SIMTA Intermodal Terminal Project – Moorebank Precinct West Stage 2

Peer Review

Project Number: 82016089-01/Report 001 Ver 1

Prepared for
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Executive Summary

The Moorebank Intermodal Company (MIC) obtained Concept Approval (SSD_5066) for the Moorebank Precinct West (MPW) site including the early works. The Sydney Intermodal Terminal Alliance (SIMTA), have subsequently reached agreement to develop the Moorebank Precinct comprising MPW and Moorebank Precinct East (MPE) on a 'whole of precinct basis'.

SIMTA is now seeking approval for the construction and operation of Stage 2, comprising the Intermodal Terminal (IMT) and warehousing of MPW under Part 4, Division 4.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The site located within the Liverpool Local Government Area (LGA) between the Georges River foreshore and Moorebank Avenue. The proposed rail spur passes through a number of different public and privately owned parcels.

The EIS (Arcadis, 2016) was placed on public exhibition from 26 October to 25 November 2016. Liverpool City Council (Council) and its community have raised significant concerns about the scale of impacts associated with the proposal and object strongly to the development scheme. Council have previously provided a submission to the MPW Concept Approval during the public exhibition period identifying the key environmental issues and community concerns.

The review found that environmental impacts are extensive and primarily concern Moorebank, surrounding suburbs and associated transit corridors. Key issues identified by Cardno's submission included:

- **Many of the impacts previously identified in the Council review of the Concept Approval are yet to be adequately assessed and mitigated to an acceptable level.**
- **A modification to Concept Approval SSD_5066 under Section 96 of the EP&A Act has been lodged by SIMTA and is yet to be determined. Stage 2 is reliant on Stage 1 progressing. Consequently, Stage 2 assessment should be held in abeyance pending the outcome of the modification.**
- **Traffic congestion and associated impacts on amenity due to additional vehicles on the road network. These impacts are anticipated to be greater than predicated in the EIS due to the assumptions used.**
- **Noise and Air Quality impacts on human health during construction and operations, which are likely to be greater than identified in the EIS due to the traffic assumptions used.**
- **Biodiversity is likely to be heavily impacted by the proposal, with a number of deficiencies in the current assessment that reduce the extent of impacts identified and costs associated with offsetting impacts. The EPA (with support and commitment from State and Federal Government agencies) is believed to be the most appropriate regulatory authority for the proposed development and associated activities should approval be granted as Council has concerns they are not equipped with the resources to oversee and regulate a facility of this size and operational capacity.**

The preparation of a precinct wide master plan for the Moorebank Area (inclusive of the MPW and MPE sites, as previously recommended by the PAC, is an overarching recommendation that is necessary, justified and in the public interest. The outcome of the master planning process would provide additional certainty for the community and would address the currently unmitigated residual impacts.

Overall, in its current state, the Project Application does not adequately address a number of key environmental matters which, if left unchecked, have the potential to cause significant impacts to the built and physical environment of the locality and wider region. Consequently, it is recommended that the MPW Stage 2 Project Application not proceed in its current state.

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1 Introduction

This section introduces the submission and provides a background to the Project.

The Moorebank Intermodal Company (MIC) obtained Concept Approval (SSD_5066) for the Moorebank Precinct West (MPW) site including the early works. The Sydney Intermodal Terminal Alliance (SIMTA), comprising a consortium of Qube Holdings and Aurizon have subsequently reached agreement to develop the Moorebank Precinct comprising MPW and Moorebank Precinct East (MPE) on a 'whole of precinct basis'.

SIMTA is now seeking approval for the construction and operation of Stage 2, comprising the Intermodal Terminal (IMT) and warehousing of MPW. MIC would provide partial funding and land for the MPW component. An Environmental Impact Statement (EIS) for the proposed IMT, which addresses the assessment requirements of Part 4, Division 4.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) has been prepared and lodged with NSW Planning and Environment (DP&E) for assessment and determination.

The site located within the Liverpool Local Government Area (LGA) between the Georges River foreshore and Moorebank Avenue was previously Commonwealth land operating primarily as the School of Military Engineering (SME). The site remains in Commonwealth ownership. The proposed rail spur passes through a number of different public and privately owned parcels.

The EIS (Arcadis, 2016) was placed on public exhibition from 26 October to 25 November 2016. Liverpool City Council (Council) and its community have raised significant concerns about the scale of impacts associated with the Project and object strongly to the development scheme. Council have previously provided a submission to the MPW Concept Approval during the public exhibition period identifying the key environmental issues and community concerns. This submission reviews the Stage 2 EIS documentation and provides recommendations to DP&E.

1.1 Background

MPW is located on Commonwealth land, which accommodated the SME on the western side of Moorebank Avenue. The land on the eastern side of Moorebank Avenue is referred to as MPE. SIMTA have previously obtain approval for an IMT on this site. The subsections below provide further background to both the MPW and MPE sites.

1.1.1 Moorebank Precinct West

The Commonwealth government in the form of the MIC previously obtained approval for the development of an IMT on the site with a capacity of 1.05 million Twenty-foot Equivalent Units (TEUs) per annum, subject to SSD_5066. SIMTA have subsequently reached agreement with the Commonwealth Government to take over the site.

The Project has been identified as State Significant Development (SSD) subject to *State Environmental Planning Policy (State and Regional Development) 2011* (State and Regional SEPP) with an EIS informed by Secretaries Environmental Assessment Requirements (SEARs) prepared in support of the original approval. A modification to the Concept Approval, which is primarily to facilitate the importation of 1,600,000m3, was lodged with the DP&E. Cardno in conjunction with Council lodged a submission to the modification, with the proponent currently reviewing the submissions received. SIMTA have subsequently, lodged an EIS for Stage 2 of the Concept Approved works, inclusive of the amendments proposed by the modification currently under assessment.

The MPW site, which is the subject of this application is located on the western side of Moorebank Avenue, with the Georges River running along the western boundary of the site. The IMT comprises a rail spur linking the site to the Southern Sydney Freight Line (SSFL), with sidings on site serviced by trucks via Moorebank Avenue. The MPW Project is proposed to service Port Botany, with freight received by rail and then distributed via truck (refer to **Figure 1-1** for the Greater Sydney Regional context).

The MPW site borders are defined by:

- North – existing manufacturing (ABB Australia) immediately to the north, with commercial, residential and industrial areas north of the M5
- East – Moorebank Avenue, with the MPE beyond. The residential suburb of Wattle Grove is further east.
- South – the East Hills Line Railway, with heavily vegetated land beyond.
- West – the Georges River, with the River foreshore recreational area including the Casula Powerhouse Arts Centre and the suburb of Casula beyond.

The MPE site is to the east and has approval for the staged development of an IMT by SIMTA as discussed in **Section 1.1.2** below.

