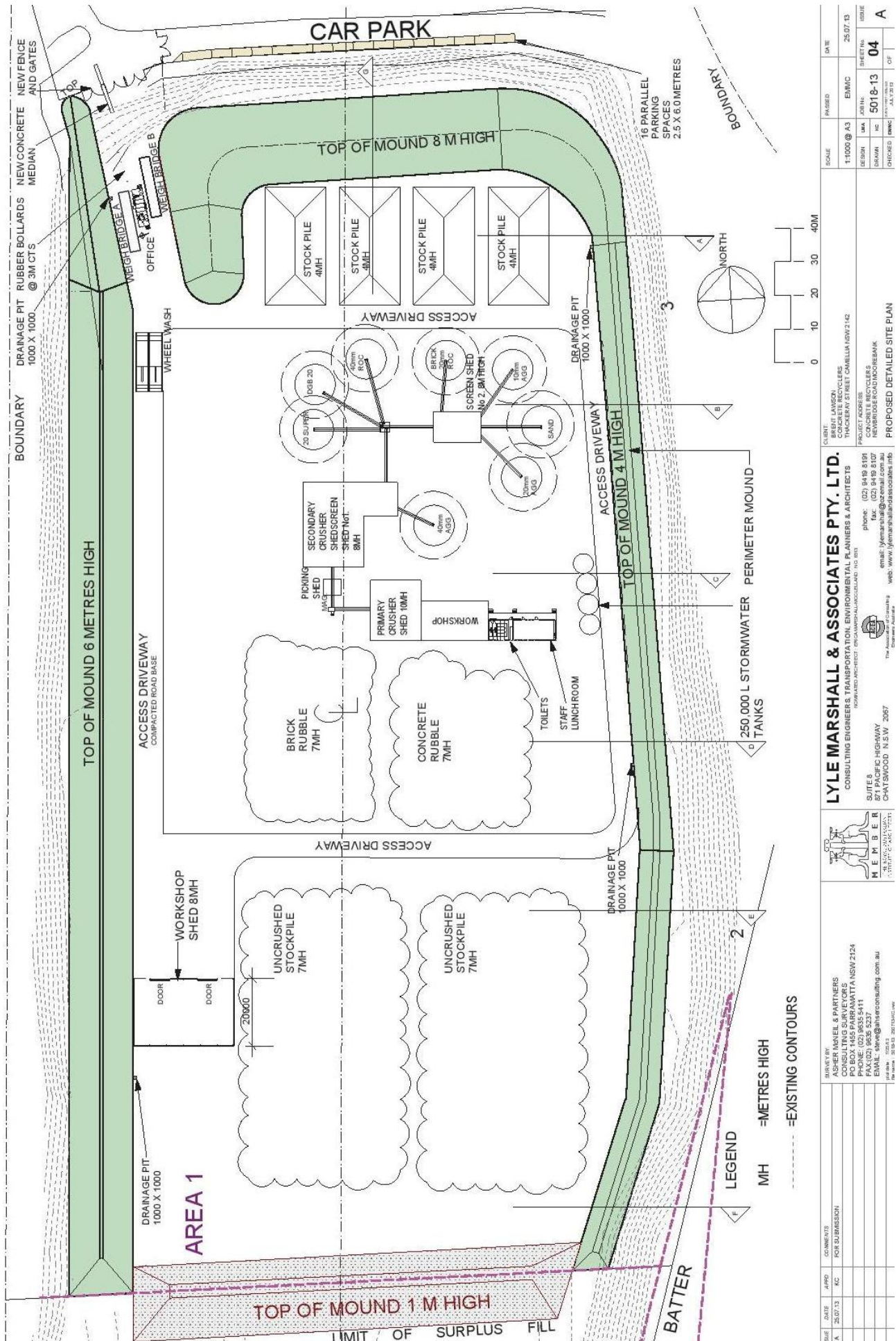
The Proponent also submitted addendum reports following the PPR providing additional noise impact information, and addressing issues associated with Benedict's proposed marina to the north. The noise assessment addendum included a proposal for noise barriers on the private haul route to provide additional noise mitigation to the future residents of Georges Fair.





**Figure 5** – Locality plan showing the proposed project







### 3. STRATEGIC AND STATUTORY CONTEXT

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#### 3.1 NSW 2021 and the Waste Avoidance and Resource Recovery Strategy

Reducing waste and keeping materials circulating within the economy are priorities for NSW as set out in *NSW 2021*. To meet this challenge, the Government prepares a state-wide Waste Avoidance and Resource Recovery Strategy every 5 years. The strategy for 2014-2021 proposes a waste recovery target for the construction and demolition sector of 80% (up from actual recovery performance of 75% in 2010-11).

The strategy identifies waste and resource recovery facilities as an essential service in the community. It states that opportunities to improve recycling in the construction and demolition sector are limited because of contamination in many construction site soils. Facilities that recover and recycle building and demolition waste such as concrete, sand and aggregate are an important component of improving recovery performance in this sector.

#### 3.2 A Plan for Growing Sydney

Identifying and protecting sources of construction material is an action under the NSW Government's *A Plan for Growing Sydney*. The supply of aggregates and sand in the metropolitan area faces significant challenges with the depletion of natural extractive materials from existing extraction sites such as the Penrith Lakes Scheme and the conflicts and constraints associated with development of new resources. The recovery of aggregates and sand from masonry building and demolition waste for re-use in the construction industry is an important measure to reduce the demand for natural resources.

The site is strategically located within metropolitan Sydney. By road, it is 4.5 km from the M5 motorway, 27 km west of central Sydney, which is a significant source of construction waste, and 18 km east of the South West Growth Centre, which is a significant future market for recycled construction material (see **Figure 7**).

The South West Growth Centre is about 17,000 ha in area and it includes parts of Liverpool, Camden and Campbelltown local government areas. Once fully developed, it will contain around 110,000 dwellings for about 300,000 residents. To date, seven of the 18 growth precincts have been rezoned to allow urban development and these precincts together have capacity for 42,560 dwellings. An eighth precinct – Leppington Precinct – is undergoing 'precinct planning' and is expected to provide land for 9,000 dwellings.

The proposed project at Moorebank has the potential to supply these growth areas with recycled aggregates and sand. As it is well located close to both the source and destination of the material, the facility would also reduce reliance on the transport of natural materials from more distant sources or sources outside of the metropolitan region.

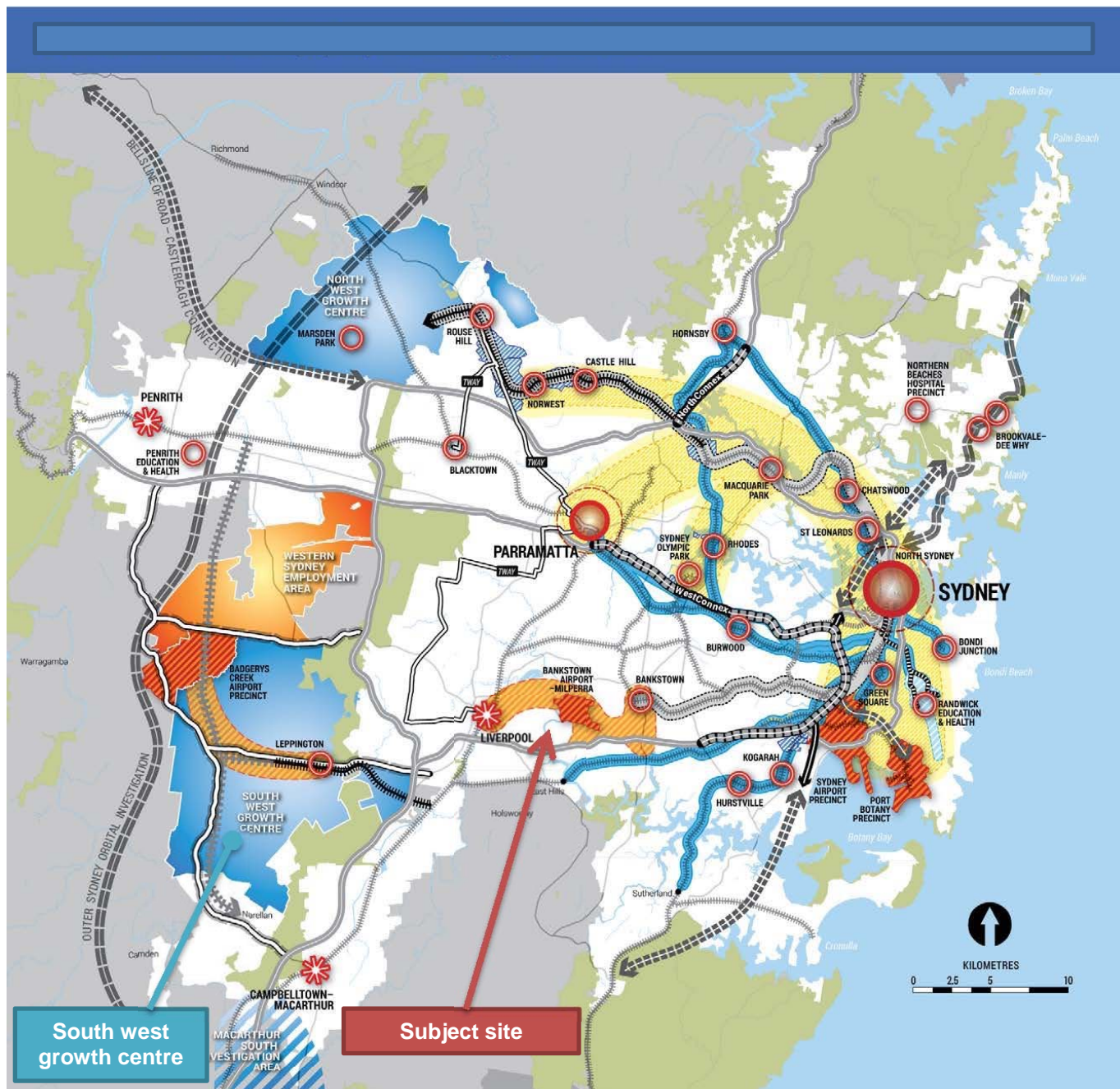
#### 3.3 Part 3A major project declaration

The proposed project was declared a Major Project under the now repealed Part 3A of the *Environmental Planning and Assessment Act 1979* (the **Act**) on 19 December 2005 because it is a resource recovery facility that handles more than 75,000 tonnes of waste per year.

#### 3.4 Arrangements for transitional Part 3A projects

Part 3A of the Act, as in force immediately before its repeal on 1 October 2011 and as modified by Schedule 6A to the Act continues to apply to transitional Part 3A projects. As an EA for the project was first submitted in July 2011, prior to the repeal of Part 3A, the proposed project is deemed a transitional Part 3A project.

The Minister (or delegate) is the approval authority for the application. Under the Minister's delegation dated 14 September 2011, the Planning Assessment Commission must determine the application, as there were more than 25 public submissions which objected and an objection from Liverpool City Council.



	CBD		Western Sydney Employment Area		Inner West Light Rail		Motorway
	Regional City Centre		Global Economic Corridor		CBD & South East Light Rail		Motorway Expansion
	Strategic Centre		Transport Gateway		Rail Network		Proposed Motorway Extension
	Growth Centre		Enterprise Corridor		Sydney Rapid Transit		Road/Motorway Investigation
	Urban Investigation Area		Metropolitan Urban Area		Rail Network Expansion		Transport Investigation
	Priority Precinct		Metropolitan Rural Area		SWRL Extension Investigation		
	Urban Renewal Corridor		Parks & Reserves		Road Upgrade		
	Local renewal opportunities yet to be identified		Waterway		Bus Transit Way		

Figure 7 – Location of growth centres

### 3.5 Permissibility

The project is located on land zoned EN2 Environment Conservation. The land is also subject to an enabling clause in Schedule 1 of *Liverpool Local Environmental Plan 2008 (LEP 2008)*, which permits a resource recovery facility with consent. The site access handle is zoned SP2 Special Infrastructure (drainage), while the ROW to Brickmakers Drive is zoned part R3 Medium Density Residential and part E2 Environment Conservation. Roads are permissible with consent within these zones.

### 3.6 Other Approvals

The Proponent must obtain further approvals to proceed with the proposed project, including:

- an Environment Protection Licence (**EPL**) from the Environment Protection Authority (**EPA**) under the *Protection of the Environment Operations Act 1997*; and
- a s138 permit from Council under the *Roads Act 1993* for work that would be required within the Brickmakers Drive road reserve.

Under the arrangements for transitional Part 3A projects, these approvals must be granted in a manner that is consistent with any project approval that may be granted by the Minister or delegate. The Department has consulted with the EPA during its assessment and incorporated its requirements into the recommended conditions of approval.

### 3.7 Environmental Planning Instruments

Under the arrangements for transitional Part 3A projects, the Secretary's assessment report is required to include a copy of or reference to the provisions of any State Environmental Planning Policy that substantially governs the carrying out of the project and the provisions of any other environmental planning instrument that would substantially govern the carrying out of the project and that have been taken into consideration in the assessment of the project.

The Department has considered the project against the relevant provisions of several key environmental planning instruments, including:

- *State Environmental Planning Policy (Major Development) 2005*;
- *State Environmental Planning Policy (Infrastructure) 2007*;
- *State Environmental Planning Policy No 33 Hazardous and Offensive Development*;
- *State Environmental Planning Policy No 44 Koala Habitat Protection*;
- *State Environmental Planning Policy No 55 Remediation of Land*;
- *Greater Metropolitan Regional Environmental Plan No 2 – Georges River*; and
- *Liverpool Local Environmental Plan 2008*.

Consideration of these instruments is shown in **Appendix G**. The Department is satisfied that, subject to the implementation of the recommended conditions of approval, the project is generally consistent with the aim and objectives of these instruments.

