NSW GOVERNMENT | Planning & Environment

MAJOR PROJECT ASSESSMENT: Moorebank Intermodal Terminal Moorebank Avenue, Moorebank (SSD-5066)

Secretary's
Environmental Assessment Report
Section 89H of the
Environmental Planning and Assessment Act 1979

December 2015

ABBREVIATIONS

Applicant	Moorebank Intermodal Company Limited
CIV	Capital Investment Value
EHPL	East Hills Passenger Line
EIS	Environmental Impact Statement
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000*
EPI	Environmental Planning Instrument
IMEX	Import/Export
Minister	Minister for Planning
MIC	Moorebank Intermodal Company (the applicant)
MIT	Moorebank Intermodal Terminal
PAC	Planning Assessment Commission
PEA	Preliminary Environmental Assessment
PFM	Planning Focus Meeting
RtS	Response to Submissions
SEARs	Secretary's Environmental Assessment Requirements
Secretary	Secretary of the Department of Planning & Environment
SIMTA	Sydney Intermodal Terminal Alliance
SRD SEPP	*State Environmental Planning Policy (State and Regional Development) 2011*
SSD	State Significant Development
SSFL	Southern Sydney Freight Line
TEU	Twenty-foot Equivalent Units (containers)

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EXECUTIVE SUMMARY

The Moorebank Intermodal Company (MIC), on behalf of the Commonwealth government, seeks approval for a staged State Significant Development (SSD) to develop an intermodal terminal facility with a rail link to the Southern Sydney Freight Line (SSFL) at Moorebank, in the Liverpool and Campbelltown Local Government Areas.

Being a Staged SSD (concept proposal), subsequent Development Applications would need to be sought by the Applicant prior to the commencement of construction and operation of the facility. Notwithstanding, the application also includes Stage 1 Early Works for site preparatory works such as demolition and site remediation. Approval for operational works such as terminals and warehousing is not being sought at this stage and will form the subject of subsequent Development Applications.

The proposal includes an Import Export (IMEX) terminal that would handle up to 1.05 million TEUs and an interstate terminal that would handle 500,000 TEUs. 300,000m^2 of warehousing is also proposed. The proposal has a capital investment value of $927.4 million.

The proposal would provide a port-shuttle freight service between Port Botany and the MIC site, whereby containers would be unloaded from ships at Port Botany, placed on a train and sent to the MIC site via the existing SSFL. The train would be unloaded, with freight either being temporarily stored on site or loaded directly on to heavy vehicles for distribution to markets via the nearby major road network. The trains would return to Port Botany empty, ready for further freight shuttling.

Separately, SIMTA recently sought Concept Plan approval for a competing intermodal facility on an adjacent site with a throughput of 1 million TEUs. On 29 September 2014 the Planning Assessment Commission (the Commission) approved the application subject to a reduced throughput of 250,000 TEUs initially with an option of an additional 250,000 TEUs subject to not exceeding the capacity of the transport network. SIMTA are now currently seeking approval for its Stage 1 SSD IMEX terminal of 250,000 TEUs.

Since concept approval was granted, MIC announced on 4 June 2015 that it had reached an agreement with SIMTA to develop the Moorebank project on a whole of precinct basis and a combined throughput of 1.55 million containers is sought. On this basis, the Department has recommended conditions to ensure that the maximum throughput of a combined site is 1.55 million TEUs. In the absence of a single application for a combined facility, the Department has also carefully considered the cumulative impacts of both proposals in its assessment of the MIC application.

The proposal is State significant development because it is development for the purpose of 'rail freight terminals, sidings and intermodal facilities' with a capital investment value (CIV) in excess of $30 million, under clause 19 of Schedule 1 of *State Environmental Planning Policy (State and Regional Development) 2011.* The Minister for Planning is the approval authority for the proposal, however, the Planning Assessment Commission (PAC) may determine the application under delegation as Campbelltown City Council and Liverpool City Council raise objection to the proposal and there have been more than 25 submissions received by way of objection.

The proposal is a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The Department notes the proposal will require separate approval under EPBC Act by the Commonwealth Minister for the Environment for matters of national significance.

The Applicant's Environmental Impact Statement (EIS) was publicly exhibited from 8 October 2014 to 8 December 2014 (62 days). The Department received 241 submissions plus 1538

form letters from the public during the exhibition period. A total of 14 submissions were received from public authorities.

In response to these submissions, the Applicant made a number of modifications to the proposal including the adoption of the southern rail connection from the site to the SSFL (out of the three options originally proposed); changes to the layout of the facility; changes to the upgrade of Moorebank Avenue and timing; changes to the vehicular circulation zone within the site; and increasing in area of the Conservation Area (E3 Environmental Management zone) from 22.18 ha to 28.43 ha along the western boundary of the site (along the Georges River).

Due to the nature and extent of the changes proposed in the Response to Submissions, the Department publicly exhibited this document from 28 May 2015 to 26 June 2015 (30 days). A total of 100 submissions were received from the public and 8 submissions were received from public authorities.

The Department has undertaken a comprehensive assessment of the proposal which focuses on three key areas:

- traffic (**Section 5.1**);
- air quality (**Section 5.2**); and
- noise and vibration (**Section 5.3**).

In relation to traffic and transport, the Department engaged an independent expert, Aurecon Australia Pty Ltd (Aurecon), to assist in its assessment. While the proposal would have some impact on the efficiency of the surrounding road network, a number of intersections would be operating either at or near capacity by 2030 without the project. The relevant road authorities (RMS and Councils) are responsible for catering for the existing and future existing traffic demand. MIC would need to contribute towards the cost of necessary upgrades as a result of the volume of additional traffic predicted by the Traffic Impact Assessment.

In this regard, TfNSW and RMS have been developing a mesoscopic and microsimulation transport model for the combined MIC/SIMTA intermodal facility. On 10 December 2015, the Department confirmed with RMS that this work is expected to be completed by the end of December 2015. It is expected that this work will form the basis for Traffic Impact Assessments for each subsequent Development Application. The Department is advised that this model will allow the nature and timing of proposed intersection upgrades to be more accurately calculated for these subsequent applications.

The Department has recommended a condition requiring the Applicant to continue consultation with relevant Councils and Agencies. The Applicant is required to present and discuss proposed traffic assumptions, modelling methodologies and mitigation measures (and their timing) for subsequent applications. Following this consultation, action items are to be agreed, published on the Applicant's website, actioned and reported to enable further consultation with RMS. Invitees will comprise TfNSW, RMS, SIMTA, Liverpool Council, Campbelltown Council (and nominated private individuals via Council).

The work undertaken to date provides the Department with confidence and certainty that the proposed traffic impacts can be mitigated at a concept level. Aurecon also shares this view and has recommended conditions which limit the number of containers that can be processed at the MIC site, ensuring the maximum capacity of 1.55 million TEUs across both sites is not exceeded. This takes into account the 500,000 TEUs already approved by the Commission (Concept Plan) on the SIMTA site. The structure of these recommended conditions follows the same format as those in the Commission's approval of SIMTA.

The Department considers that in subsequent applications, these impacts can be mitigated through progressive upgrades to key infrastructure such as roads and intersections, and the implementation of suitable mitigation measures.

The Department notes that the proposal is predicted to meet relevant EPA criteria in relation to air quality and the predicted human health impacts are considered to be low in the context of the site. The Department has recommended stringent conditions that would need to be considered as part of any future Development Application to ensure that the intermodal terminal is designed and operated to achieve best practice emission control.

In relation to noise and vibration, the Department considers that during construction and operation of the facility some minor exceedances of relevant noise goals may occur at sensitive receivers, however appropriate mitigation measures are available to address impacts. A number of conditions have been recommended to address these exceedances, including measures to minimise wheel squeal and implementation of best practice technologies (such as track grinding and lubrication) on the rail link. Given that any approval would not permit construction/operation of the terminals, rail link or warehousing, these impacts would be further considered during the subsequent Development Application stage and include additional noise impact assessments. Further, any subsequent Development Application approval would include conditions requiring the preparation of a Construction Noise and Vibration Management Plan to be implemented prior to the commencement of construction.

The proposal is also consistent with the NSW Government's objective to maximise the haulage of freight by rail. In as early as 2005, the Freight Infrastructure Advisory Board reinforced the need for an intermodal terminal at Moorebank to achieve an increase in the rail mode share of port container freight movements. The Department acknowledges that the proposal is a key component in meeting Sydney's intermodal capacity needs, particularly as MIC has the capability to attract a significant proportion of the freight market thus significantly reducing trucking demand.

In balancing the potential impacts of the proposal, the Department notes that, if approved, the proposal would remove up to 3,000 heavy vehicles off the M5 Motorway per day, or approximately 1.095 million trips per year at full capacity, between Port Botany and Moorebank and contribute to improving network efficiency by relieving traffic congestion in the Port Botany area. The proposal would also grow freight network capacity to meet future freight requirements.

The Department considers the proposal would have significant economic benefits to the State of NSW. The proposal has a CIV of $927.4 million and is expected to generate up to 1,650 construction and up to 1,700 operational jobs.

The Department has concluded that on balance, the proposal's benefits outweigh its potential adverse impacts and is therefore in the public interest. Consequently, the Department considers the concept proposal including early works should be approved subject to the recommended conditions of approval.

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1. BACKGROUND

The Moorebank Intermodal Company (MIC), on behalf of the Commonwealth Government, is seeking approval for a concept and Stage 1 (early works) State Significant Development (SSD) application to redevelop 220 hectares of land for use as an intermodal terminal facility at Moorebank.

The concept proposal comprises:

- a port shuttle Import/Export (IMEX) terminal handling up to 1.05 million Twenty Foot Equivalent Units (TEUs (containers));
- an interstate terminal handling up to 500,000 TEUs;
- working freight rail tracks, freight storage tracks and container laydown/storage areas;
- a rail link to the Southern Sydney Freight Line (SSFL) including a bridge across the Georges River;
- warehousing of up to 300,000m^2 and support facilities including a freight village / service facilities for employees and users of the site; and
- vehicle access from Moorebank Avenue.

The early works (Stage 1) proposal comprises:

- demolition of existing buildings;
- rehabilitation of the former School of Military Engineering (SME) heavy machinery excavation/earthmoving training area;
- remediation of contaminated land;
- heritage impact remediation works (such as archaeological salvage); and
- the establishment of construction facilities and access routes.

The site is located at Moorebank, approximately 27 kilometres south-west of the Sydney CBD, and approximately 2.5 kilometres south of Liverpool City Centre (refer **Figure 1**).

Figure 1: Project Location in Context with Sydney CBD (Base Image Source: Google Maps 2015)

The site is irregular in shape and is situated between the Georges River to the west and Moorebank Avenue to the east (refer **Figure 2**). The M5 Motorway is located to the north of the site and the East Hills Passenger Line (EHPL) is located to the south of the site. The SSFL is located on the western side of the Georges River. The closest residential properties are located in Casula to the west (approximately 280 metres from the site), Moorebank to the

north-east (approximately 630 metres from the site), and Wattle Grove to the east (approximately 1 kilometre from the site).

The site is relatively flat measuring approximately 2 kilometres long by approximately 750 metres wide. The School of Military Engineering currently occupies the site and includes the Steele Barracks, administrative and residential buildings, a museum and training grounds for excavation and earthmoving equipment. The Royal Australian Engineers Golf Course is located at the southern extent of the site (refer **Figure 2**).

To the north of the site is a 200 hectare industrial precinct which supports a range of uses including freight and logistics, heavy and light manufacturing, office and business park developments. Other surrounding land uses include: Department of Defence landholdings; Holsworthy Military Reserve; residual Commonwealth land; and residential areas of Moorebank, Wattle Grove and Casula (refer **Figure 2**).

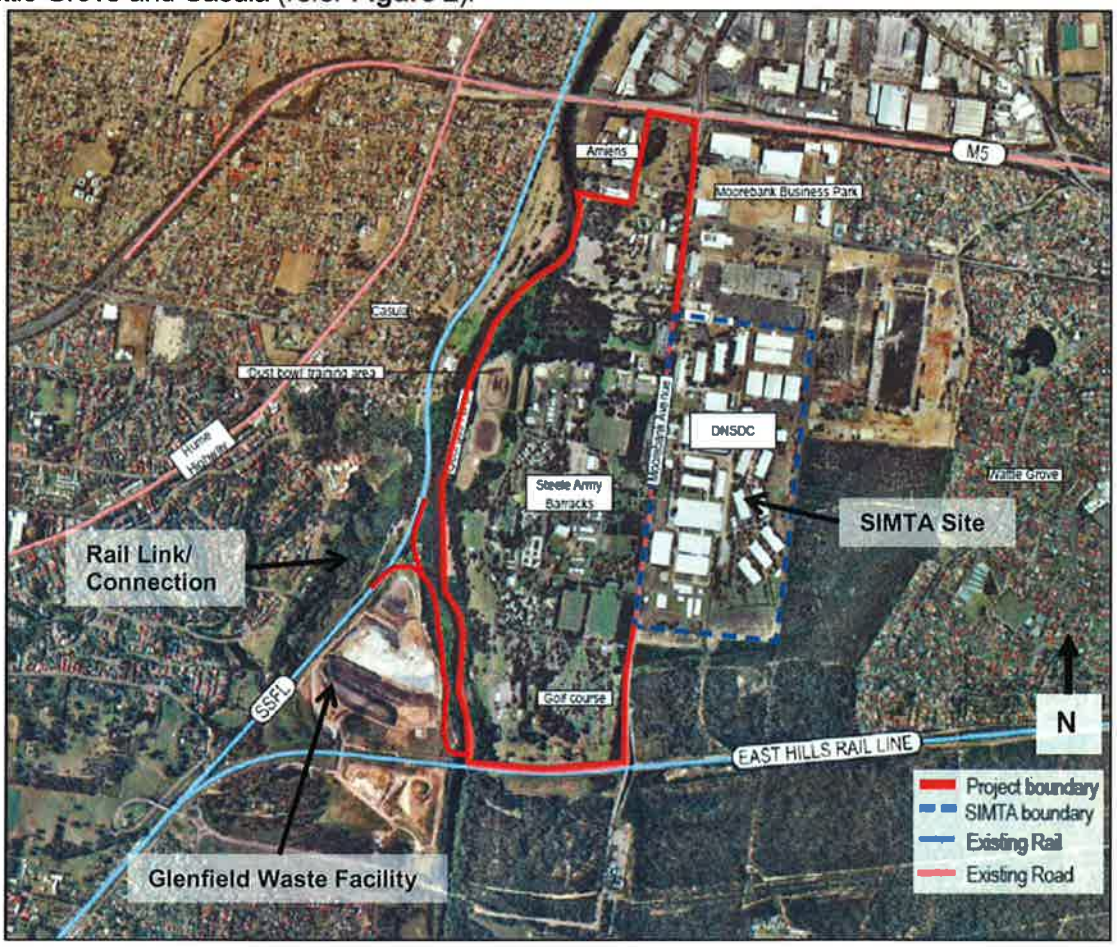

Figure 2: Local Context (Source: Response to Submissions 2015)

Sydney Intermodal Terminal Alliance (SIMTA), a consortium of Qube and Aurizon, are also proposing to construct and operate an intermodal facility to the immediate east of the site. This SIMTA site was formerly occupied by the Defence National Storage and Distribution Centre, who have now relocated. The SIMTA Concept Plan was approved by the Planning Assessment Commission (the Commission) on 29 September 2014. The Concept Plan includes:

- a port shuttle IMEX terminal handling up to 500,000 TEUs;
- working freight rail tracks, freight storage tracks and container laydown/storage areas;
- a rail link to the SSFL including a rail bridge across the Georges River;
- warehousing of up to 300,000m^2 and support facilities including a freight village / service facilities for employees and users of the site; and
- vehicle access from Moorebank Avenue.

The SIMTA and the MIC proposal are immediately adjacent and therefore consideration has been given to the cumulative impacts that could result should both proposals proceed.

In approving the Concept Plan, the Commission limited the annual throughput of the SIMTA proposal to 250,000 TEUs with the option of a further 250,000 TEUs subject to the operation of the terminal not exceeding the capacity of the existing traffic network. The Commission did not support SIMTA's original proposal for 1 million TEUs given the uncertainties around the timing and nature of the proposed road upgrades. In making its final decision, the Commission believed that 500,000 TEUs would be sufficient to satisfy the government's objectives for port freight rail capacity while addressing the potential impacts on the traffic network.

On 4 June 2015 MIC released a statement announcing that an agreement had been reached with SIMTA and that only one intermodal facility would proceed across both sites. At this stage, both applicants are continuing to pursue approvals for their respective proposals as stand-alone facilities however, MIC has amended its proposal by clarifying that the throughput of 1.55 million containers sought would be shared across both sites. MIC have also adopted the southern rail connection (out of the 3 options initially proposed) to the site to enable the sharing of rail infrastructure.

Detailed consideration of cumulative impacts are discussed in **Section 2.2.2** and in **Section 5** of this report. The cumulative assessment takes into account the potential for both sites to operate a combined throughput of 1.55 million TEUs and 600,000m^2 of warehousing.

2. PROPOSED PROJECT

2.1. Project Description

The concept proposal comprises an intermodal terminal facility, rail corridor, IMEX freight terminal, interstate freight terminal and warehousing. Freight would arrive from Port Botany via the existing SSFL, be transported to on-site warehouse and distribution facilities, or loaded onto trucks for transport to nearby logistics centres. The capital investment value (CIV) of the proposed development is $927.4 million. The following four stages of development are proposed:

Early works (Stage 1): Comprising demolition of buildings, rehabilitation of the former SME heavy machinery excavation/earthmoving training area, remediation of contaminated land, heritage impact remediation works such as archaeological salvage and the establishment of construction facilities and access.
Phase A: Construction of an interstate freight terminal (250,000 TEUs), southern rail connection and warehousing (approximately 100,000m^2).
Phase B: Construction of an IMEX freight terminal (500,000 TEUs).
Phase C: Construction of additional capacity within the IMEX freight terminal (550,000 TEUs) and interstate freight terminal (250,000 TEUs) and additional warehousing (approximately 200,000m^2).

The proposed rail connection to the south and south-west of the site would connect to the SSFL. The freight line would run south from the site and then parallel to the East Hills Passenger Line (EHPL), cross the Georges River via a new rail bridge and run in a north westerly direction generally along the eastern boundary of the Glenfield Waste Disposal Centre before splitting into a northbound and southbound connection.

The proposed site layout is shown in **Figure 3** and key components of the proposed development are listed in **Table 1** below.

Table 1: Key Components

Aspect	*Description*
IMEX freight terminal	• *Arrival/departure tracks designed to accommodate trains up to 650m in length;* • *8 working tracks up to 650m long. These would be situated in groups of 4 with space between each track for rail mounted gantry crane footings; and* • *Truck parking and holding area to accommodate up to 25 trucks.*
Interstate freight terminal	• *4 arrival/departure tracks designed to accommodate trains up to 1.8km in length;* • *4 working tracks up to 900m long to accommodate interstate freight trains. Trains longer than 900m would be split before being shunted onto the working tracks; and* • *Rail infrastructure to allow a locomotive to be detached at one end and re-position at the other end of the wagons.*
Rail connection	• *Connecting the subject site with the SSFL to the south via a crossing over the Georges River and the along the eastern boundary of the Glenfield Waste Disposal Centre.*
Warehousing	• *Approximately 300,000m² of warehousing.*
External Container Storage (IMEX and interstate freight terminals)	• *Short term storage of loaded containers up to 13m (5 containers) in height; and* • *Short term storage of empty containers up to 20.8m (7 containers) in height.*
Maintenance and repair	• *A workshop for routine maintenance and repair of terminal vehicles, equipment and containers;* • *On-site fuel storage;* • *Covered work area; and* • *Bulk items and parts storage area.*
Freight Village	• *Comprising administration office buildings, employee facilities, convenience retail and parking.*
Operation	• *24 hours per day, 7 days per week.*
Built form controls	• *Controlling the siting, layout and design of the proposal.*

As a result of the agreement between MIC and SIMTA (refer to **Section 2.2.2** of this report), the following approach to obtaining planning approvals for both sites is as follows (also refer to **Figure 4**):

MIC Site

Concept proposal for MIC seeks approval for:

- A 550,000 – 750,000 TEU IMEX terminal if there is a 250,000 – 500,000 TEU IMEX terminal on the SIMTA site; **OR** up to a 1.05 million TEU IMEX terminal if there is no approval to build a 250,000 TEU IMEX terminal on the SIMTA site; **AND**
- a 500,000 TEU interstate terminal; **AND**
- 300,000m^2 of warehousing.

SIMTA Site

- Concept approval has been granted for 500,000 TEUs and 300,000m^2 of warehousing;
- a Stage 1 SSD for 250,000 TEUs is currently under assessment by the Department; and
- SIMTA will apply for all subsequent applications to build the later stages of the IMEX terminal, including a modification to increase capacity to 1.05 million TEUs.

Note 1: MIC proposes that no IMEX facility for MIC will be built if a 1.05 million IMEX terminal is built on the SIMTA site.
Note 2: All scenarios propose a maximum throughput of 1.55 million TEUs.