1.1.2 Moorebank Precinct East

MPE site was previously Commonwealth owned, operating as the Defence National Storage and Distribution Centre (DNSDC). However, SIMTA has taken ownership of this land and obtained Concept Approval (MP 10_0193) as a transitional Project under Part 3A of the EP&A Act, with subsequent staged Project Approvals obtained by SIMTA under Division 4.1 of the EP&A Act.

The MPE IMT is approved to accommodate a container freight volume of 250,000 TEUs per annum. The 250,000 TEU capacity is the maximum permitted freight road volume subject to the Concept Approval. However, SIMTA have previously identified the potential for additional throughput.

1.1.3 Context

Figure 1-1 shows the MPW and MPE sites in the context of other IMT's within the Greater Sydney Region, with **Figure 1-2** illustrating the proximity of the two sites. The SIMTA *Intermodal Terminal Facility- Stage 1: Environmental Impact Statement* prepared by Hyder Consulting (2015) to inform the MPE Stage 1 development identified that MIC, the previous proponents of the MPW site and SIMTA the proponents of the MPE site had reached an agreement to develop the two IMT sites through a precinct wide approach, with SIMTA subsequently becoming the proponent for both sites. This agreement has not yet resulted in a master planned approach for both sites being put forward.

The physical proximity and common operator for both Moorebank IMT sites suggests that there may be a shared rail link to the SSFL and associated infrastructure. Such a scheme has not yet been put forward, with separate rail connections and road interfaces proposed.

It is acknowledged that the scope of this review is focused on the MPW Project. However, given the proximity of the two IMT's, there is the potential for large scale and wide ranging cumulative environmental impacts. Consequently, such impacts and opportunities for further integration of the Projects has previously been raised by both the Planning Assessment Commission and Council, with further comment in this submission. The consideration of cumulative impacts would ensure the most efficient and coordinated use of the land, while gaining a clear understanding of the potential impacts of both Project s on the Liverpool community and Council assets.

Council and its community have raised significant concerns about the scale of impacts associated with the Project and have raised their strongest objection to the development scheme. Cardno has previously been engaged to prepare a submission on behalf of and in conjunction with Council to the public exhibition period.

1.2 Review Objectives

The review objectives comprise:

- Review the adequacy of the environmental assessment within the EIS and supporting documentation
- Identify the potential impacts resulting from the Project, including those cumulative impacts associated with MPW and MPE

- Identify if the Concept Approval requirements (State and Commonwealth) have been satisfactorily addressed including; the Concept Approval (MP10_0193) Schedule 4 Future Assessment Requirements; revised environmental mitigation measures (REMMs) and Appendix 1 Statement of Commitments and; as well as the NSW DP&E SEARs
- Identify whether the proposed development is considered appropriate for support, as well as the commitments and conditions of determination to mitigate and manage impacts, should the Project receive approval.

Cardno have previously worked with Council to provide submissions on both the MPW and MPE IMT schemes. Consequently, we are aware of and understand the implications of the planned IMT's both individually and through combined impacts. Due to the large scale of these facilities there are potential impacts at both the local and regional level that requires consideration in the developments entirety.

1.3 Methodology

The tasks identified to meet the Project objectives in **Section 1.2** are:

- Re-establish the Project team comprising the relevant specialists that undertook the peer review of the MPW Concept Approval.
- Review the EIS and supporting documentation in the context of the NSW DP&E SEARs and the Concept Approval (MP10_0193) Schedule 3 Future Assessment Requirements and Appendix 1 Statement of Commitments
- Identify the environmental, social and economic implications of the IMT on the receiving environment, with particular focus given to the impacts on the community and Council assets and in consideration of the proposed MPE development on the adjacent site to the east
- Identify opportunities and costs associated with the IMT as identified within the EIS and subsequently those mitigation and management measures required to address potential impacts
- Identify commitments and prepare draft conditions of determination to assist the determining authority should the Project be considered for approval.

LLANDILO
BLAXLAND
PENRITH
CASTLE HILL
PYMBLE
BAULKHAM HILLS
SEVEN HILLS
EPPING
BLACKTOWN
EASTWOOD
EASTERN CREEK
ST CLAIR
EASTERN CREEK
RYDE
ORCHARD HILLS
PROSPECT
ERSKINE PARK
ROSEHILL
MOSMAN
MULGOA
KEMPS CREEK
HORSLEY PARK
WETHERILL PARK
AUBURN
SMITHFIELD
YENNORA
LUDDENHAM
CECIL PARK
VILLAWOOD
ENFIELD
WALLACIA
BADGERYS CREEK
CECIL HILLS
YAGOONA
COOKS RIVER
AUSTRAL
MOOREBANK
MILPERRA
MASCOT
MAROUBRA
ROSSMORE
PRESTONS
MPE
MPW
BRINGELLY
CASULA
BEXLEY
PORT BOTANY
LEPPINGTON
GLENFIELD
BOTANY BAY
OATLEY
DENHAM COURT
ILLAWONG
MENAI
INGLEBURN
VARROVILLE
KURNELL
RABY
MINTO
HOLSWORTHY
LEUMEAH
KENTLYN
ENGADINE
SPRING FARM
ROYAL NATIONAL PARK
HEATHCOTE

Legend

- Existing Intermodal Terminals
- Proposed Intermodal Terminals
- MPW Site Area
- MPE Site Area
- Proposed Railway
- Railway (LPI)
- Major Waterbodies (LPI)

Major Roads (LPI, 2011)

- Motorway
- Primary Road
- Arterial Road

Land Use (ABS, 2011)

- Other
- Commercial
- Education
- Industrial
- Parkland
- Residential

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FIGURE 1-1

1:160,000 Scale at A3

Kilometres
0 2 4 6 8

Location Plan: Greater Sydney Context

MOOREBANK INTERMODAL SITES

N

Cardno

Map Produced by Cardno NSW/ACT Pty Ltd (WOL)
Date: 2016-08-15 | Project: 82017018-01
Coordinate System: GDA 1994 MGA Zone 56
Map: 8201701801-GS-002-LocationPlan.mxd 01