### 3.8 Objects of the *Environmental Planning and Assessment Act 1979*

The Department has considered the objects of the Act in its assessment of the project. The objects are specified in section 5 of the Act and are reproduced below.

*"The objects of this Act are:*

- (a) *to encourage:*
  - (i) *the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment,*
  - (ii) *the promotion and co-ordination of the orderly and economic use and development of land,*
  - (iii) *the protection, provision and co-ordination of communication and utility services,*
  - (iv) *the provision of land for public purposes,*
  - (v) *the provision and co-ordination of community services and facilities, and*
  - (vi) *the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats, and*
  - (vii) *ecologically sustainable development, and*
  - (viii) *the provision and maintenance of affordable housing, and*
- (b) *to promote the sharing of the responsibility for environmental planning between the different levels of government in the State, and*
- (c) *to provide increased opportunity for public involvement and participation in environmental planning and assessment."*

The most relevant objects to the project assessment include section 5(a)(i), (ii), (vi), (vii) and (viii). The Department is satisfied that the project encourages the proper use of resources and the promotion of orderly and economic use of land.

The recovery of waste building materials for re-use in the construction industry would contribute to the longevity of both natural extractive resources and existing landfill space in the metropolitan region, while re-using an existing landfill site would ensure the ongoing maintenance of the landfill cap and ensure productive use of an otherwise sterile site.

The Department also recognises the potential conflicts with other land uses in the area, particularly the emerging residential and commercial uses to the north of the site and to the west within the newly developing Georges Fair residential estate. The Department has assessed the potential impacts on these land uses in detail in section 5 of this report. The Department's assessment has found that the potential conflicts and impacts of the project can be largely avoided. The project could be carried out generally to comply with relevant noise and air quality criteria and with acceptable impacts on road traffic, flooding, biodiversity and the visual environment. Where there are residual impacts, these can be managed by the implementation of strict conditions of approval and impact mitigation measures.

### **3.9 Ecologically Sustainable Development**

The Department has considered the principles of ecologically sustainable development in its assessment of the project. This assessment integrates all economic and environmental considerations and seeks to avoid serious or irreversible damage to the environment. In particular:

- potential flooding impacts are proposed to be offset by the creation of additional flood storage area;
- biodiversity impacts are proposed to be offset by the purchase of a number of eco-system credits;
- other potential impacts such as those to air quality, the acoustic environment and traffic are the subject of appropriate impact avoidance and mitigation strategies; and
- the proposed recycling facility encourages broader sustainability objectives by recovering waste material for re-use as a substitute for raw materials in the construction industry.



## 4. ISSUES RAISED IN SUBMISSIONS

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### 4.1 Exhibition

The Secretary is required to make the EA for the project publicly available and accept written submissions for at least 30 days. The Secretary may also require that the PPR be made publicly available. Therefore, the Department:

- exhibited the EA from 28 February 2013 to 5 April 2013:
  - on the Department's website and in the Department's information centre;
  - at the Nature Conservation Council's offices; and
  - at Liverpool City Council's offices;
- advertised the exhibition in the Liverpool City Champion on 27 February 2013;
- notified landowners near the project and public authorities about the exhibition by letter;
- exhibited the PPR from 9 October 2013 to 8 November 2013;
  - on the Department's website and in the Department's information centre; and
  - at Liverpool City Council's offices; and
- advertised the PPR exhibition in the Liverpool City Champion on 9 October 2013.

In total, the Department received 1051 public objections in response to the exhibition of the EA and a further 300 were received in response to the exhibition of the PPR. Most of the public objections were individually signed form letters, of which there were 8 versions.

The public submissions included (sometimes multiple) submissions from special interest parties such as Benedict's sand and gravel, Melanie Gibbons (Member for Menai), Boral Property Group (the developer of Georges Fair), and Nuwarra Parents and Citizens' Association. The Department also received in some cases multiple submissions from the agencies listed in section 4.2 below.

A summary of the issues raised in submissions is provided in sections 4.2, 4.3 and 4.4. Full copies of the submissions are attached at **Appendix C**.

### 4.2 Public agency submissions

**Liverpool City Council (Council)** made a submission on the EA on 5 April 2013 and a further submission to the PPR on 8 November 2013. Both submissions objected to the project and raised the following issues:

- *Land use conflicts:*
  - the project is incompatible with the existing and future land use pattern in the area, which is predominantly characterised by residential development, environmental conservation and public open space. Residential development in the area is likely to be adversely impacted and the impacts will not be appropriately mitigated.
- *Access and traffic management:*
  - excessive truck movements would impact on the residential road network and conflict with light vehicle and pedestrian movements;
  - inadequate explanation of the directional distribution of truck traffic. Road pavement impacts may be underestimated for some routes. In particular, the assessed distribution excludes Governor Macquarie Drive;
  - a pavement assessment is required to calculate an appropriate monetary contribution for the maintenance of Brickmakers Drive and Nuwarra Road;
  - inadequate traffic controls at the Brickmakers Drive entry. Trucks may use residential streets in Georges Fair;
  - inadequate cumulative assessment of traffic generation for the project combined with the anticipated development on other land west of Brickmakers Drive. All development should be considered together for the design of the new access at Brickmakers Drive;
  - deferred commencement conditions should be included for access construction, including the bridge component to service other land west of Brickmakers Drive; and
  - inadequate provision of on-site parking for employees;

- *Georges River and flooding:*
  - the 2006 Council consent for flood proofing earthworks may have lapsed requiring a fresh analysis of flood impacts;
  - lack of assessment under *Regional Environmental Plan No 2 – Georges River*;
  - inadequate stormwater collection sumps. Eroded material may enter the waterway during major storms;
  - high risk of debris being washed into the river during major flooding;
  - inadequate flooding assessment of the access construction from Brickmakers Drive;
  - inadequate assessment of public amenity impacts along the foreshore;
  - the site is a missing link in securing a foreshore corridor along the Georges River;
  - unclear whether earthen perimeter bunds are part of the Project Application; and
  - inadequate assessment of change in flood behaviour due to increase in height of earthen perimeter bunds;
- *Contamination:*
  - the 2006 Council consent for earthworks may have lapsed, requiring a fresh analysis of contamination issues; and
  - an Operations Manual for the management of the landfill cap should be included in the Statement of Commitments;
- *Views:*
  - inadequate assessment of ground levels, tree canopy cover and other factors affecting views to the site from surrounding land;
- *Odour:*
  - inadequate assessment of odour impacts;
- *Environmentally significant land:*
  - there are two flora and fauna assessments, which should be consolidated into a single assessment to ensure impacts are considered as a whole;
  - inadequate assessment of indirect impacts, impacts on corridors, species significance and suitable habitat;
  - OEH should be consulted on any bio-banking proposal; and
  - an Environmental Management Plan dealing with flora and fauna matters should be developed and reviewed prior to determination of the application;
- *Acid Sulphate Soils:*
  - inadequate assessment of acid sulphate soil risks;
- *Social and economic impacts:*
  - the EA has not addressed social and economic impacts;
- *Sewerage disposal:*
  - inadequate commitments to ensure the pump-out septic system does not contaminate the water table;
- *Streetscape:*
  - the acoustic barrier along the private haul route is not in keeping with the residential character of the area; and
- *Objects of the Act:*
  - the project is inappropriate given the local zoning and residential context. It is inconsistent with the objects of the Act and should be refused.

**Environment Protection Authority (EPA)** indicated that it would licence the facility and noted the following matters:

- *Noise:*
  - the Department should consider the effects of changing land uses (i.e. the residential development of Georges Fair) on current background noise readings as low ambient noise levels may not be maintained into the future; and
  - the Department should determine an appropriate noise assessment criteria for the currently vacant residential sites. The EPA would licence the criteria as determined by the Department.

- *Air quality:*
  - assessment of the cumulative PM<sub>10</sub> 24 hour average impacts was carried out with a Monte Carlo simulation, which indicates a low probability of additional days where the criterion is exceeded; and
  - conditions of approval should be included to ensure best practice emissions management and auditing.
- *Water quality:*
  - the proposed stormwater scheme is satisfactory and appropriate conditions should be included to ensure it is implemented; and
- *Landfill gas:*
  - the Proponent's measures to prevent and monitor gas accumulation in buildings, and maintain the integrity of the landfill cap are satisfactory.

**Roads and Maritime Services (RMS)** raised the following issues:

- *Construction access:*
  - access from Newbridge Road should only be permitted for the duration of the construction of the new junction with Brickmakers Drive;
  - construction vehicles over 7.5m entering the site from Newbridge Road shall comply with rule 28(2) of the road rules, which requires a left turn from the middle lane;
  - the access from Newbridge Road should be widened for construction access; and
  - a Construction Traffic Management Plan should be implemented;
- *Operational access:*
  - operational access to Newbridge Road should not be permitted;
  - the new intersection to Brickmakers Drive, including signage and line marking should be constructed to Council's requirements; and
  - convex mirrors and traffic signals on Brickmakers Drive are not supported.

**Office of Water (NOW)** raised the following issues:

- *Watercourses:*
  - there are 2 small watercourses with riparian vegetation adjacent to the northern boundary of the site, which should be assessed and provided with safeguard measures to mitigate any impacts;
  - the intention to revegetate a narrow strip along the southern boundary to enhance connectivity with the river, and along the northern boundary is supported;
  - a weed management program should be implemented for the eastern and southern portions of the site, which are outside of the project area; and
  - construction of the earthen perimeter bunds should not disturb remnant vegetation along the Georges River;
- *Groundwater:*
  - the Proponent should hold an appropriate licence/water entitlement for any water take;
  - the project is above the landfill cap and unlikely to significantly impact the natural groundwater system beneath the site beyond the impacts already created by the former landfill; and
  - the installation of groundwater monitoring bores will require consideration of licensing requirements under water legislation;
- *Water harvesting:*
  - the proposed rainwater storage tanks are within the site's Maximum Harvestable Right Dam Capacity and do not require a water licence, but any additional storage may require a licence.

**Office of Environment and Heritage (OEH)** raised the following issues:

- *Flood risk management:*
  - floodplain risk has been satisfactorily considered in the Proponent's PPR;
- *Aboriginal cultural heritage:*
  - notification to the OEH is required should any Aboriginal objects be uncovered or disturbed as a result of the project; and

- *Biodiversity impacts:*
  - conditions of approval should require 9 ecosystem credits of an appropriate type to be purchased and retired prior to works commencing on the site;
  - all proposed mitigation measures should be in an Environmental Management Plan;
  - all native vegetation to be retained should be fenced off, including the area of Ironbark Open Forest on the south western boundary along the batter wall; and
  - protection of the area of Gravel Transition Forest along the south of the site but outside of the project area should be included in the vegetation management scheme for the project.

The **Rural Fire Service**, **Fisheries** and **Crown Lands** raised no particular issues with the project. Crown Lands did however request that it be consulted in the preparation of any weed management program for any parts of the site outside of the project area. The issues raised by other relevant public authorities are described in the following sections.

### 4.3 Special interest submissions

**Melanie Gibbons, Member for Menai** raised the following issues in her submission to the PPR:

- *Need for the project:*
  - The Proponent has not considered alternate locations for the facility. The industrial nature of the project is in conflict with the emerging pattern of residential and recreational land uses in the area;
- *Traffic:*
  - legal access is not available to the site;
  - traffic signal phasing may not permit queuing trucks to clear the intersection;
  - residential traffic may be caught in a line of trucks accessing the project;
  - traffic data is based on an early stage of Georges Fair and may not be current; and
  - trucks may turn left from the site to Brickmakers Drive and travel south;
- *Georges River:*
  - The project would not capture all sediment from the site meaning pollutants may enter the water way; and
  - water quality is already poor and should not be further degraded;
- *Visual impacts:*
  - of the project in Georges Fair, for the proposed marina and any future re-development of the New Brighton Golf Course for housing;
- *Noise:*
  - the installation of noise barriers may be opposed by residents in Georges Fair;
  - noise impacts have not been assessed for any future residential re-development of the New Brighton Golf Course
- *Air quality:*
  - cumulative impacts of dust from Benedict's site and the project; and
  - it is difficult to guarantee that asbestos will not be delivered to the site; and
- *Consultation:*
  - the Proponent's consultation may not have included new and future residents of Georges Fair;
  - there is significant community concerns with the project.
- *Geotechnical issues:*
  - the appropriate geo-technical studies should be carried out on the former landfill;
  - groundwater should be sampled every three months in the first year of operation;
- *Biodiversity:*
  - cumulative impacts to threatened flora and fauna should be considered;
- *Public access:*
  - the Proponent should provide public access to the foreshore through the site.
- *Currency of the documentation:*
  - Some of the impact assessment data in the EA is old and should be updated.