Figure 3: Project Layout (Source: Response to Submissions 2015)

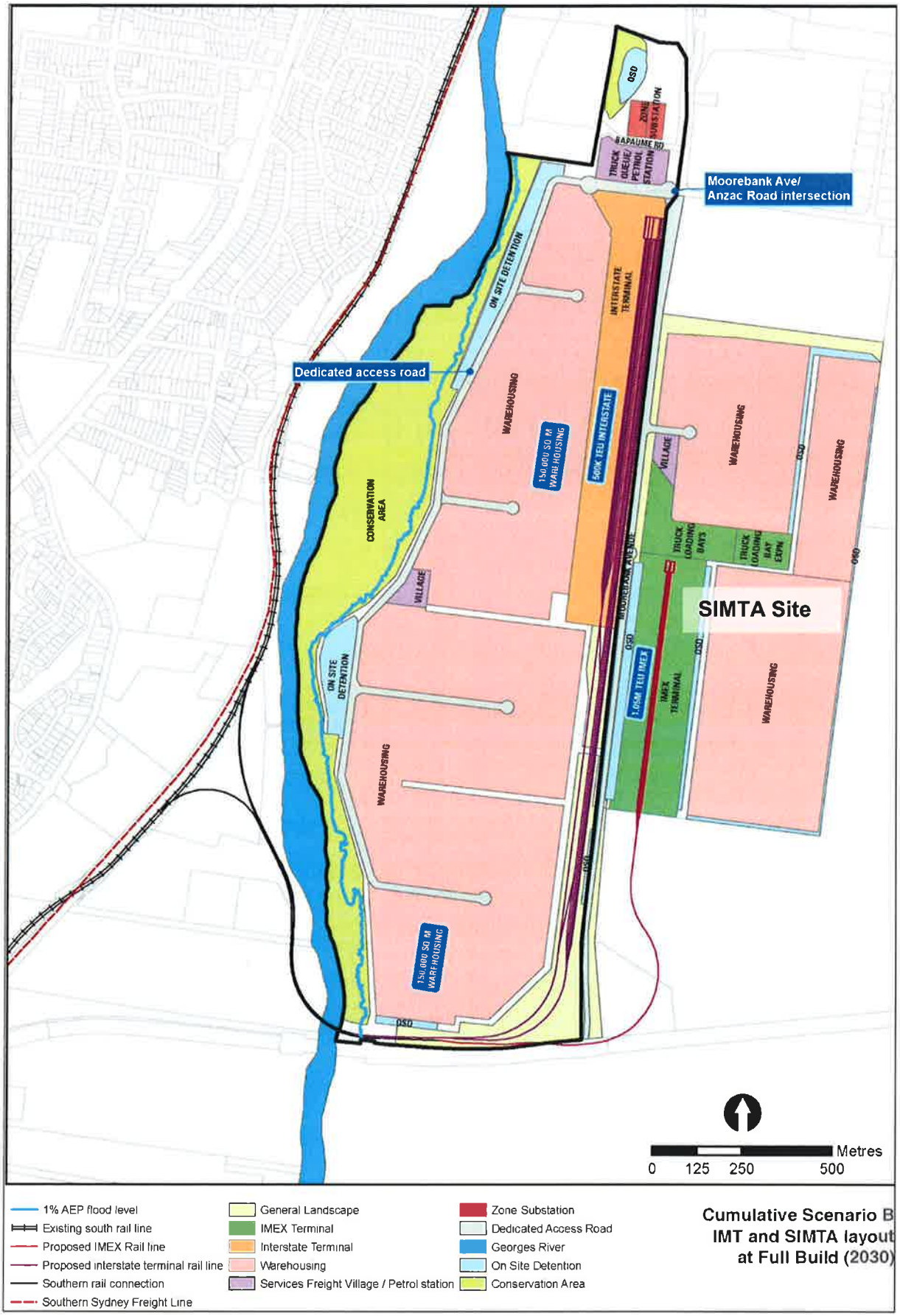

Figure 4: The Preferred Development Approach - Cumulative Scenario B (Source: Response to Submissions 2015)

2.2. Project Need and Justification

2.2.1 Identified Need

An intermodal terminal at Moorebank was first considered by the Commonwealth Government in 2004 to promote national productivity in the long term and to assist in the development of Sydney, particularly in attracting employment and investment in south-west Sydney.

In 2005, the Commonwealth's Freight Infrastructure Advisory Board (FIAB), through its report on intermodal freight requirements for Sydney, reinforced Moorebank as a critical element for achieving the NSW Government's target of an increased rail mode share of port container freight. The FIAB report proposed a staged development of new intermodal freight capacity within metropolitan Sydney, generally as follows:

- development of the Enfield intermodal terminal by 2009/10 with a capacity to handle 300,000 TEUs per annum and servicing the Port Botany container market. Initial operations commenced in early 2015, however the rail and warehousing components are not yet operational;
- development of an intermodal terminal at Moorebank by 2013/14 with a capacity to handle up to 500,000 TEUs per annum of port freight and additional capacity to service domestic container freight market; and
- ongoing planning for a possible intermodal terminal development within the Eastern Creek precinct in outer western Sydney towards 2020.

In 2007, the Commonwealth Government allocated funding towards detailed planning of an intermodal terminal at Moorebank as part of the Nation Building Program and in 2010 the Government allocated further funding for a feasibility study.

The National Ports Strategy was developed by Infrastructure Australia and the National Transport Commission and endorsed by the Council of Australian Governments in July 2012. The Strategy considers that ports are critical to productivity and economic growth, and notes that best practice master planning would identify locations for inland intermodals and industrial/warehousing lands.

Section 5 of the Strategy considers the increasing freight demand for South West Sydney and the need for intermodals to maintain the rail modal share of container freight from Port Botany. The Department considers that the proposal would assist in increasing the rail modal share, and therefore increase the efficiency of Port Botany freight movements.

In response to this identified need by the Government, the Applicant has stated that container trade through Port Botany will grow at a compound annual growth rate of 4.25% to 2030. Without additional IMEX capacity it is unlikely that Port Botany would be able to cater for this future demand due to significant traffic congestion around the Port.

Further, the Applicant provided an analysis (prepared by Deloitte in 2014) that identifies the freight demand for the Western and South Western Sydney regions and noted that the volume of interstate freight moving through Sydney is expected to grow at 3.6% a year over the next 20 years. The Applicant has indicated that if the rail mode share is not improved, truck traffic at Port Botany would increase by 400% by 2029/30. The proposal to move containers between Port Botany and Moorebank would result in up to 3,000 fewer truck movements per day around Port Botany, or approximately 1.095 million trips per year at full capacity.

In addition, the Department considers that the proposal is consistent with the following Commonwealth and State policies:

Transport Planning

- *National Land Freight Strategy* – issued by the Standing Council on Transport and Infrastructure on behalf of Infrastructure Australia and the Commonwealth Government, the proposal meets the primary objective in that it will improve efficiency of freight movements across infrastructure networks.
- *NSW Long Term Transport Masterplan* – the proposal has the potential to increase network efficiency by relieving congestion on road and rail networks; grow freight network capacity to meet future demand; and manage community and environmental impacts to promote sustainability.
- *Railing Port Botany's Containers* – prepared by the FIAB in 2005, the report recommends that a 40% rail share target (since revised to 28%) must be met or exceeded and that sufficient intermodal terminal capacity is provided. The report notes that Moorebank is a key component in meeting Sydney's intermodal capacity needs.
- *NSW Freight and Ports Strategy* – the proposal would contribute to a number of Strategic Action Areas including increasing freight movement and network demand, managing congestion, noise and emission impacts, and prioritising safety of freight transport.

Land Use Planning

- *NSW 2021:* includes targets to enhance rail freight movement and to double the proportion of container freight movement by rail through NSW ports to 28% by 2020. The proposal would contribute to this freight target.
- *A Plan for Growing Sydney 2014* – the proposal would contribute to long term employment growth in the South West Subregion (Liverpool LGA) and address the priorities of protecting infrastructure of metropolitan significance (intermodal terminals) and protecting land to serve Sydney's future transport needs including intermodal sites.
- *State Infrastructure Strategy 2012-2032* – identifies the Moorebank Intermodal Terminal as a key project, improving cost competitiveness of rail and road transport and provide for private investment in the rail freight market. The proposed development would also reduce heavy vehicle movements along the M5 and support the State investment in the delivery of the SSFL.

2.2.2 Moorebank Intermodal Precinct

On 29 September 2014, the Commission approved the SIMTA Concept Plan under the previous Part 3A of the Act for an intermodal proposal to be located on the adjacent site across Moorebank Avenue.

While SIMTA sought Concept Plan approval for a throughput of 1 million TEUs, the Commission's approval limited the throughput of the site to 250,000 TEUs. This decision was based on the uncertainty about the potential traffic impacts and appropriate future mitigation measures. SIMTA has now submitted its Stage 1 SSD for the 250,000 TEU IMEX freight terminal and rail connection. At the time of writing this report, the application is under assessment.

The Concept Approval includes the provision for a future application to increase throughput by a further 250,000 TEUs to be considered by the consent authority. In this regard, the Department is to be satisfied that SIMTA, through monitoring and modelling of the operational facility, has demonstrated that an increase in TEUs would not result in exceedances in the capacity of the existing transport network.

The key differences between the MIT and SIMTA proposals are explained in **Table 2.** Both proposals include 300,000m^2 of warehousing each:

Table 2: Key Differences between MIT and SIMTA

	IMEX TEUs	Interstate TEUs	Freight Village
MIT	1.05 million	500,000	Yes, not publicly accessible
SIMTA	250,000 (Stage 1) 500,000 (maximum)	N/A	8,000m^2 (Publicly accessible)

Since the Commission's determination of the SIMTA Concept Plan, SIMTA and MIC have agreed on terms to develop the Moorebank precinct as a single intermodal facility. While the Department acknowledges and supports this position, both Applicants have indicated that their respective sites would not be combined in a single development application at this stage. In this regard, there remain two separate applications on two separate sites (by two separate applicants).

In addressing concerns raised by the Department and the Commission relating to the hypothetical (and unlikely) outcome of two intermodal terminals operating independently, MIC has undertaken a cumulative impact assessment on a number of different full build scenarios (refer **Table 3**).

Table 3: Cumulative Scenarios

Scenario	MIC	SIMTA
A	• 1.05 million TEUs IMEX • 500,000 TEUs interstate • 300,000m^2 warehousing	• 300,000m^2 warehousing
B	• 500,000 TEUs interstate • 300,000m^2 warehousing	• 1 million TEUs IMEX • 300,000m^2 warehousing
C2	• 550,000 TEUs IMEX • 500,000 TEUs interstate • 300,000m^2 warehousing	• 500,000 TEUs IMEX • 300,000m^2 warehousing

While the EIS explains a number of scenarios adopted for cumulative impact assessments, these were refined as part of the Response to Submissions (RtS) following successful contractual negotiations with SIMTA based on more realistic possible outcomes across the two sites. The Department understands that Cumulative Scenario B is the most likely (and preferred) scenario and has assessed the cumulative impacts for this scenario in the body of this report.

Notwithstanding, and in the absence of a joint application for a combined facility, it has been necessary to carefully structure the recommended instrument of approval in a way that ensures the Commission's intentions and objectives for ensuring the capacity of the transport network is not exceeded.

3. STATUTORY CONTEXT

3.1. SEPP (State and Regional Development) 2011

The proposal is State significant development because it is development for the purpose of 'rail freight terminals, sidings and intermodal facilities' with a capital investment value (CIV) in excess of $30 million, under clause 19 of Schedule 1 of *State Environmental Planning Policy (State and Regional Development) 2011*. Therefore the Minister for Planning is the consent authority.

3.2. Delegated Authority

In accordance with the Minister's delegation dated 14 September 2011, the Planning Assessment Commission will determine the intermodal facility as Liverpool City Council, Fairfield City Council and Campbelltown City Council has objected to the proposal and more than 25 public submissions have been received objecting to the proposal.

3.3. Owners Consent

On 22 February 2013 the then Director-General designated the proposal as 'public notification development' in accordance with clause 49 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation). This was due to the proposal being of state and regional planning significance affecting multiple landowners. Clause 49(2) requires the Applicant to give

notice of the application by publishing a newspaper advertisement of the project before the start of public consultation for the project. This occurred on 27 August 2014.

3.4. Permissibility and Zoning

The site is located within the Liverpool Local Government Area (LGA). Under the Liverpool Local Environmental Plan (LEP) 2008, the site is zoned *SP2 Infrastructure (Defence), IN1 General Industrial, SP2 Infrastructure (Railway)* and *RE1 Public Recreation*. Freight transport facilities, storage premises (other than offensive storage establishments or hazardous storage establishments) and warehouse and distribution centres are permissible in the *IN1 Industrial zone*. Additionally, rail infrastructure is also permissible in the *SP2 Railway zone*. However, rail infrastructure is prohibited in *SP2 Defence* and *RE1 Public Recreation* zones.

While Clause 89E(3) of the EP&A Act permits the determination of an SSD where a partial prohibition exists, the Applicant has chosen to proceed with a concurrent Planning Proposal to regularise the zones to an *IN1 General Industrial* zone for the main MIT site and partly *EM3 Environmental Management* zone along the eastern bank of the Georges River. The proposal is therefore permissible with consent. As the Act allows SSD applications to be determined where a partial prohibition exists, the timing of gazettal of the Planning Proposal will not affect the determination of the SSD.

Further consideration of Liverpool LEP is also provided in **Appendix B**.

3.5. Environmental Planning Instruments

The Department's consideration of relevant EPIs (including SEPPs) is provided in **Appendix B**. The proposal is consistent with the relevant requirements of the EPIs.

3.6. Objects of the EP&A Act

Decisions made under the EP&A Act must have regard to the objects of the Act, as set out in Section 5 of the Act. The relevant objects 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 Department has given due consideration to the objects of the Act including:
- how the proposal would impact on the management, development and conservation of the area, with reference to the management of air quality, noise and vibration, and soils and water (refer to **Section 5**);
- the strategic justification of the proposal in terms of the orderly and economic use and development of land (refer to **Section 2.2**), and how the proposal would affect traffic and access throughout the region (refer to **Section 5**);

- protection of the environment by assessing the effectiveness of proposed management and mitigation measures. In particular, the Department has considered the impact of the proposal on traffic, noise, air quality and biodiversity and how the provision of offsets for affected threatened species and communities would contribute to the protection of the environment (refer to **Section 5**);
- the principles of ecologically sustainable development (refer to **Section 3.7**); and
- public involvement and participation in the assessment of the proposal occurred (for the EIS in late 2014 and for the Response to Submissions 2015) by placing the proposal documents on exhibition at community locations in the local area (Council offices and libraries) and on the Department's website. The Response to Submissions Report was also exhibited and the Supplementary Submissions Report was made publicly available on the Department's website (refer to **Section 4**).

3.7. Ecologically Sustainable Development

The EP&A Act adopts the definition of Ecologically Sustainable Development (ESD) found in the *Protection of the Environment Administration Act 1991* (POEA Act). Section 6(2) of the POEA Act states that ESD requires the effective integration of economic and environmental considerations in decision-making processes and that ESD can be achieved through the implementation of:

(a) the precautionary principle,
(b) inter-generational equity,
(c) conservation of biological diversity and ecological integrity,
(d) improved valuation, pricing and incentive mechanisms.

The Applicant has considered the principles of ESD in its assessment of the proposal. In particular, the EIS has considered the precautionary principle through the proposed layout of the site and rail link which minimises impacts on ecologically sensitive areas. Further, the proposal minimises impacts to biodiversity, and where impacts cannot be avoided, a biodiversity offset will be prepared to compensate these impacts in perpetuity. All other constraints such as traffic, air quality, noise and vibration, soil and water, urban design, contamination, hazards and risks, and Aboriginal and non-Aboriginal heritage have been taken into account in the concept design phase and will be both addressed in the assessment of this application and all future Development Applications.

The proposal promotes inter-generational equity by way of supporting ongoing and increased import and export through Port Botany, while decreasing the congestion on the road network. The intermodal facility would remove up to 3,000 heavy vehicles per day, or approximately 1.095 million trips per year at full capacity, off the M5 Motorway between Port Botany and the Moorebank site, and would contribute to improving traffic congestion around Port Botany itself. Additionally, the proposed road and intersection upgrades would improve road safety in the vicinity of the site for future generations. The Department is satisfied that the proposal would assist in maintaining and enhancing the health, diversity and productivity of the environment for future generations.

The proposal also conserves biological diversity and ecological integrity by minimising impacts on flora and fauna species that inhabit or visit the Moorebank area. This has been achieved through careful project layout and the consideration of appropriate revegetation strategies. Impacts that cannot be mitigated have been addressed in the draft Biodiversity Offset Strategy.

The proposal promotes improved valuation, pricing and incentive mechanisms by appropriately valuing, mitigating and offsetting environmental impacts. The proposal considers the impacts associated with the proposal, and provides relevant mitigation measures to minimise 'residual' impacts that are unable to be avoided. Further, the proposal provides for a biodiversity offset strategy to improve or maintain biodiversity outcomes by conservation of land outside the proposal boundary. Further details of how the costs of environmental impacts have been considered are provided in **Section 5** of this report.

3.8. Environmental Planning and Assessment Regulations 2000

Subject to any other references to compliance with the Regulation cited in this report, the requirements for Notification (Part 6, Division 6) and Fees (Part 15, Division 1AA) have been complied with.

3.9. Secretary's Environmental Assessment Requirements

The EIS is compliant with the Secretary's Environmental Assessment Requirements and is sufficient to enable an adequate consideration and assessment of the proposal for determination purposes.

3.10. Environment Protection and Biodiversity Conservation Act

On 20 September 2011, the proposed development was determined to be a "controlled action" requiring assessment and approval under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The relevant controlling provisions were listed as threatened species and communities (18 & 18A) and Commonwealth action (Section 28). The decision was based on the likely significant impact of the proposal on *Persoonia nutans* (Nodding Geebung) and *Grevillea parviflora* (Small-flowered Grevillea) and the site being on part Commonwealth land.

While the Commonwealth Minister for the Environment maintains an independent assessment and approval role, the Department has consulted with the Commonwealth Department of the Environment (DoE) at certain stages of the assessment process.

At the time of writing this report, the Commonwealth Minister for the Environment had not made a determination on the controlled action.

4. CONSULTATION AND SUBMISSIONS

4.1. Exhibition of EIS

Under Section 89F of the EP&A Act, the Department is required to make the EIS publicly available for at least 30 days. The Department publicly exhibited the Moorebank Intermodal Terminal Facility proposal from 8 October 2014 to 8 December 2014 (62 days) on the Department's website, and at the following exhibition locations:

- Department of Planning and Environment, Information Centre;
- Nature Conservation Council of New South Wales;
- Liverpool City Council;
- Liverpool City Library;
- Campbelltown City Council; and
- Glenquarie Branch Library.

The Department also advertised the public exhibition in the Sydney Morning Herald, the Daily Telegraph, the Liverpool Leader and the Campbelltown Macarthur Advertiser on 8 October 2014, and notified State and local government authorities and local residents were notified directly in writing.

The Department received 241 submissions plus 1538 form letters from the public during the exhibition period. A total of 14 submissions were received from public authorities. A summary of the issues raised in submissions received is provided below. The Department has considered the issues raised in submissions in its assessment of the concept proposal and early works.

4.2. Public Authority Submissions

A total of 14 submissions were received from key public authorities. Liverpool City Council, Fairfield City Council and Campbelltown City Council objected to the proposal. The remaining public authorities did not object to the proposal, however each raised issues for consideration. The key issues raised in public authority submissions are listed in **Table 4** and **Table 5** and have been considered by the Department in its assessment of the project.

Table 4: Key issues raised by Councils

Council	*Key Issues Raised*
Liverpool City Council (LCC)	• believes that the optimum location for the intermodal is at Badgerys Creek; • believes that the Moorebank site should be used for a mixed use residential precinct; • is disappointed that a coordinated approach has not been taken to assess the impact of both Moorebank and SIMTA intermodals, and argues that a precinct master plan is needed; • acknowledges and welcomes the announcement that MIC and SIMTA have agreed terms, however raise concern over the proposed throughput which would be above what was approved by the Commission's approval of the SIMTA Concept Plan; • notes that an appropriate Section 94 plan is not in place for the site, and Council is not being given an opportunity to negotiate delivery of infrastructure; • recommends that MIC enter into a Voluntary Planning Agreement with LCC and RMS for infrastructure upgrades; • holds concern regarding potential impacts on human health; • further concerns include impacts relating to traffic congestion, noise and vibration impacts and air quality impacts, hazards and risks and human health; and • engaged Cardno to undertake review of the EIS. The review raised concern over the environmental impacts (that could be managed subject to appropriate mitigation), but also the strategic justification and the proposed staged approach.
Campbelltown City Council (CCC)	• maintains its concern about the lack of an overall master plan for the Moorebank and SIMTA intermodal sites, and notes potential cumulative impacts; • notes lack of certainty over rail access to the site; • raises concern regarding traffic impacts, particularly relating to Cambridge Avenue to the south of the site; and • seeks assurances that off-site infrastructure requirements are addressed at no cost to Council.

Council	Key Issues Raised
Fairfield City Council	• supports LCC's objection to the proposal; and • notes that the proposal would have a substantial impact on the amenity of the residents in the Liverpool LGA, particularly in relation to increased heavy vehicle movements.
Hurstville City Council	• raises concern over potential impacts to the Georges River, including a decline in water quality due to increased stormwater runoff, and loss of biodiversity after the existing riparian corridor is cleared; • calls for adequate mitigation measures to prevent environmental degradation of the Georges River system; and • supports the Georges River Combined Councils Committee submission relating to impacts on water quality and biodiversity.
Bankstown City Council	• raises concern over the management and treatment of stormwater runoff; • notes the need for measures to mitigate the risk of litter entering the Georges River; • is concerned about the loss of high value vegetation and biodiversity corridors; • notes that no surveys were undertaken on aquatic habitat and aquatic threatened species; • is concerned about the high risk flood hazards on the site; • requests ongoing consultation during construction and operation, and air and noise quality reports publicly accessible during construction and operation; and • supports the Georges River Combined Councils Committee submission.