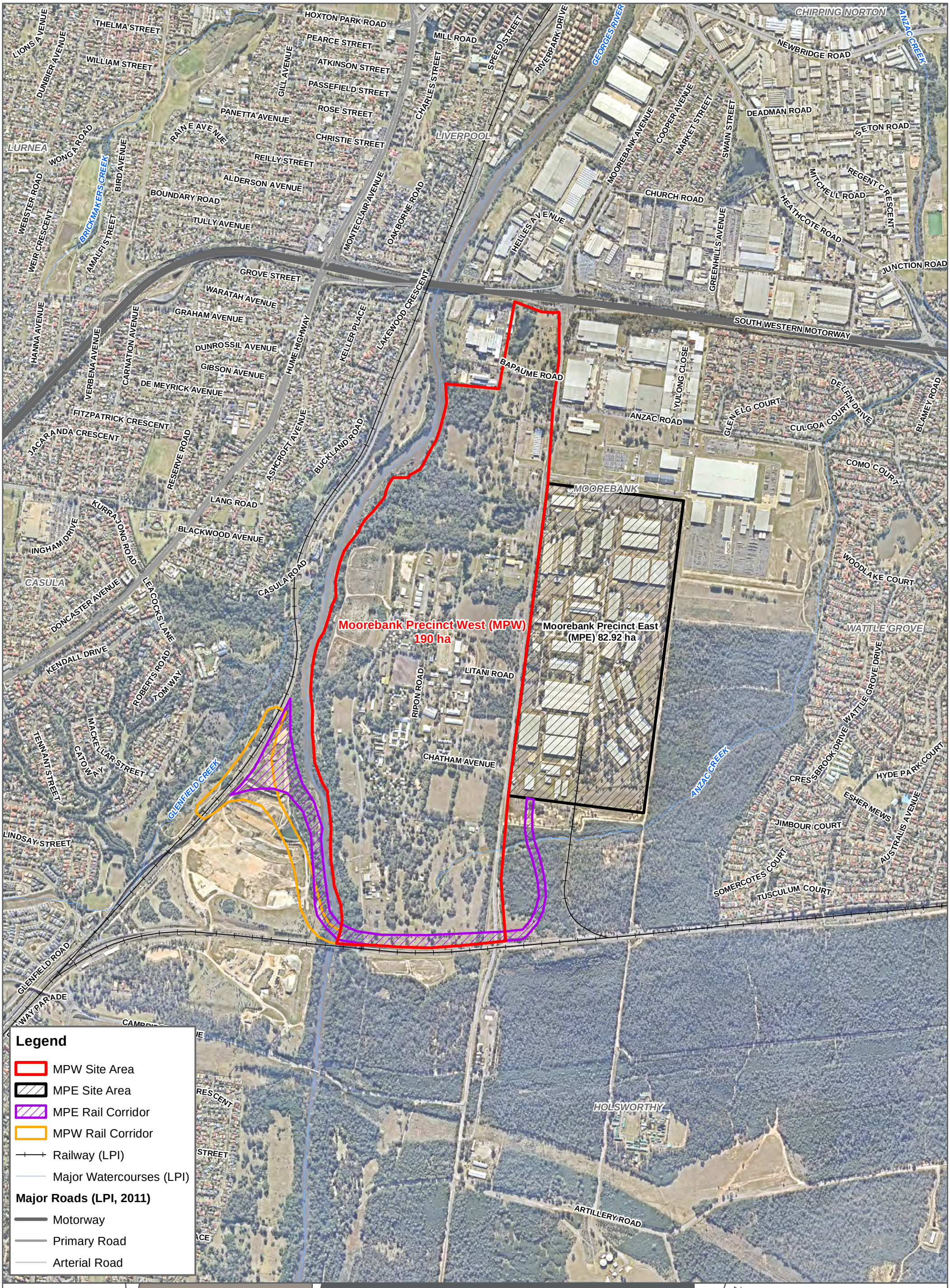


FIGURE 1-2

1:15,000 Scale at A3

Metres

0 150 300 450 600

Location Plan

MOOREBANK INTERMODAL SITES

Liverpool city council

Cardno

Map Produced by Cardno NSW/ACT Pty Ltd (WOL)
Date: 2016-08-15 | Project: 82017018-01
Coordinate System: GDA 1994 MGA Zone 56
Map: 8201701801-GS-001-LocationPlan2.mxd 01
Aerial imagery supplied by nearmap (June 2016)

1.4 Project Team

Cardno has established the same Project team that previously undertook the Stage 1 EIS review placed on public exhibition by NSW DP&E. The Project team includes the following experts:

- Strategic and Statutory Planning
- Road Traffic and Transport
- Noise and Vibration
- Air Quality
- Human Health
- Biodiversity
- Stormwater and Flooding
- Geotechnical
- Contamination
- Hazard and Risk
- Visual Amenity, Urban Design, Landscaping
- Heritage
- Greenhouse Gas & Ecologically Sustainable Development
- Property and Infrastructure
- Waste
- Socio Economic

1.5 Structure of the Report

This submission has been arranged as follows:

> **Chapter 2** – identifies the key issues associated with the Project that are applicable across a range of environmental aspects, providing a basis for the subsequent aspect specific reviews undertaken in Chapters 3, 4 and 5.

> **Chapter 3** – reviews the technical assessments and recommendations contained within the EIS in accordance with legal and best practice guidelines. The potential impact of the scheme, whether they be positive, negative or negligible, with information gaps, mitigation and management measures identified.

> **Chapter 4** – summarises and concludes the review to establish the potential outcome for Council and the community, as well as providing recommendations for the next step in the assessment process.

1.6 Limitations

This assessment is based on secondary information gathered over a limited period. This information has not been individually verified and is therefore subject to the limitations of its original purpose.

This report does not constitute an alternative environmental assessment of the Project or propose a determination of the application. Rather, it is a peer review to determine if the application has addressed all statutory and legal requirements, and appropriately considered the merits and justifications for the Project. This report is intended to guide further discussion with State agencies, Councils, relevant stakeholders, the community and the applicant.

2 Reoccurring Themes

This section identifies the key reoccurring themes associated with the Project that traverse a number of environmental aspects.

A range of issues were identified during the review, with the key issues being:

- Traffic and Transport
- Noise
- Air Quality
- Hazard and Risk
- Biodiversity
- Human Health impacts associated with the above.

A review of these issues, alongside those lesser, but still potentially significant issues has been detailed in **Section 3** of this document. During the assessment of these issues a number of reoccurring themes were identified as discussed below. These reoccurring themes either created significant impacts individually, or reoccurred throughout the review resulting in potentially cumulative impacts. These reoccurring themes have been summarised below and require full consideration and review due to their far reaching impacts and potential to affect the legitimacy of the Project.

2.1 Concept Approval/Stage 1 Modification

A modification to Concept Approval SSD_5066 under Section 96 of the EP&A Act has been lodged by SIMTA with DP&E for amendments to the Stage 1 (Early Works) package. The primary amendment proposed by the modification is the import of 1,600,000m3 of fill material and the associated crushing and screening on site.

The Stage 1 Early Works that are proposed to be modified are essential to the subsequent development of Stage 2. The reliance of Stage 2 on Stage 1, should prevent the Stage 2 assessment from being undertaken before the Stage 1 modification is determined. This is particularly important given the modification does not have a strong legal basis, as it does not satisfy the 'substantially the same' test.

The previous Council Submission prepared by Cardno dated 22 August 2016 identified significant issues with the modification due to the extent of environmental impacts and the associated step change in the scale of the construction works. Furthermore, it is questionable whether these impacts can be mitigated without the identification and preparation of supporting infrastructure, management plans, operating procedures and compensation schemes, which the current scheme and associated assessment fails to do.