**Nuwarra Parents and Citizens' Association** raised the following issues in its submission:

- *Traffic:*
  - traffic data is based on an early stage of Georges Fair and may not be current;
  - there is no provision to prevent heavy vehicles using roads around the school; and
  - increased risk to student pedestrian traffic from trucks;
- *Air quality and public health:*
  - increased risk to asthma sufferers from dust and exhaust emissions originating both from site and from trucks on public roads;
  - increased risks to public health from the transport of asbestos and silica; and
  - incompatible with and would have a negative impact on surrounding area;

**Boral Property Group** raised the following issues in its initial submission:

- *Secretary's Requirements:*
  - for the project are out of date and do not contemplate current structure of public authorities, legislation, or the physical environment;
- *Alternatives*
  - to the proposed project, including existing facilities at Minto and St Peters, are not considered in the EA;
- *Cost benefit analysis*
  - of the project is not included in the EA;
- *Construction and operation hours:*
  - should be restricted;
- *Site Audit Statement:*
  - is very old and should be undertaken again, particularly in relation to the landfill cap;
- *Access:*
  - over Council and other privately owned land has not been agreed to by the landowners (note: the Court granted easements to the Proponent in June 2013, after Boral lodged its submission);
- *Traffic:*
  - traffic assessment does not consider cumulative impact of traffic from Georges Fair or the proposed marina;
  - there is no assessment of the adequacy of public transport;
  - the intersection at Newbridge Road is already Level of Service "F" and project traffic would further deteriorate the level of service rating;
  - the Proponent should pay road contributions for the Newbridge Road intersection; and
  - there does not appear to be a wheel wash facility on the site, leading to mud and dust on public roads;
- *Waste:*
  - the EA does not include contingency measures to address accidental deliveries of asbestos laden material;
- *Air Quality:*
  - the EA does not correctly locate potentially affected receivers.
- *Noise:*
  - background data is out of date and may not accurately reflect the acoustic conditions in Georges Fair;
  - the background noise measurements are insufficient in both duration and site accuracy to establish a Rating Background Level, leading to overstated noise criteria; and
  - the assessment does not consider the correct criteria for road noise.
- *Soil and water:*
  - the EA does not specify groundwater monitoring locations;
  - the EA does not consider the Aquifer Interference Policy; and
  - groundwater baseline data is inadequate.
- *Visual:*
  - the assessment was undertaken in 2010 and is out of date;

- *Flora and fauna:*
  - the assessment does not address the impact on foraging native fauna nearby to the site and the indirect impacts of dust and noise;
- *Heritage:*
  - the assessment does not address Aboriginal cultural heritage; and
- *Consultation*
  - the Proponent did not consult the appropriate agencies in preparing the EA.

**Benedict Industries Pty Ltd** commissioned a specialists' acoustic assessment of the project by EMGA Mitchell McLennan (**EMGA**), and raised the following issues in its submission:

- *Air quality:*
  - qualified people did not review the Proponent's air quality report.
- *Noise impacts:*
  - the Proponent's noise report does not consider that:
    - Benedict's site is zoned for residential development and should be considered a residential receiver. While there is no subdivision approval, a voluntary planning agreement has been executed for 225 residential lots, and Court proceedings are underway to secure vehicular access for a residential subdivision;
    - there is an isolated residence on the Benedict's site, which should be considered a residential receiver; and
    - there is no assessment of the impact on public recreation areas immediately adjoining the subject site.
  - the noise emissions:
    - exceed the likely residential criteria on over 50% of Benedict's land area;
    - in Georges Fair adjacent to Brickmakers Drive exceed residential criteria by up to 9dB and there is no difference if a noise barrier is installed. EMGA states that it cannot explain how it arrived at different results to the PPR;
    - at Elouera Crescent and Bradbury Street adjacent to Georges Fair also exceed residential criteria; and
    - at the foreshore areas of the proposed marina on Benedict's site exceed passive recreation criteria; and
  - noise barriers are expensive and do not constitute "reasonable and feasible" noise mitigation and should not be permitted.
- *Flooding:*
  - Council's assessment of the flooding impacts in the earthworks approval is technically inappropriate because:
    - the one dimensional flood model that was used would be technically unable to determine the impacts on flood levels and velocities on surrounding properties;
    - there is no assessment of flood velocities on adjacent properties, particularly around the 8m high mound;
  - the excavations in the southern portion of the site will not mitigate the impacts on adjoining properties of the 8m high mound.
- *Waste:*
  - the spoil material to be excavated from the southern portion of the site to raise the northern portion of the site under the Council approval is waste and may not be suitable for that purpose. Virgin excavated natural material should be used.
- *Operating hours:*
  - Saturday operating hours should be limited to 8:00am to 1:00pm.
- *Traffic:*
  - the number of working days per year used in the traffic assessment (292) is optimistic and gives a false impact assessment on intersection performance.
- *Visual impacts:*
  - on the proposed marina should be re-assessed as part of the current application and not deferred until the marina is approved and under construction.

#### 4.4 Public submissions

The issues raised were as follows:

- *Traffic:*
  - construction traffic turning left into the site from the middle lane in Newbridge Road would cause an unsafe obstruction to passing traffic;
  - Brickmakers Drive has a 5-tonne load limit, which prohibits project traffic from accessing the project site;
  - trucks leaving the site enter Brickmakers Drive under a stop sign only, which is unsafe and unpredictable for passing motorists and pedestrians;
  - there is no way to ensure that trucks do not use residential streets in Georges Fair;
  - the project traffic should be considered in light of traffic from the proposed Moorebank intermodal;
  - the project traffic would have a significant impact on arterial roads such as Nuwarra Road, Governor Macquarie Drive and Newbridge Road and increase travel times;
  - alternative access routes have not been considered;
- *Air quality and odour:*
  - watering will not adequately contain dust emissions from stockpiles, material handling and transport, and heavily trafficked areas on the project site;
  - there are health risks with long term exposure to dust particles and silica;
  - the air quality impact assessment did not assess odour or use data for the local area and does not factor in emissions from Benedict's sand and gravel premises;
  - the air quality impact assessment does not correctly locate sensitive receivers;
- *Noise:*
  - projected background noise levels should be ignored for the assessment of noise impacts on the proposed Marina and Benedict's residential zoned land;
  - the noise assessment underestimates the potential future volume of traffic on Brickmakers Drive as the study was carried out shortly after the road was opened;
  - construction noise from the construction of the Brickmakers Drive intersection exceeds construction noise criteria for future residential receivers nearby;
- *Property values:*
  - potentially hazardous surroundings can lead to a 30% discount on property values;
  - part of the site will be visible from Georges Fair, which will lower property values;
  - residents would not be compensated for lost property values;
- *Suitability of the site:*
  - the project is not compatible with the land use patterns in the area, which is predominately residential, environmental conservation and public open space;
  - the project is not needed because there are similar facilities elsewhere; and
  - the project has the potential to expose residents to odours, silica dust, asbestos and other dangerous particles, which are impossible to manage in the location.
- *Cumulative impacts:*
  - of the project when combined with Benedict's sand and gravel premises have not been adequately considered;
- *Asbestos:*
  - it is impossible to guarantee that asbestos will not enter the site;
- *Flooding:*
  - unsafe building materials and stockpiles would be washed downstream during a flood, causing an environmental disaster in the entire Georges River basin;
- *Biodiversity:*
  - emissions from the project would impact on ecologically sensitive areas;
- *Bushfire:*
  - the EA did not assess whether the project would exacerbate or trigger bushfires;
- *Part 3A status:*
  - the NSW Government indicated that with the repeal of Part 3A there would be a return of planning powers to local communities.
- *Consultation:*
  - the Proponent's community consultation was inadequate. Not all residents were invited to the Proponent's public meeting and not all questions were answered.

## 5. ASSESSMENT

The Department has considered the following in its assessment of the proposed project:

- the EA (see **Appendix B**);
- all agency, public and special interest group submissions (see **Appendix C**);
- the Proponent's Preferred Project Report (PPR) (see **Appendix D**);
- additional noise assessment information submitted after the PPR (see **Appendix E**);
- an addendum report dealing with issues associated with Benedict's proposed marina (see **Appendix F**);
- relevant environmental planning instruments, policies and guidelines; and
- relevant provisions of the Act, including the objects of the Act.

The key issues for assessment are access and traffic impacts, noise impacts, air quality, flooding and visual impacts. These matters are addressed in detail in the following sections. Other issues such as stormwater, contamination, ecology and heritage impacts are addressed in **Table 4**.

### 5.1 Access and traffic

Access to the project site and impacts on local roads were key issues raised in submissions. Residents of Georges Fair raised concerns about trucks using the residential streets of the estate and the road safety impacts of trucks turning onto and using Brickmakers Drive. Council raised concerns about the impact of truck movements on the condition of local roads and the potential maintenance burden.

The EA included a traffic impact assessment prepared by Lyle Marshall & Associates Pty Ltd. The PPR included additional information, responding to issues that were raised in submissions. The EA and PPR deal with the potential impacts of both operational and construction traffic on the road network, as well as the design of the new access junction to Brickmakers Drive.

#### 5.1.1 Operational traffic impacts

The haul route is shown in **Figure 8** and includes Brickmakers Drive and Newbridge Road, which connects to the M5 via Henry Lawson Drive to the east and via Nuwarra Road to the west. Newbridge Road also connects to the Hume Highway to the west.



**Figure 8** – Operational haul routes for the proposed project



At full capacity, the project would generate on average, a maximum of 324 trucks movements per day (162 empty and 162 loaded), which is based on an average truckload of 21.2 tonnes on 292 operating days per year (i.e. 6 days per week). The projects peak hourly traffic would generate a maximum of approximately 38 truck movements between 8am and 9am and approximately 21 truck movements between 4pm and 5pm.

#### *Impacts on Brickmakers Drive*

Average Annual Daily Traffic (**AADT**) on Brickmakers Drive is currently about 6,755 vehicles. As it is a new road, the AADT is expected to grow quickly to about 14,400 vehicles by 2021. The project's maximum daily traffic (i.e. 324 trucks) is approximately 4.8% and 2.3% of current and future AADT, respectively. Peak hour project traffic would be approximately 5% of peak hour volumes of all traffic, decreasing to 2.5% with future growth and other developments.

There would be few other heavy vehicles on Brickmakers Drive because of Council's 5-tonne load limit, which commenced 19 August 2013. The 5-tonne limit applies only to through traffic and it would not apply to the project traffic because the restriction does not apply to vehicles with an origin or destination at locations on Brickmakers Drive. As mentioned above, the project traffic would be a small contribution to overall traffic on Brickmakers Drive. It would not significantly impact on road function during the morning or afternoon peak hours, or any other hour.

#### *New site access junction with Brickmakers Drive*

The Proponent's intersection modelling shows that, with trucks entering Brickmakers Drive under stop sign control, the site access would operate at Level of Service (**LoS**) "A" during the 8am to 9am period and LoS "B" during the 4pm to 5pm period. Both A and B ratings are an acceptable level of service under Austroads "Guide to Traffic Management".

Council raised the issue that consideration should also be given to cumulative impacts on the site access junction from future development east of Brickmakers Drive, such as Benedict's proposed marina and the residential and commercial zones. The Proponent provided additional information on this matter in both the PPR and the addendum dealing with the issues associated with the proposed marina.

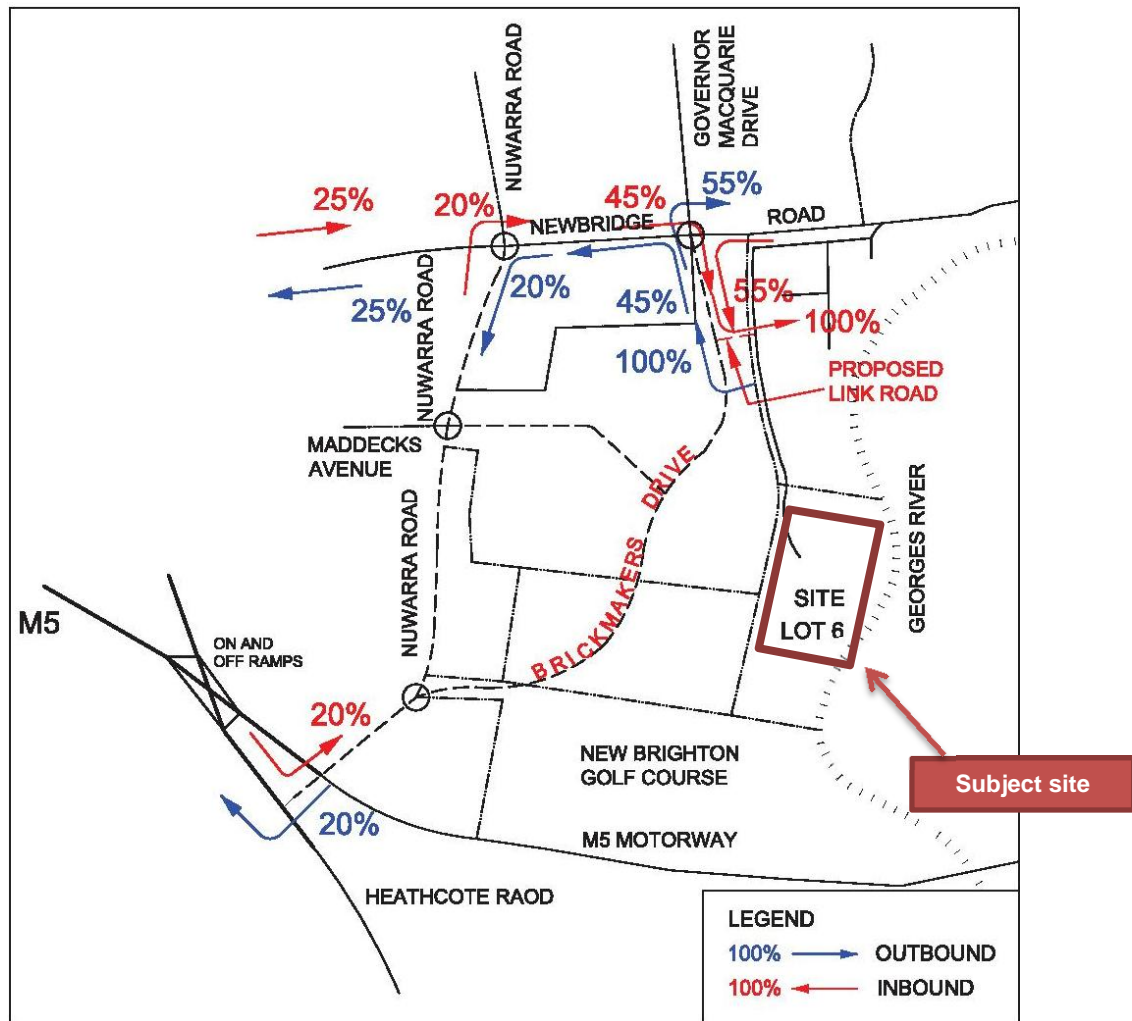
The additional information indicates that, when project traffic is combined with west bound traffic from all future development east of Brickmakers Drive, the new junction would require traffic signals to maintain an acceptable LoS. However, the traffic from the project together with traffic from the proposed marina does not warrant traffic signals, which means that the signals would only be required with future residential and commercial development east of Brickmakers Drive.