Table 5: Key issues other public authorities

Public Authority	Key Issues Raised
Transport for NSW (TfNSW)	• supports the inclusion of a 'satisfactory arrangements' clause for regional infrastructure as part of the rezoning; • requests that the Applicant be conditioned to develop a detailed traffic model to study the local impacts; • requests that the Applicant be conditioned to implement a driveway monitoring regime; • requests that adequate consideration of mitigation measures is provided to ensure environmental impacts, particularly in relation to freight rail noise, are mitigated; • raised no objections on property grounds subject to there being no direct access to the M5 and access to a service 'pit' is maintained for Interlink Roads; and • provided a number of recommended conditions of approval.
Office of Environment & Heritage (OEH)	• raises concern that the EIS fails to meet a number of principles of the Biodiversity Offsets Policy for Major Projects and the Framework for Biodiversity Assessment; • raises concern that the ecological impact assessment is not based on a reliable assessment of losses and gains, noting that the number of offset credits generated by revegetated areas may not be the same as those generated by regeneration areas; • are of the view that the proposed methodology for securing suitable offsets does not demonstrate that 'reasonable' steps have been taken to locate 'like-for-like' offsets; • does not agree with the proposed vegetation swaps when calculating offset requirements; • raises concern over the proposed mechanism for securing offsets. OEH considers a Biobanking Agreement to be the most appropriate method rather than a Conservation Agreement; • advises that relevant offset plans, figures and calculations should be amended to only include the identified 'conservation area' by removing the 'area identified for development'; • suggests that the E3 zone be changed to a E2 zone which provides a greater level of protection; • notes that part of the proposal is within proximity to William Howe Regional Park, and that the EIS should address matters to be considered outlined in the *Guidelines for development adjoining land and water managed by DECCW* (DECCW 2010); and • considers the EIS satisfactorily addresses previous comments in relation to floodplain risk management.
NSW Ports	• strongly supports the proposal as it would play an important role in facilitating landside efficiencies as part of moving freight to required destinations, and is critical to ensuring Port Botany is able to cater for growing freight demands. • notes that the proposal would assist in reducing the growth of truck transport movements to and from Port Botany; and • notes the benefit of the site's access to a dedicated freight line.
NSW Health	• indicates the framework for the EIS assessment of the additional impact of air emissions appears sound;

Public Authority	Key Issues Raised
	• notes that all assessed receiver points except one (Receiver no. 33) are estimated to comply with air standards. Advises that exceedances may be acceptable at Receiver no. 33 as the land use is not residential; • notes the background level of pollutants is already close to the NEPM standards; • advises some discrepancies were found with input assumptions, and only on-site vehicles were included in the assessment (not off-site); • supports the exploration of all feasible and reasonable mitigation options, including emission improvement initiatives and the use of hybrid locomotives and hybrid vehicles and development of an air quality management plan; • holds concern that the full build scenario operational noise would exceed noise goals at Casula under all three access options by up to 13 dB (A), and notes that the effect on sleep disturbance for nearest residential receivers does not seem to have been fully assessed; and • notes that specific noise mitigations may need to be employed including an operational noise and vibration management plan.
Fire & Rescue NSW	• raises concern that the EIS does not specifically identify and discuss some types of unplanned incidents which may potentially pose risks to human life; • advises that, should a fire or hazmat incident occur, it is vital that first responders have ready access to information which enables the implementation of control measures; • highlights a number of potential fire hazards; • recommends a number of conditions of approval; and • recommends that Fire and Rescue are consulted to ensure an effective emergency response plan is developed.
Environment Protection Authority (EPA)	• preferred rail link option is the northern option subject to adequate management of waste (contaminated soils or Acid Sulfate Soils); • raises concern over the potential impacts of the central and southern rail options on the Glenfield Waste Facility site, however of these, the central option would be preferred; • does not support the southern option unless the applicant is able to demonstrate the construction and operation of the rail link would not compromise the effectiveness of the landfill pollution control and monitoring systems; • recommends targeted intrusive investigations are undertaken to determine contamination pathways and develop mitigation measures for the southern and central options; • requests clarification and or additional information regarding air quality, including emission estimates, a detailed ozone assessment, the assessment of 'early works', clarification of exceedances for cumulative scenarios, and a refined statements of commitments; • considers that the Noise and Vibration Impact Assessment technical paper is inadequate due to inadequate weather scenarios and unclear noise mitigation measures; • notes potential impacts from plant and equipment movement alarms, container handling impact noise, vehicle horns, site layout, construction noise, rail connective curve radius and future rail freight operation; • is concerned that the contamination investigation has not adequately addressed the presence of polychlorinated biphenyls (PCBs) in soils on the site given the site's proximity to the industrial premises ABB Australia, a power and automation engineering business; and • recommends that a site auditor accredited under the Contaminated Land Management Act be engaged to issue a Section A Site Audit Statement in relation to the proposal.

Department of Primary Industries (DPI)	• *Fisheries NSW:*
	  ○ recommends that the proposed mitigation measures in Chapter 29 of the EIS are implemented; and
	  ○ advises that it prefers the northern bridge crossing option.
	• *NSW Office of Water* (NOW):
	  ○ notes that a number of figures and sections in the EIS are inconsistent in relation to the proposed conservation area/Georges River riparian width, and recommends that they be amended for consistency;
	  ○ supports wider riparian zones in the northern section of the Georges River;
	  ○ notes that adequate mitigation measure need to be in place adjacent to Anzac Creek to ensure downstream of the site is not degraded;
	  ○ recommends that, if possible, the Amiens Wetland on the northern portion of the site be retained and rehabilitated;
	  ○ recommends that consideration be given during detailed design to locating the rail access corridor further west on cleared land within the Glenfield Waste Services site, and that only one bridge crossing be constructed;

Public Authority	Key Issues Raised
	○ recommends the E3 zone be changed to an E2 zone for higher conservation status; ○ recommends that a condition be imposed relating to minimising impacts on groundwater dependent ecosystems; and ○ notes that NOW should be consulted for any proposed groundwater use to determine any licensing requirements.
Sydney Catchment Authority	• notes that the facility is outside the authority's operational areas, and therefore has no comments on the proposed development.
NSW Rural Fire Service	• advises that the aims and objectives of *Planning for Bush Fire Protection 2006* apply to the proposal; and • notes that appropriate bush fire protection issues have been considered within the EIS.

4.3. Public Submissions

A total of 241 submissions plus 1538 form letter submissions were received from the public, including submissions from the following special interest groups, individuals or organisations:

- East Liverpool Progress Association;
- Action for Public Transport;
- Georges River Combined Councils Committee;
- Glenfield Waste Services;
- Liverpool Action Group;
- Georges River Environmental Alliance;
- Interlink Roads; and
- Member for Menai (now Holsworthy), Melanie Gibbons MP.

Of the 241 public submissions received, 234 (97%) objected to the proposal, 2 (1%) provided support and 5 (2%) provided comment. Taking into account form letter submissions, 1,772 (99.6%) objected to the proposal, 2 (0.1%) provided support and 5 (0.3%) provided comment. The key issues raised in public submissions, not including form submissions, are listed in **Table 6**.

Table 6: Summary of Key Issues Raised in Public Submissions

Issue	Proportion of submissions (%)
Project location and justification	76%
Traffic congestion/truck movement	72%
Air Quality/pollution	49%
Noise and Vibration	47%
Health	37%
Cumulative Impacts/SIMTA	31%
Contamination of Georges River	28%
Economic impacts and viability	28%
Heritage	28%
Biodiversity and environmental impacts	18%
Property values and land-use conflict	16%
Community and facilities	16%
Adequacy of EIS and information provided	10%

***Note – Rounding has been used in the calculation of the table above**

Generally, the key issues raised in the public submissions related to the location of the proposed site adjacent to residential areas and the Georges River; opportunities for the relocation of the intermodal to the new Badgerys Creek airport site; traffic impacts on existing roads, including roads that are already congested; concerns regarding the impacts of increased air and noise pollution on human health; inadequate assessment of cumulative impacts from both the Moorebank and SIMTA intermodal sites on adjacent areas; potential contamination of the Georges River ecosystem; economic impacts and loss of existing industrial jobs within the area; heritage impacts on a number of items, including the Casula Powerhouse; and an increase in land-use conflicts leading to a decrease in property values in adjacent communities.

The key issues raised in the form letter submissions include:

- arguments that the riverside land would be suited to residential use, including the provision of housing for up to 40,000 people;
- notes that the proposal would necessitate substantial upgrades to existing transport links; and
- requests that the intermodal be located adjacent to the future of Badgerys Creek airport.

The Department has considered these issues and they are assessed in Section 5 of this report.

4.4. Applicant's Response to Submissions (RtS)

The Applicant provided a response to the issues raised in submissions which is included in **Appendix C**. The RtS included the following key amendments:

- adoption of the southern rail connection from the site to the SSFL;
- changes to the layout of the facility including relocation of the IMEX and interstate terminals from the centre of the site to the east of the site (parallel to Moorebank Avenue) and relocation of warehousing from the east of the site to the centre of the site;
- changes to the upgrade of Moorebank Avenue and timing;
- changes to the vehicular circulation zone within the site; and
- an increase in size of the E3 Environmental Management zone (from 22.18 ha to 28.43 ha).

Due to the nature and extent of the changes proposed in the Response to Submissions, the Department publicly exhibited this document from 28 May 2015 to 26 June 2015 (30 days) on the Department's website, and at the following exhibition locations:

- Department of Planning and Environment, Information Centre;
- Nature Conservation Council of New South Wales;
- Liverpool City Council;
- Liverpool City Library;
- Campbelltown City Council; and
- Glenquarie Branch Library.

The Department also advertised the public exhibition in the Sydney Morning Herald, the Daily Telegraph, the Liverpool Leader and the Campbelltown Macarthur Advertiser on 28 May 2015, and forwarded a copy of the RtS to the Commonwealth Department of the Environment, Australian Rail Track Corporation (ARTC), DPI (including NOW), OEH (including the Heritage Division), the EPA, TfNSW, Essential Energy, Fire and Rescue NSW, NSW Health, NSW Ports, Origin Energy, NSW Rural Fire Service, Sydney Water, Transgrid, Liverpool and Campbelltown City Councils for comment. The documents were also placed on the Department's website.

A summary of Council and agency comments on the RtS is provided in **Table 7** and **Table 8** below.

Table 7: Key issues raised by Councils

Council	*Key Issues Raised*
Liverpool City Council (LCC)	• maintained its objection to the proposal and questions the suitability of the site; • reiterated its concerns over traffic impacts that would result on the surrounding network; • raises concerns over the lack of coordination between SIMTA and MIC in relation to the alignment of the rail link through Glenfield Waste facility and notes that curve radii of the rail link would result in potential wheel squeal impacts; • raises concern over the lack of amenity considerations such as visual impacts, active recreation, human health and noise during SSFL operations; and • consider the cumulative impacts to be greater than assessed.
Campbelltown City Council (CCC)	• acknowledges the RtS responds positively to a number of previous concerns raised by Council, however some residual concerns remain; • recommends conditions requiring a satisfactory joint operation to occur, and the maximum TEU throughputs to not exceed the maximums proposed by each applicant; • recommends the rail link to be constructed prior to operation of the terminal

Council	Key Issues Raised
	operations; • reiterates the need to restrict heavy vehicles to and from Cambridge Avenue or require upgrades to accommodate such traffic; • requests Council be consulted should a VPA be required to manage offsite traffic impacts; • recommends separate approval be required should the applicant be required to change operations based on interactions with other terminals; and requests a commitment be provided from the federal and state governments that consultation is undertaken with Council to maximise positive spin-offs from the terminal construction and operation via a review of strategic planning settings.

Table 8: Key issues other public authorities

Public Authority	Key Issues Raised
Transport for NSW (TfNSW)	• acknowledges the level of consultation being undertaken by the applicant with TfNSW. • confirms that RMS are currently developing a detailed traffic model of the Moorebank Liverpool area and it has been agreed with the applicant that this would be used as the basis for determining impacts during preparation of the Stage 2 application; • recommends a number of conditions regarding detailed modelling assumptions, use of micro or mesoscopic traffic models and requests the applicant discuss proposed mitigation measures and modelling with TfNSW/RMS; • recommends conditions to minimise noise impacts such as the use of steering, permanently coupled 'multi-pack' wagons for the port shuttle service and conditions to manage air quality impacts during operation; • recommends conditions relating to construction within the rail corridor, a workplace travel plan be prepared for Stage 2, bus services (as associated infrastructure) are planned into the development and the preparation of a Construction Environmental Management Plan; and • provided a number of additional comments/requirements to assist the applicant in preparing the future Stage 2 application.
Office of Environment & Heritage (OEH)	• recommends the preparation of an Aboriginal Cultural Heritage Management Plan for land within the proposed E3 Environmental Management zone; • raises concern that the Biodiversity Offset Strategy does not commit to providing offsets via a biobanking agreement and consideration needs to be given to the impact on riparian vegetation due to construction of a new bridge over the Georges River; • recommends the proposed *E3 Environmental Management* zone be upgraded to *E2 Environmental Protection* which would afford a greater level of environmental protection; and • potential impacts on the Leacock Regional Park need to be considered.
NSW Health	• notes that predicted heath impacts are considered to be low, however further mitigation measures should be considered to minimise exposure to particulates in adjacent workplaces; • notes that there is potential for sleep disturbance from rail pass-by events and advice should be sought from the EPA on appropriate mitigation measures; • considers the risk of health impacts associated with traffic, light spill and hazardous materials to be low subject to the implementation of appropriate mitigation measures; and • advises that grey and black water recycling should comply with relevant guidelines.
Environment Protection Authority (EPA)	• raises concerns in relation to noise levels from the rail link may have been under predicted; • recommends a number of mitigation measures including the use of best practice plant in the IMEX/interstate terminals and maximising radii of rail curves where possible; • requires an assessment of impacts from the SSFL in a quantitative manner; and • reiterates concerns of the proposed rail link to the SSFL via the Glenfield Waste Facility and recommends conditions of approval to address contamination, air quality and noise.
Department of Primary Industries (DPI)	• *Fisheries NSW:* o requires fish passage in the Georges River to be provided at all times and supports proposed mitigation measures relating to riparian biodiversity and

Public Authority	Key Issues Raised
	stormwater quality. • *NSW Office of Water* (NOW): o notes a number of inconsistencies between the MIT and SIMTA project that should be resolved, particularly in relation to the width of the riparian corridor and location of bridge piers; o raises a number of inconsistencies within the RtS regarding the rail connection and impacts on biodiversity, habitat connectivity and rail corridor width; o Requests remnant riparian vegetation to be retained and protected, Anzac Creek to be rehabilitated and confirmation on whether Amiens Wetland is natural or artificial to determine mitigation measures; o Notes the need to undertake an aquatic habitat assessment as part of Stage 2 works; and Recommends mitigation measures and conditions relating to aquatic habitats, riparian corridors, width of the rail link corridor, rail bridge including consideration of fauna movement and minimising impact on riparian vegetation.
NSW Rural Fire Service	• No further comment.

Public Submissions

A total of 100 public submissions were received during the exhibition period of the RtS, including submissions from the following special interest groups or organisations:

- East Liverpool Progress Association;
- Georges River Combined Councils Committee;
- RAID Moorebank; and
- ABB Australia.

Of the 100 public submissions received, 98 (98%) objected to the proposal and 2 (2%) provided comment. The key issues raised in public submissions are listed in **Table 9**.

Table 9: Summary of Key Issues Raised in Public Submissions

Issue	Proportion of submissions (%)
Traffic congestion/truck movement	80%
Air Quality/pollution	65%
Health	57%
Noise and Vibration	52%
Alternate location would suit project needs better, including Badgerys Creek	47%
Land use conflicts	39%
Contamination of Georges River	26%
Visual and Light Impacts	14%
Heritage	14%
Cumulative impacts/SIMTA	14%
Freight capacity is already provided for	12%
Lack of community consultation	10%
Impact on property values	10%
Biodiversity and environmental impacts	10%

It is noted that the Supplementary Response to Submissions indicates that 101 public submissions were received. However the difference in number is due to 2 submissions from the same submitter being uploaded to the Department's website. Additionally, a small number of late submissions were received raising concerns relating to traffic, air quality, noise and biodiversity impacts. These are not included in the Response to Submissions but have been considered by the Department in its assessment below.

Taking into account the submissions received during exhibition of the EIS and RtS, it is noted that traffic impacts, air quality, noise and vibration, health, project justification/suitability of the site and impacts on the Georges River continue to be the areas of most concern for residents. The Department has considered all issues raised and has conducted its assessment of the proposal in the later sections of this report.

5. ASSESSMENT

The Department considers the key environmental assessment issues for the application to include traffic, air quality and noise.

The Department's consideration of these key issues is provided below. The Department has also considered other matters as part of its assessment including: biodiversity; contamination; flooding, soil and water; hazards and risks; non-indigenous heritage; Aboriginal heritage; visual amenity; greenhouse gas; and public interest.

5.1. Traffic

Methodology

The Applicant's assessment focussed on the traffic impacts associated with additional vehicle movements to and from the site. This included collection of traffic data to determine existing traffic performance, expected traffic generation (construction and operation), future background traffic, simulating Moorebank Avenue intersection upgrades and providing recommendations for future upgrades as required. An assessment of cumulative impacts, to address the neighbouring SIMTA site, was also included.

As part of the RtS, the applicant provided an additional Traffic and Transport Impact Assessment, prepared in consultation with TfNSW and RMS, to determine a suitable study area and intersections to be assessed and also included an additional assessment for the years 2025 and 2028 at the request of TfNSW.

Existing Network Performance

Surveys carried out by the Applicant indicate that:

- Moorebank Avenue between the M5 Motorway and Anzac Road carries approximately 17,500 vehicles per day, and comprises approximately 6% heavy vehicles;
- Moorebank Avenue south of Anzac Road carries approximately 15,700 vehicles per day, and comprises approximately 4% heavy vehicles;
- M5 Motorway, over the Georges River, carries approximately 124,000 vehicles per day; and
- the section of M5 Motorway over the Georges River between the Hume Highway and Moorebank Avenue is congested due to the inadequate distances for merging/weaving on/off the motorway.

Of the intersections surveyed on Moorebank Avenue between the M5 Motorway and Chatham Avenue, only one intersection is performing at a Level of Service (LoS) F in both the AM and PM peak. The term LoS F refers to unsatisfactory operation with existing queuing and capacity improvement works required.

The intersection is between Bapaume Road and Moorebank Avenue and is currently un-signalised. The intersection comprises a give way sign with the priority given to Moorebank Avenue traffic. All other intersections were found to be operating at LoS A-C in the AM and PM peak and were considered to be satisfactory.

The Applicant, as part of the additional work included in the RtS, completed further surveys of 14 intersections within the wider road network. The intersections modelled can be seen in **Figure 5** below. Of the total number of intersections modelled, one is operating at LoS F being between Moorebank Avenue and Church Road, and 31-38% are nearing capacity in the AM and PM peak (operating at LoS D or E). These intersections were mostly along the Hume Highway, Newbridge Road and Heathcote Road.

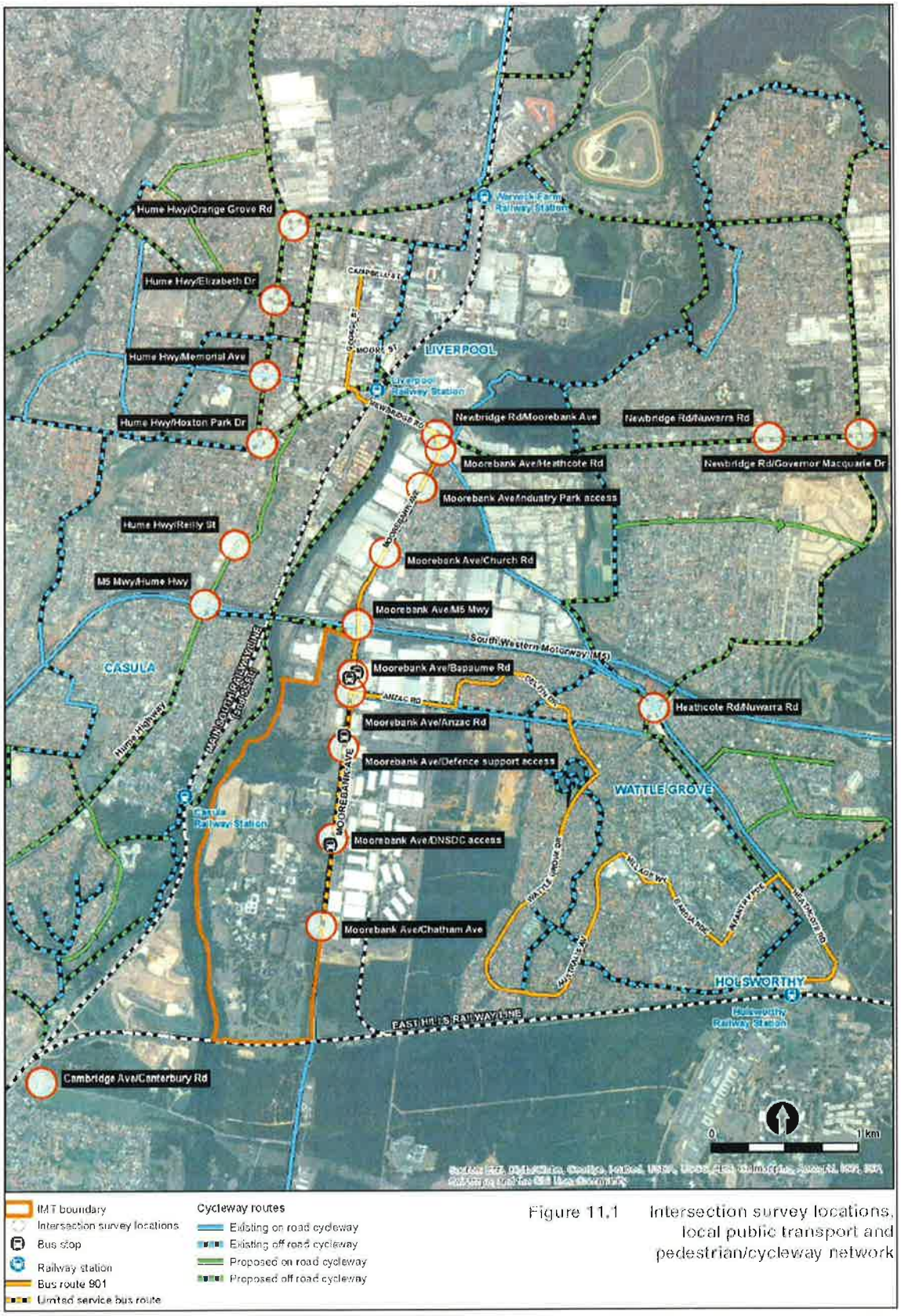

Figure 5: Key Intersections (Source: Environmental Impact Assessment 2014)

An additional aspect of the existing road network that was considered by the Applicant is the weave on the M5 Motorway. The weave relates to the section of M5 motorway between interchanges with Moorebank Avenue and the Hume Highway. This is a 1km section of motorway with on and off ramps at each intersection (refer **Figure 6**). Vehicles entering the motorway are required to negotiate vehicles exiting the motorway (and vice-versa) resulting in a 'weave' motion. The weave in 2010 was operating at LoS D in the PM peak.

Figure 6: M5 Motorway, between Moorebank Avenue and the Hume Highway (Base Image Source: Nearmap 2015)

Predicted Network Performance

The Applicant developed a Strategic Traffic Network Model to assess potential impacts of the proposal on the local traffic network in 2030. This model was based on TfNSW's strategic models and included consideration of WestConnex, NorthConnex, M5 Motorway widening and North West / South West Rail link projects. SIDRA modelling was also undertaken to understand specific impacts with and without the proposal on the operational efficiency of intersections in the vicinity of the site.

Intersection performance without the proposal shows that between 33-80% of key intersections would be operating at LoS F at either the AM or PM peak (or both) without the project (refer to **Table 1** of **Appendix D**).

In assessing the impacts of the proposal, the Applicant asserts that while 5,522 heavy vehicles movements per day would be generated as a result of the proposal, approximately 3,000 heavy vehicles per day would be removed from the M5 Motorway, between Moorebank Avenue and Port Botany as the containers that they would have transported would occur by rail. Further, a maximum additional 5,724 car movements are anticipated on the local road network during operation. The majority of staff would work in the warehousing and distribution centres over three shifts per day.

As demonstrated in **Table 10**, the Applicant's assumed traffic distribution from the site for both trucks and employee cars shows that the majority of outbound truck movements in the AM peak occur along the M5 Motorway (west), Hume Highway (north) and Moorebank Avenue (south – employees only).