The review has identified that the proposed modification is not 'substantially the same' as the existing approved development and would not satisfy the legal precedents established by the Land and Environment Court. Consequently, a Section 96(2) modification is not an appropriate approval pathway. A formal request for SEARs should be lodged, with a subsequent EIS prepared to fully consider the extent of impact.

Furthermore, it is recommended that a precinct wide, master planned approach to earthworks is considered. This approach reflects previous comments from the Planning and Assessment Commission and Council, which would allow more orderly development and aid the understanding of the full extent of environmental impacts.

2.2 Traffic and Transport

A number of the assumptions used to inform the environmental assessments are either not identified or not considered rigorous or conclusive enough to fully assess traffic impacts. The Project's traffic and transport assessment is a key consideration with the potential to create impacts across a number of environmental aspects.

The review of the traffic and transport movements associated with the Project identified that the Project would impact on road congestion in proximity to the site, noise, air quality, visual amenity and subsequently

human health and thus a thorough assessment of the traffic environment and associated impacts is critical for both the construction and operational stages.

Cardno has provided a detailed review of the assessment methodology and assumptions for modelling which are outlined further in **Section 3.3**.

Key issues and themes identified include:

- Traffic generation
- Intersection performance and level of service (LOS)
- Traffic volumes (historical and forecast)
- Crash data
- Vehicle types
- Turning paths
- Haulage routes and access strategy

Overall a range of technical comments have been provided, which should be reviewed and addressed to ensure an accurate model of the impacts is presented. This is critically important considering the interdependencies that other impact assessments have on the data and assessment findings.

The increase in anticipated traffic movements entering/exiting the proposed site from surrounding road networks will significantly increase the heavy vehicles in the area, which would then have negative impacts on road maintenance and reduced road safety. The community have also raised significant concerns about increased congestion and associated stressors for commuters and local businesses.

2.3 Local Infrastructure Contributions

A major gap identified in the MPW Stage 2 EIS is a lack of commitment to providing Local Infrastructure Contributions. Consideration was required to be given to the relevant Council's Developer Contributions Plan or equivalent by the SEARs (7(b)), which highlights specifically that the Prestons Industrial Area development must be considered. The EIS notes that "*Liverpool City Council does not currently have a Section 94 Contributions Plan which relates to industrial development on the Proposal site*." The EIS has also noted that "*there are considerable differences between the Preston's Industrial Release Area and its location to surrounding development, drainage infrastructure, need for transport infrastructure and ownership agreements, which form, amongst other aspects, the basis for developer contributions*." This statement suggests that SMITA believe there are significant differences and that as a result monetary contributions are not required.

While it is noted that SMITA has mention that developer contributions will be considered in conjunction with the Roads and Maritime Service (RMS) once the Precinct Model has been finalised, there is no mention of if/when developer contributions will be assessed with Council. This suggests that the developer has no intention of paying developer contributions to Council, which would be required to forward fund assets and gaps in infrastructure created by the Project. The lack of commitment to consider entering into an agreement with Council regarding the developer contributions requirements could set an unwelcome precedent for similar size developments in NSW.

Recently Council passed a motion to seek Ministerial Approval for a Section 94A scheme for "*established areas*" within the Liverpool LGA. Under this Project the following developer contributions would be required for any development within "established areas" (including the Project site):

- Capital Investment Value $0 - <$100,000 – 0% levy
- Capital Investment Value $100,000 - <$200,000 – 0.5% levy
- Capital Investment Value >$200,000 – 2% levy

The funds gained from such contributions would give Council the ability to fund projects to maintain infrastructure impacted by the MPW Project and upgrade infrastructure where required by the increased load generated by MPW.

It is recommended that one of two suggested options be chosen by SIMTA to address the current shortcomings, as previously suggested by Council:

> A VPA between SIMTA and Council be prepared to ensure a fair and equitable outcome regarding local infrastructure contributions is achieved. This may involve the payment of a monetary contribution using Council's recent resolution as a basis, the provision of works in kind, or a combination of both. Council has identified that monetary contributions could cater for the long term maintenance or short term upgrades to the transport network, with road infrastructure management examples including the need to preclude heavy vehicle traffic on Nuwarra Road and Governor Macquarie Drive.

> The determination include a condition under Section 94A of the EP&A Act, in accordance with the provisions listed at Clause 94B (2) of the EP&A Act. This condition may result in a 2% levy being enforced in accordance with Council's recent resolution for the proposed Section 94A Plan.

In summary, there is a lack of commitment from the developer to provide contributions to Council to fund anticipated increases in the required maintenance of local infrastructure. This must be addressed immediately to avoid establishing a damaging precedent for future similar developments.

2.4 Biodiversity

The biodiversity review identified a number of inconsistencies and shortcomings with both the biodiversity assessment and associated Biocertification calculations. These issues have the potential to substantially reduce the significance of the Project impacts on biodiversity.

A number of 'species credit species' have been removed from the assessment without clear justification and comment. Given the 'moderate' likelihood of occurrence determined by both Arcadis (2016) and *Parsons Brinckerhoff* (PB), *MPW Final EIS* (2015), an 'Expert report' is required by the methodology, unless further survey or justification of 'previous survey' can be provided, which is not the case. Furthermore, there was no apparent resurvey for two threatened flora species previously recorded, to determine if the initial counts of the flora species credit species were accurate. The absence of any comment on the other six flora species credits that PB (2015) considered likely to occur in the seed bank leaves further ambiguity in the Arcadis assessment as to whether they believe these species may or may not be present, and consequently whether additional survey should have been considered.

The key concern associated with the biodiversity assessment for the Project relates to the Biocertification approach. The landscape value has been significantly underestimated, with the 100 ha assessment circle not centred on the area of most impact. It is also not clear why two separate landscape scores are necessary, the whole development should be assessed as one impact, meaning that the whole assessment will need to be run with the landscape score of 26.8. The implications for the revised landscape score would be an increase in biodiversity impacts and a substantial increase in credit purchase costs.

2.5 Commitments

Numerous commitments were prescribed for the Project through REMM's, *Schedule 4 – Conditions of Approval* and the SEARs, refer to **Table 3-1** and **Table 3-2** respectively.

Whilst the prescribed commitments were identified as part of the EIS (Arcadis, 2016), a number of deficiencies were identified that relate to a lack of adequacy and completeness. These include deferring and potentially avoiding essential infrastructure contributions payments.

The Traffic, Stormwater/Flooding, Biodiversity and Heritage assessments do not provide comprehensive assessments that addresses the identified commitments in Schedule 4 of the Concept Approval, or the REMM's, with further assessment and commitments required. The individual assessments in **Section 3** provide further details around commitments. Given the high potential for impact rigorous commitments should be made to achieve specific environmental criteria. Without clear commitments there are likely to be impacts on the environment and human health, resulting from noise, reduced air quality and visual amenity, as well as increased truck movements.