The Proponent offered to install traffic signals in any case. The Proponent's traffic engineer argued in the addendum that there is inadequate sight distance to ensure drivers can observe an appropriate gap in traffic before entering Brickmakers Drive. However, the RMS advised that there is insufficient evidence that signals are warranted at this location and did not support the installation of signals. Consequently, based on RMS advice, the Department has not recommended that signals be installed for this project.

#### *Newbridge Road and Nuwarra Road*

About 55% of the project's trucks would arrive from and depart to the east along Newbridge Road to the M5 motorway. In the westerly direction, 20% of trucks would arrive from and depart to the south along Nuwarra Road, and 25% would continue west along Newbridge Road to/from the M7 motorway. This directional distribution is shown in **Figure 9**.

AADT in Newbridge Road is about 63,099 vehicles and the additional project traffic would be a very small portion and unlikely to impact on road function. AADT in Nuwarra Road is about 22,436 vehicles, with about 1,544 heavy vehicles during the hours 7am to 5pm on a weekday. The project's average maximum daily traffic in Nuwarra Road would be about 4.6% of the weekday heavy vehicle traffic, which is unlikely to significantly impact on road function.



**Figure 9 – Haul route directional distribution (new junction with Brickmakers Drive shown as 'Link Road')**

Boral noted in its submission that the intersection of Newbridge Road and Brickmakers Drive currently operates at a LoS "F" during weekday peak hours, which is a poor rating. However, the peak hour truck traffic from the project would result in 1 truck approaching the intersection every 1.6 minutes. The RMS did not raise any issues with the expected performance of this intersection. Consequently, the Department is satisfied that the additional trucks from the project would not lead to any significant further deterioration in its LoS rating.

Council raised concerns in its submission that the Proponent did not justify the directional distribution of project traffic, or assess a potential northern haul route along Governor Macquarie Drive to the Hume Highway. A public submission also raised concern about trucks conflicting with school pedestrian traffic near Nuwarra Public School in Maddecks Avenue.

However, the Department does not share these concerns with the project. The modelled east-west distribution is roughly even (i.e. 45% west and 55% east) and the Department is satisfied this is reasonable for assessment purposes, given the scale and location of the project. In addition, the project has not proposed the use of the northern route along Governor Macquarie Drive or the shortcut along Maddecks Avenue to Nuwarra Road. Consequently, the Department has included a recommended condition prohibiting the use of either of these roads.

#### 5.1.2 Road pavement impacts

The load specification for road pavement is measured in Equivalent Standard Axles (**ESAs**). An ESA is a standardised measure of the impact of one loaded axle on the life of road pavement. The project's maximum impact on any single lane of road pavement would be about 1.987 million ESAs over 20 years.

The road pavement in Brickmakers Drive has been designed as a collector road for up to 8.57 million ESAs, and could accommodate the project traffic without structural performance issues. The road pavement in Newbridge Road and Nuwarra Road are assumed to have a “Category A” design load, which is the maximum RMS specification and exceeds 10 million ESAs.

The existing heavy vehicle traffic load in Newbridge Road is unknown, although with 6 lanes and an assumed design specification of 10 million ESAs, the maximum contribution from the project is expected to be easily accommodated. RMS did not raise any issue with road pavement impacts in Newbridge Road. The existing heavy vehicle traffic load in Nuwarra Road is estimated to be about 6.01 million ESAs. The project would increase the ESA load by about 6.5% and therefore, the additional traffic would remain within its assumed design specification.

Council requested more detailed road pavement investigations so that it can calculate an appropriate road maintenance contribution to levy the project. Council noted that:

- the project traffic would accelerate deterioration of the wearing course on the road pavement in Brickmakers Drive, which is unaccounted for in Council’s maintenance program and would lead to shorter than expected service life; and
- the majority of Nuwarra Road is significantly understrength for the existing traffic loading and large sections of road pavement are already in poor condition. Any increase in heavy vehicle traffic would bring forward its future maintenance requirements.

On previous occasions, the Department has levied road maintenance contributions on an isolated project (typically 4 cents per tonne per km, or similar). However, in those cases (usually in rural situations) there has been a very clear nexus between the project traffic, which would become the dominant traffic on the haul route, and road pavement impacts. The Department’s assessment has concluded that is not the case for this project.

The project traffic would represent a small portion of existing traffic on the haul routes. The project ESA loading represents about 22% of the design load for Brickmakers Drive and 6.5% of the estimated existing load on Nuwarra Road. The project would be able to be accommodated without significant further deterioration in road pavement performance.

The Department considers that it would be inappropriate in this instance to levy road maintenance contributions for road pavement impacts that represent such a small portion of the overall maintenance burden for the road. However, the Department has recommended an approval condition requiring the proponent to make development contributions in accordance with Liverpool Council’s contributions plan.

#### 5.1.3 Access to Brickmakers Drive

Early in the preparation of the Project Application, the then Roads and Traffic Authority indicated that it would not support operational access directly to Newbridge Road, which is a Classified road, because it was too close to existing traffic lights.

Consequently, the Proponent pursued a new access to Brickmakers Drive via a ROW over Council land. Council had given “landowner’s consent” to the lodgement of the Project Application with this access arrangement, but later attempted to withdraw it as part of its objections to the project.

The matter became the subject of proceedings in the Land and Environment Court, which considered both the necessity for and several designs of the access junction with Brickmakers Drive. The Court and parties to the case finally settled on a design for fly-off ramps (see **Figure 10**). The design incorporates a road bridge, which was previously approved by Council and could be constructed (by others) at the same time as or after the ramps to provide access to land further east, including Benedict’s proposed marina and future residential development.

The Court granted a ROW under Section 88K of the *Conveyancing Act 1919* in August 2013. While the ROW remains to be registered on the title of the burdened land, the Department is satisfied that it would need to be registered before the ramps could be constructed without the need for further conditions of approval.

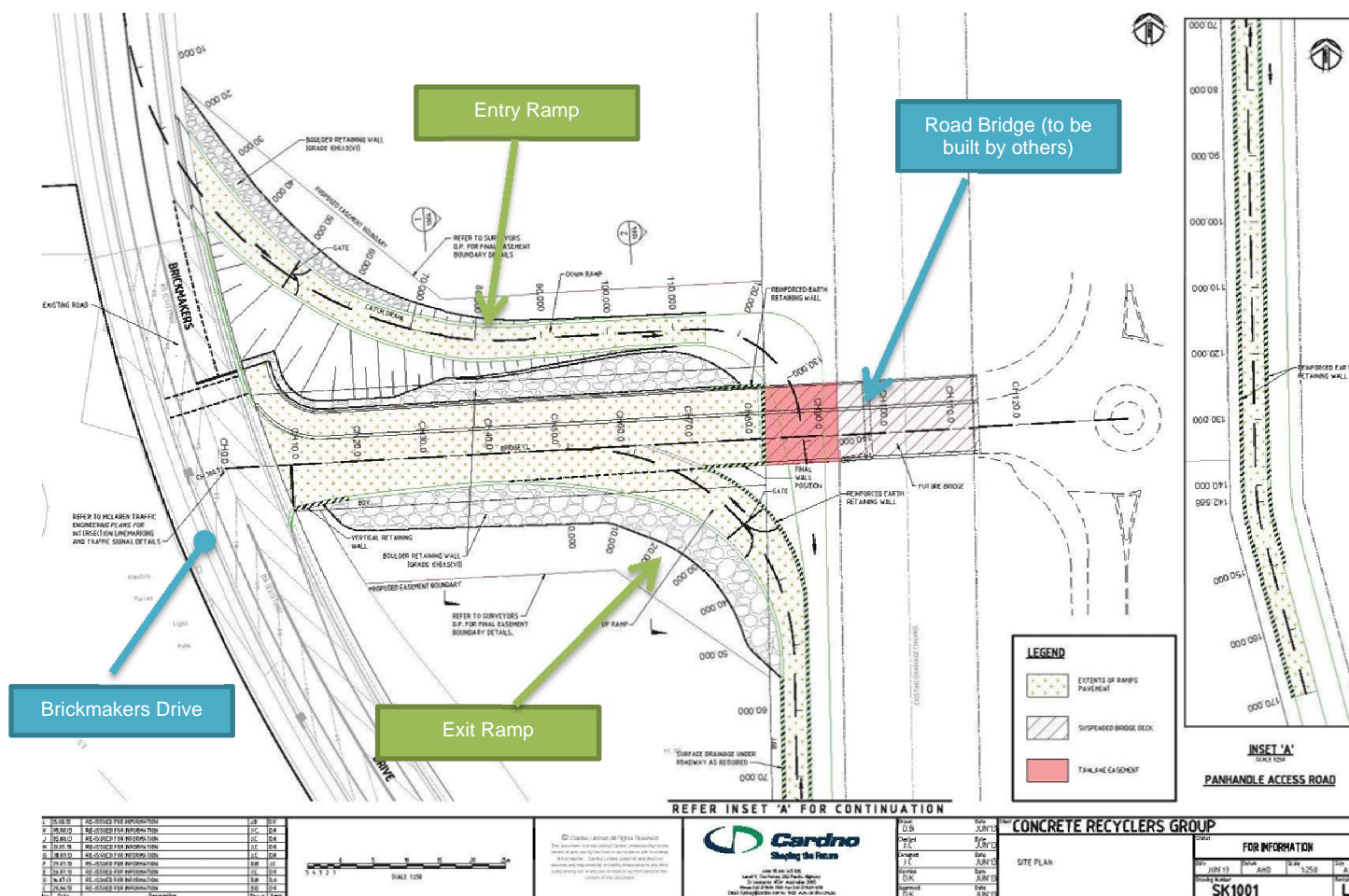


Figure 10 – Proposed intersection with Brickmakers Drive and access within the ROW

Council recommended deferred commencement conditions for construction of the ramps access and the associated road bridge for Benedict's land to the east. However, there is no legislative authority for deferred commencement conditions in the transitional arrangements for Part 3A. Moreover, the road bridge has been designed so that it can be constructed concurrently or after the ramps access for the project site. Consequently, the Department has recommended standard conditions of approval to ensure the ramps access for the project site is constructed before the project commences operation.

#### 5.1.4 Construction traffic

Construction traffic would access the site from the existing junction off Newbridge Road. Semi-trailers and 8.8m Medium Rigid Vehicles would need to turn left into the site from the middle lane in Newbridge Road. This manoeuvre would require minor, temporary upgrades to the junction.

There were several public objections to this left-turn on traffic safety grounds. However, it is a lawful turn, which would occur only during construction of the new access to Brickmakers Drive. All subsequent construction traffic would use the new access. Both the Department and RMS are satisfied with this arrangement subject to recommended conditions of approval. The Department has also included a condition requiring a Construction Traffic Management Plan to be prepared to ensure adequate traffic controls are in place to manage construction traffic.

#### 5.1.5 Conclusion on access and traffic impacts

Access to the project site has been a contentious matter for Council and the community. The Proponent has obtained the legal right to construct a new private haul road over Council and other privately owned land to Brickmakers Drive under section 88K of the *Conveyancing Act 1919*. In deciding the matter, the Court considered a number of designs for a new junction at Brickmakers Drive and finally settled on fly-off ramps, which incorporate the approved road bridge to land further east.

The design of the ramps allows the concurrent or later construction (by others) of the road bridge. The new junction with Brickmakers Drive would operate with a satisfactory level of service with the project traffic under stop sign control. Upon further residential development of the land to the east, traffic signals would need to be installed (by others) to ensure the junction continues to operate with a satisfactory level of service.

In its written objections, Council requested further justification for the modelled directional distribution of project truck traffic, and more detailed road pavement investigations. However, the Department's assessment concludes that the project traffic represents a small portion of the traffic on haul route roads and another traffic distribution model would be unlikely to lead to a different conclusion on traffic impacts. Further, it would be unreasonable to require the current project to be levied road pavement maintenance contributions, given that the project traffic could be comfortably accommodated within the existing maintenance obligations for the haul route roads.

The Department's assessment has concluded that the project's contribution to traffic would be minor and there is minimal risk of further deterioration in the LoS ratings for surrounding roads. While the Newbridge Road intersection already operates well below an acceptable LoS, the project traffic would not lead to a significant further deterioration in its performance. Finally, the Department has recommended a suite of conditions to provide for:

- construction of a temporary construction access of Newbridge Road, and permanent operational access off Brickmakers Drive to Council and RMS specifications;
- ongoing management of both construction and operational traffic impacts with the preparation of traffic management plans in consultation with Council and RMS; and
- a prohibition on the northern haul route along Governor Macquarie Drive and the use of Maddecks Avenue, Moorebank.

## 5.2 Noise

Noise was a key issues raised in submissions. In particular, residents from Georges Fair raised concerns about noise impacts from the operation of the facility and road noise from heavy vehicles.

The EA included a noise impact assessment prepared by Wilkinson Murray Pty Ltd, which addresses the requirements of the *NSW Industrial Noise Policy (INP)*, *Interim Construction Noise Guideline (ICNG)* and *NSW Road Noise Policy (RNP)*. The Proponent's PPR included an updated noise assessment responding to the issues raised in the submissions. There are also a number of additional noise reports from Wilkinson Murray in **Appendix E**.

### 5.2.1 Key noise issues

The key noise assessment issue for the project relates to the potential truck noise impacts on residential land adjacent to the private haul road to Brickmakers Drive. Trucks on this haul road would pass within approximately 20 metres of residential zoned land. As the haul route is a private road, these noise impacts are governed by the INP and not the less stringent road noise criteria in the RNP.