Table 10: Traffic distribution from Moorebank Avenue

Direction (Moorebank Avenue to)	Distribution (%) weekday AM peak		Distribution (%) weekday PM peak	
	Light Vehicles	Heavy Vehicles	Light Vehicles	Heavy Vehicles
M5 West	20.0	45.3	20.0	44.8
Hume Highway North	18.5	19.6	18.5	20.0
Moorebank Avenue South	7.7	27.9	7.7	13.9
M5 East	13.3	7.2	13.3	21.3
Anzac Road East	10.5	0.0	10.5	0.0

Moorebank Avenue South	30.0	0.0	30.0	0.0

Modelling results demonstrate that the majority of intersections would suffer either a worse LoS or greater delays to those intersections that would already be operating at LoS F. In particular:

- the intersection between Moorebank Avenue and Newbridge Road would experience an additional average delay of 50 seconds in the AM peak;
- the Moorebank Avenue and Church Road intersection would experience an additional average delay of 770 seconds in the PM peak (but a 191 second improvement in the AM peak);
- the Moorebank Avenue and M5 Motorway intersection would experience an additional average delay of 57 seconds in the AM peak and 47 seconds in the PM peak; and
- the Cambridge Avenue and Canterbury Road intersection would experience an additional average delay of 287 seconds in the AM peak (refer **Table 2** in **Appendix D**).

The performance of the Moorebank Avenue and Anzac Road intersection is predicted to improve from LoS D to Los C in the AM Peak and LoS E to LoS D in the PM peak. This can be attributed to the proposed signalised 4-way intersection to replace the existing signalised 3-way intersection. This intersection would serve as the main access road into the project site.

Proposed Mitigation Measures

The Applicant acknowledges that while the project contributes to traffic distribution on the local and immediate road network that even without the proposal the local transport network would be reaching capacity without the proposal by 2030, for a number of intersections in the area.

In recognition of the impacts arising from the project, the Applicant has proposed a number of staged upgrades that would tie into the gradual increase of TEU throughputs. The Applicant has consulted with TfNSW and RMS in determining the proposed upgrades and timing. These are summarised in **Table 11**. Notwithstanding, the Department understands TfNSW raise a number of concerns regarding these upgrades. This is discussed in greater detail below.

It should be noted that where an intersection is forecast to be performing at LoS D or better (whether or not the proposal resulted in reduced efficiency), no upgrades are proposed by the Applicant.

Any proposed upgrades aim to return the intersections to the base year operation (without the proposal) and in most cases is a reduction in average delay. However, two intersections would result in a considerable improvement, these are the Moorebank Avenue and Church Road intersection in the AM peak (LoS F to LoS C) and the Cambridge Avenue and Canterbury Road intersection in the AM peak (LoS F to LoS B).

Additionally, the Applicant has committed to ensuring a regular bus or shuttle service with turnaround facility can be provided, either within the site itself or on Moorebank Avenue adjacent to the site. The boundary of the site has also been setback from Moorebank Avenue to ensure a future shared pedestrian/cycle path (with possible access to the site) could be constructed outside this boundary in the future.

Table 11: Proposed Intersection Upgrades

Intersection	Upgrade	Timing	Comment
I-01 – Hume Hwy / Orange Grove Rd	• Phase timing adjusted. • Additional approach and departure lanes on Hume Hwy in northbound direction.	• 2023 (Operation of 750,000 TEUs) • 2030 (Operation of 1.55M TEUs)	TfNSW • Not supported. Department's Response • Noted. Recommended condition requiring further consultation and use of RMS Transport Model for subsequent Development Applications.
I-02 – Hume Hwy / Elizabeth Dr	• Phase timing adjusted. • Additional right turn lane on Elizabeth Dr (east).	• Cumulative Scenario C2 only	TfNSW • Not supported. Department's Response • Noted. Recommended condition requiring further consultation and use of RMS Transport Model for subsequent Development Applications.
I-03 – Hume Hwy / Memorial Ave	• Phase timing adjusted. • Additional right turn bay on Hume Hwy (south).	• 2030 (Operation of 1.55M TEUs)	TfNSW • Not supported. Department's Response • Noted. Recommended condition requiring further consultation and use of RMS Transport Model for subsequent Development Applications.
I-04 – Hume Hwy / Hoxton Park Rd / Macquarie St	• Phase timing adjusted. • Additional right turn lane on Hume Highway (north).	• 2030 (Operation of 1.55M TEUs)	TfNSW • Further work required. Department's Response • Noted. Recommended condition requiring further consultation and use of RMS Transport Model for subsequent Development Applications.
I-05 – Hume Hwy / Reilly St	N/A*		
I-06 – Moorebank Ave / Newbridge Rd	• Phase timing adjusted. • Extend left turn lane on Newbridge Rd (east)	• 2023 (Operation of 750,000 TEUs)	TfNSW • Alternative proposed.

Intersection	Upgrade	Timing	Comment
			Department's Response • Noted.
I-07 – Moorebank Ave / Heathcote Rd	• Phase timing adjusted. • Change bus lane on Heathcote Rd east approach to general traffic, additional left/right turn lane	• 2016 (construction phase)	TfNSW • Alternative proposed. Department's Response • Noted.
I-08 – Moorebank Ave / Industrial Park Access	• Phase timing adjusted.	• 2019 (operation of 250,000 TEUs)	TfNSW • No comment. Department's Response • Noted.
I-09 – Moorebank Ave / Church Rd	• Ban right turn out of Church Road.	• 2016 (construction phase)	TfNSW • Council should be consulted. Department's Response • Noted. Recommended condition requiring further consultation and use of RMS Transport Model for subsequent Development Applications.
I-10 – Heathcote Rd / Nuwarra Rd	• N/A**		
I-11 – Newbridge Rd / Nuwarra Rd	• Phase timing adjusted in the AM peak only.	• 2023 (Operation of 750,000 TEUs)	TfNSW • No comment. Department's Response • Noted.
I-12 – Newbridge Rd / Brickmans Dr /Governor Macquarie Dr	• Phase timing adjusted, initially in the AM peak only. • Change layout of Governor Macquarie Drive approach to include a combined through and right turn lane, and dedicated right turn lane.	• 2016 (construction phase) • 2025 (Operation of 1M TEUs)	TfNSW • Further work required. Department's Response • Noted. Recommended condition requiring further consultation and use of RMS Transport Model for subsequent Development Applications.
I-13 – Moorebank Ave / M5 Motorway	• Phase timing adjusted. • Additional left turn lane added to Moorebank Ave (south) and signalised.	• 2028 (Operation of 1.3M TEUs)	TfNSW • No objection subject to further design. Department's Response • Noted.

Intersection	Upgrade	Timing	Comment
I-14 – Hume Hwy / M5 Motorway	• Phase timing adjusted. • Extend right turn lane on M5 east	• 2023 • (Operation of 750,000 TEUs)	TfNSW • No objection subject to further design. Department's Response • Noted.
I-15 – Cambridge Ave / Canterbury Rd	• Introduce right turn from left lane on Canterbury Rd (south), and separate right turn lane.	• 2025 (Operation of 1M TEUs)	TfNSW • No objection subject to further design. Department's Response • Noted.
I-0A – Moorebank Ave / Anzac Rd	• Upgrade to 4-way signalised intersection.	• 2030 (Operation of 1.55M TEUs)	TfNSW • No objection subject to further design. Department's Response • Noted.
I-0B – Moorebank Ave/SIMTA northern access	• Phase timing adjusted. • Dual right turn lanes from SIMTA site.	• 2030 (Operation of 1.55M TEUs)	TfNSW • No comment. Department's Response • Noted.
I-0C – Moorebank Ave/SIMTA central access	• Dual right turn lanes from SIMTA site.	• 2030 (Operation of 1.55M TEUs)	TfNSW • No comment. Department's Response • Noted.
I-0D – Moorebank Ave/SIMTA southern access	• N/A*		

*** Intersection operating at LoS D or better**
**** Proposal would have a negligible impact on the performance of this intersection**

Department's Consideration

Methodology

The Department engaged Aurecon to review the Applicant's Traffic and Transport Assessment and to assist in its assessment of traffic and transport related matters for the proposal (refer **Appendix E**). The review considered the impact assessments (including the cumulative impacts), submissions on the RtS, and the Supplementary Response to Submissions on traffic and transport impacts.

Aurecon found the Applicant's assumptions for traffic generation in the EIS as being reasonable but notes that the daily peak hour proportions may be too low for intermodal and warehouse uses and staff traffic. The Applicant believes that there will be a desire of drivers of heavy vehicles to avoid peak hour congestion resulting in a reduction of peak hour trips, however Aurecon identified that deliveries may need to occur during standard business hours.

TfNSW also requested the Applicant consider a revised peak hour generation rate to better reflect the proposed operations of the facility. The peak hour generation rate was updated based on SIMTA's assumptions as part of the RtS. It is at this stage that TfNSW accepted the Applicant's refinements and provided a number of recommendations to be addressed in subsequent Development Applications including a breakdown percentage of peak hour vehicle movements and degree of car sharing by staff.

In relation to traffic distribution, Aurecon raised concern over the lack of consideration of heavy vehicles using Moorebank Avenue (south) and Cambridge Avenue in the event of an incident preventing access to the M5 and/or Moorebank Avenue. Aurecon noted that this route currently carries approximately 3% heavy vehicles and it is a designated heavy vehicle route permitting access to 19 metre long semi-trailers between 10am and 3pm Monday to Friday and there is no travel restriction for rigid trucks. This concern was also raised in submissions, including that from Campbelltown City Council. The Applicant believes that through detailed design of the signalised access road into the site, that heavy vehicles could successfully be deterred/prevented from entering the site from the south, or turning right from the site. However, in the event that access to Moorebank Avenue (north) or the M5 Motorway is blocked, there is a concern that the Cambridge Avenue route may be used. In this regard, the Department has recommended further consideration of this matter in subsequent Development Applications.

In concluding, Aurecon determined that the scope of the assessment is adequate, but notes that the additional modelling currently being undertaken by TfNSW and RMS in consultation with MIC and SIMTA would improve this further. As such, Aurecon considered the underlying assumptions for construction and operational traffic generation and distribution were considered adequate for a concept proposal. The Department concurs with this position and has recommended conditions requiring further consultation with TfNSW and RMS in the preparation of subsequent Development Applications.

Network Performance and Mitigation Measures

The Department acknowledges the concerns raised by Liverpool and Campbelltown City Councils, agencies and members of the public, concerning the predicted impacts on the road network as a result of the proposal. It also acknowledges that the proposal would result in a decrease of heavy vehicle movements along the M5 corridor (between Port Botany and Moorebank Avenue) by up to 3,000 vehicles per day, which would be re-distributed north and west of the Moorebank Avenue and M5 Motorway interchange.

The Department also acknowledges that TfNSW and RMS accept responsibility for the existing and future existing traffic conditions, however have required MIC to contribute towards the cost of necessary upgrades as a result of the volume of additional traffic predicted by the Traffic Impact Assessment. The Department supports this and notes that TfNSW and RMS have been developing a mesoscopic and microsimulation transport model for the combined MIC/SIMTA intermodal facility. On 10 December 2015, the Department confirmed with RMS that this work is expected to be completed by the end of December 2015. It is expected that this work will form the basis for Traffic Impact Assessments for each subsequent Development Application. The Department is advised that this model will allow the nature and timing of proposed intersection upgrades to be more accurately calculated for subsequent Development Applications.

While the Department believes the outcomes of this model would have been beneficial for the subject concept proposal, it is encouraged by the effort currently being undertaken by TfNSW and RMS, in consultation with MIC and SIMTA in developing an appropriate transport model for the combined MIC/SIMTA intermodal facility.

The EIS indicates that as a result of the project, potential impacts are likely to occur on Moorebank Avenue in the vicinity of the site and at a number of other major intersections within the area covered by the network model. The proposed mitigation measures (refer **Table 11**) are proposed to be staged by the Applicant depending on the staged increase of TEU throughput from the site. Of the 19 intersections modelled (including the proposed SIMTA access points), the Department notes that TfNSW support 4 upgrades, require further consideration of 5 upgrades and object to 3 upgrades. While the Department notes TfNSW's concerns, the proposed mitigation measures would be refined during the preparation and assessment of subsequent Development Applications.

A number of submissions raised concern in relation to the M5 Motorway weave, including TfNSW, Firstly in relation to the modelling software used and secondly in relation to the safety aspects of the weave itself. Aurecon notes that the software used to model the weaving issue was not the most appropriate to determine potential impacts as a result of the proposal, and further modelling would be required in subsequent applications. This was acknowledged by the Applicant.

It is expected that further modelling would use the TfNSW/RMS base model to predict impacts and develop appropriate mitigation measures to ensure an appropriate level of road safety on the M5 and Moorebank Avenue/Hume Highway interchanges.

The Department notes the predicted impacts (delays) in the RtS are worse than those described in the EIS and this is discussed further below.

Table 12: Intersections either approaching capacity or at capacity (without mitigation)

	AM		PM	
	Intersections Approaching Capacity (LoS D/E)	**Intersections at Capacity (LoS F)**	**Intersections Approaching Capacity (LoS D/E)**	**Intersections at Capacity (LoS F)**
Existing	6 (38%)	1 (6%)	5 (31%)	1 (6%)
Future without the proposal and by 2030	1 (6%)	12 (75%)	1 (6%)	6 (38%)
Future with the proposal by 2030	1 (6%)	14 (88%)	5 (31%)	9 (56%)

The Department notes that a number of intersections within the surrounding road network would be operating either at capacity (LoS F) or near capacity (LoS D/E) by 2030 without the project (refer **Table 12**). This indicates that intersection upgrades would likely be required

regardless of the project proceeding. The project would result in two additional intersections in the AM peak and three additional intersections in the PM peak operating at LoS F. The proposed upgrades by the Applicant aim to return each intersection as close as possible to the future case (without the proposal).

In addition to the modelling task being undertaken by TfNSW and RMS to assist with identifying appropriate mitigation measures (and their timing) for future Development Applications, the Department notes that a 'satisfactory arrangements' clause has been included as part of the Planning Proposal (refer **Section 3.4**). This clause requires the consent authority to be satisfied that for subsequent Development Applications, satisfactory arrangements have been made to contribute towards the provision of improvements to regional transport infrastructure and services reasonably required as a result of the development and operation of the project.

This satisfactory arrangements clause, together with the proposed mitigation measures and work being undertaken by TfNSW and RMS provides the Department with confidence and certainty that the proposed traffic impacts can be mitigated. Aurecon shares this view and recommended a condition requiring a Transport Modelling Project Review Group to be established. This recommendation was not fully supported and instead, the Department has successfully negotiated a condition requiring the Applicant to continue consultation with relevant Councils and Agencies. The Applicant is required to present and discuss proposed traffic assumptions, modelling methodologies and mitigation measures (and their timing) for subsequent applications. Following this consultation, action items are to be agreed, published on the Applicant's website, actioned and reported to enable further consultation with RMS. Invitees will comprise TfNSW, RMS, SIMTA, Liverpool Council, Campbelltown Council (and nominated private individuals via Council).

Aurecon concluded that the validity of the Applicant's assessment of traffic impacts to be adequate. Aurecon considered the proposed mitigation measures for congested intersections to be 'barely adequate' due to the proposed upgrades still resulting in intersections operating at LoS E or F but did recognise that the responsibility for mitigation measures does not rest solely with MIC and as such, supported additional modelling currently being undertaken by TfNSW/RMS and a coordinated approach to the resolution of these issues. The Department's recommended condition requiring the Applicant to convene a meeting with relevant agencies and Councils would formalise this approach.

The Commission's determination of the SIMTA Concept Plan in September 2014 has been a key consideration in assessing traffic related impacts of the concept proposal. The concept proposal approval was granted for 500,000 TEUs (250,000 TEUs initially) due to the Commission's uncertainty surrounding the nature and timing of infrastructure/road upgrades. Stage 1 (currently being assessed by the Department) is for 250,000 TEUs. The operation of Stage 1 would allow real-time monitoring of traffic movements. These results could then be used in the model being developed by TfNSW/RMS to provide more certainty on traffic impacts and determine the appropriateness and timing of mitigation measures for subsequent stages.

The Department has considered the cumulative impacts of the proposal with the neighbouring SIMTA site. Given the agreement between MIC and SIMTA to operate a single combined facility, the Department has been advised that Cumulative Impact Scenario B is the scenario being pursued commercially. This has provided certainty for the Department in its assessment of cumulative impacts relating to traffic, and confirms that impacts would be similar to those predicted for the full build scenario on the MIC site alone, as the same number of containers would be processed across both sites.

To manage the potential worst case scenario of two facilities operating independently, the Department has recommended conditions which limit the number of containers that can be processed at the MIC site, ensuring the maximum capacity of 1.55 million TEUs across both sites is not exceeded. This takes into account the 500,000 TEUs already approved by the

Commission on the SIMTA site. The staged structure of these recommended conditions is consistent with those in the Commission's approval of SIMTA.

Aurecon also raised concerns over the single access point to the site, being only 350 metres from the M5 Motorway and Moorebank Avenue interchanges. The Department acknowledges this issue and believes that this matter could be further considered in future Development Applications for the construction and operation of terminals and warehousing. Additionally, conditions of any subsequent approval would require the Applicant to prepare and implement an Operational Environmental Management Plan which could include traffic management and incident management measures and procedures to be employed.

The Department considers that construction related traffic, including that for the early works component, could be adequately managed with the preparation and implementation of relevant construction management plans which would detail haulage routes, traffic management, access arrangements etc. It will also be further considered during the assessment of each subsequent Development Application.

On balance, the Department acknowledges that the proposal would impact on the efficiency of the road network but notes the reduction in heavy vehicle traffic between Port Botany and the subject site (up to 3,000 vehicles per day) would be a benefit to the existing road network to the east of the site (particularly the M5 Motorway and around Port Botany). The Department is satisfied that potential traffic impacts as a result of the proposal can be adequately addressed in conjunction with TfNSW/RMS. This view is shared by Aurecon, which stated that the project 'can be approved to proceed' subject to conditions being based on the final recommendations in the review. The main recommendation requires *'the RMS Transport Model to be used at each subsequent SSD application for any increase in operations, and that traffic monitoring is undertaken at key locations to demonstrate that either the network can still cope or that mitigation measures are adequate to maintain traffic impacts to its 'no build'/base case level or LoS D or better (or as agreed by TfNSW).'*

Rail

The Applicant has stated that at full operation, 317 train movements per week (45 per day) would use the rail link connecting the site to the SSFL. This would require 45 train paths to be available on the SSFL, being 22.5 movements each way (on average). The EIS explains that the SSFL has capacity constraints that may influence the number of trains being able to access the site per day and that consultation would continue to occur between the Applicant, ARTC, TfNSW and other stakeholders on the rail freight network. An assessment of demand distribution and capacity within the freight network would be provided as part of the EIS for Stage 2 works.

The Department consulted with ARTC at each stage of the assessment process, however correspondence was only received following a request for input into the then draft DGRs. While an indication of available capacity on the SSFL was not provided, ARTC requested the Applicant to '*address access to the Southern Sydney Freight Line and the capacity of the existing rail routes to handle the predicted increases in traffic.*' ARTC also noted the requirement to consult with ARTC and confirmed that additional comment to the applicant would occur during the consultation process.

The EIS states that through consultation with ARTC, it was confirmed that the '*assessed capacity of the SSFL would meet the future demand for the project.'* Further, the Department consulted ARTC for confirmation and was informed that the intermodal has been included in its assumptions for estimating available train paths in draft strategic documents. In this regard, the Department considers adequate consultation has occurred between MIC and ARTC and there is sufficient capacity on the SSFL to accommodate additional rail traffic.

The Department's assessment of the cumulative impacts concludes that in the unlikely event of two competing facilities operating concurrently, the capacity of the SSFL would act as a constraint to limit the maximum throughput. The sharing of the same catchment demand

would also ensure the maximum throughput of both the MIC and SIMTA site would not be achieved.

In relation to the rail link, the EPA has raised concerns that the alignment through the Glenfield Waste Facility does not exactly follow that of the SIMTA Concept Plan resulting in uncertainties around possible impacts to the waste facility. The Applicant has since confirmed that the southern rail alignment option is now the same alignment as the approved SIMTA rail access, and that SIMTA would be responsible for constructing this access. The Department raises no objections to the proposed rail link, and recommends that further consultation be undertaken during the detailed design and the preparation of the Stage 2 SSD. In the unlikely event of two terminals proceeding, a condition has been recommended ensuring only one rail connection is constructed to service both the MIC and SIMTA sites.

Public/Active Transport

The Department acknowledges the consideration that has been given to both public and active modes of transport. The site is to be designed to ensure cycle paths, direct pedestrian access from the warehousing/terminals to Moorebank Avenue and possible future bus stops are not precluded. Further, the Department has recommended that the design of the site should not preclude future access opportunities including a pedestrian connection over the Georges River to Casula Railway Station. In relation to construction related impacts during early works, the Construction Environmental Management Plan and Traffic Management Plan prepared for the project would include mitigation measures for construction related impacts on pedestrians, cyclists and public transport services.

Conclusion

The traffic modelling undertaken has adequately identified existing, future existing and project related traffic conditions at a concept level. However, the Department acknowledges the proposed mitigation measures and their timing will change based on the use of the model currently being developed by RMS in subsequent Development Applications.

The proposed satisfactory arrangements clause in the Planning Proposal, use of the TfNSW/RMS Transport model to refine the proposed mitigation measures during subsequent Development Applications, and the recommended conditions would ensure that the operation of the facility would not result in unacceptable impacts on the local and regional network in the short and long term. Additionally, the Department is satisfied that there is sufficient capacity available on the SSFL to accommodate the proposal.

The Department considers construction related traffic impacts at both early works stage and during the development of subsequent stages can be adequately managed and would be further considered in subsequent SSD applications and through the preparation and implementation of relevant construction management plans. Public/active transport has been adequately considered at this concept level and would be assessed in detail in subsequent applications.

5.2. Air Quality

Air quality impacts during construction and operation of the proposal was a key issue raised by local Councils, government agencies and in public submissions. In its assessment. the Department has taken into account both the potential impacts arising from the proposal, and the cumulative impacts should SIMTA and MIC operate concurrently.

The Applicant prepared an Air Quality Impact Assessment which the EPA considers to have been conducted in accordance with *Approved Methods for Modelling and Assessment of Air Pollutants in NSW* (DEC 2005). Sensitive receptors are shown in **Figure 7**.