2.6 Cumulative Effects

The MPW and MPE sites are located adjacent to one another on the western and eastern sides of Moorebank Avenue respectively. Agreement has been reached between MIC and SIMTA for an integrated precinct wide IMT, as identified by the Commonwealth Government press release of 4 June 2015. However, the Projects remain as two separate entities, with no interaction or pooling of resources and infrastructure. The inconsistency and lack of certainty does not provide confidence in the level of assessment both for the MPW site as a single entity, as well as cumulatively. Council previously requested that a master planned approach to the development of the IMT's be considered that looks to quantify resource use and infrastructure provision, along with environmental impacts, prior to examining strategies to minimise these impacts.

The EIS does not address the request to combine the two sites through a master planned approach, or acknowledge that the Project should be developed and assessed to establish whether an IMT of this scale at Moorebank is reasonable. Conversely the EIS (Arcadis, 2016) states that it is SIMTA and MICs intention for the sites to be constructed and operated via progressive individual approvals, with no discussion of an integrated approach. Consequently, the cumulative impacts of the SIMTA site are not clearly articulated and an assessment of whether the significant environmental impacts can be mitigated preferably on land under the proponents control. Based on the information contained within the EIS, it does not appear that this is currently the case.

The EIS is reliant on the cumulative scenario identified, which comprises SIMTA operating at 250,000 TEU's per annum and MIC operating as per the early works package, which comprises a zero TEU throughput. The Glenfield Recycling Facility is also considered, although quantitative assessment is not provided. A true cumulative assessment would consider the MIC site's operational impacts in conjunction with SIMTA operations, alongside development in the local and regional area.

3 Environmental Impact Assessment

This section reviews the EIS in the context of previously submitted comments to establish whether those comments have been adequately addressed.

3.1 Legislative Review

The MPW Stage 2 EIS documentation, prepared by Arcadis (2016), provides a review of the legislative controls applicable to the proposed IMT.

3.1.1 Proposed Development

The MPW Project is identified as SSD subject to State and Regional SEPP, with Concept Approval SSD_5066 obtained on 3 June 2016 for a throughput of 1.05 million TEUs per annum. An EIS is subsequently required to inform Stage 2 of the Concept Plan informed by SEARs. The Concept Approval included a planning proposal to revise the land use controls within the Liverpool Local Environmental Plan 2008 (LEP 2008). The planning proposal including the rezoning of land to allow the IMT use to proceed as permissible development was obtained on 24 June 2016.

SIMTA subsequently lodged an application to modify the Concept Approval, which is primarily to facilitate the importation of 1,600,000m^3 of fill with DP&E. The modification has been exhibited, with SIMTA currently reviewing submissions.

3.1.2 Cardno Assessment

The assessment considers a number of the key aspects associated with the relevant legislation, with this review focusing on the following aspects:

- Strategic Justification
- Concept Approval Modification
- Section 79C Review.

3.1.2.1 Strategic Justification

The EIS reviews the strategic planning objectives of key plans identified by the SEARs. Commonwealth Government in the form of Infrastructure Australia provide strategic support for the MPW through the Australian Infrastructure Plan, 2016 and associated Priority List. This support is consistent with that of Commonwealth Government through their Government Business Enterprise body the MIC.

The State and Local Government strategic justification is less clear. The NSW State Priorities (2016) have been identified to provide quantifiable objectives to reform the economy. Job creation and building infrastructure are incorporated as priorities. Both of these priorities could be considered to be addressed by the MPW Project. However, it is not clear that an IMT at Moorebank is the highest and best use for the land in relation to job creation and the associated economic growth, as well as infrastructure delivery.

As discussed at **Sections 3.14** and **3.16** jobs created by a large IMT once operational are limited comparative to alternative uses that could feasibly be accommodated by the site, such as high tech manufacturing, along with mixed use residential and commercial space. These uses would bring a much higher and more diverse economic return to the area, than the limited number of employees associated with an IMT.

The MPW Project would lead to investment in infrastructure. However, much of this investment would be associated with retrofitting existing corridors that are highly constrained, resulting in high cost and inefficiencies. The life cycle benefit of these infrastructure investments should be considered when discussing investment, rather than simply the financial input.

A number of previous State freight and logistics plans have supported an IMT at Moorebank. However, while *A Plan for Growing Sydney (2014)* (The Plan) does mention an IMT at Moorebank. The proposed Badgerys Creek IMT is given a significantly more prominent role. Rail freight infrastructure to connect the Badgerys Creek IMT to the rest of the rail network is proposed, with the Badgerys Creek IMT mentioned on

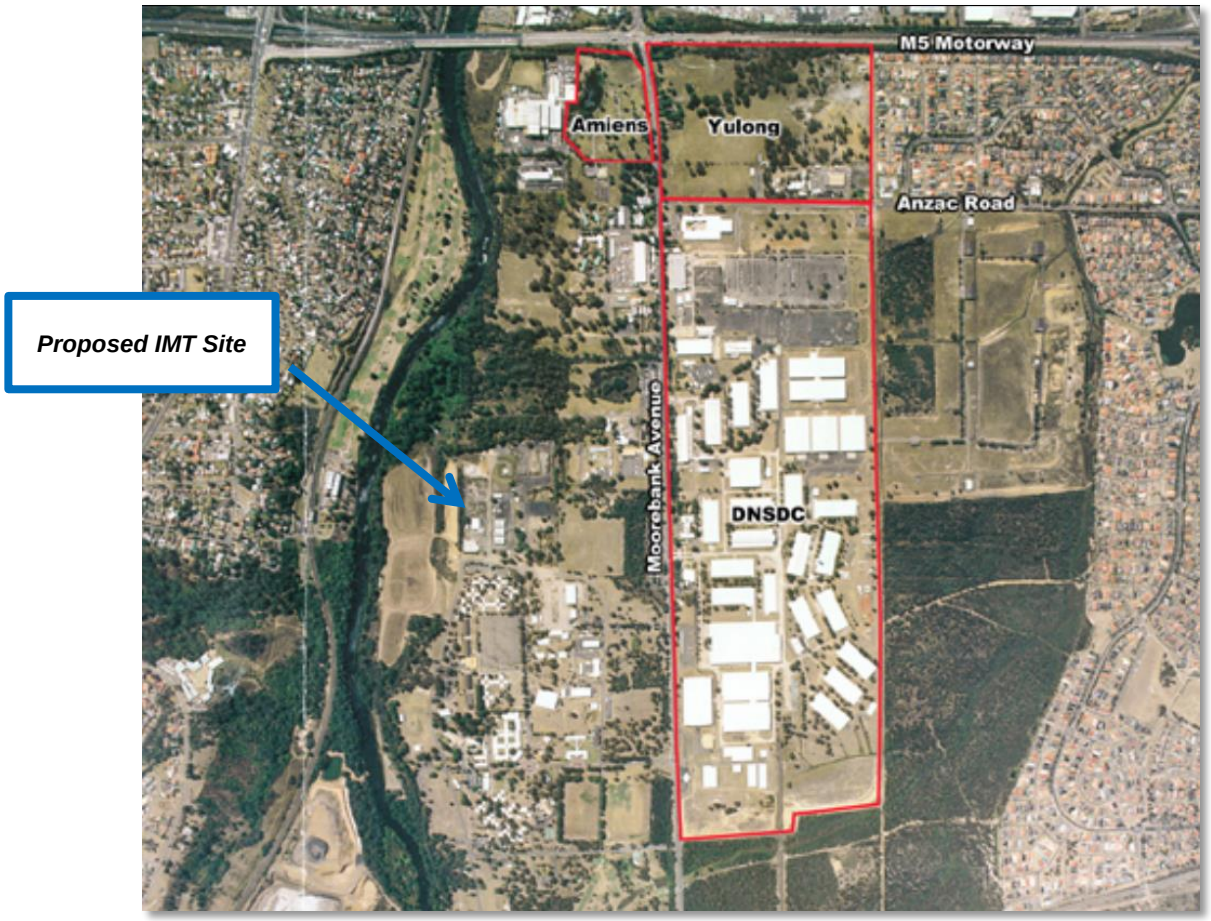
numerous occasions and may be a more suitable location that has not been considered by the EIS. The Moorebank Intermodal is not given great prominence or priority by The Plan. The Liverpool City Centre is also identified as a Regional City Centre by the Plan, which will experience significant growth in population and employment. As this is the most recent policy document released on the subject by the NSW government, it is considered to reflect current priorities and strategy.