Further, at the time of lodging the project application there were fewer dwellings constructed in Georges Fair and noise criteria for the vacant dwelling lots were unable to be calculated according to assessment method in the INP.

Consequently, there are three key noise issues to consider in the assessment of noise impacts on residential zoned land adjacent to the private haul road. These are:

- what noise assessment criteria should apply at the location of receivers under construction or recently completed;
- whether the predicted noise impacts would comply with criteria at all receivers; and
- whether there is a suitable level of noise mitigation in the project proposal.



### 5.2.2 The Proponent's method for calculating noise assessment criteria

Assessing noise impacts at the location of future dwellings is not covered by the noise assessment method in the INP. The INP method requires background noise measurements to be taken at an affected receiver so that maximum noise criteria can be calculated for that receiver. If the receiver is not present, the background reading cannot be taken.

Notwithstanding, as Georges Fair was developing at the time the project application was lodged (and is now almost fully developed), the Proponent devised an alternate method to establish maximum noise criteria for the future dwellings (as set out in the documents in **Appendix E**).

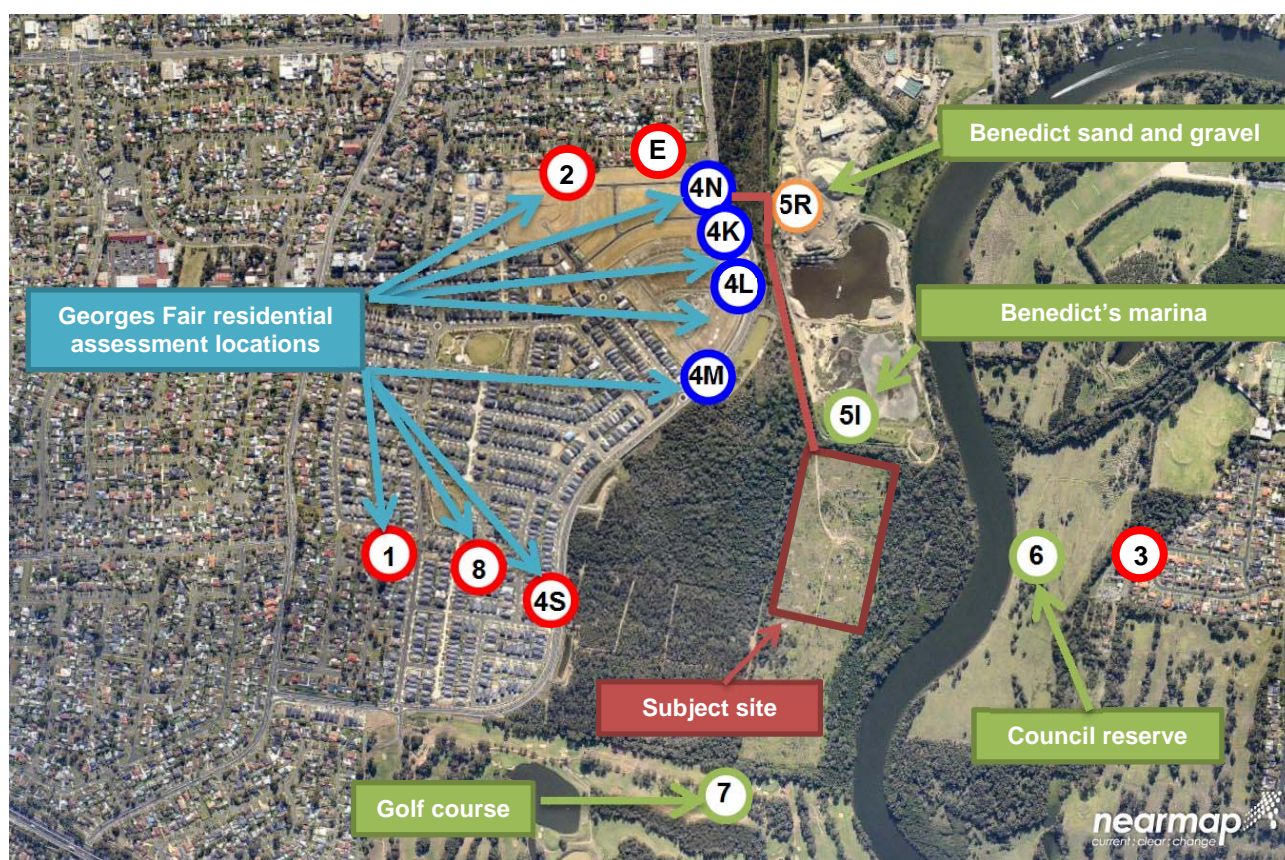
The Proponent's method involved estimating the future background noise levels at the future receiver locations based on the predicted noise increases that would result from predicted increases of traffic on Brickmakers Drive.

While the Proponent's method was based on logical noise and traffic prediction methods, neither the Department nor the EPA were fully satisfied with this approach. The INP is a comprehensive method, which uses actual noise data. By using data estimates and predictions, the Department believes that the Proponent's method may not match the rigour of the INP method because it:

- is not site specific as it relied on city-wide traffic averages to estimate traffic growth, which may not actually be realised in Brickmakers Drive; and
- is not fully reliable as it relied on a small number of 15-minute road noise samples to estimate a background level rather than 7-days' worth of background noise measurements.

### 5.2.3 The Department's method for calculating noise assessment criteria

**Figure 11** below identifies a number of receiver locations. At the time the project application was lodged, the residential receiver locations marked with a blue circle within Georges Fair had not yet been developed with dwellings. As there were no actual receivers at these locations, a corresponding background noise measurement could not be taken.



**Figure 11** – Noise impact assessment locations

In this case, the Department considers it appropriate to use an actual background noise measurement from another receiver which is nearby to the blue receivers and suitably

representative. In this case, red receiver 4S is within Georges Fair and has frontage to Brickmakers Drive. It is the most representative location for blue receivers 4K, 4L, 4M and 4N.

Other red receivers are not considered to be as suitably representative because they are further from the road and would ultimately be shielded from traffic noise by other dwellings. This representative approach is commonly used where there are large numbers of receivers and in this case it is useful for representing future receiver locations.

The noise criteria for non-residential receivers at the green and orange locations in **Figure 11** are fixed by the INP and do not vary according to the background noise levels. Among these receivers:

- green receiver 5I has been assessed as a commercial receiver. While it occurs in a recreational zone, the activities of the proposed marina have the acoustic properties of a commercial land use;
- green receivers 6 and 7 have been assessed as recreational receivers;
- orange receiver 5R has been assessed as an industrial receiver. While it is within a residential zone, it is currently a sand and gravel operation and there is no existing or approved residential subdivision of this land; and
- there is a single dwelling to the north of orange receiver 5R, but as it occurs on the same site as the sand and gravel premises, its acoustic environment would be dominated by that operation, and therefore it is also considered an industrial receiver

As a conservative measure, the Department has carried out an additional assessment of the noise impact measures that may be necessary if and when Benedict's sand and gravel premises is developed for residential purposes in the future.

#### *5.2.4 Predicted noise impacts*

The noise impact assessment in the EA modelled noise impacts for all aspects of the proposed project including construction, operation and road traffic noise. As previously mentioned, truck noise originating on the private haul road are operational noise impacts, which are governed by the INP and not public road noise impacts, which are governed by the RNP.

##### *Construction noise*

Construction noise impacts resulting from site establishment, construction of the earthen perimeter bunds, and construction of the new junction at Brickmakers Drive are generally well within the construction noise criteria set out in the ICNG. However, there are a number of isolated and short-term exceedences of the criteria.

Roadwork noise impacts for the construction of the private haul road to Brickmakers Drive are predicted to exceed the 'noise affected' threshold in the ICNG. The maximum predicted noise level is  $L_{eq,15min}$  72dBA at receivers 2, 4K, 4L, 4M and 4N, which are located in Georges Fair.

However, these impacts would be short-lived, occurring only during the day and only for the duration of the road works. The maximum predicted level would be reached infrequently and would be below the "highly noise affected" threshold of 75dBA. The ICNG permits such work to occur provided notice of the work is given to the affected receivers in advance. This requirement is included in the recommended conditions.

Earthworks for the northern amenity bund are predicted up to  $L_{eq,15min}$  82dBA at Benedict's sand and gravel premises immediately north of the site, which exceeds the 'highly noise affected' threshold of 75dBA. However, the bund construction would be a short term impact and is likely to occur before any change of use on Benedict's site. The predicted impact would be inconsequential to its present industrial use.

##### *Operational noise*

The operational parts of the project (i.e crushing and grinding equipment) would be sufficiently distant from sensitive receivers so that noise impacts would be less than the relevant noise impact criteria as explained below. Only daytime construction and operation is proposed and there will be no evening or night time noise impacts.

The predicted day time operational noise impacts (with noise mitigation) are set out in **Table 2** below. The noise modelling shows that the project can be carried out to comply with the intrusive noise assessment criteria for all but one of the nearby residential and other sensitive receivers.

It is noted that at red receiver location 4K there is a minor non-compliance of 1dBA only during adverse meteorological conditions. This location is close to the private haul road where it joins Brickmakers Drive and the predicted noise impact is from trucks rather than operations at the more distant facility. A day time 1dBA exceedence would not be discernible to a person with normal hearing, and it is considered an acceptable impact.

**Table 2 – Operational noise impacts (with noise mitigation)**

Location	RBL (dBA)	Intrusive Criteria (L <sub>Aeq, 15min</sub> dBA)	Amenity Criteria (L <sub>Aeq</sub> dBA)	Impacts (L <sub>Aeq, 15min</sub> dBA)	
				Neutral	Adverse
1 – Malinya	44	49	55-60	39	44
2 – Elouera	43	48		41	45
3 – Martin	43	48		44	48
4K – Georges Fair	47*	52		52	53
4L – Georges Fair	47*	52		51	52
4M – Georges Fair	47*	52		48	51
4N – Georges Fair	47*	52		50	52
4S – Bushview	47	52		44	48
8 – Bradbury	37	42		30	34
5R – Benedict	-	-	70-75	54-58	55-58
5I – Future marina			70-75	55 (L <sub>Aeq, period</sub> )	56 (L <sub>Aeq, period</sub> )
6 – Reserve			50-55	46 (L <sub>Aeq, period</sub> )	50 (L <sub>Aeq, period</sub> )
7 – Golf course			55-60	42 (L <sub>Aeq, period</sub> )	46 (L <sub>Aeq, period</sub> )

\* Representative value derived from similar receiver at location 4S

#### Noise mitigation for future residential development of Benedict's land

**Table 2** also indicates that future residential receivers on Benedict's sand and gravel premises may experience noise impacts in the order of 54 to 58 dBA resulting from trucks on the private haul road. These predicted noise impacts are likely to be slightly above the intrusive noise assessment criteria that would be calculated after the land is developed for residential uses, but are currently well below the day time amenity criteria that apply for the present industrial uses.

Benedict's submission included a specialist's noise assessment prepared by EMGA Mitchell McLennan. While this assessment predicted that the project would exceed residential noise assessment criteria by up to 9 dBA, EMGA does not explain how it arrived at such a varied result. The submission states that the different result cannot be explained and as such the Department is unable to support its findings.

The predicted noise impacts on any future residential development of Benedict's land could be improved to around 51dBA with the erection of a 3m high acoustic barrier on the western boundary of the residential zone between the private haul road and the location of future dwellings. Such an improvement would mean the noise impacts at Benedict's site would be comparable to the impacts within Georges Fair. However, the site is presently used for industrial purposes and there is no application or approval for residential subdivision. Any such barrier would have little value while Benedict's site remains an industrial use.

In the context of the civil work that would be required to redevelop Benedict's site from industrial to residential including remediation, earthworks, roadwork, drainage and other infrastructure, a 3m acoustic barrier to protect future dwellings would be a minor additional work, which could be conditioned by Council when dealing with a future development application for the land. Consequently, the Department does not consider it reasonable to require the Proponent to erect an acoustic barrier to protect Benedict's site which may or may not ultimately be approved for residential development.

Finally, the project would not directly cause non-compliance with the INP noise amenity criteria. The Department notes that additional industrial uses would be unlikely in the vicinity of Georges Fair owing to the arrangement of land use zones. Therefore, it is highly unlikely that the project,

and in particular the minor predicted non-compliance with the intrusive criteria, would lead or contribute to cumulative noise impacts above the amenity criteria.

#### *Public road traffic noise*

Road traffic noise from heavy vehicles on public roads is predicted to increase by small amounts. For residences along the haul route with frontage to Brickmakers Drive,  $L_{eq,1hr}$  noise would increase from 52-55dBA to 55-56dBA and remain within the RNP criterion of 60dBA.

For residences with frontage to Nuwarra Road and Newbridge Road, road traffic noise is likely to already exceed the RNP criterion. In these cases, the project is predicted to add 0.3dBA and 0.2dBA respectively, which is within the RNP allowance of 2dBA in circumstances where the criterion is already exceeded.

Consequently, the Department considers the road noise impacts of the project to be minimal. Notwithstanding, a recommended condition of approval requires implementation of a Drivers' Code of Conduct, which would require drivers to minimise noisy driving practices near residential areas.

#### **5.2.5 Noise impact mitigation**

The Proponent has committed to and would be required by the recommended conditions of approval to carry out a range of passive and active noise mitigation measures during construction and operation. These measures would need to be carried out to ensure the project complies with the noise predictions set out in **Table 2** above, and are summarised in **Table 3** below.