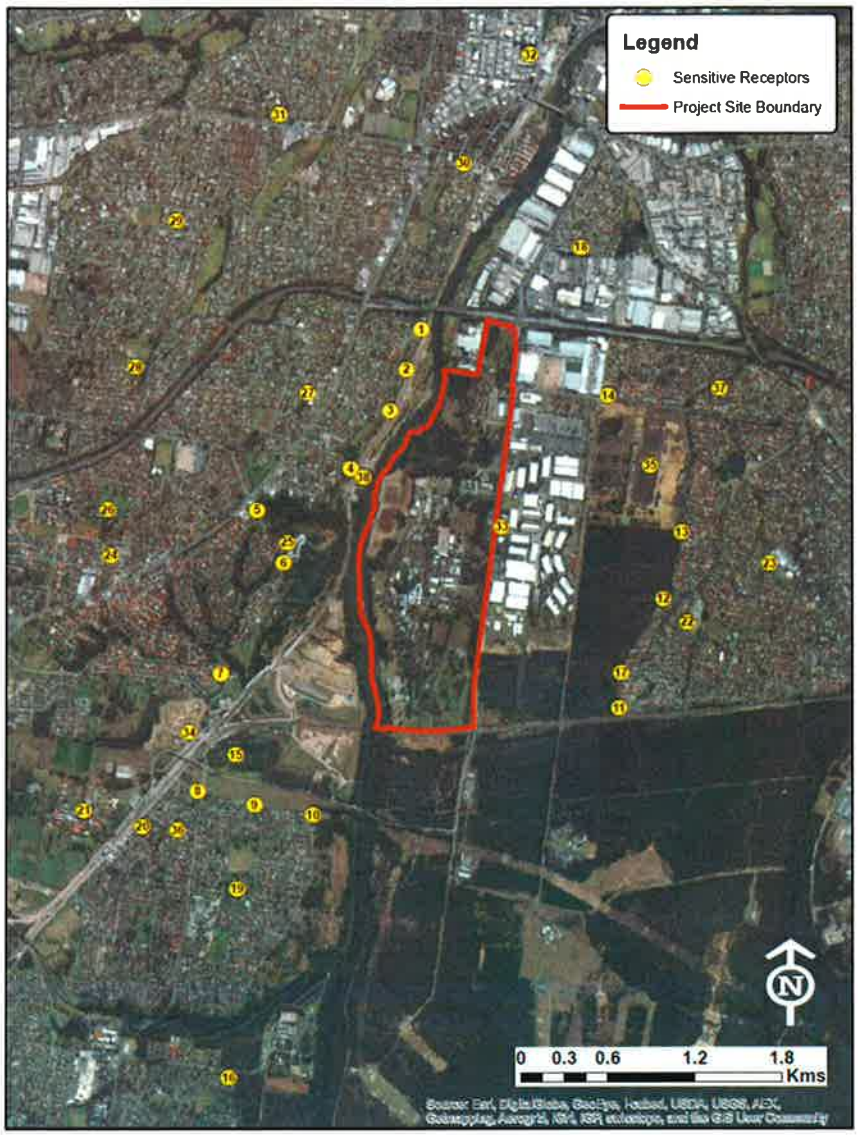

Figure 7: Location of Sensitive Receptors (Source: EIS 2014)

Construction

Construction air quality impacts relate to airborne dust which would be managed under the *Protection of the Environment Operations Act 1997* (administered by the EPA) and through a Construction Environmental Management Plan.

The EPA raised concern over the potential impacts on the Glenfield Waste Facility during construction, particularly the possible release of odours and uncontrolled landfill gas emissions. However, construction activity under the concept proposal is limited to early works on the main intermodal site and a number of conditions have been recommended so that air quality impacts continue to be addressed in subsequent Development Applications for future stages.

Operation

The likely air quality impacts from operation of the proposal would come from the use of diesel locomotives, heavy vehicles, and other equipment. The pollutants released in diesel engine exhaust include airborne particulate matter (PM) and nitrogen oxides (NO_x).

Baseline data was obtained from ambient air quality equipment on site in July 2012 to monitor NO_x, PM_{10} and $PM_{2.5}$, and also the EPA's ambient air quality monitoring stations at Liverpool and Chullora. The Liverpool station had a higher background concentration and has been adopted as the baseline dataset.

With regards to local air quality, the EPA's annual average reporting goal of 30µg/m^3 was met for PM_{10}, however minor exceedances were recorded against the 24 hour average goal of 50µg /m^3. These exceedances were attributed to bushfires that were in the metropolitan area in late 2013.

In considering the annual average and 24 hour average concentrations for $PM_{2.5}$, minor exceedances of the National Environment Protection Measure (NEPM) of 25µg/m^3 and 8µg/m^3 were recorded. This was also attributable to bushfires in the region. However, taking into account the annual average readings between 2009 and 2013, the advisory goal was met. It should be noted that the $PM_{2.5}$ is an advisory goal and not a reporting goal.

In a regional context, background concentrations of PM_{10} were below the annual average reporting goal however background concentrations of $PM_{2.5}$ were higher than the advisory goal, more recently in 2013 due to the bushfires.

The EIS reports that an assessment of the local air quality impacts (project increment and background concentrations) for residents in Wattle Grove, Moorebank, Casula and Glenfield (refer **Table 4** of **Appendix D**) reveals the following:

- there would be no additional exceedances of the reporting goal or advisory goal for the PM_{10} or $PM_{2.5}$ concentrations beyond those experienced in the baseline dataset, consistent with the Approved Methods for Modelling (OEH 2005);
- there would be no exceedances of the reporting goal for the annual average PM_{10} concentrations;
- for the annual average reporting goal for $PM_{2.5}$, one exceedance is predicted at receptor 33 which is located on the SIMTA site. Given that the former DNSDC relocated in 2014 this no longer considered to be a sensitive receptor. In any case, this exceedance reflects the already elevated background levels;
- maximum hourly NO_2 concentrations at the nearest residential receptors are predicted to be up to 135.4µg/m^3, which compares favourably to an ambient air quality standard in the area of 246µgm^3 (1 hour maximum); and
- annual average NO_2 concentrations are predicted to be up to 28.4µg/m^3, which compares favourably to an ambient air quality standard of 62µgm^3.

In summary, the Applicant predicts the overall impact on local and regional air quality to be insignificant.

The EPA considers that the proposal could be developed in a manner that does not cause exceedances of air quality impact assessment criteria, however a more detailed and comprehensive assessment would be required for each subsequent application taking into account international best practice for intermodal facilities. Further, a number of conditions have been recommended for any future approval.

In terms of regional air quality impacts, the results of the analysis concludes that slight increases of some concentrations of air pollutants may be experienced along major truck routes in the vicinity of the site and the western part of the rail corridor between Port Botany and Moorebank. This is counterbalanced by the reduction in vehicle emissions along the M2, M4 and M5 motorways due to the movement of freight from road to rail. As total emissions in the Sydney Region include emissions from electricity generation, solid fuel burning and industrial processes, any change in emissions on a regional scale would likely be discernible relative to pollutant levels that would occur with or without the Project.

Department's Consideration

The Department considers that the proposed mitigation measures to be employed during construction are reasonable and will be refined for subsequent Development Application stages when greater detail is available on construction activities. In addition, the recommended conditions include the need for the Applicant to undertake a more detailed assessment of air quality impacts and to address the requirements of the EPA in subsequent

Development Applications. The Department considers that sufficient assessment has been undertaken to address and identify likely construction related air quality impacts at the concept level. In response to the EPA concerns over the lack of detail available for the early works phase of construction, the Department has recommended a condition requiring the preparation and implementation of a Construction Air Quality Management Plan. This Plan is to include additional investigation and assessment of remediation options, potential for air emission and emission controls.

During operation, the Department concurs that the key sources of emissions likely to result in air quality impacts are diesel powered locomotives carrying containers and diesel powered heavy vehicles distributing containers to service the catchment area. It is acknowledged that the Applicant has listed a number of mitigation measures as 'subject to review'. These include requiring emission standards for locomotives and shunting engines, upgrading of older locomotives to meet emission standard Tier 2+ or above, electrification of refrigerated containers, hybrid on-site vehicles and requiring trucks to meet Euro V emission standards. The Department notes that proposed measures to mitigate noise impacts would also have a positive effect on air quality such as the possible use of electric motors rather than diesel powered equipment on site.

The Department understands current health advice that there is no established threshold for fine particles below which there are no health effects. Fine particles, as small as 2.5 microns ($PM_{2.5}$), are of primary concern to human health as they can be readily absorbed into the lungs. At the concept level, relevant reporting criteria would be met, but $PM_{2.5}$ would exceed the advisory reporting standard by a small amount (0.9 for receiver 33 on the SIMTA site, and up to 0.3 elsewhere). This is due to the existing elevated background levels rather than the contribution from the proposal. NSW Health indicated that the predicted human health impacts are considered to be low (not significant) however the results of the receiver at the SIMTA site are of concern. The Department's recommended conditions relating to the implementation of best practice container handling equipment would contribute to more favourable air quality for employees on both the MIC and adjacent SIMTA sites.

The Department recognises that air quality impacts was a key issue raised in submissions and notes that while cumulative concentration of $PM_{2.5}$ exceeds the average annual advisory goal at some locations due to elevated background levels, compliance with applicable ambient air quality reporting criteria would be achieved. In addition to the Applicant's commitment to review mitigation measures during operation, the Department has recommended conditions relating to best practice locomotives, wagons, plant and equipment.

The EPA also identified matters to be addressed in subsequent Development Applications. This includes a review of best practice for the design and operation of intermodal facilities. The EPA requires it to be demonstrated that the project has incorporated best practice facility and process design to minimise idling emissions at the terminal. Similar to the SIMTA site, the Department notes that at this stage the proposed facility would not require an Environmental Protection Licence from the EPA.

To ensure a consistent approach is applied between the SIMTA and MIC sites, the Department has recommended the following conditions. These have been based on the SIMTA approval, the Department's assessment and comment from residents, Liverpool Council and agencies:

- detailed comprehensive air quality impact assessments for each stage of the proposal (including thorough assessment of mitigation measures); and
- a comprehensive review of intermodal terminal operation best practice process design, emission control and feasible and reasonable management measures that could be applied to each stage of the project (and benchmarking those measures against international best practice).

The Department of Health noted that taking into account cumulative impacts from the operation of both facilities, the predicted health impacts are considered to be low. NSW Health also supported the proposed mitigation measures. However, should exceedances be identified through ongoing monitoring and evaluation processes, a more targeted monitoring and management program would be required.

Cumulative air quality impacts associated with the proposal have also been considered by the Department in its assessment of the proposal. The Department concludes that the cumulative impact for both the SIMTA and MIC sites is unlikely to result in additional impact when compared to only one of the proposals proceeding. Notwithstanding, the Department notes the Applicant's public intentions to operate a single combined facility across both the MIC and SIMTA site with a combined throughput of 1.55 million TEUs.

The Department is satisfied that the level of assessment of potential air quality impacts, for both construction and operation, is sufficient for a concept proposal with the exception of the early works component. A condition has been recommended requiring the preparation and implementation of a Construction Air Quality Management Plan. The Department considers that compliance with these requirements and the implementation of the identified mitigation measures during operation will result in acceptable air quality impacts.

5.3. Noise and Vibration

A Noise and Vibration Impact Assessment was conducted by the Applicant. The assessment considered potential impacts of all onsite noise and vibration sources on the closest residential areas and other sensitive land uses. The assessment was conducted in accordance with the *NSW Industrial Noise Policy* (EPA), *Assessing Vibration: A Technical Guideline* (DEC), *NSW Road Noise Policy* (EPA), the *Rail Infrastructure Noise Guideline* (EPA) and *Interim Construction Noise Guidelines* (DECC). The assessment identified noise and vibration impacts due to construction and operation of the project and included consideration of road traffic noise and rail noise.

Cumulative impacts associated with the SIMTA site have been included in this assessment. The cumulative impact assessment included predicted noise impacts at both the SIMTA and MIC sites and the relocated DNSDC site, taking into account the existing and proposed future activities. The report provides a list of recommended future assessment requirements for subsequent Development Applications and provision for mitigation measures to prevent any exceedances of noise and vibration criteria.

The nearest residential properties (receivers) are located in Casula, Moorebank, Wattle Grove and Glenfield (refer **Figure 8**). The closest residents are located approximately 180 metres from the western side boundary of the site and approximately 400 metres from any operational areas on the opposite side of the Georges River and SSFL.

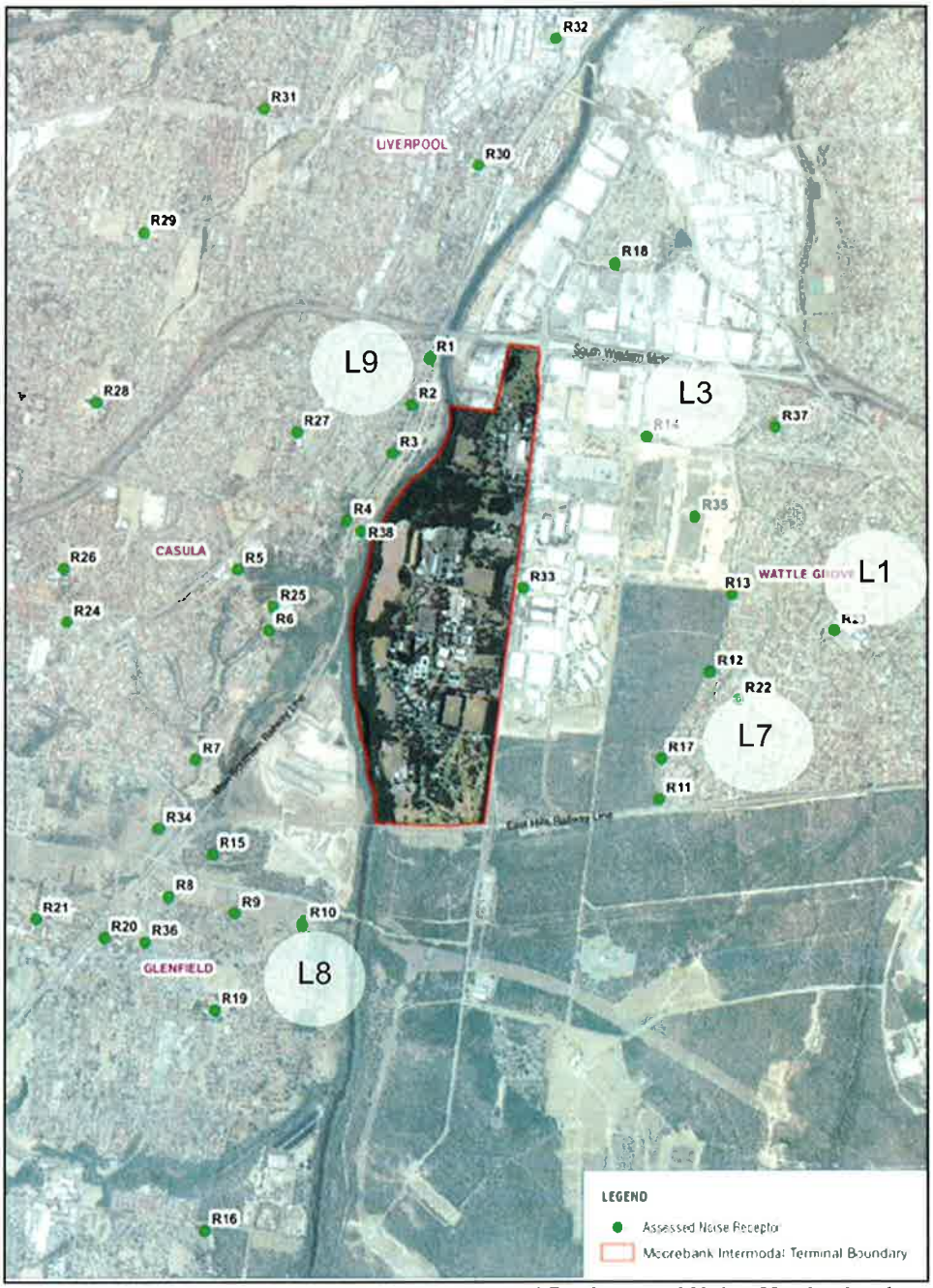

Figure 8: Sensitive Receiver Locations and Background Noise Monitoring Locations

Background noise levels at these receivers were determined by surveys at 5 locations in Wattle Grove and Casula, and by analysing 20 months of noise monitoring data at 3 unattended measurement locations: Corryton Court, Wattle Grove (L7); Goodenough Street (L8), Glenfield; and Buckland Road, Casula/Liverpool (L9) (refer **Figure 8**).

The rating background noise level results of attended and unattended monitoring at surrounding residential areas are provided in the following table. Note L6 is excluded from the table due to its location adjacent to the site on Moorebank Avenue.

Table 13: Rating Background Noise Levels (RBL)

Location	RBL (dBA)		
	Daytime (7am-6pm)	Evening (6pm-10pm)	Night (10pm-7am)
L1	39	33	30
L3	57	54	46
L7	35	36	32
L8	35	37	33
L9	39	39	33

Construction Noise

Development of the project would comprise a series of construction phases including site preparation, earthworks, drainage and utilities, compaction, pavement construction, buildings and rail construction. The modelling undertaken included 3 assessment scenarios including: Scenario 1 (construction of 250,000 TEU IMEX and 100,000m^2 warehousing and construction of an additional 250,000 TEU IMEX); Scenario 2A (operation of 250,000 TEU IMEX and 250,0000 interstate terminal and 100,000m^2 warehousing); and Scenario 2B (operation of 500,000 TEU IMEX, 250,000 TEU interstate terminal, 100,000m^2 of warehousing and construction of an additional 25,000 TEU IMEX and 150,000m^2 warehousing).

Noise emission levels from the typical equipment that is likely to be used in each phase have been considered to determine the most noise intensive plant and machinery sound power levels (SWL). Modelling over the entire construction site area was conducted to determine the predicted SWLs at each sensitive receiver location and a comparison against the relevant noise goals. The results are shown in **Tables 5 - 7** in **Appendix D**.

The results in **Tables 5 - 7** in **Appendix D** indicate that construction noise levels are predicted to largely comply with the noise management levels at all locations, except for the predicted exceedances resulting from piling, excavation and compaction work. Other minor exceedances are predicted to occur at Wattle Grove during concreting, and Casula/Glenfield during rail construction activities. Appropriate mitigation measures would be required as part of the early works stage including the preparation and implementation of a Construction Noise and Vibration Management Plan.

No vibration sensitive receivers were identified within the vicinity of the site and no human comfort impacts were identified to be likely to occur as a result of the construction vibration. A program of construction noise and vibration monitoring would be developed for the project including a Construction Noise and Vibration Management Plan.

In relation to the early works phase of this application, predicted construction noise levels comply with the noise management levels at all receivers, as activities are proposed during standard construction hours and due to the relatively small scale activities proposed.

Operational Noise

During operation of the proposal, noise sources are expected to include the use of equipment for moving containers on-site, warehousing activities and noise generated by truck and train movements on-site and within the rail corridor. It is noted that that the site would operate 24 hours per day. The predicted operational noise sources and levels are provided in the following table.

Table 14 Operational Noise Sources

	Sound Power Level - Individual (dBA – Laeq,15 min)	
Item	**IMEX (No.)**	**Interstate (No.)**
In-terminal Vehicles	98 (6)	104 (25)
Working Track Lifting Equipment (Rail Mounted Gantry)	98 (15)	108 (9)
Side Pick	102 (5)	108 (2)
Switch Engine	103 (2)	103 (1)
Road Trucks	97 (25)	104 (5)
Stationary Locomotive	94 (3)	104 (1)

Modelling was undertaken to determine receiver noise levels during operation of the proposal. For Scenario 3 (full build and operation), it is noted that 3 receivers in Casula would experience night time exceedances in neutral meteorological conditions by up to 4 dBA and 9 receivers in Casula and Wattle Grove would experience exceedances of up to 6 dBA in adverse meteorological conditions.

No other exceedances were identified from the modelling work. **Table 8** in **Appendix D** provides the results of operational noise modelling at all receivers. Modelling was also undertaken for non-residential sensitive receivers during operation of the facility and it was predicted that no exceedances of operational noise criteria would occur in all weather conditions.

The Noise Impact Assessment provided the following additional results based on information available at the concept stage in relation to operational noise impacts:

- while no predicted sleep disturbance at sensitive receivers for the main intermodal operations are predicted, there are predicted sleep disturbance impacts at sensitive receivers in Casula and Glenfield for rail freight movements on the rail connection. The Applicant has acknowledged the need for a further sleep disturbance assessment at subsequent stages;
- the increase in road traffic due to operations at the MIC site would result in increased road traffic noise along the M5 Motorway (west), Moorebank Avenue and north and south of the M5 Interchange. The predicted increases are minor and comply with the *NSW EPA's Road Noise Policy* (RNP) criteria;
- the southern rail connection would comply with the Rail Infrastructure Noise Guideline, however this does not take into account the potential for wheel squeal, which is known to occur for curves with a radius of <300 metres (and up to 500 metres); and
- vibration from the intermodal terminal and rail operations would comply with the human comfort and cosmetic structural damage criteria.

Cumulative Noise Impact

A cumulative impact assessment was conducted as part of the Noise and Vibration Impact Assessment to consider the future cumulative operational noise impacts of the SIMTA and MIC sites. The 3 scenarios, as explained in **Section 2.2.2** of this report were modelled. Based on the agreement that has been reached between MIC and SIMTA, the results of modelling from the most likely cumulative scenario (Scenario B) is provided in **Table 15**.

Results of the joint operation of the MIC and SIMTA sites indicated a general reduction in noise impacts to residents of Casula and Wattle Grove due to the combined site layout dispersing the impacts of operations across a larger area. However exceedances of the Industrial Noise Policy would still occur by up to 5 dBA at Casula and Wattle Grove. No

exceedances were predicted at Glenfield, Liverpool and at non-residential receivers. Modelling of road generated noise during the concurrent operation of the MIC and SIMTA sites indicated compliance with the Road Noise Policy.

Table 15: Cumulative Operational Noise Monitoring Results

Receiver	Predicted Level (dBA) $L_{Aeq, night}$		Exceedence (dBA) (Neutral/Adverse)
	Neutral	Adverse	
Casula	27-**43**	28-**45**	3 / 5
Wattle Grove	38-**43**	40-**45**	3 / 5
Glenfield	31-34	31-34	0 / 0
Liverpool	33-33	38-38	0 / 0
Non-Residential	26-43	26-44	0 / 0

Submissions received from TfNSW, EPA and Bankstown, Fairfield, Campbelltown and Liverpool City Councils raised the following issues relating to operational noise:

- only modern rolling stock that incorporate low noise locomotives, steering bogies and permanently coupled wagons should be allowed access to the site;
- concern that noise levels may have been under predicted due to the differences between modelled and design rail curve radii;
- rail curve realignment is required to prevent wheel squeal;
- the need to use best practice plant and equipment including consideration of hybrid engine technologies for locomotives and on-site container handling equipment;
- the need to consider sleep disturbance impacts;
- noise relating to the SSFL should be addressed;
- mitigation measures should be committed to, as the majority proposed are 'subject to review'; and
- that construction noise can be managed through a Construction Noise Management Plan and respite periods.