Council's strategic vision is articulated through the LEP 2008 and *Liverpool Development Control Plan 2008* (DCP). Part 2.4 of the DCP contains site specific planning guidelines for development across the Moorebank Defence Lands. A small portion of the Project site identified as the "Amiens" area is located within the far northern portion of the MPW site (refer to **Figure 3-1**). The remainder of the site was excluded from the DCP as it was previously subject to a Special Use zone (SP2 – Defence). The subsequent planning proposal revised the zoning to primarily IN1, however, the DCP controls have not been updated to reflect this.

The SEARs at 11 (c) state that the assessment of visual impact should consider built form (materials and finishes), along with urban design (height, bulk and scale). The EIS includes 'indicative' materials and colours, however, the assessment does not provide details for setbacks, building style, fenestration, or the rationale for how these finishes integrate with the surrounding environment.

It is recommended that a site specific DCP be created by the proponent, to the satisfaction of Council, as a condition of determination. The DCP would refine the controls within the EIS to create suitable urban design, built form and public domain principles based on the site operations and surrounding context through an amendment to Part 2.4 of the DCP.

Figure 3-1 Land to which Part 2.4 of the Liverpool Development Control Plan Applies



Source: Liverpool City Council, 2014

Council do not have specific controls for the MPW site, as it was assumed that this land would continue with the current Defence use until the IMT Concept Plan was raised. Consequently, there is a gap in Council's strategic planning. However, there are a number of strategic plans of relevance to the MPW site due to their proximity:

- Council's Vision for the Riverfront Lands, which relates to land along the Georges River foreshore to the north of the M5.
- Council's Georges River Casula Parklands Draft Master Plan, which relates to land on the western side of the Georges River, directly across from the MPW site.

The strategic direction identified by these plans focuses on increasing the public use and amenity of the foreshore to facilitate residential and commercial development, while retaining and enhancing the visual and ecological quality of the Georges River and foreshore environment. The development of an IMT adjacent to the foreshore, along with the associated rail crossing would impact on the amenity of the area through increased noise, reduced air quality and visual amenity, resulting in impacts to human health. Consequently, the Project is contrary to Council's strategic direction.

3.1.2.2 Concept Approval Modification

A modification to Concept Approval SSD_5066 under Section 96 of the EP&A Act has been lodged by SIMTA with DP&E for amendments to the Stage 1 (Early Works) package. The primary amendment proposed by the modification is the import of 1,600,000m3 of fill material and the associated crushing and screening on site.

The previous Council Submission prepared by Cardno dated 22 August 2016 identified significant issues with the modification due to the extent of environmental impacts and the associated step change in the scale of the construction works.

There are two legal tests applicable to a Section 96 modification:

- The modification may involve "*alteration without radical transformation*" (*Sydney City Council v Ilenace Pty Ltd [1984]*); and
- Subject Section 96(2)(a), the development must be "*substantially the same development"* as authorised by the original development consent.

The *SIMTA Intermodal Terminal Project – Moorebank Precinct West, Peer review of Proposed Modification* (Cardno, August 2016) included a review of legal precedents to identify whether in the opinion of the Land and Environment Court (Court) the proposed development would be substantially the same as the Approved Concept Plan. To establish whether the development is substantially the same as the original, a comparison between the approved Concept Plan and early works development and the proposed modification was undertaken.

The comparison requires a threshold of similarity being identified. In the 1999 case, *Moto Projects (No 2) Pty Ltd v North Sydney Council,* the Court noted that a comparison exercise involves consideration of the quantitative and qualitative elements of the development. It is key to note that it is the Concept Approval that is being modified. Consequently, all changes to the Approval should be considered including the interim construction process, rather than just the overall outcome, which in this case is the development of an IMT. Consequently, a proposed modification can fail the 'substantially the same' test for just one change to a feature of the development, especially if that feature is important, material or essential.

The Court has considered the extent of changes and whether they are considered to be 'substantially the same' in a number of cases. In the case of *The Satellite Group (Ultimo) Pty Ltd v Sydney City Council [1998]*. A nine storey residential building was proposed, with a modification to introduce a retail component at street level. The size and shape of the residential building did not change. Furthermore, the Court found that the changes were a critical element of the intrinsic character of the building. The Court noted that while the quantitative change (bulk and scale) was identical, the 'qualitative' change was fundamental, due to the introduction of the retail component.

The proposed MPW modification would not be a quantitative change to the final form. However, it would result in a substantial quantitative change during the construction phase, with fill that was previously not proposed to be imported, requiring import, with an associated order of magnitude change in truck movements required to facilitate this. The additional truck movements, along with the on-site crushing would result in a quantitative change in the approved early works package. Consequently, it does not appear that the proposed modification would satisfy the 'substantially the same test' within this case.

The Stage 1 Early Works are essential to the subsequent development of Stage 2. The reliance of Stage 2 on Stage 1, should prevent the Stage 2 assessment from being undertaken before the Stage 1 modification

is determined. This is particularly important given the modification does not have a strong legal basis, as it does not satisfy the 'substantially the same' test.

3.1.2.3 Section 79C Review

Development under Part 4 of the EP&A Act is required to consider the provision of Section 79C of the EP&A Act.