**Table 3 – Construction, operation and public road noise mitigation measures**

<b>Project component</b>	<b>Noise mitigation measures</b>
<i>Construction</i>	<ul style="list-style-type: none"> <li>Construction hours to comply with ICNG as follows: <ul style="list-style-type: none"> <li>7am to 6pm Monday to Friday; and</li> <li>8am to 1pm Saturday.</li> </ul> </li> <li>Notification to residential receivers where short term work expected above the "noise affected" threshold in the ICNG; and</li> <li>Preparation of a Construction Noise Management Plan.</li> </ul>
<i>Operation</i>	<ul style="list-style-type: none"> <li>Enclosure indoors of fixed crushing and grinding equipment;</li> <li>Erection of 8m and 6m earthen amenity bunds on northern and western boundaries;</li> <li>Erection of 1.5m high acoustic barriers between the private haul road and Georges Fair;</li> <li>Operational hours to comply with INP day period, as follows: <ul style="list-style-type: none"> <li>7am to 6pm Monday to Friday; and</li> <li>8am to 1pm Saturday.</li> </ul> </li> <li>Cease use of crusher at 5:30pm, 30 minutes prior to site closure;</li> <li>Speed limit trucks on the private haul road to 25km per hour;</li> <li>Install the following on mobile plant and equipment: <ul style="list-style-type: none"> <li>wideband reversing alarms or similar;</li> <li>hydraulic dipper-door snubbers; and</li> <li>other residual noise silencers, as appropriate.</li> </ul> </li> <li>Maintenance of all equipment and noise mitigating measures to ensure proper operation;</li> <li>Preparation of an Operational Noise Management Plan; and</li> <li>Periodic noise monitoring to ensure compliance with predictions and assessment criteria.</li> </ul>
<i>Road noise</i>	<ul style="list-style-type: none"> <li>Preparation of a Drivers' Code of Conduct to ensure drivers minimise noise impacts.</li> </ul>

The 1.5m high acoustic barriers to be erected in between the private haul road and Georges Fair are highly significant to the acoustic performance of the development because they attenuate engine and transmission noise from trucks on the private haul route. The proposal would only achieve compliance with operational noise assessment criteria if the barriers are constructed precisely in the manner that is specified in the Proponent's submission to the Department dated 9 April 2014 (see **Appendix E**). **Figure 12** below shows the location of the barriers.

Any noise issue that might arise in the future would be captured by the Proponent's periodic monitoring of background noise levels and actual noise impacts, which the Proponent would be required to carry out by the recommended conditions. Should the monitoring identify any unexpected noise issues, the Department would be able to require the Proponent to implement additional noise mitigation measures at that time to ensure long term compliance.



Technical drawing of a road layout showing a ramp, retaining walls, and barriers. The drawing includes stationing from 0+000 to 140+000. Key features include:

- Solid barrier from ch36.0 to ch78.0 at 1.5m above the ramp**
- Solid barrier from ch0.0 to ch140.0 at 1.5m above the ramp**
- Solid barrier from ch0.0 to ch140.0 at 1.5m above the ramp**
- REINFORCED EARTH RETAINING WALL**
- VERTICAL RETAINING WALL**
- GATE**

A blue arrow points to the barrier location.

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### 5.2.6 Conclusion on noise impacts

The Department's assessment has concluded that all aspects of the project including construction, operation and public road noise, can be comfortably carried out within the relevant noise criteria under the ICNG, INP and RNP, except for truck noise impacts on residential receivers in the vicinity of the private haul road to Brickmakers Drive. As set-out above, truck noise impacts on the private haul road can comply with noise assessment criteria except for a minor exceedence of 1dBA during day time adverse meteorology. This is a minor impact and considered acceptable.

The EPA supports the Department's assessment and has agreed to include the Department's noise criteria in the EPL for the project. The Department has recommended a range of strict noise related conditions. The conditions include:

- maximum day time noise limits and a prohibition on evening and night time operation;
- the implementation of noise minimisation practices, such as speed limiting trucks on the private haul road, in a noise management plan; and
- periodic noise impact monitoring and validation to ensure the project complies with the maximum noise limits.

Finally, should unexpected noise compliance issues with the project arise through the Proponent's noise monitoring or from community complaints, the Department would be able to enforce the conditions of approval and/or require the Proponent to adjust the operation or carry out additional noise mitigation measures to address any areas of non-compliance.

## 5.3 Air quality

Air quality impacts and the potential health risks of airborne particulate matter were key issues in the public submissions.

The EA included an Air Quality Assessment prepared by PAE Holmes to address the requirements of the *Approved Methods for Modelling and Assessment of Air Pollutants in NSW (Approved Methods)*. The PPR included an updated Air Quality Assessment responding to the issues raised in the submissions. The updated assessment was prepared by Pacific Environment Limited.

### 5.3.1 Air quality assessment and predicted impacts

The updated assessment examines all potential sources of air emissions from the project including wheel dust, truck emissions, unloading, crushing, screening and wind erosion from exposed areas and stockpiles. The updated assessment addresses key issues in the submissions, including:

- the use of meteorological data from 2006 when adverse meteorology (i.e. south-east wind) was more prominent than in other years;
- a higher number of and more accurately located sensitive receivers, including the site of the proposed marina on Benedict's sand and gravel premises;
- a high level emissions inventory for Benedict's sand and gravel premises for the assessment of 24-hour cumulative impacts; and
- a Monte Carlo simulation to predict cumulative 24-hour air quality impacts from background and cumulative emissions sources including Benedict's premises.

The updated assessment predicts that air quality impacts are within the criteria set out in the Approved Methods. At the most affected receivers, which are in Georges Fair, annual average concentration of:

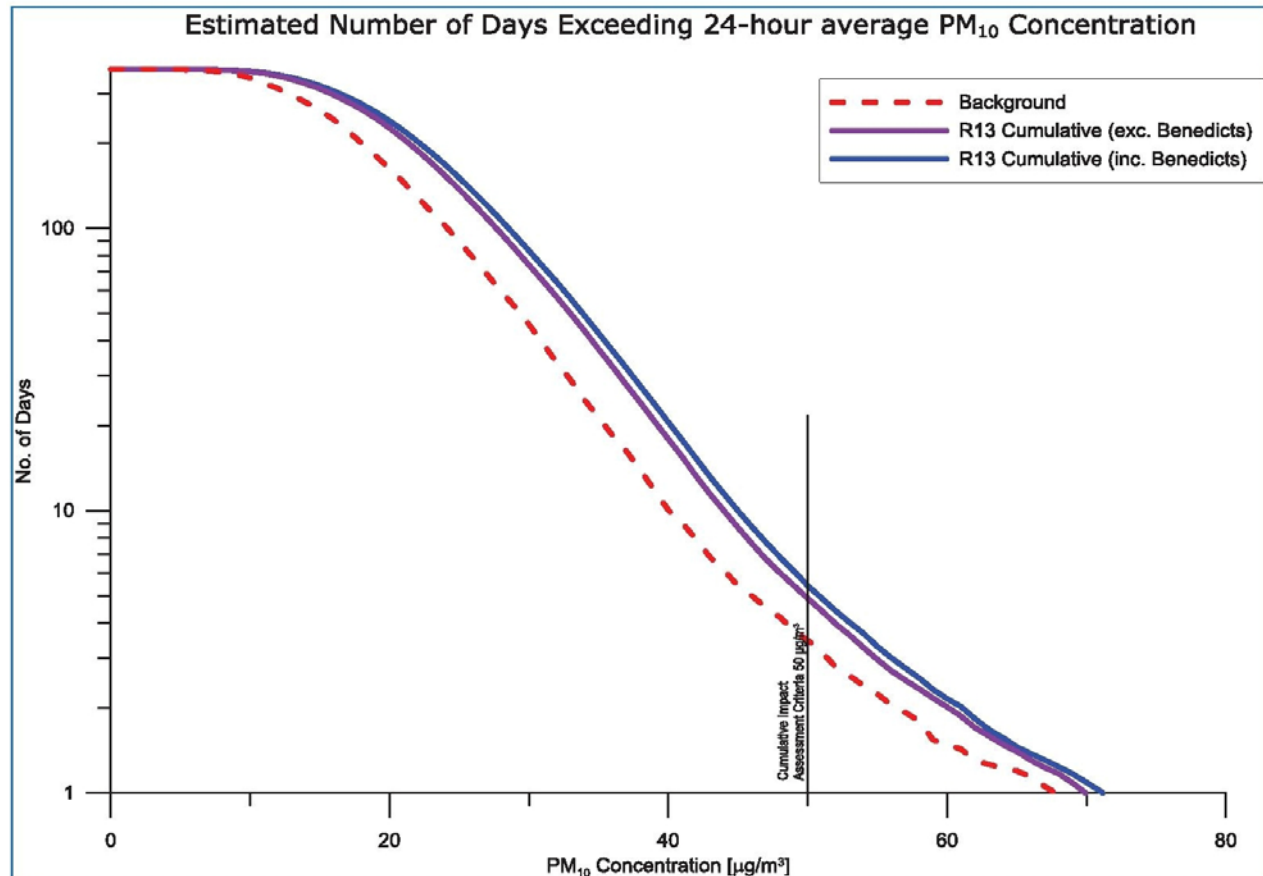
- Particulate Matter 10 (**PM<sub>10</sub>**) increases from 22µg/m<sup>3</sup> to 24.5µg/m<sup>3</sup> but remains below the criteria of 30µg/m<sup>3</sup>;
- Total Suspended Particles (**TSP**) increases from 55µg/m<sup>3</sup> to 59.5µg/m<sup>3</sup> but remains below the criteria of 90µg/m<sup>3</sup>; and
- dust deposition increases from 2g/m<sup>2</sup>/month to 3.9g/m<sup>2</sup>/month but remains below the criteria of 4g/m<sup>2</sup>/month.

### 5.3.2 Cumulative 24-hour impact predictions using Monte Carlo simulation

Monte Carlo simulation is increasingly used for the assessment of air quality impacts for open cut mining in NSW. It uses repeated random sampling to give a distribution of probable cumulative air

emissions. This helps to overcome the difficulties in making accurate predictions based on 24-hour background air quality data, which can be highly variable.

The Monte Carlo simulation predicts exceedences of the 24-hour average PM<sub>10</sub>, criterion (50µg/m<sup>3</sup>) would occur on 4.5 days per year<sup>1</sup> at the worst affected receiver as a result of the project (see **Figure 13**). This is a small increase on background exceedences, which occur on 2.5 days per year. The EPA advised that this is a minor, acceptable increase in exceedence probability.



**Figure 13** – Probability distribution of cumulative 24-hour average PM<sub>10</sub> emissions at closest receiver (R13)

### 5.3.3 Additional air quality issues raised in submissions

There are a number of other air quality matters that were raised in submissions regarding emissions of asbestos, odour and respirable crystalline silica. The Department notes that:

- asbestos would not be accepted at the site. The Proponent would be required to adhere to a strict protocol to ensure that asbestos is not accidentally accepted at the site;
- organic or putrescible waste would not be accepted at the site. Only masonry demolition waste such as bricks, concrete, sand, sandstone and asphalt would be accepted. This material would not result in significant off-site odour emissions; and
- emissions of respirable crystalline silicosis would rapidly disperse and are unlikely to lead to the occurrence of silicosis in the community.

Silicosis is known to be an occupational disease. While there is limited research into the effects of silica emissions on community health, a 2006 Australian Senate Inquiry stated:

*“there have been no observances of silicosis arising from exposure to respirable crystalline silica in the community ... in Australia [or] overseas ... any source of silica dust that is industrial is dissipated in terms of its intensity very rapidly by distance. So, although there is a theoretical possibility that somebody could be living next to a source of respirable silica dust, in practice nobody has ever found such a case.”<sup>2</sup>*

<sup>1</sup> Equivalent to a 1.2% chance of exceeding the criteria on any day.

<sup>2</sup> Workplace Exposure to toxic dust, Community Affairs References Committee, 2006, Commonwealth of Australia

NSW does not specifically regulate silica emissions. However, in Victoria, *State Environment Protection Policy (Air Quality Management) for Mining and Extractive Industries 2007*, specifies a maximum annual average of  $3\mu\text{g}/\text{m}^3$  for respirable crystalline silica in the  $\text{PM}_{2.5}$  range.

Assuming that  $\text{PM}_{2.5}$  is nominally 15% of  $\text{PM}_{10}$  for wind erosion and aggregate handling<sup>3</sup>, the Department has calculated that the combined annual average  $\text{PM}_{2.5}$  emissions for both the project and Benedict's premises would be  $0.9\mu\text{g}/\text{m}^3$  at the worst affected receiver. Respirable crystalline silica would be a smaller fraction still of  $\text{PM}_{2.5}$  and therefore well below the Victorian criterion. Consequently, the Department is satisfied that the risk of respirable crystalline silica to the community from the project is minimal.

#### 5.3.4 Air quality impact mitigation measures

The project would employ a range of operational measures to mitigate air quality impacts. The main access road would be tar sealed and regularly swept, while unsealed roads, stockpiles and other exposed areas would be watered as necessary; product conveyors would be installed with water sprays; a wheel wash would be installed at the site exit; and the main crushing and screening activities would be enclosed indoors.

In addition, the Proponent would be required by the conditions of approval to carry out real-time  $\text{PM}_{10}$  emissions monitoring for a period of time with twin monitors installed south of the site, and within the Georges Fair estate. The monitoring would allow validation of the air quality impact predictions, which may lead, if necessary, to additional air quality measures. Both the Department and the EPA support periodic air quality impact validation of the project and this would be included in the conditions of approval and the EPL.

#### 5.3.5 Conclusions on air quality impacts

The Department's assessment has concluded that the predicted air quality impacts are generally below the relevant criteria. There is a small predicted increase in the probability that the most affected receiver will experience an exceedance of the 24-hour average  $\text{PM}_{10}$  criteria from 2.5 days to 4.5 days per year. However, both the Department and the EPA consider the increased probability to be very minor and acceptable.

Notwithstanding, the Department recommends a suite of air quality related conditions of approval, which include:

- a full range of EPA derived maximum air quality impact criteria;
- installation of all proposed air impact mitigation measures such as watering systems for exposed soil and processing operations, sealed driveways where possible, crushing enclosures and a wheel wash;
- implementation of air quality management practices, such as increased vigilance or altered operations during adverse meteorology, within an air quality management plan; and
- ongoing air quality monitoring nearby to the site, and periodic impact validation to ensure air quality impacts remain within the EPA air quality criteria.