Some public submissions expressed concern over the impact that 24 hour, 7 day a week operations would have on local residential communities and night time noise impacts, and also the cumulative impacts of 2 terminals operating concurrently. The Applicant has acknowledged that while the Noise Impact Assessment was comprehensive and adequately addresses potential noise impacts at a concept and early works level, additional noise monitoring and modelling would be provided with each subsequent stage to more accurately determine impacts and mitigation measures. Mitigation measures being considered by the Applicant include a commitment to preparing and implementing a Construction Noise and Vibration Management Plan, and implementation of best practises for the design and operation of the MIC site and rail connection to reduce noise impacts associated with the project.

Department's Consideration

A review of the Noise and Vibration Impact Assessment has indicated minor exceedances of noise management levels in the construction phase of the project. The Department acknowledges that, based on the modelling results, exceedance of the noise management level would generally occur at Wattle Grove, Glenfield, Liverpool and Casula during piling, excavation and compaction work. Other exceedances are predicted to occur at Wattle Grove during concreting, and Casula/Glenfield during rail construction activities. Based on the modelling results, the Department understands that no other construction noise exceedances were predicted to occur with potential to impact residential or non-residential sensitive receivers.

The Department considers that appropriate mitigation measures are available to address the construction noise impacts such as the use of temporary noise barriers, use of silencers on machinery and provision of respite periods. Such measures would be developed during the

detailed design stage and as part of the Development Application in a Construction Noise and Vibration Management Plan prepared prior to the commencement of construction. The Department also notes that these construction works would be of a temporary nature.

With regard to operational impacts, for intermodal terminal operations it is noted that exceedances are predicted at sensitive receivers in Casula and Wattle Grove at night time only by between 4-6 dBA in adverse meteorological conditions. Non-residential receivers were predicted to comply with the day time, evening and night time criteria. For rail link operations, the project is predicted to comply with the RING. In relation to road traffic, noise levels during operations are predicted to comply with the Road Noise Policy.

The Department notes the Applicant's proposed mitigation measures to reduce noise impacts (subject to review) include:

- at source noise treatments;
- use of enclosures and acoustic insulation;
- position of motors/noise generating components at ground level;
- use of electric motors;
- designing the rail link to reduce throttle input and designing the bridge to reduce re-radiated noise;
- use of locomotives compliant with EPL licence limits applicable to the SSFL;
- use of track greasing systems and track grinding (to minimise wheel squeal);
- construction of a noise wall within the site;
- preparation and implementation of an Operational Noise and Vibration Management Plan; and
- noise and vibration monitoring.

Further, the Department also notes that a mitigated full build scenario has been modelled which assumes the interstate terminal would consist of either an automated container handling area/electrically powered plant (similar to the IMEX facility) or the use of plant with the lowest possible noise emissions, and a 4.5 metre high noise barrier along the western side of the main internal haul road. The results of this modelling indicate compliance with the assessment criteria in adverse meteorological conditions at all locations.

While it has been demonstrated that the site operations and rail connection would comply with relevant noise criteria, wheel squeal has not been taken into account. The Department understands that wheel squeal is known to occur where curve radii is <300 metres. However it is also highly likely to occur with a curve radii of between 300 and 500 metres, particularly for older rolling stock without cross braced bogies (wheel sets). While the proposed rail alignment has been provided in concept only and will be subject to detailed design in subsequent applications, the Department has estimated the curve radii of the southern tie in to the existing SSFL to be between 300-500 metres and as such, the potential for wheel squeal is of concern.

Given the proximity of this connection to residents at Casula, a number of mitigation measures should be considered including: revising the alignment of the southern rail link tie in to the SSFL to ensure a curve radii of >500 metres; the use of steering, permanently coupled wagons for the port shuttle service, automated track lubrication, track grinding and real time monitoring. These have been included as recommended conditions of approval.

A concern raised by Councils, agencies and residents related to the noise impacts associated with increased traffic on the SSFL. The Department considers that the capacity of the SSFL is a matter for ARTC and any increase in rail traffic would come under the existing approval (including noise limits) for the SSFL.

Concerns raised in relation to the assessment of sleep disturbance impacts have also been considered. The Applicant has provided an assessment of sleep disturbance impacts at a concept level, however has acknowledged that more detailed assessments would be

undertaken for subsequent applications. The Department considers the level of assessment is adequate and subsequent applications will address the issue in a greater level of detail. A condition has been recommended in this regard.

The Department considers the cumulative impact assessment to be realistic as it is consistent with recent announcements that MIC and SIMTA have reached an agreement for a combined intermodal facility with a throughput of 1.05 million TEUs (IMEX) and 500,000 TEUs (interstate). Similar to the project only scenario, it is considered that the predicted impacts can be appropriately managed through appropriate mitigation measures, and these will be further refined in subsequent applications.

The Department is satisfied that an appropriate level of assessment has been undertaken at this concept and early works stage. The Department considers that mitigation measures would be reviewed and finalised based on the results of further operational noise modelling for subsequent applications. Notwithstanding, the Department has recommended conditions which require the Applicant to consider best practice in the design and operation of the facility, including consideration of the use of hybrid locomotives for port shuttle operations and hybrid engines for container handling equipment, and the use of steering, permanently coupled wagons for the port shuttle service.

5.4. Other Matters

Biodiversity

Terrestrial Biodiversity

Four native vegetation communities corresponding to four threatened ecological communities and two threatened plant species (*Persoonia nutans* and *Grevillea parviflora* ssp. *parviflora*) listed in the schedules of the *Threatened Species Conservation Act 1995* were recorded on the site. Three threatened bats (grey-headed flying fox, large-footed myotis and eastern bent-wing bat) were also recorded. Potential occurrence of an additional 23 threatened fauna species was considered based on habitat availability. The assessment concludes that there would be no significant impact to any of the identified ecological values.

Given its land use history, the site is largely cleared of native vegetation, particularly in the central locations where the intermodal construction and operations will be focussed. Areas of high ecological integrity are concentrated on the eastern and western boundaries with scattered areas of moderate ecological integrity in the northern and southern portions of the site. The applicant has refined the project through the planning approvals process to further minimise impacts with reconfiguring likely scenarios to increase the area of riparian habitat conserved above the 100 year Average Recurrence Interval (100 year ARI) flood line and committing to the southern rail access, thereby consolidating its impacts.

The Department accepts that vegetation clearing is inevitable for the proposal to proceed. This would require clearing of 52.7ha of threatened ecological communities, however this would be refined during detailed design. A biodiversity offset package has been developed which includes three sites to offset the impacts to threatened vegetation communities and species. These are the Casula offset (the hourglass land); the Moorebank offset (riparian forest on the eastern riverbank) and the Wattle Grove offset (the boot land) (refer **Figure 9**).

This proposed land offset incorporates:

- retention and management of all riparian vegetation below the 100 year ARI flood line with some additional areas above this mark to be included and refined in subsequent application stages (20.8 ha);
- Castlereagh swamp woodland (23.5 ha); and
- Castlereagh scribbly gum woodland (33.6 ha).

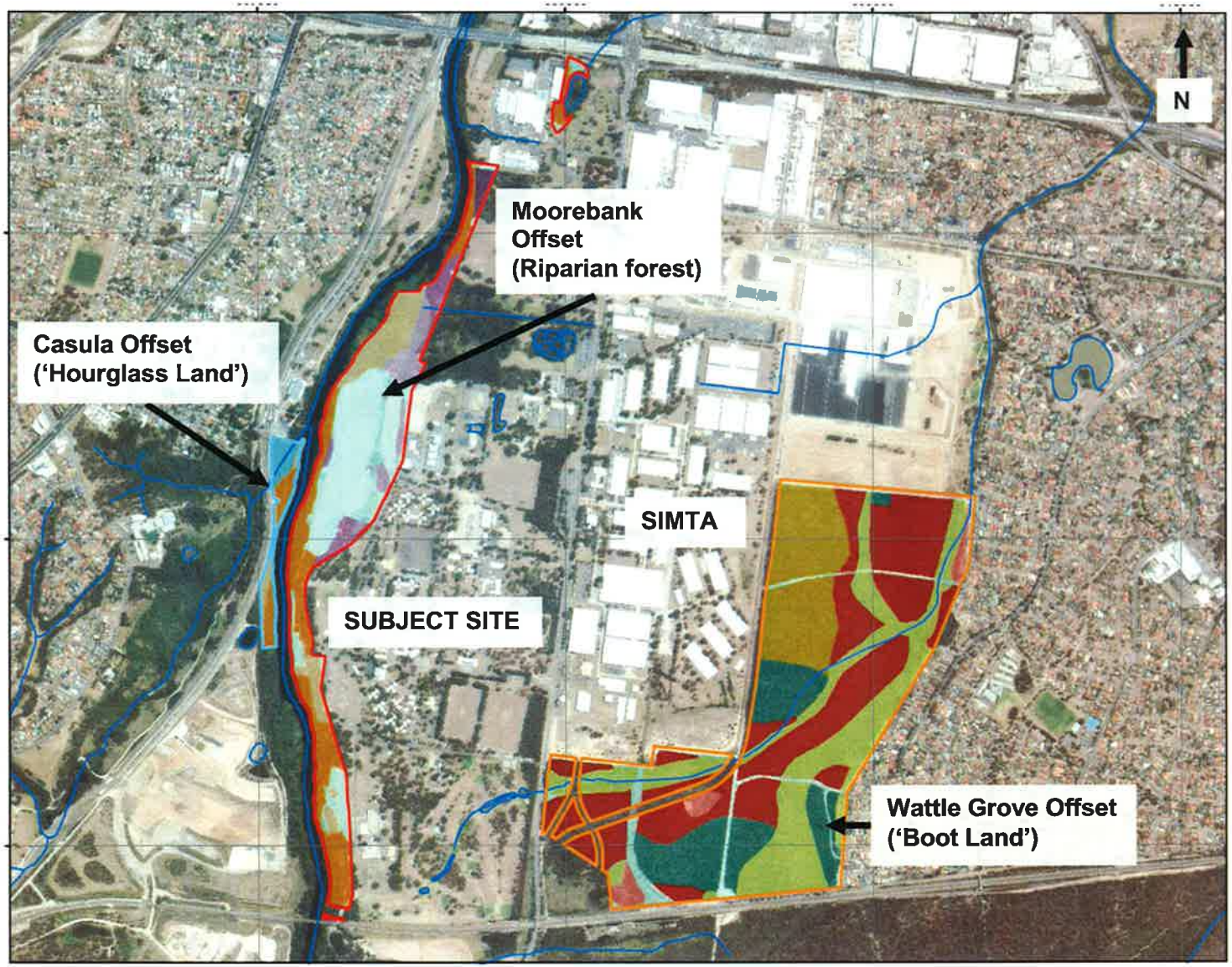

Figure 9: Location of Biodiversity Offset Lands (Base image source: Supplementary Response to Submissions 2015)

Other commitments for the offset include:

- proposed restoration and management of the Georges River riparian zone; and
- other actions to manage undesirable plant and animal species.

The offset package provides an excess of credits for Castlereagh swamp woodland but a deficit for both the alluvial woodland/riparian forest and Castlereagh scribbly gum. The Applicant has committed to taking all reasonable steps to secure matching ecosystem and species credits and has placed an expression of interest for credits on the OEH biobanking public register. To date, no credits have become available. Other actions to obtain credits continue to be pursued, however if none can be found, then alternative offsets such as matching ecosystem credits for similar communities or a supplementary offset will be considered. The Department is satisfied that the Applicant has demonstrated its commitment to fulfilling its offsetting obligations and that implementation of the offset will ensure that potential habitat for the identified threatened species will also be conserved.

Approximately 16 individuals (50 stems) of *G. parviflora* ssp. *parviflora* and 10 *P. nutans* plants and their seed banks will be removed. The applicant has noted that large populations of these species are well represented in the area known as the "boot land" to the south of the neighbouring SIMTA site which forms part of the offset package. These species are identified in the OEH Threatened Species Database as *'species which cannot withstand further loss'* in the catchment management area. The cumulative impact of loss of these individuals in addition to impacts of the SIMTA rail access through the "boot land" is subject to further investigations undertaken for the SIMTA Stage 1 application which has identified larger populations of these species than previously recorded. Despite this, the Department considers that further consideration of viability of the seed bank should be investigated and potential use in the site or offset lands be undertaken, if appropriate. The Department is satisfied that the proposed offset and management actions will ensure that impacts to these species will be minimised and that the local population will not be compromised.

OEH expressed concern with the lack of commitment by the Applicant to enter into a biobanking agreement for the Moorebank and Casula offsets. It is understood that the Applicant is continuing to consider its options for mechanisms to deliver the offset that are consistent with the requirement of the Framework Biodiversity Assessment. The Department recommends a condition that requires the biodiversity offset package to be:

- updated to detail the mechanism for its delivery consistent with the *NSW Biodiversity Offset Policy for Major Projects* (2014); and
- finalised within 12 months of the commencement of early works package (Stage 1).

In addition to the offset measures proposed, the Department has recommended a number of conditions in relation to minimising impacts on native vegetation by setting a maximum rail corridor width and minimum riparian corridor width (measured from top of bank).

Early Works

The Department acknowledges that the early works proposed would have generally minor impacts on biodiversity. A condition is recommended that no threatened species or communities can be cleared other than that required for early works. Any hollow bearing trees shall be relocated to areas to be determined by a suitably qualified ecologist in areas identified for conservation.

Aquatic Biodiversity

The Applicant relied on aquatic investigations undertaken for the SIMTA rail crossing for its impact assessment and concluded that there were no records of species currently listed in the *Fisheries Management Act* were likely to occur, despite the SIMTA assessment indicating that there was potential for the occurrence of the Macquarie Perch. The Department considers that further investigation of the likelihood of this species in the area of

the rail crossing should be undertaken prior to determination of any future application which includes construction of drainage infrastructure or rail crossing, or any activity within the riparian corridor.

Contamination

The proposal is subject to the application of SEPP 55 for the remediation of contaminated land to minimise the risk of harm to human health and the environment. In accordance with Clause 7 of SEPP 55, a consent authority must consider whether land is contaminated prior to issuing development consent.

The rehabilitation works for the site include:

1. Decontamination and demolition of eight buildings identified as including asbestos containing material;
2. Remediation of previously identified contamination hotspots, including underground storage tanks; and
3. Decontamination and site stabilisation of the area known as the 'dust bowl'.

Phase 1 and Phase 2 Environmental Site Assessments (ESAs) were prepared for the main intermodal site and a Phase 1 ESA was prepared for each of the three rail access options.

The ESAs that were undertaken for the main site identified potential contamination impacts from the following:

1. Contamination from soils such as from fuels, oils and chemical substances stored and used during construction and operation;
2. Potential in some areas for existing Acid Sulfate Soils (ASS) to be liberated, and potential for acidic soils to oxidise and develop into ASS as a result of ground disturbance or changes in water levels;
3. Erosion and sedimentation movement as a result of clearing; and
4. Groundwater contamination from seepage of contaminated runoff, leakages of fuels and oil storage tanks and acidification of soils.

The findings of the Phase 1 and Phase 2 ESAs have detected contamination levels above the level of acceptable risk. As such a provisional Remedial Action Plan (RAP) has been prepared and identifies specific areas of soil contamination requiring remediation and specifies the rationale for remediation. It was identified in the Phase 2 ESA that the levels of contamination do not appear to be having any detrimental effect on the existing riparian vegetation as no evidence of plant stress was sited. Prior to any construction works on the site, a final RAP detailing specific mitigation measures would be required to be submitted to the Department.

The Phase 1 ESA for the rail access options indicated the southern rail alignment has the greatest potential for contamination issues due to its alignment through the Glenfield Waste Facility. The Glenfield Waste Facility has a high potential to contain contaminated fill, soils, groundwater, leachate and generation of landfill gases. The selection of the preferred alignment will take into consideration these constraints.

The Department notes the concerns raised by the EPA in relation to the proposed routing of the rail connection through the Glenfield Waste Facility potentially impacting the effectiveness of the landfill pollution control systems. The EPA raised similar concerns over the SIMTA Concept Plan. At the time of that assessment, the Department consulted with the EPA and the owners of the Glenfield Waste Facility. It was considered that sufficient information was available at the time to satisfy the Department that the land in question was suitable for the proposed future use, subject to ongoing investigations and consultation with the EPA. Given that this proposal is for concept only with some early works not impacting on the facility, the same approach should be adopted.

As such, similar conditions have been recommended for this project including the need for targeted intrusive investigations to determine contamination pathways and to develop

mitigation, management and/or remediation options. This work will be required for subsequent Development Applications to mitigate any contamination concerns from the new rail connection and intermodal facility.

Further, additional concerns raised in submissions relate to the potential for two rail connections servicing both MIC and SIMTA. The Department has recommended a condition requiring the construction of one rail access only, to be shared between the two sites.

In addition to the above assessments, an unexploded ordnance (UXO) specialist contractor undertook an assessment of the subsurface environment. Findings from this assessment confirmed that the site does not have the potential to contain remnant UXO or explosive ordnance (EO) containing high explosive or other energetic material, however some open areas of the site contain explosive ordnance waste (EOW) such as blank ammunition. The areas containing EOW are more likely to be in the heavily vegetated areas, which is more difficult to clean up due to the vegetation cover. Finally, although historical documents and aerial photos indicated the potential for a grenade training compound, the report confirms there is no evidence to suggest the existence of likely location of a formal grenade range.

The Department considers that the contaminated lands can be appropriately managed in subsequent applications and as such, considers the site would be suitable for its future intended use as an intermodal facility subject to the implementation of the RAP measures and management controls during the construction and operation of the facility.

Flooding and Soil and Water

Stormwater

There are several waterbodies either adjacent to or on site that provide stormwater treatment functions. The majority of surface and stormwater on the site is currently predominantly conveyed via pits, pipes and open channels across the site and discharged into the Georges River.

The Amiens wetland is located in the north-eastern corner of the site and acts as an outlet controlled detention basin for the M5 Motorway and adjacent catchment. If the water levels in the Georges River are elevated, the wetland holds the water until levels drop below the outlet pipe levels. There is also a water network that discharges into Anzac Creek, which is heavily degraded and in generally poor condition. This is mostly low flow state with minimal water movement. These measures are mostly natural process and as such, the discharge of stormwater is mostly unmanaged.

The proposed on site drainage system has been developed to contain the stormwater runoff in an underground piped network for all events up to and including the 10% AEP design event. Any runoff from larger event would flow overland using the existing open channels across the site.

For the early works part of the project, temporary sedimentation basins will be constructed in the location of the permanent basin, and converted to the permanent structure for the operational phase. The Department considers this to be an appropriate method for progressively dealing with sedimentation basins.

The Department considers the design and installation of the stormwater management system would provide adequate control of drainage across the site, surface water detention structures and erosion and sedimentation controls. In addition, stormwater mitigation measures would be stipulated in a Construction Environmental Management Plan which would include a Soil and Water Management Plan and Erosion and Sediment Control Plan, Operational Environmental Management Plan and spill and emergency response procedures for the site.

Both the MIC and SIMTA sites would be required to maintain separate stormwater controls during construction and operation in accordance with local, State and Commonwealth

regulations, therefore the cumulative impacts of the proposal would be negligible as each party would be required to manage stormwater appropriately.

Water Quality

The quality of stormwater discharging from the site is influenced by the current developed areas, site activities and water bodies on the site. A Phase 2 environmental site assessment was undertaken in 2011 and the results indicated that the soil and groundwater contamination identified on the site is considered unlikely to contribute significantly to the water quality in the Georges River through surface or groundwater migration.

Ongoing water quality sampling is being undertaken. To date the findings have indicated that rainfall has been generally low, exceedances for total nitrogens and total phosphorous has been recorded and this is likely due to the use of fertilisers on the Royal Australian Engineer Golf Course. No major exceedances for metals was detected and any other exceedance has not indicated anything unusual or long term.

The Department considers that water quality can be appropriately managed through the preparation and implementation of construction and operational management plans.

Flooding

The site is located adjacent to the Georges River, which at the location is not subject to tidal influences. Any flooding would be caused by the catchment's runoff response to rainfall.

Historically flooding has occurred in the area, most recently in 1988. However, based on Liverpool City Council's flood modelling results, it is determined that while a flood from a critical storm could persist for a relatively long duration in the medium to high flood risk zones – the proximity of the river would allow a visual warning of rising flood levels to allow evacuation. Further, Moorebank Ave would be the direct evacuation access and this remains unaffected by flooding under this maximum event levels.

It is proposed to dedicate a conservation area between the Georges River and the 1% AEP flood level. This conservation area will be established during the early works and be protected as an E3 Environmental Management zone (subject of a Planning Proposal). Any impacts from flooding are considered negligible, particularly if the materials and equipment required to establish this area are stored outside the flood zone. Ultimately, the only works that would occur inside the conservation area would be the rail access connection, the Georges River bridge crossing and stormwater drainage channels. The Department supports the establishment of this conservation area for the purpose of reducing potential impacts relating to flooding and notes the nature and location of drainage channels would be determined at subsequent application stages.

The rail bridge would be designed during the next stage of the project to minimise afflux (increase in flood levels) impacts by crossing the main channel and floodplain at an oblique angle to the main flow. It should be noted that conditions have been recommended requiring only one rail bridge, to be shared between MIC and SIMTA. This would also ensure flood afflux impacts are minimised.

Similar to soil and water, flooding impact mitigation measures would also be stipulated in Environmental Management Plan documents during construction, following any approval of subsequent stages.

Non-Indigenous Heritage

Non-Indigenous heritage listings for the site or adjacent lands include:

- the DNSDC, adjacent to the site on the eastern side of Moorebank Avenue, which is included on the *Commonwealth Heritage List*. This listing comprises 18 intact store buildings dating back to World War II that are considered significant;
- Glenfield Farm, located on the western side of the Georges River, is listed on the State Heritage Register, State Heritage Inventory and the *Liverpool LEP*.

- The site is listed on the State Heritage Inventory and the *Liverpool LEP* and includes the:
  - Royal Australian Engineers (RAE) Memorial Chapel, a two storey building containing a single chapel and office areas;
  - RAE Vietnam War Memorial;
  - Major-General Clive Steele Memorial Gates; consisting of steel truss gates and four concrete pillars either side of the entry road; and
  - The Cullen Universal Steel Truss Hut ('CUST Hut'), featuring a large, clear span vaulted roof and used to store large vehicles and equipment from the RAE Museum collection.
- additional items adjacent to the site and listed on the State Heritage Inventory as well as the *Liverpool LEP* include:
  - Kitchener House (item no. 58), a federation cottage on Moorebank Avenue;
  - Former Casula Power Station (item no. 57), on the western side of the Georges River and adaptively re-used as an arts venue;
  - Railway viaduct, Main South Railway (item no. 12); and
  - Railway viaduct, Main South Railway (item no. 11).