Key matters identified within Section 79C include:

> *(b) the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality,*

The EIS states that '*no substantial environmental impacts have been identified for the proposal'* (Arcadis, 2016). The extent of the vehicle movements associated with the construction and operational phases of the Project, along with the associated impacts on human health and amenity from noise, air quality and congestion are substantial. Consequently, the Project is considered to significantly impact on the natural and built environment, as well as the social and economic fabric of the locality (refer to the subsections within **Section 3** for further discussion).

> *(c) the suitability of the site for the development,*

The EIS identifies the Concept Approval as confirming the site's suitability for the Project. Subsequent to the Concept Approval a Section 96 modification has been proposed that would result in substantially greater impacts during the construction phase of the Project, as a result of the magnitude change in fill requirements. The impacts resulting from the large scale vehicle movements associated with the importation of material would result in a further reduction in the amenity of the surrounds, beyond that initially considered by the Concept Plan assessment. Refer to **Section 3.1.2.2** for further discussion.

3.1.3 Recommendations

The recommendations below are proposed to address the identified impacts associated with the legislative review to allow a comprehensive assessment of the Project:

- The applicant is to prepare a site specific DCP Chapter that will inform the urban design, built form, landscaping and public domain controls for the subject site based on worst case site operations and the surrounding context in the existing and future scenarios. This should accord with Part 2.4 of the DCP, which includes the land currently zoned industrial in the Moorebank Defence Lands area.
- The Stage 2 application should be placed on hold pending the outcome of SSD 5066 MOD 1.

3.2 Consistency with Assessment Requirements

This section reviews and summarises the Concept Approval conditions relevant to this Stage of the development and the SEARs issued for Stage 2, to identify the consistency of this Project with these requirements.

3.2.1 Concept Approval Schedule 4 Review

Schedule 4 of Concept Approval SSD_5066 identifies the conditions that must be met in any future development applications for MPW. **Table 3-1** below provides a summary of the key aspects of the proposal including an assessment of the adequacy of the EIS in considering the potential interactions between the proposal with Council, the local community and the environment.

3.2.2 Secretaries Environmental Assessment Requirements

SEARs were issued to guide the Stage 2 development of MPW. **Table 3-2** identifies the key requirements of the SEARs and a response identifying whether the conditions have been addressed by the Stage 2 development scheme.

Table 3-1 Concept Approval Schedule 4 - Conditions to be met in future development applications Review

	Schedule 4 – Condition of Approval	Response
	Operational Noise and Vibration	
E1	To ensure the operational noise impacts are appropriately managed, the following measures must be considered in future Development Applications: a) Best practice plant for both the IMEX and interstate terminal, including electronic automated container handling equipment or equipment with equivalent sound power levels; b) The use of automatic rail lubrication equipment in accordance with ASA Standard T HR TR 00111 ST Rail Lubrication and top of rail friction modifiers; c) Measures to ensure the rail cross sectional profile is maintained in accordance with ETN–01-02 Rail Grinding Manual for Plain Track to ensure the correct wheel / rail contact position and hence to encourage proper rolling stock steering; d) A noise barrier on the western side of the haul road; e) All feasible and reasonable mitigation measures for the rail link, including automatic lubrication and top of rail friction modifiers; f) A detailed assessment of sleep disturbance impacts, including: how often noise events occur; the time of day when the occur; and whether there are any times of day when there is a clear change in the noise environment; and g) A risk assessment to determine if non-tonal reversing alarms can be fitted as a condition of site entry. Alternatively, site design may include traffic flow that does not require or precludes reversing of vehicles.	The adequacy of the environmental assessment and broader issues relating to operational noise and vibration impacts are further discussed in **Section** Error! Reference source not ound..
E2	Development Applications for both the IMEX and interstate terminal shall include a report to identify: a) The extent of wheel squeal across the fleet of rail vehicles that will frequently use the terminals. This should identify the number of occurrences of brake squeal, the typical noise levels associated with brake squeal (including the frequency content), and the operational conditions under which brake squeal occurs (e.g. under light braking, hard braking, low / medium / high speed, effects of temperature and weather, etc.); b) The root cause of brake squeal, including the influence of the design, set-up and maintenance of both brake shoes and brake rigging; c) Possible solutions to mitigate or eliminate brake squeal, including modifications to brake rigging and alternative brake shoe designs and compounds; and d) Any monitoring system proposed to capture brake squeal.	
	Rail Link	
E5	Any Development Application comprising the rail link must consider maximising curve radii of the rail connection, particularly the southern tie-in to the SSFL, to minimise the potential for wheel squeal.	

	Schedule 4 – Condition of Approval	Response
E6	Any Development Application comprising the rail link shall ensure the width of the rail link corridor is no greater than 20 metres in the Riparian Corridor.	
E7	Any Development Application comprising the rail link shall consider fauna movement in the bridge design.	
E8	Any Development Application comprising the rail link shall consider minimising potential impacts to the aquatic environment, aquatic habitats and fish passage, both in the design and construction of the bridge.	
E9	Any Development Application comprising the rail link shall include an assessment of the impacts of the rail link on the Glenfield Waste Facility, including: a) Targeted intrusive investigations to determine contamination pathways and to develop mitigation, management and/or remediation options based on those investigations; b) details of the quantity of landfilled waste to be removed, the location from where it will be removed, the methodology to be utilised and the estimated timeframe for the removal and reburial; c) proposed measures to mitigate odour impacts on sensitive receivers, including an undertaking to apply daily cover to any exposed waste in accordance with benchmark technique 33 of the document Environmental Guidelines: Solid Waste Landfills, NSW EPA 1996; d) details of impacts on pollution control and monitoring systems including existing groundwater and landfill gas bores and their subsequent repair/ replacement; e) the methodology proposed to ensure that the landfill barrier system disturbed in the removal process is replaced/ repaired to ensure its ongoing performance. The Applicant shall detail matters such as sub grade preparation and specifications, liner installation/ reinstallation procedures and construction quality assurance (CQA) procedures; f) a commitment to providing the EPA with a construction quality assurance report within 60 days of the completion of the works referred to in (d) above; and g) an overview of any access and/or materials/ equipment storage arrangements with Glenfield Waste Facility in relation to the construction of the rail link. h) details of any other expected or potential impacts to the licensed area and options for management and mitigation of those impacts (i.e.leachate management and surface water runoff, potential impacts on the Georges River during works, dust etc); and i) details of and proposed mitigation measures for the long term management of the rail link.	The EIS (Arcadis, 2016) makes reference to the rail link and the associated infrastructure development but the assessment is considered generally deficient. Cardno acknowledge that rail infrastructure development is largely captured by separate development proposals, *MP10_0193* and *SSD 6766*, however the EIS should provide a more detailed discussion of the potential impacts of and interactions with of the rail link and associated infrastructure development and the interaction with the proposal.
	Traffic	
E10	Development Applications for either the IMEX or interstate terminal shall include documentation demonstrating how Condition 14 of this approval has been satisfied.	Condition 14 states that *"Operations on the Subject Site cannot commence until a rail connection to the SSFL is operational*". Therefore, operations for MPW Stage 2 cannot commence until the SSFL is operational.
E11	All future Development Applications shall include a Traffic Impact Assessment based on background growth models developed by RMS for the Liverpool/Moorebank area (if applicable).	