The Department is satisfied that with the implementation of these conditions, air quality impacts from the project would be adequately managed and any future problems could be quickly identified and remedied.

## 5.4 Flooding

The EA included a Water Management and Pollution Control Assessment prepared by Evans & Peck. This assessment deals with flooding in the Georges River and includes a proposed Flood Evacuation Plan for the project. The assessment was updated following the exhibition of the EA and the updated version is included in the Proponent's PPR.

The site is mapped as flood prone land in the *Georges River Floodplain Risk Management Study and Plan, 2004*.<sup>4</sup> It lies within an area of high flood hazard, which is defined as land that is lower

<sup>3</sup> Background document for revisions to fine fraction ratios used for [US EPA] AP-42 Fugitive Dust Emission Factors, 2006, Midwest Research Institute, Kansas City

<sup>4</sup> Brewsher Consulting Pty Ltd as commissioned by Liverpool and Bankstown Councils.

than the 1 in 100 year flood level and that is either subject to significant hydraulic forces or is located where evacuation would be difficult during a flood.

#### 5.4.1 Impacts on the site from flooding

Council approved earthworks on the site on 27 June 2006. The consent permits excavation of 40,000m<sup>3</sup> of spoil from the southern portion of the site (shown as Area 3 in **Figure 14**) and the use of the spoil to raise the northern portion of the site to match the level of the 1 in 100 year flood (shown as Area 1 in **Figure 14**).

The Council approved earthworks were designed to protect future land uses (i.e. the proposed recycling facility) from flooding. The consent also included permission to construct 4m high earthen bunds on the perimeter of Areas 1 and 2, providing further protection from the hydraulic forces of floods greater than the 1 in 100 year event. The project includes additions to these bunds raising them to 8m on the northern boundary, and 6m on the western boundary for additional noise and visual impact attenuation.

The operational aspects of the project and the perimeter bund additions would be situated on the approved earthworks and above the 1 in 100 year flood level of about 5.5 m above Australian Height Datum. However, the access road to Brickmakers Drive is about 1.96m AHD at its lowest point and would be inundated in a 1 in 3 year flood by 0.1m, increasing to 0.8m in a 1 in 5 year flood and 3.7m in a 1 in 100 year flood.

Along with the access road to the site, there would also be new earthworks below this flood level. A new embankment would transition between the higher Brickmakers Drive and the lower site access road, resulting in a loss of about 5,100m<sup>3</sup> of storage in a 1 in 100 year flood.

The PPR includes a draft Flood Emergency Plan. Access to the site would be cut relatively early in the event of flooding in the Georges River. Therefore, the emergency plan triggers a flood readiness protocol when the Bureau of Meteorology issues a “severe thunderstorm warning”, “severe weather warning”, or a “Flood Watch” warning. Site evacuation would be triggered when a preliminary warning for minor flooding in the Georges River is issued.

The State Emergency Service operates the Georges River flood-warning scheme and would issue this warning when the flood level at the Milperra Bridge is predicted to reach 2m AHD within about 6 hours. The access road to the project would be flooded shortly after the 6-hour mark, so the warning would give site personnel about 6 hours to secure mobile plant and evacuate.

During a very rare Probable Maximum Flood (**PMF**), there is likely to be up to 5m of flood depth beyond the 1 in 100 year flood. Such a flood is likely to overtop the eastern and southern perimeter bunds and inundate the site. Generally, the PMF is regarded as an extremely rare and devastating event for which additional protection measures are not generally justifiable for any development on a cost-benefit analysis.

The project includes secure storage for mobile plant, fuel, oils and oxyacetylene tanks on the site reducing the likelihood of these items being washed away during a PMF. The Department does not consider that there are any policy requirements that warrant additional protection measures such as completely bunding the site for a PMF. In addition to raising the site and implementing an early warning evacuation plan, the project also includes ancillary flood protection measures, such as raised building floor levels and elevated power points.

The Department is satisfied that the project would be generally well protected from flooding during the 1 in 100 year flood. The Department recommends a condition of approval to ensure that the flood emergency plan is implemented requiring plant to be secured and personnel evacuated when flooding is imminent. The OEH agrees with the Department’s position and it states in its latest submission on the project dated 4 November 2014 that “*floodplain risk management ... [has] been satisfactorily considered*”.



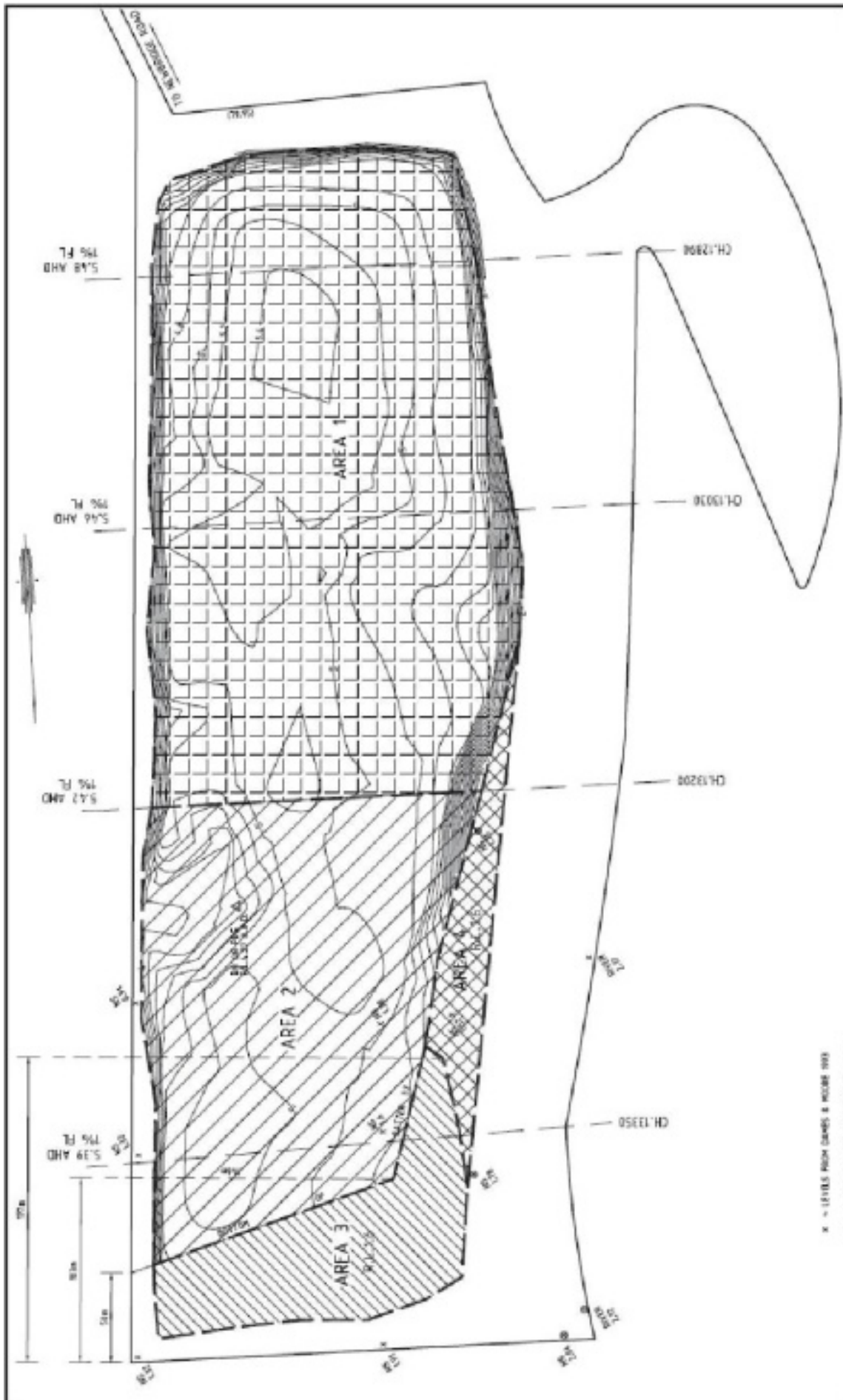


Figure 14 – Council approved earthworks

#### 5.4.2 Impacts on flooding from the site works

Council set out a number of flooding related concerns in its submissions. Those concerns were:

- the 2006 Council consent for earthworks may have lapsed, requiring a fresh analysis of some flooding issues for the proposed project;
- structures, stockpiles, and the earthen perimeter bunds would create flooding blockage hazards and displace flood storage, leading to more severe flooding on nearby land, and resulting in contamination and debris in the waterway during a flood;
- the access road to Brickmakers Drive would result in loss of flood storage, which has not been assessed in the EA; and
- the EA does not adequately consider the *Greater Metropolitan Regional Environmental Plan No 2 – Georges River Catchment*.

The Council consent for earthworks was enacted in the weeks prior to its expiry on 27 June 2009. On 8 April 2009 the Proponent commissioned Jeffery and Katauskas Pty Ltd to prepare a geotechnical investigation of the excavation methods and batter slope design for the approved excavation work. The report is dated 22 June 2009. Dix Gardener Pty Ltd issued a Construction Certificate for the earthworks on 19 June 2009, and a temporary construction access (as required by condition 26 of the Council consent) was laid down on 26 June 2009. Council states that it does not have a record of the commencement of these works. It also states that many of its records were destroyed by fire in August 2010.

While several aspects of the approved works remain incomplete pending the outcome of the current project application, the Department is satisfied that the Council consent is active and may be relied upon to complete the flood proofing earthworks. These earthworks were approved on the basis that there was to be no net loss of flood storage during a 1 in 100 year flood, and consequently no significant effect on flood levels in the Georges River.

This is reflected in the Council consent, which included a condition requiring that “[t]here shall be no net loss of floodplain storage volume below the 1% Annual Exceedence Probability flood.”<sup>5</sup> Consequently, the Department is satisfied that both the operational parts of the site and the additions to the perimeter bunds are protected from damage caused by flood, and would not contribute to flooding impacts during a 1 in 100 year flood.

The project also includes an offset for the loss of 5,100m<sup>3</sup> of flood storage because of the new embankment adjacent to Brickmakers Drive. A roller would compact spoil in Area 2 to lower it by at least 150mm. This would provide an additional 4,840m<sup>3</sup> of flood storage during a 1 in 100 year flood, leaving a residual storage loss totalling just 260m<sup>3</sup>.

Notwithstanding the offset, the updated assessment in the PPR examined flooding scenarios to determine the extent of impacts in the immediate vicinity of the new embankment that might result from a net loss of 5,100m<sup>3</sup> of flood storage.

The report, which was based on flooding characteristics of the area described in the 1999 Georges River Model Study, found that for a 1 in 100 year flood in the Georges River, the new embankment would result in a flood increase of 2-3mm in the immediate locality. The modelling for lesser floods show a minor degree of changes to flood levels with no adverse consequences for surrounding land or infrastructure.

Consequently, the Department is satisfied that the new embankment would have an inconsequential impact on flood levels and velocity during floods up to and including a 1 in 100 year event in the Georges River.

Finally, the Department has considered the provisions of the *Greater Metropolitan Regional Environmental Plan No 2 – Georges River Catchment* as set out in **Appendix G**, and concludes that the project is consistent with the aims, objectives and planning principles of the plan.

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<sup>5</sup> 1% Annual Exceedence Probability flood is the correct term for the more widely used phrase 1 in 100 year flood.

## 5.5 Visual Amenity

Potential visual impacts of the proposal, particularly when viewed from Georges Fair and the Georges River, were key issues raised in public submissions. The owner of the adjoining extractive industry (Benedicts) also raised concerns about potential visual impacts associated with the proposal when viewed from the proposed marina immediately to the north of the site.

The EA included a Visual Impact Assessment report prepared by Dr Richard Lamb of Richard Lamb and Associates. The report assessed the potential visibility of the project from:

- existing residential areas nearby to the site;
- within Georges Fair;
- Benedict's sand and gravel premises immediately to the north of the project site; and
- Public reserves, parks and golf courses

The report included a number of photographs from various vantage points surrounding the site, three of which are reproduced in **Figures 15, 16** and **17** below.



**Figure 15** – Looking east in the direction of the site from Malinya Crescent near Malinya Park. Residential development has since occurred within Georges Fair in the middle ground, blocking views toward the site. The site is not visible in this photograph as it is behind the trees in the distance.



**Figure 16** – Looking south west in the direction of the site from Vale of Ah reserve on the eastern side of Georges River the site is not visible due to the screening effect of vegetation between the reserve and the river, on the Benedict site and along the eastern edge of the project site



**Figure 17** – Looking south west in the direction of the site from Davy Robinson Drive. Trees in the southern part of the Benedict site and the northern part of the project site obscure views of the site.

Following the exhibition of the project the Proponent made a number of key changes in order to address the issues that were raised about potential visual impacts associated with the proposal. These changes were:

- additions to the landscaped perimeter bunds including increasing the height of the western bund from 4m to 6m, and increasing the northern bund from 4m to 8 m to provide additional visual protection for the proposed marina; and
- reductions to the raw material stockpile height from 10m to 7m so that the stockpiles would be concealed behind the landscaped perimeter bunds to further improve the visual impacts of the project.

The Department considers that the project site is generally well concealed from view. The site is sufficiently setback from Georges Fair and there is a significant amount of vegetation screening the site on the flood plain to the northwest, west, south and east of the site. In the wider public domain, the top of the 7m high raw material stockpiles may only become visible either at some distance (greater than 500m) at elevation within Georges Fair, or in close proximity on the Georges River. However, this is unlikely as these views will become obstructed by further dwelling construction in Georges Fair.