A European Heritage Assessment (EHA) was conducted in June 2014 during preparation of the EIS. As a result of the Department of Defence's Moorebank Unit Relocation (MUR) Project, the majority of existing heritage buildings on the site would be relocated prior to construction of the intermodal terminal. Two items from the site to remain in situ include the 'CUST Hut' and 'RAAF STRARCH Hanger', which have been considered in the EHA.

The EHA found that, in addition to the items listed in the State Heritage Inventory and the *Liverpool* LEP, significant items include:

- Building 99, a large saw-tooth roofed workshop constructed pre-1943;
- a dog cemetery, established in 1950 in the northern portion of the site;
- a commemorative garden; and
- the 'RAAF STRARCH Hanger', comprising a post-tensioned steel truss roof tied down to large concrete footings.

Potential impacts within the residual landscape would include:

- demolition of the ('CUST Hut', 'RAAF STRARCH Hanger', Building 99 and remnants of the RAE Chapel and RAE Museum sandstone wall);
- demolition of the Dog Cemetery and Commemorative Garden;
- disturbance of non-Aboriginal archaeological deposits; impacts on the existing landscape setting and vistas; loss of and/or reduced historical associations;
- loss of existing internal street layouts and associated names; and
- loss of access.

The Department notes that the Applicant proposes to mitigate the impacts on non-Indigenous heritage in a number of ways, including:

- Archival recording of the 'CUST Hut', 'RAAF STRARCH Hanger', RAE Museum and Australian Army Museum of Military Engineering Collections; Building 99, the Dog Cemetery, Commemorative Gardens and remaining elements of the RAE Chapel. Additionally, Possible relocation (and adaptive reuse) of the 'CUST Hut', 'RAAF STRARCH Hanger', relocation of the dog cemetery and retention of the memorial gardens would also be considered;
- a Heritage Interpretation Strategy of the SME site to be undertaken with local historical societies, former and current staff and military personnel; and
- the salvaging of any archaeological deposits assessed to be of local significance.

The Department considers that a large proportion of the tangible heritage value of the SME site would be relocated to the Holsworthy Barracks as part of Defence's MUR project (previously assessed under the EPBC Act). Once these items have been relocated, the tangible heritage value of the SME site will be largely reduced. The remaining 'CUST Hut',

'RAAF STRARCH Hanger', Dog Cemetery and Commemorative Gardens are important historical features for the site and relocation or reuse of these items is preferred. Therefore, Department has recommended conditions of approval requiring the Applicant to consult with the School of Military Engineering's Explosive Detection Dogs Unit to determine whether the Dog Cemetery should be relocated, as well as undertake further studies to determine possible relocation or reuse of the 'CUST Hut' and 'RAAF STRARCH Hanger', and in-situ conservation of the Commemorative Gardens.

The Department considers that the proposal would have a large and generally unavoidable impact on intangible heritage values associated with the former military use of the site. The Department considers that implementation of a European Heritage Interpretation Strategy would help manage these impacts by establishing methods of interpreting the former use of the site to future users in an effective manner.

The Department notes that while the southern rail connection does not contain items of non-Indigenous heritage value, the proposal would have a visual impact on the Glenfield Farm site both during and after construction. However, the site has already been impacted by the Glenfield Waste Facility and construction of the SSFL. The retention of the current screen plantings within the Glenfield Farm site would assist in mitigating these impacts. The Department considers that the indirect impacts from the proposal on heritage impacts outside of the site boundary would be negligible.

Aboriginal Heritage

The Aboriginal Heritage assessment undertaken as part of the EIS found that the riparian corridor along the Georges River is of high Aboriginal heritage significance at local and regional levels. The project's main construction footprint is located in areas initially considered to be of low Aboriginal archaeological potential, which were subsequently assessed to be of no Aboriginal heritage significance due to the effects of European land use. The archaeological field survey found that vegetation clearance, land surface modification, building construction, modification and removal have greatly compromised the integrity of any ephemeral archaeological traces that may exist in the area. The EIS found that the majority of Aboriginal sites identified within the proposed site are surface scatters of artefacts and/or areas of archaeological deposit.

Three scarred trees of possible Aboriginal origin (MA6, MA7 and MA8) were discovered on the site during a 2010 archaeological field survey. The RtS indicates that further assessment was undertaken in consultation with Registered Aboriginal Parties (RAPs) and additional data was obtained on the trees and scar sizes in November 2014. Results of core samples concluded that artefact MA6 is estimated to be between 219 and 265 years old, placing the creation of the scar either in the pre-contact period, or shortly after European contact. The sample of MA7 showed that the scar is estimated to be 86 years old and created in the early 20th century. Further testing of MA8 was not undertaken as it is located within the conservation zone and outside the construction footprint. If the possible scars on MA6 and MA7 are considered to be of Aboriginal origin, then the Applicant would consider several alternative management strategies in consultation with the RAPs, including:

- conservation of the tree(s) in situ; and/or
- salvage and conservation of the tree(s) at a location outside the intermodal site.

The Department considers that the proposed strategies to manage impacts to scarred trees are appropriate, and has recommended a condition of approval requiring the Applicant to consult with the RAPs in order to determine the most appropriate management strategy for each tree. As noted in the RtS, if consensus cannot be reached among the RAPs, a precautionary approach is recommended.

While the riparian corridor along the Georges River was assessed to be of moderate to high Aboriginal heritage significance, the Department notes that the project's main construction footprint is outside the corridor boundary. The Department also notes that the majority of this land is proposed to be rezoned to E3 Environmental Management as part of a concurrent

Planning Proposal. Notwithstanding, the construction of the southern rail access would impact on the corridor. In order to mitigate potential impacts, the Department has recommended a condition of approval requiring the Applicant to undertake a combined geotechnical and archaeological assessment to assess the nature of any deposit within the riparian corridor and the need for further archaeological investigation and/or salvage.

The Department has also recommended a condition of approval requiring the Applicant to salvage artefacts of moderate to high Aboriginal heritage significance prior to any impacts, in consultation with RAPs.

Visual Amenity & Urban Design

While views to the site from the west would be partially obscured by existing riparian vegetation, an increase in visibility of the site's proposed new structures beyond the current level would occur from both Casula and Glenfield when viewed from Moorebank Avenue (refer **Figure 10**). Views across the site may be impacted in part, and a condition is recommended requiring a view loss analysis to be provided in subsequent applications. Visual screening would be available via vegetation planting across the site which would be determined during subsequent applications. The key areas requiring screen planting would be the frontage along Moorebank Avenue, the western and southern site boundaries and the rail alignment area which provides the most prominent views of the site. A condition is recommended relating to the need to develop a detailed landscape plan for each stage, which would build upon that contained within the EIS.

Figure 10: Proposed View from Carroll Park (Source EIS 2014)

The building heights, densities and layouts would be controlled by building height limits and FSRs. These have also been included as part of the Planning Proposal being assessed concurrently by the Department and following gazettal, will form part of the Liverpool LEP. Proposed height limits are: 30 metres for light poles; 27.7 metres for gantries; 21m for warehouse buildings; 20.8 metres for empty container stacks (8 containers); and 13 metres for full container stacks (5 containers).

The proposed FSR is 1:1. Additionally, 7.5 metre setbacks at northern and southern boundaries are also proposed. The vegetated buffer/conservation zone along the eastern

bank of the Georges River (and proposed to be rezoned to E3 Environmental Management), will form a substantial visual screen between the site and residential areas to the west.

The Department is concerned with the proposed height of empty container stacks, particularly where there may be gaps in shielding provided by the proposed warehouse buildings. A lower height of 5 containers, consistent with the adjacent SIMTA proposal, may be considered more appropriate in this case. This would also ensure the height would be less likely to exceed the height of any proposed tree planting in the vicinity of container storage areas. It has been recommended that this matter be further explored in subsequent applications.

In relation to the proposed rail bridge, it is intended that the design and pier location would reflect the existing crossing to minimise visual impacts, particularly considering some riparian vegetation would need to be removed. Following a number of site visits, the Department notes that the location of the proposed rail bridge may only be visible to a limited number of receivers given its positioning to the east of the Glenfield Waste Facility. The Department acknowledges that the design of the proposed rail bridge can be appropriately considered in a greater level of detail in subsequent applications. This position is consistent with the position taken on the SIMTA proposal.

Consideration of lighting spill impacts has been provided at a high level, however the EIS notes that further detailed assessments would be required for subsequent applications. The Department notes the Applicant will need to demonstrate compliance with the Australian Standard AS4282-1997 '*Control of the Obtrusive Effect of Outdoor Lighting*' criteria.

Hazards and Risks

The Applicant has undertaken a Bushfire Risk Assessment in consultation with the Rural Fire Service and undertook a hazardous materials screening in accordance with State Environmental Planning Policy 33 (Hazardous and Offensive Development) and prepared a Preliminary Hazard Assessment as part of the EIS.

The following key potential hazards and risks were identified:

- asbestos was found in 8 of the 68 soil samples analysed which poses a construction risk. An asbestos management plan would be prepared during subsequent Development Applications in accordance with *National Occupational Health and Safety Commission Code of Practice for the Safe Removal of Asbestos* (NOHSC, 2005). The Department has recommended a condition requiring the preparation and implementation of an asbestos removal control plan and an emergency plan;
- potential construction, transport, storage and handling of dangerous goods on-site and off-site: This operational risk would depend on the specific activities undertaken by each tenant handling dangerous goods on the site. The Department is satisfied that adequate consideration has been given to the handling of dangerous goods at a concept level and more detailed consideration would be given in subsequent applications; and
- the land to the south east and west of the site comprises predominantly vegetated land which is categorised as Vegetation Category 1 bushfire prone land. Mitigation measures preparation of operational management plans (fire safety and evacuation plan, fuel management plan, landscape management plan) and utility services for emergency service use. A Bushfire Management Plan would be prepared and a condition is recommended supporting the need for ongoing bushfire risk assessments against *Planning for Bushfire 2006* in consultation with the Rural Fire Service during detailed design of future stages.

Cumulative hazards and risks of the MIT and SIMTA proposals due to the possible simultaneous handling of dangerous goods was determined to be reduced by the separation distance between the two operations. Likewise, bushfire risk is not considered to be increased by the operation of both facilities, provided that each develops and maintains hazard and risk and bushfire management plans.

Greenhouse Gas

The Applicant's assessment calculates greenhouse gas emissions associated with the construction process, construction materials and operation of the proposal. Approximately 74,939 tCO_2-e per annum is expected to be emitted during site construction, and 150,743 tCO_2-e would be emitted during operation of the proposal annually.

The assessment concluded that the proposed modal shift from heavy vehicles to rail would result in an annual reduction of emissions by 16,572 tCO_2-e. However taking into account the reassignment of background traffic due to the project this figure is reduced to 15,663 tCO_2-e annually. The Department notes that this figure is based on a worst case scenario, and does not take into account revegetation and regeneration areas of the site (offsetting a portion of clearing tCO_2-e).

It is considered that the assessment has been undertaken in accordance with the relevant guidelines and provides an adequate level of information to be considered at this stage. The Department notes the emission savings as a result of the proposal and subject to conditions imposed at subsequent stages for construction (such as the preparation and implementation of an Energy Efficient Plan), would minimise or optimise energy use during construction and operation.

5.5. Section 79C Evaluation

Table 16 identifies the matters for consideration under section 79C that apply to SSD, in accordance with section 89H of the EP&A Act. The table represents a summary for which additional information and consideration is provided for in **Section 5** and relevant appendices or other sections of this report and the EIS, referenced in the table.

The EIS has been prepared by the applicant to consider these matters and those required to be considered in the SEARs and in accordance with the requirements of section 78(8A) of the EP&A Act and Schedule 2 of the EP& A Regulation.

Table 16: Section 79C(1) Matters for Consideration

Section 79C(1) Evaluation	Consideration
(a)(i) any environmental planning instrument	Refer **Appendix B**
(a)(ii) any proposed instrument	Not applicable, however a Planning Proposal is being pursued concurrently to rezone the land and to set maximum building heights and FSR.
(a)(iii) any development control plan	Not applicable*
(a)(iiia) any planning agreement	There is currently no Voluntary Planning Agreement (VPA) in place, however a VPA may be entered into for subsequent development applications, depending on outcomes of consultation with TfNSW/RMS in relation to infrastructure/road upgrades.
(a)(iv) the regulations	The development application meets the relevant requirements of the Regulation, including the procedures relating to development applications (Part 6 of the Regulations), public participation procedures for SSD's and schedule 2 of the Regulation relating to environmental impact statements. Refer to **Sections 3 and 4**.
(a)(v) any coastal zone management plan	Not applicable
(b) the likely impacts of that development	Appropriately mitigated or conditioned (refer to **Section 5**)
(c) the suitability of the site for the development	Suitable (refer to **Section 2** and **Section 5**)
(d) any submissions	Refer to **Section 4**
(e) the public interest	The Department considers the proposal will have significant economic benefits to the State of NSW,

	with a $927.4 million direct capital investment into the south-western Sydney region and generation of up to 1,650 jobs during construction and 1,700 jobs during operation. Further, the proposal is considered to be consistent with the NSW Government's objective to maximise the haulage of freight by rail. A range of strategic documents have over the last decade continued to support the development of an intermodal terminal at Moorebank including the need to achieve an increase in the rail mode share of port container freight movements. On balance, the Department acknowledges that the proposal would contribute to the local economy and satisfy the long identified need while minimising environmental impact through the implementation of appropriate mitigation measures. As such, the Department considers the proposal to be in the public interest.
Biodiversity values exempt if: (a) On biodiversity certified land (b) Biobanking Statement exists	Not applicable

*** Under clause 11 of the SRD SEPP, development control plans do not apply to state significant development.**

6. RECOMMENDATION

The key environmental impacts associated with this proposal comprise traffic and transport, air quality and operational noise. These issues have been addressed in the Applicant's EIS, RtS and Supplementary RtS. The Department has assessed this information and also carefully considered all submissions received from public authorities and the community on the proposal. Based on its assessment, the Department is satisfied that the impacts of the proposal, both in isolation and cumulatively with the SIMTA facility, can be managed and/or mitigated to an acceptable level.

The Department considers the concept proposal and early works should be recommended for approval and has proposed a range of conditions for the Commission's consideration. Of particular note is the recommendation to limit the throughput of the site, taking into account the 500,000 TEUs approved as part of the SIMTA Concept Plan approval. This would result in the total capacity of both sites not exceeding 1.55 million TEUs. These recommended draft conditions would ensure that the mitigation measures included in the Supplementary RtS are implemented as well as strengthening the management and mitigation of identified impacts that the Department, other government agencies and the general public have raised.

The Department considers the proposal will have significant economic benefits to the State of NSW, with a $927.4 million direct capital investment into the south-western Sydney region and generation of up to 1,650 jobs during construction and 1,700 jobs during operation. Further, the proposal is considered to be consistent with the NSW Government's objective to maximise the haulage of freight by rail. A range of strategic documents have over the last decade continued to support the development of an intermodal terminal at Moorebank including the need to achieve an increase in the rail mode share of port container freight movements.

On balance, the Department acknowledges that the proposal would contribute to the local economy and satisfy the long identified need while minimising environmental impact through the implementation of appropriate mitigation measures. As such, the Department considers the proposal to be in the public interest.

It is RECOMMENDED that the Commission:

- **consider** the findings and recommendations of this report;
- **approve** the Moorebank Intermodal Terminal Facility Staged SSD including early works subject to the conditions of approval; and
- **sign** the attached instrument of approval (**Appendix E**).

Karen Jones 10.12.15
Director
Infrastructure Projects

David Gainsford
Executive Director 10/12/15
Priority Projects

APPENDIX A RELEVANT SUPPORTING INFORMATION

The following supporting documents and supporting information to this assessment report can be found on the Department of Planning and Infrastructure's website as follows.

1. Environmental Impact Statement

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=5066

2. Submissions (EIS)

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=5066

3. Applicant's Response to Submissions

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=5066

4. Submissions (RtS)

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=5066

5. Applicant's Supplementary Response to Submissions

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=5066

APPENDIX B CONSIDERATION OF ENVIRONMENTAL PLANNING INSTRUMENTS

The primary controls guiding the assessment of the proposal are:

a) *State Environmental Planning Policy (State and Regional Development) 2011*
b) *State Environmental Planning Policy No. 19 – Bushland in Urban Areas*
c) *State Environmental Planning Policy No.33 – Hazardous and Offensive Development*
d) *State Environmental Planning Policy No. 44 – Koala Habitat Protection*
e) *State Environmental Planning Policy No.55 – Remediation of Land*
f) *State Environmental Planning Policy (Infrastructure) 2007*
g) *Liverpool Local Environmental Plan 2008*

State Environmental Planning Policy (State and Regional Development) 2011 (SRD SEPP)

The aims of the *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP) are to identify State significant development and State significant infrastructure and provide the necessary functions to joint regional planning panels to determine development applications.

The proposal is State significant development given it is development for the purpose of an intermodal facility with a capital investment value (CIV) in excess of $30 million under clause 19 (Rail and related transport facilities) of Schedule 1 of State Environmental Planning Policy (State and Regional Development) 2011. Therefore the Minister for Planning is the consent authority.

State Environmental Planning Policy No. 19 – Bushland in Urban Areas

State Environmental Planning Policy No. 19 – Bushland in Urban Areas (SEPP 19) aims to protect bushland within urban areas because of its value to the community, aesthetic value and its value as a recreational, educational and scientific resource.

An assessment of biodiversity impacts was provided as part of the EIS. The Department accepts that vegetation clearing is inevitable for the proposal to proceed. This would require clearing of 52.7ha of threatened ecological communities, however this would be refined during detailed design. A biodiversity offset package has been developed which includes three sites to offset the impacts to threatened vegetation communities and species. These are the Casula offset (the hourglass land); the Moorebank offset (riparian forest on the eastern riverbank) and the Wattle Grove offset (the boot land). This proposed land offset incorporates:

- retention and management of all riparian vegetation below the 100 year ARI flood line with some additional areas above this mark to be included and refined in subsequent application stages (20.8 ha);
- Castlereagh swamp woodland (23.5 ha); and
- Castlereagh scribbly gum woodland (33.6 ha).

OEH is concerned with the lack of commitment by the Applicant to entering into a biobanking agreement for the Moorebank and Casula offsets. It is understood that the applicant is continuing to consider its options for mechanisms to deliver the offset that are consistent with the requirement of the Framework Biodiversity Assessment. The Department recommends a condition that requires the biodiversity offset package to be:

- updated to detail the mechanism for its delivery consistent with the *NSW Biodiversity Offset Policy for Major Projects* (2014); and
- finalised within 12 months of the commencement of early works package (Stage 1).

Separately, approval is being sought from the Commonwealth Department of the Environment due to the likely significant impact of the proposal on *Persoonia nutans* (Nodding Geebung) and *Grevillea parviflora* (Small-flowered Grevillea) and the site being on part Commonwealth land. At the time of writing this report, a determination has not been made.

The Department considers that with appropriate mitigation measures, the aims and objectives of SEP 19 have been met.

State Environmental Planning Policy No.33 – Hazardous and Offensive Development
State Environmental Planning Policy No. 33 – Hazardous and Offensive Development (SEPP 33) provides clear definitions of hazardous and offensive industries and aims to facilitate development defined as such and to ensure that in determining developments of this nature, appropriate measures are employed to reduce the impact of the development and require advertisement of applications proposed to carry out such development.

The Department acknowledges that the intermodal facility may handle containers that contain goods that may be considered hazardous and offensive. However, the concept proposal does not seek approval for development involving potentially hazardous and offensive development. The specific location of land use activities that may involve the storage of goods or works of this nature would be determined in future development applications.

The Department is satisfied that the proposed development is not a hazardous or offensive development under SEPP 33, and that all necessary assessments under the SEPP 33 will be undertaken for future development applications.

State Environmental Planning Policy No. 44 – Koala Habitat Protection
State Environmental Planning Policy No 44 – Koala Habitat Protection aims to encourage the conservation and management of natural vegetation that provide habitat for koalas to reverse the trend of koala population decline.

The EIS indicates that given fragmentation of vegetation across the main site, koala habitat may be limited to the riparian zones along the Georges River, much of which would be protected under a EM3 Environmental Management zone (part of a concurrent Planning Proposal) along the eastern bank. No koalas have been located on the site.

The Department considers the proposed mitigation measures, in particular the retention of riparian vegetation along the eastern bank of the Georges River, would ensure the aims and objectives of SEPP 44 are met.

State Environmental Planning Policy No. 55 – Remediation of Land
State Environmental Planning Policy No 55 – Remediation of Land (SEPP 55) is the primary environmental planning instrument guiding the remediation of contaminated land in NSW. SEPP 55 aims to:

- provide a state-wide planning approach to the remediation of contaminated land;
- identify when consent is required or not required for a remediation work;
- specify certain considerations that are relevant to applications for consent to carry out remediation works; and
- require that remediation work meet certain standards and notification requirement.

Clause 7 of SEPP 55 identifies that a consent authority must not consent to the carrying out of any development on land unless:

- it has considered whether the land is contaminated;

- if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out; and
- if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.

The Department considers that the contaminated lands can be appropriately managed in subsequent applications and as such, considers the site would be suitable for its future intended use as an intermodal facility subject to the implementation of the RAP measures and management controls during the construction and operation of the facility. The concept proposal and early works is therefore considered to satisfactorily address the requirements of SEPP 55. For further detail, refer to **Section 5.4** of this report.

State Environmental Planning Policy (Infrastructure) 2007

The aim of *State Environmental Planning Policy (Infrastructure) 2007* (Infrastructure SEPP) is to improve regulatory certainty, facilitate the effective state wide delivery of infrastructure by providing greater flexibility in the location of infrastructure and service facilities, allowing the development of surplus government land, identifying relevant environmental assessment categories for development, identifying relevant matters to be considered and providing for consultation with relevant public authorities.

Clause 81 Development Permitted with Consent includes rail freight terminals, rail freight sidings or rail intermodal facilities. The proposal is for a rail intermodal terminal and would require a connection into the SSFL which is an ARTC owned/operated line. The proposal is consistent with this clause as it is considered to be development required with consent.

Clause 104 Traffic-generating development applies to the proposed development as the proposal involves more than 8,000m^2 in floor space. In this regard, and in accordance with clause 104(3) of the Infrastructure SEPP, TfNSW (including RMS) were given written notice of the SSD application and due consideration was given to its comments.

Liverpool Local Environmental Plan 2008

Separate to the subject application, a concurrent Planning Proposal to regularise the zones to an *IN1 General Industrial* zone for the main MIT site and partly *EM3 Environmental Management* zone along the eastern bank of the Georges River is being pursued.

In addition to the rezoning, the key sites map is being amended to include the subject site to ensure development is supportive of the future provision of appropriate regional transport measures to reduce the demand for travel by private car and commercial vehicle.

A satisfactory arrangements clause is also proposed which requires a consent authority to be satisfied that contributions to the provision of improvements to regional transport infrastructure and services reasonably required as a result of the proposal.