Closer to the site, buildings, equipment and the 4m product stockpiles would be concealed from view by the 4m high amenity bunds to the east and west, while any view of the operation from ground level on the site of the proposed marina would be concealed by the 8m amenity bund on the northern boundary. It is also noted that the proposed marina does not have any commercial or public areas looking south over the site as it has been designed to maximise views of the Georges River to the east.

The private access road and noise barrier would be visually compatible with other road infrastructure in the vicinity, which includes Brickmakers Drive and the road bridge to Benedict's land. Landscaping of all bulk earthworks such as the amenity bunds and around the private access road would be beneficial and would increase the visual screening above the height of the bund.

The Department's assessment has concluded that the project is unlikely to block or screen views over the site to significant landscape features and that views of the operation itself would only be partially visible from distant vantage points and unlikely to result in adverse impacts on the visual amenity of the area.

Overall, the Department considers the impacts on visual amenity would be limited and acceptable. To ensure the site is adequately screened the Department has recommended a condition of approval



requiring the Proponent to prepare a Landscape Management Plan providing landscaping to exposed areas before construction begins.

## 5.6 Other issues

**Table 4 – Assessment of other issues**

<b>Issue</b>	<b>Assessment</b>	<b>Recommendation</b>
Surface water	<ul style="list-style-type: none"> <li>The EA was accompanied by a Water Management and Pollution Control Assessment prepared by Evans &amp; Peck. The assessment deals with surface water controls for the site.</li> <li>Surface runoff from the operational parts of the site would be intercepted and directed to four collection sumps, where it would be separated from any sediment, trash and oil. The collected stormwater would then be directed to four, 250,000 litre storage tanks for re-use in dust suppression, landscaping and other site processes requiring water.</li> <li>The stormwater collection system is predicted to capture 91% of the sediment load in site run-off, while supplying 55% of the site's water demands. Any surcharge from the collection sumps would be directed to bio-retention swales before being discharged from the site.</li> <li>The private access road would be installed with suitable drainage devices for the control of stormwater and sediment.</li> <li>The Proponent would implement a water quality monitoring program to ensure the overall system operates as intended to prevent dirty stormwater leaving the site.</li> <li>The EPA notes that water pollution control on the site should not be a significant issue and it has agreed to licence the discharge points.</li> <li>The Council did not raise any issues with the day to day operation of the stormwater system on the site, although the Department is aware that it will have technical requirements for the final design of the system, which should be accommodated by conditions of approval.</li> <li>The Department's assessment has concluded that surface water impacts can be adequately managed under appropriate conditions of approval.</li> </ul>	<p>Conditions of approval require the Proponent to:</p> <ul style="list-style-type: none"> <li>prepare a Stormwater Management Plan for the site in consultation with Council before construction begins.</li> </ul>
Contamination, soils and groundwater	<ul style="list-style-type: none"> <li>The operational part of the site is a capped landfill and it is subject to a Site Audit Statement, which was issued by a site auditor under the <i>Contaminated Land Management Act 1997</i> on 31 December 2001.</li> <li>The Site Audit Statement certifies that the site is suitable for the project subject to a number of management measures relating to: <ul style="list-style-type: none"> <li>landfill gas accumulation in any buildings;</li> <li>the ongoing integrity of the landfill cap, including monitoring of groundwater in selected wells to ensure that leachate generation is being minimised;</li> <li>notification of the presence of filling and the limitations of the site, including that soils with acid forming potential on the site should be protected from unintentional or uncontrolled disturbance;</li> <li>restrictions on the use of groundwater extracted from the site without an assessment of its suitability for re-use; and</li> <li>restrictions on more sensitive uses without further remediation.</li> </ul> </li> <li>The EA includes an Operations Manual for the ongoing management of the landfill in accordance with the Site Audit Statement.</li> <li>The use of spoil from the southern portion of the site to raise the northern portion of the site would be carried out under the existing Council consent for this work. Any contamination present in the spoil will need to be dealt with according to the consent. The resulting landfill should be validated with a further Site Audit Statement and this is included as a recommended condition.</li> <li>Both the Department and the EPA are satisfied that the project includes the appropriate measures for the ongoing management of the soil, groundwater and landfill aspects of the site and a condition is included that requires the Operations Manual to be implemented.</li> </ul>	<p>Conditions of approval require the Proponent to:</p> <ul style="list-style-type: none"> <li>prepare a Landfill Management Plan (Operations Manual) with the measures described in the Site Audit Statement before construction begins; and</li> <li>obtain a Site Audit Statement in respect of the earthworks carried out under the Council consent.</li> </ul>
Biodiversity	<ul style="list-style-type: none"> <li>The EA included a flora and fauna assessment prepared by Aquila Ecological Surveys. The Proponent's PPR included additional biodiversity reports responding to the submissions and addressing the impacts resulting from the construction of the site access off Brickmakers Drive.</li> <li>The operational part of the site is generally clear of mature native</li> </ul>	<p>Conditions of approval require the Proponent to:</p> <ul style="list-style-type: none"> <li>acquire 9 ecosystem credits of an appropriate type before construction</li> </ul>

	<p>vegetation. Ironbark trees, which form part of an adjoining Endangered Ecological Community (EEC), stand in the southern portion of the site. They would be retained and protected during construction of the project.</p> <ul style="list-style-type: none"> <li>• The private access road would result in the disturbance of about 0.27 ha of River Flat Eucalypt Forest, which is an EEC.</li> <li>• No threatened fauna was observed during surveys of the site, although the surrounding woodland is suitable habitat for a number of species. The Green and Gold Bell Frog is unlikely to be present in water filled depression nearby to the site because of the presence of Mosquito Fish, which predate the frog tadpoles.</li> <li>• The Proponent proposes a suite of impact mitigation measures for the access road construction and to offset the residual ecological impacts by way of acquiring and retiring 9 ecosystem credits of an appropriate type.</li> <li>• Both the Department and the OEH support this approach and it is included in the recommended conditions of approval.</li> </ul>	<p>begins; and</p> <ul style="list-style-type: none"> <li>• prepare a Biodiversity Management Plan for the project before construction begins.</li> </ul>
Property Values	<ul style="list-style-type: none"> <li>• Concern was raised in public submissions that the approval of a recycling facility on the subject site would impact on the value of nearby residential properties in Georges Fair.</li> <li>• The Department has undertaken a thorough merit assessment of the project in accordance with the requirements of the EP&amp;A Act..</li> <li>• The Department's assessment concludes that the project would not result in any unreasonable impacts and that all relevant environmental and amenity criteria can be met.</li> <li>• The Department has also recommended a suite of strict conditions to ensure any residual impacts associated with the project would be appropriately managed.</li> <li>• As the proposal would result in acceptable environmental and amenity impacts the Department's assessment concludes that the proposal is unlikely to influence property values.</li> </ul>	No conditions of approval are necessary.
Sewerage	<ul style="list-style-type: none"> <li>• Wastewater from the office and amenity buildings would be directed to an on-site septic pump-out system.</li> <li>• Council notes in its submission that a number of recommendations for the septic system in the EA, which aim to prevent it from contaminating groundwater, are not included in the Proponent's statement of commitments.</li> <li>• The Department considers such matters can be adequately addressed in a condition of approval.</li> </ul>	<p>Conditions of approval require the Proponent to:</p> <ul style="list-style-type: none"> <li>• install a sewerage system before the office building is operational.</li> </ul>
Aboriginal heritage	<ul style="list-style-type: none"> <li>• The operational part of the site is highly disturbed with imported waste and fill, while the private access road is generally located on wet, low lying flood plain.</li> <li>• The Department does not consider that either locations will yield significant, intact archaeological deposits.</li> <li>• The OEH notes that a formal archaeological survey was not undertaken although it does not object on this ground, and it notes that any unexpected find during construction work will need to be dealt with under the provisions of the <i>National Parks and Wildlife Act 1974</i>.</li> </ul>	<p>Conditions of approval require the Proponent to:</p> <ul style="list-style-type: none"> <li>• implement an unexpected finds protocol for Aboriginal archaeology at all times.</li> </ul>
Streetscape	<ul style="list-style-type: none"> <li>• Council raised the issue that a noise barrier on the private haul route would be out of character with the streetscape.</li> <li>• The majority of residential properties fronting Brickmakers drive have a 1.8m timber boundary fence with over-lapping and capped timber palings (known as a lapped and capped timber fence).</li> <li>• In the Department's view, the 1.5m noise barrier on the private haul road would be generally consistent with the existing features of the street. Much of the private haul road is several metres below the level of Brickmakers Drive reducing the visibility of the noise barrier.</li> <li>• The Department considers that the 1.5m barrier would not dominate the streetscape and is an acceptable addition.</li> </ul>	<p>Conditions of approval require the Proponent to:</p> <ul style="list-style-type: none"> <li>• include aesthetic specifications for the noise barrier in the Landscape Management Plan for the project.</li> </ul>
Developer contributions	<ul style="list-style-type: none"> <li>• Liverpool Council has a developer contributions plan specifying contributions for industrial development.</li> <li>• The Department recommends a condition of approval to ensure that the proponent pays Council contributions in accordance with the plan.</li> </ul>	<p>Conditions of approval require the Proponent to:</p> <ul style="list-style-type: none"> <li>• pay development contributions in accordance with Council's contributions plan.</li> </ul>

Currency of reports	<ul style="list-style-type: none"> <li>A number of public submissions raised issues with the currency of the data used in the Proponent's EA for the project.</li> <li>The Department is satisfied that the proponent's PPR, which was submitted in August 2013 after the exhibition of the EA included appropriate information to respond to the areas of concern raised in the submissions.</li> </ul>	No further conditions of approval are necessary.
Geotechnical issues	<ul style="list-style-type: none"> <li>Bulk earthworks over the site were approved by Council and would occur under the Council consent.</li> <li>The Council consent includes a number of provisions concerning the design engineering for the earthworks. The proposed project would not alter the approved earthworks (except for height additions to the perimeter amenity bunds).</li> <li>The project includes ongoing monitoring of the landfill cap (as required by the Site Audit Statement) and any loss of integrity would be remedied as a consequence of that monitoring.</li> </ul>	No further conditions of approval are necessary.
Socio-economic	<ul style="list-style-type: none"> <li>The project would provide employment for up to 45 staff and it would provide a local source of recycled construction material to supplement diminishing local supplies of raw quarry material.</li> <li>The project can be carried out with acceptable environmental outcomes, subject to a range of strict conditions of approval and ongoing performance monitoring.</li> <li>For these reasons, the Department considers the socio-economic aspects of the project are acceptable.</li> </ul>	No conditions of approval are necessary.

## 6. CONCLUSION

The project application seeks approval for a building materials recycling facility, which would process up to 500,000 tonnes of building waste per year for re-use in the construction industry, on the site of a former landfill in the suburb of Moorebank.

The Department's exhibition of the project application and subsequent preferred project report resulted in 1351 submissions from the public and several letters of strong opposition from Council. The over-riding concern in those submissions is that the project, which is an industrial facility, is incompatible with the emerging residential and recreational character of the area because of its potential traffic, noise, visual and air quality impacts.

The emergence of residential and recreational development in the area, particularly within the adjacent residential estate known as Georges Fair, dates to a 2002 structure plan, which was developed by Council. The structure plan identified the Georges Fair site – formerly a Boral sand quarry – as suitable for residential development, and the subject site – a former landfill – as suitable for a materials processing facility. The structure plan led to the preparation of two Local Environmental Plans in 2005 and 2006, which included zoning and other provisions to permit these respective uses.

The Department recognises the potential for land-use conflicts between the two sites and it acknowledges the significant degree of concern about such conflicts raised by Council and the growing community in Georges Fair. Subsequently, the Department has closely and carefully examined the potential impacts of the project, particularly in relation to residential amenity such as traffic, noise and air quality.

The Department's assessment has found that, with strict conditions of approval, proper environmental management and appropriately designed infrastructure, the project can be carried out to:

- comply with the relevant traffic, noise and air quality criteria, as set out in the various state policies that apply to industrial development;
- avoid unacceptable impacts on bio-diversity, flooding and water quality in the Georges River; and
- avoid visual impacts as it would be unlikely to be visible from most of Georges Fair, and would be either wholly or partially screened by the landscaped earthen amenity bunds

when viewed from closer vantage points such as the site of Benedict's proposed marina, and the Georges River and its foreshore.

The Department also recognises the significance of the project in contributing to reducing waste and recycling materials within the economy. The project is in line with the Government's environmental waste levy, which is designed to discourage sending waste to landfill. The project is well located for transport routes midway between the city and future urban growth areas to the southwest.

On balance, the Department's assessment concludes that the project has significant benefits, and that its impacts and land use conflicts can be managed to an acceptable degree subject to a suite of strict conditions of approval relating to:

- ongoing management of traffic impacts, including the preparation of traffic management plans and a prohibition on using either Maddecks Avenue or Governor Macquarie Drive, Moorebank as haul routes;
- strict limits on noise emissions and a range of noise mitigating measures including physical noise barriers, the preparation of a noise management plan and ongoing noise monitoring;
- strict limits on air emissions and a range of air impact mitigating measures such as site stabilisation and water sprays on the process plant, the preparation of an air quality management plan and ongoing air quality monitoring;
- other impact mitigation measures relating to flooding offsets, stormwater, biodiversity offsets, visual amenity, landscaping, landfill cap management, sewerage management and Aboriginal heritage management; and
- periodic environmental reviews and tri-ennial independent audits of the project.

Consequently, the Department considers that the project is in the public interest and should be approved, subject to these conditions.

## 7. RECOMMENDATION

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It is RECOMMENDED that the Planning Assessment Commission as delegate of the Minister for Planning:

- **consider** the findings and recommendations of this report;
- **approve** the project application, subject to conditions; and
- **sign** the attached project approval (**Appendix A**).



22.4.15

David Mooney  
A/Manager  
Industry Assessments



22.4.15

Chris Wilson  
Executive Director  
Infrastructure and Industry Assessments