Development standards are also being amended, including a maximum heights of 21 metres, and a maximum FSR of 1:1.

Consideration of the relevant controls contained within Liverpool LEP is provided below.

Table 17: Liverpool LEP Compliance Table

Liverpool LEP 2008	Objectives	Department Comment/ Assessment
Clause 4.3 Height of Buildings	- Height must not exceed set maximums, however currently only applies to the northern portion of the subject site.	The Planning Proposal includes a maximum height of 21 metres.
Clause 4.4 Floor space ratio	- FSR must not exceed set maximums, however does not apply to the subject site.	The Planning Proposal includes a maximum FSR of 1:1.
Clause 5.9 Preservation of trees or vegetation Clause 5.9AA Trees or vegetation not prescribed by DCP	- to preserve the amenity of the area, including biodiversity values through the preservation of trees and other vegetation.	The proposal includes rezoning 28.43ha of EM3 Environmental Management land comprising mostly riparian vegetation along the eastern and western banks of the Georges River. The Applicant is also proposing to offset impacts with one option being entering into a biobanking agreement. Further, a condition requiring a Landscape Plan and Vegetation Management Plan for subsequent applications is recommended.
Clause 5.10 Heritage Conservation	- to conserve the environmental heritage of Liverpool, the heritage significance of items/areas, archaeological sites and Aboriginal objects and places.	The EIS included European Heritage and Aboriginal Heritage Impact Assessments. These were prepared in consultation with OEH and the Heritage Division. Consultation has also been ongoing throughout the assessment process. Submissions from both OEH and the Heritage Division have been taken into consideration. The Department has recommended a series of conditions relating to both non indigenous and Aboriginal Heritage including: • the preparation and implementation of a European Heritage Interpretation Strategy; • further consultation in relation to the possible scar trees; and • further geotechnical and archaeological assessment to determine the need for further archaeological investigation and/or salvage and requiring the Applicant to salvage artefacts of moderate to high Aboriginal heritage significance prior to any impacts, in consultation with RAPs. Additional consideration of heritage will be undertaken during the assessment of subsequent applications.
Clause 7.7 Acid Sulfate Soils	- to ensure that development does not disturb or expose acid sulfate soils and cause environmental damage.	The Department does not consider the concept proposal (and early works) triggers the need for an Acid Sulfate Soils Management Plan prior to determination given the proposed works within Class 5 land are above 5m AHD and would not lower the groundwater in adjoining Class 1 land. However, it is noted that a Plan may be required following further investigations of the

Liverpool LEP 2008	Objectives	Department Comment/ Assessment
		site. A condition has been recommended relating to the early works component and additionally, this matter will be considered in further detail in subsequent applications.
Clause 7.8 Flood Planning	- to minimize flood risk to life and property, to allow for development that is compatible with the land's flood hazard, and to avoid adverse impacts on flood behavior and the environment.	The concept proposal included a flood risk assessment as part of the EIS. The extent of the proposed EM3 Environmental Management zone (which forms part of the concurrent Planning proposal) lies within the area affected by the 1% AEP flood level. Any impacts from flooding are considered negligible, particularly if the materials and equipment required to establish this area are stored outside the flood zone. While the piers of the proposed rail bridge would enter flood affected land, detailed design to minimise afflux will be addressed in subsequent applications. Further, flooding impact mitigation measures would also be included in Environmental Management Plan documents during construction, following any approval of subsequent stages.
Clause 7.9 Foreshore building line	- to ensure development in the foreshore area will not impact on the natural foreshore processes or affect the significance and amenity of the area.	The concept proposal includes the provision for a protected riparian zone along the eastern bank of the Georges River. This is being reinforced through the concurrent Planning Proposal, which proposes to rezone the land to EM3 Environmental Management. Through the preparation and implementation of construction and operational management plans, impacts on water quality can be appropriately managed. The specific measures to minimise any impacts of the proposed rail bridge on the Georges River will be considered in more detail in subsequent applications.
Clause 7.27 Development of certain land at Moorebank	- to ensure development is supportive of the future provision of appropriate regional transport measures to reduce the demand for travel by private car and commercial vehicle.	The northern portion of this site extends to within the identified land on the key sites map, however this is being addressed as part of the Planning Proposal. By including the site in the Key Sites Map (KYS-013). The concept proposal includes measures to increase the use of alternate transport modes such as bus re-routing, walking and cycling. Additionally, consideration has also been given to a possible future pedestrian bridge and connection to Casula Station. Further detailed consideration will be provided in subsequent applications.

APPENDIX C TRAFFIC, AIR QUALITY AND NOISE TABLES

Traffic

Table 1: Level of Service (LoS) and Average Delay for key intersections - without the proposal

	AM Peak 2030		PM Peak 2030	
	LoS	Delay (sec)	LoS	Delay (sec)
I-01 – Hume Hwy / Orange Grove Rd	C (C)	35 (31)	E (D)	63 (45)
I-02 – Hume Hwy / Elizabeth Dr	F (E)	100 (59)	E (D)	59 (47)
I-03 – Hume Hwy / Memorial Ave	F (D)	92 (52)	E (D)	66 (45)
I-04 – Hume Hwy / Hoxton Park Rd / Macquarie St	F (D)	>100 (49)	F (D)	84 (47)
I-05 – Hume Hwy / Reilly St	B (B)	27 (17)	C (B)	42 (16)
I-06 – Moorebank Ave / Newbridge Rd	F (B)	>100 (28)	F (C)	99 (32)
I-07 – Moorebank Ave / Heathcote Rd	F (C)	>100 (36)	F (B)	>100 (16)
I-08 – Moorebank Ave / Industrial Park Access	F (A)	>100 (4)	A (A)	7 (7)
I-09 – Moorebank Ave / Church Rd	F (F)	>100 (78)	F (F)	>100 (98)
I-10 – Heathcote Rd / Nuwarra Rd	F (D)	>100 (51)	F (D)	>100 (56)
I-11 – Newbridge Rd / Nuwarra Rd	F (D)	>100 (53)	D (B)	43 (27)
I-12 – Newbridge Rd / Brickmans Dr /Governor Macquarie Dr	F (D)	>100 (52)	E (C)	67 (41)
I-13 – Moorebank Ave / M5 Motorway	B (B)	21 (19)	D (C)	43 (29)
I-14 – Hume Hwy / M5 Motorway	F (C)	81 (30)	F (C)	79 (30)
I-15 – Cambridge Ave / Canterbury Rd	F (B)	>100 (18)	A (A)	14 (12)
I-0A – Moorebank Ave / Anzac Rd	D (B)	56 (19)	E (B)	59 (28)
I-0B – Moorebank Ave/SIMTA northern access	A (N/A)	1 (N/A)	A (N/A)	1 (N/A)
I-0C – Moorebank Ave/SIMTA central access	A (N/A)	1 (N/A)	A (N/A)	1 (N/A)
I-0D – Moorebank Ave/SIMTA southern access	A (N/A)	1 (N/A)	A (N/A)	1 (N/A)

Note: Existing intersection performance in brackets

Table 2: Level of Service (LoS) and Average Delay for key intersections - with the proposal

	AM Peak 2030		PM Peak 2030	
	LoS	Delay (sec)	LoS	Delay (sec)
I-01 – Hume Hwy / Orange Grove Rd	D (C)	50 (35)	F (E)	78 (63)
I-02 – Hume Hwy / Elizabeth Dr	F (F)	>100 (100)	E (E)	63 (59)
I-03 – Hume Hwy / Memorial Ave	F (F)	>100 (92)	E (E)	68 (66)
I-04 – Hume Hwy / Hoxton Park Rd / Macquarie St	F (F)	>100 (>100)	F (F)	88 (84)
I-05 – Hume Hwy / Reilly St	C (B)	34 (27)	D (C)	51 (42)
I-06 – Moorebank Ave / Newbridge Rd	F (F)	>100 (>100)	F (F)	>100 (99)
I-07 – Moorebank Ave / Heathcote Rd	F (F)	>100 (>100)	F (F)	>100 (>100)
I-08 – Moorebank Ave / Industrial Park Access	F (F)	>100 (>100)	A (A)	11 (7)
I-09 – Moorebank Ave / Church Rd	F (F)	>100 (>100)	F (F)	>100 (>100)
I-10 – Heathcote Rd / Nuwarra Rd	F (F)	>100 (>100)	F (F)	>100 (>100)
I-11 – Newbridge Rd / Nuwarra Rd	F (F)	>100 (>100)	D (D)	46 (43)
I-12 – Newbridge Rd / Brickmans Dr /Governor Macquarie Dr	F (F)	>100 (>100)	F (E)	83 (67)
I-13 – Moorebank Ave / M5 Motorway	F (B)	78 (21)	F (D)	90 (43)
I-14 – Hume Hwy / M5 Motorway	F (F)	>100 (81)	F (F)	>100 (79)
I-15 – Cambridge Ave / Canterbury Rd	F (F)	>100 (>100)	A (A)	14 (14)
I-0A – Moorebank Ave / Anzac Rd	F (D)	>100 (56)	E (E)	62 (59)
I-0B – Moorebank Ave/SIMTA northern access	A (A)	3 (1)	B (A)	21 (1)
I-0C – Moorebank Ave/SIMTA central access	A (A)	3 (1)	B (A)	17 (1)
I-0D – Moorebank Ave/SIMTA southern access	A (A)	6 (1)	A (A)	2 (1)

Note: Without the proposal in brackets

Table 3: Level of Service (LoS) and Average Delay for key intersections - with the proposal & upgrades

	AM Peak 2030		PM Peak 2030	
	LoS	Delay (sec)	LoS	Delay (sec)
I-01 – Hume Hwy / Orange Grove Rd	D (D)	49 (50)	E (F)	67 (78)
I-02 – Hume Hwy / Elizabeth Dr	N/A* (F)	N/A* (>100)	N/A* (E)	N/A* (63)
I-03 – Hume Hwy / Memorial Ave	F (F)	91 (>100)	E (E)	59 (68)
I-04 – Hume Hwy / Hoxton Park Rd / Macquarie St	F (F)	>100 (>100)	E (F)	69 (88)
I-05 – Hume Hwy / Reilly St	N/A** (C)	N/A** (34)	N/A** (D)	N/A** (51)
I-06 – Moorebank Ave / Newbridge Rd	F (F)	>100 (>100)	F (F)	>100 (>100)
I-07 – Moorebank Ave / Heathcote Rd	F (F)	>100 (>100)	F (F)	91 (>100)
I-08 – Moorebank Ave / Industrial Park Access	F (F)	>100 (>100)	A (A)	9 (11)
I-09 – Moorebank Ave / Church Rd	C (F)	36 (>100)	F (F)	>100 (>100)
I-10 – Heathcote Rd / Nuwarra Rd	N/A** (F)	N/A** (>100)	N/A** (F)	N/A** (>100)
I-11 – Newbridge Rd / Nuwarra Rd	F (F)	>100 (>100)	N/A** (D)	N/A** (46)
I-12 – Newbridge Rd / Brickmans Dr /Governor Macquarie Dr	F (F)	>100 (>100)	E (F)	68 (83)
I-13 – Moorebank Ave / M5 Motorway	C (F)	31 (78)	D (F)	48 (90)
I-14 – Hume Hwy / M5 Motorway	F (F)	99 (>100)	F (F)	>100 (>100)
I-15 – Cambridge Ave / Canterbury Rd	B (F)	22 (>100)	A (A)	14 (14)
I-0A – Moorebank Ave / Anzac Rd	C (F)	42 (>100)	D (E)	46 (62)
I-0B – Moorebank Ave/SIMTA northern access	A (A)	4 (3)	A (B)	11 (21)
I-0C – Moorebank Ave/SIMTA central access	A (A)	3 (3)	A (B)	11 (17)
I-0D – Moorebank Ave/SIMTA southern access	N/A** (A)	N/A** (6)	N/A** (A)	N/A** (2)

Note: Without upgrades in brackets
* Relevant for Cumulative Scenario C2 only
** Intersection operating better than LoS E therefore no upgrades are proposed

Air Quality

Table 4: Predicted Cumulative PM and NO_2 Concentration

Receptor ID	Predicted Cumulative PM Concentration (µg/m^3)				Predicted Cumulative NO_2 Concentration (µg/m^3) (using OLM)	
	PM_{10}		$PM_{2.5}$			
	24 Hour Maximum (Goal: 50)	Annual Average (Goal: 30)	24 Hour Maximum* (Goal: 25)	Annual Average* (Goal: 8)	1 hour maximum (Goal: 246)	Annual average (Goal: 62)
1	98.7 (0.3)	20.5 (0.1)	74.0 (0.3)	7.7 (0.1)	114.8 (24.8)	25.6 (2.9)
2	98.8 (0.4)	20.6 (0.2)	74.1 (0.4)	7.8 (0.2)	117.6 (31.4)	26.6 (3.9)
3	98.9 (0.5)	20.7 (0.3)	74.2 (0.5)	7.9 (0.3)	119.2 (33.2)	27.4 (4.7)
4	98.9 (0.5)	20.6 (0.2)	74.2 (0.5)	7.8 (0.2)	116.9 (50.5)	26.9 (4.2)
5	98.7 (0.3)	20.5 (0.1)	74.0 (0.3)	7.7 (0.1)	114.8 (33.2)	24.4 (1.7)
6	98.7 (0.4)	20.5 (0.1)	74.0 (0.3)	7.7 (0.1)	114.8 (37.9)	25.0 (2.3)
7	98.7 (0.2)	20.5 (0.1)	74.0 (0.2)	7.7 (0.1)	114.8 (20.3)	24.5 (1.8)
8	98.6 (0.1)	20.4 (<0.1)	73.9 (0.1)	7.6 (<0.1)	114.8 (18.9)	23.8 (1.1)
9	98.6 (0.2)	20.5 (0.1)	73.9 (0.2)	7.7 (0.1)	114.8 (22.3)	23.9 (1.2)
10	98.6 (0.2)	20.5 (0.1)	73.9 (0.2)	7.7 (0.1)	114.8 (13.6)	24.2 (1.5)
11	98.7 (0.2)	20.5 (0.1)	74.0 (0.2)	7.7 (0.1)	114.8 (13.3)	24.5 (1.9)
12	98.7 (0.2)	20.5 (0.1)	74.0 (0.2)	7.7 (0.1)	114.8 (12.1)	24.6 (1.9)
13	98.7 (0.2)	20.5 (0.1)	74.0 (0.2)	7.7 (0.1)	114.8 (12.6)	24.5 (1.8)
14	98.7 (0.3)	20.5 (0.1)	74.0 (0.3)	7.7 (0.1)	114.8 (15.9)	25.2 (2.5)
15	98.6 (0.2)	20.5 (0.1)	73.9 (0.2)	7.7 (0.1)	114.8 (21.6)	24.2 (1.5)

Receptor ID	Predicted Cumulative PM Concentration (µg/m^3)				Predicted Cumulative NO_2 Concentration (µg/m^3) (using OLM)	
	PM_{10}		$PM_{2.5}$			
	24 Hour Maximum (Goal: 50)	Annual Average (Goal: 30)	24 Hour Maximum* (Goal: 25)	Annual Average* (Goal: 8)	1 hour maximum (Goal: 246)	Annual average (Goal: 62)
16	98.6 (0.1)	20.4 (<0.1)	73.9 (0.1)	7.6 (<0.1)	114.8 (22.7)	23.1 (0.4)
17	98.7 (0.2)	20.5 (0.1)	74.0 (0.2)	7.7 (0.1)	114.8 (14.2)	24.8 (2.1)
18	98.6 (0.2)	20.5 (0.1)	73.9 (0.2)	7.7 (0.1)	114.8 (23.4)	24.0 (1.4)
19	98.6 (0.2)	20.4 (<0.1)	73.9 (0.2)	7.6 (<0.1)	114.8 (32.4)	23.4 (0.7)
20	98.6 (0.1)	20.4 (<0.1)	73.9 (0.1)	7.6 (<0.1)	114.8 (16.9)	23.5 (0.8)
21	98.6 (0.1)	20.4 (<0.1)	73.9 (0.1)	7.6 (<0.1)	114.8 (19.7)	23.4 (0.7)
22	98.6 (0.2)	20.5 (0.1)	73.9 (0.2)	7.7 (0.1)	114.8 (11.4)	24.3 (1.6)
23	98.6 (0.1)	20.5 (0.1)	73.9 (0.1)	7.7 (0.1)	114.8 (9.5)	23.8 (1.1)
24	98.6 (0.2)	20.4 (<0.1)	73.9 (0.2)	7.6 (<0.1)	114.8 (28.0)	23.6 (0.9)
25	98.7 (0.3)	20.5 (0.1)	74.0 (0.3)	7.7 (0.1)	114.8 (37.5)	25.0 (2.3)
26	98.6 (0.2)	20.4 (<0.1)	73.9 (0.2)	7.6 (<0.1)	114.8 (25.8)	23.5 (0.8)
27	98.7 (0.3)	20.5 (0.1)	74.0 (0.3)	7.7 (0.1)	114.8 (40.2)	24.8 (2.1)
28	98.6 (0.1)	20.4 (<0.1)	73.9 (0.1)	7.6 (<0.1)	114.8 (23.2)	23.6 (0.9)
29	98.6 (0.1)	20.4 (<0.1)	73.9 (0.1)	7.6 (<0.1)	114.8 (16.1)	23.4 (0.7)
30	98.6 (0.1)	20.4 (<0.1)	73.9 (0.1)	7.6 (<0.1)	114.8 (14.0)	23.6 (0.9)
31	98.6 (0.1)	20.4 (<0.1)	73.9 (0.1)	7.6 (<0.1)	114.8 (9.8)	23.3 (0.6)
32	98.6 (0.1)	20.4 (<0.1)	73.9 (0.1)	7.6 (<0.1)	114.8 (12.2)	23.3 (0.6)
33	99.6 (1.8)	20.7 (0.9)	74.9 (1.7)	8.5 (0.9)	131.5 (65.9)	31.9 (9.2)
34	98.6 (0.1)	20.5 (0.1)	73.9 (0.1)	7.7 (0.1)	114.8 (22.3)	24.0 (1.3)
35	98.7 (0.2)	20.5 (0.1)	74.0 (0.2)	7.7 (0.1)	114.8 (13.8)	24.8 (2.1)
36	98.6 (0.2)	20.4 (<0.1)	73.9 (0.2)	7.6 (<0.1)	114.8 (22.3)	23.5 (0.8)
37	98.6 (0.1)	20.5 (0.1)	73.9 (0.1)	7.7 (0.1)	114.8 (11.4)	24.1 (1.4)
38	98.9 (0.6)	20.7 (0.3)	74.2 (0.6)	7.9 (0.3)	119.9 (36.5)	27.8 (5.1)

- * $PM_{2.5}$ is an advisory goal (not a reporting goal)
- Note 1: Incremental concentration in brackets

Construction Noise

Table 5: Predicted Construction Noise Levels at Sensitive Receivers – Scenario 1

Phase	Max SWL	Level LAeq, 15min			
		Casula (49 dBA)	Wattle Grove (45 dBA)	Glenfield (45 dBA)	Liverpool (49 dBA)
Piling	121	41-**55**	**48-57**	43-**48**	47-**50**
Excavation	110	38-**52**	**46-51**	41-45	45-47
Compaction	117	38-**52**	**46-51**	41-45	45-47
Heavy Vehicles	108	30-44	38-43	32-37	36-38
Concreting	112	35-49	43-**48**	37-42	42-45
Rail Construction	113	38-**52**	38-40	42-**46**	34-36

Note 1: Goal in brackets
Note 2: Exceedences in bold

Table 6: Predicted Construction Noise Levels at Sensitive Receivers – Scenario 2A

Phase	Max SWL	Level LAeq, 15min			
		Casula (49 dBA)	Wattle Grove (45 dBA)	Glenfield (45 dBA)	Liverpool (49 dBA)
Piling	121	41-**51**	43-**49**	41-45	48-**50**
Excavation	110	38-49	41-**46**	39-42	45-47
Compaction	117	38-49	40-**46**	39-42	45-47
Heavy Vehicles	108	30-40	32-38	30-34	37-39
Rail Construction	113	35-46	37-43	53-39	42-45

Note 1: Goal in brackets
Note 2: Exceedences in bold

Table 7: Predicted Construction Noise Levels at Sensitive Receivers – Scenario 2B

Phase	Max SWL	Level LAeq, 15min			
		Casula (49 dBA)	Wattle Grove (45 dBA)	Glenfield (45 dBA)	Liverpool (49 dBA)
Piling	121	41-**53**	43-**49**	41-45	47-49
Excavation	110	38-**50**	40-**47**	39-42	44-46
Compaction	117	38-**50**	40-**47**	39-42	44-46
Heavy Vehicles	108	30-42	32-39	30-42	36-38
Concreting	112	35-47	37-44	35-**47**	41-43

Note 1: Goal in brackets
Note 2: Exceedences in bold

Operational Noise

Table 8 Operational Noise Modelling Results at Residential Receivers – Scenario 3 - Operation

Receiver Catchment		Noise Level		Exceedence (dBA) Neutral/Adverse
	Night Time (10pm-7am) Criteria (dBA) $L_{Aeq, 15min}$	Neutral $L_{Aeq, 15min}$	Adverse $L_{Aeq, 15min}$	
R1	38	38	**41**	0/**3**
R2	38	**40**	**43**	**2/5**
R3	38	**42**	**44**	**4/6**
R4	38	**41**	**43**	**3/5**
R5	38	35	37	0/0
R6	38	36	37	0/0
R7	38	33	34	0/0
R8	38	29	30	0/0
R9	38	32	33	0/0
R10	38	32	33	0/0
R11	37	35	**39**	0/**2**
R12	37	36	**40**	0/**3**
R13	37	36	**40**	0/**3**
R14	37	39	**43**	**2/6**
R15	38	32	33	0/0
R16	42	25	26	0/0
R17	37	37	**41**	0/**4**
R18	38	32	37	0/0
R19	42	30	30	0/0
R20	42	27	27	0/0
R21	42	26	27	0/0
R22	42	34	38	0/0
R23	42	30	35	0/0
R24	38	27	29	0/0
R25	42	37	39	0/0
R26	42	26	28	0/0
R27	42	34	37	0/0
R28	42	24	27	0/0
R29	47	22	26	0/0
R30	47	28	33	0/0
R31	42	21	27	0/0
R32	42	24	30	0/0
R33	70	64	64	0/0
R34	38	31	31	0/0
R35	70	38	42	0/0
R36	42	28	29	0/0
R37	42	31	35	0/0
R38	50	43	44	0/0

APPENDIX D INDEPENDENT TRAFFIC REVIEW

See the Department's website at:
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=4400

APPENDIX E INSTRUMENT OF APPROVAL

See the Department's website at:
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=4400