	Schedule 4 – Condition of Approval	Response
E12	All future Development Applications shall demonstrate how the main access to the site has been designed to prevent heavy vehicles associated with the facility from using Moorebank Avenue south, and should be accompanied by a detailed engineering drawing(s).	The adequacy of the environmental assessment and broader issues relating to traffic impacts are further discussed in **Section** Error! Reference source not found..
	Section 94 Contributions	
E13	All future Development Application shall include: a) an assessment of the impacts of the project on local infrastructure, having regard to any relevant Council's Developer Contributions Plan (or equivalent document requiring developer contributions); b) a commitment to pay developer contributions to the relevant consent authority or undertake works-in-kind towards the provision or improvement of public amenities and services. Note: This requirement may be satisfied subject to the terms of any applicable Voluntary Planning Agreement; and c) a commitment to undertake vehicle monitoring on Cambridge Avenue. Should any monitoring reveal the need for improvement works within the Campbelltown LGA as a result of the proposal, the Applicant may be required to contribute towards local road maintenance or upgrades.	The EIS does not provide firm commitments to pay development contributions. The lack of commitment should be addressed prior to determination. The adequacy of the environmental assessment and broader issues relating to Section 94 Contributions are further discussed in **Section 3.14**.
	Public Transport	
E14	All future Development Applications shall consider the need for a bus stop on Moorebank Avenue (including direct pedestrian access from the warehousing to the bus stop), and associated turnaround facility suitable for a 14.5 metre long non-rear steer bus.	The EIS (Arcadis, 2016) for the proposed development contains a discussion of the public transport requirements, which is generally considered acceptable with the exception of the issues further discussed in **Section** Error! Reference source ot found..
	Biodiversity	
E15	All future Development Applications shall consider measures to improve the condition of the riparian corridor along the western bank of the Georges River (known as the 'hourglass land').	Construction works are not proposed in the George River Riparian Corridor as part of the MPW Stage 2 proposal and so no recommendations are proposed in this corridor. The adequacy of the environmental assessment and broader issues relating to biodiversity impacts are further discussed in **Section** Error! Reference source not found.**.**
E16	All future Development Applications shall include the following riparian corridor widths (measured from the top of bank): a) a minimum of 50 metres wide associated with the rail corridor; and b) a minimum of 40 metres wide along the terminal site.	
	Landscaping	
E17	All future Development Applications for new built form must include detailed landscape plans identifying the vegetation to be removed or relocated and the location of replacement and additional landscaping.	There are a number of concerns associated with Visual Amenity, Urban Design and Landscaping that may arise from the project, as discussed at **Section 3.11**.
E18	All future Development Applications shall include detailed landscape plans including relevant details of the species to be used in the various landscaped areas (preferably species indigenous to the area), including details of the informal native and cultural avenue plantings, and other soft and hard landscape treatments, including any pavement areas and furniture.	
	Heritage	

	Schedule 4 – Condition of Approval	Response
E19	All future Development Applications relevant to MA6 and MA7 (Scarred Trees) shall include a consideration of the Aboriginal cultural value of the trees and options for avoiding impacts and ongoing conservation measures, including evidence of consultation with Aboriginal community representatives.	As discussed in **Section 3.12** Error! Reference source not ound.whilst condition E19 does not specifically require justification of the chosen option or mitigation measure, suitable information should be provided to ensure an adequate assessment of the proposed works has been undertaken. Key limitations in the heritage impact assessments have been identified including limited investigations in the heritage significance of MA6 and an absence of investigations into the noise and vibration impacts to neighbouring heritage sites. These limitations are discussed further in **Section 3.12.** The adequacy of the environmental assessment and broader issues relating to heritage impacts are further discussed in **Section 3.12**.
E20	All future Development Application shall assess heritage impacts of the proposal. The assessment shall: a) consider impacts to Aboriginal heritage (including cultural and archaeological significance), in particular impacts to Aboriginal heritage sites identified within or near the project should be assessed. Where impacts are identified, the assessment shall demonstrate effective consultation with Aboriginal communities in determining and assessing impacts and developing and selecting options and mitigation measures (including the final proposed measures); b) consider impacts to historic heritage. For any identified impacts, the assessment shall: i. outline the proposed mitigation and management measures (including measures to avoid significant impacts and an evaluation of the effectiveness of the measures). Mitigation measures should include (but not be limited to) photographic archival recording and adaptive re-use of buildings or building elements on site); ii. be undertaken by a suitably qualified heritage consultant(s); and iii. include a statement of heritage impact.	
	Soil and Water	
E21	All future Development Application shall include an assessment of soil and water impacts. The assessment shall (where relevant): a) assess impacts on surface and groundwater flows, quality and quantity, with particular reference to any likely impacts on Georges River and Anzac Creek; b) assess flooding impacts and characteristics, to and from the project (including rail link), with an assessment of the potential changes to flooding behaviour (levels, velocities and direction) and impacts on bed and bank stability, through flood modelling, including: i. hydraulic modelling for a range of flood events; ii. description, justification and assessment of design objectives (including bridge, culvert and embankment design); iii. an assessment of afflux and flood duration (inundation period) on property; and iv. consideration of the effects of climate change, including changes to rainfall frequency and/or intensity, including an assessment of the capacity of stormwater drainage structures. c) identify and assess the soil characteristics and properties that may impact or be impacted by the project, including acid sulfate soils; d) include a contamination assessment in accordance with the guidelines made under the *Contaminated Land Management Act 1997* and in consultation with the EPA for the subject site including the Glenfield Waste Facility.	The Stormwater and Flooding Environmental Assessment (Appendix R of the EIS (Arcadis, 2016)) does not provide a comprehensive assessment that addresses the requirements of Schedule 4, with a number of information gaps identified, as discussed at **Section 3.8.2** of this Report. The site has been assessed for contamination to a generally sufficient level. Areas of environmental concern were identified in the EIS (Arcadis, 2016) that will require remediation during Stage 2 of the proposal. It is noted that some identified site contamination will require ongoing management, particularly groundwater which is impacted with perfluoroalkyl and polyfluoroalkyl substances (PFAS). Management of PFAS will form a critical component of future environmental management at the site due to the close proximity of the Georges River, which is situated down gradient of the site. The adequacy of the environmental assessment and broader issues relating to contamination are further discussed in **Section** Error! Reference source not found. of this report.
E22	All future Development Application which includes construction in the vicinity of Amiens Wetland shall include advice from an independent wetland expert to determine whether it is artificial or a natural lake basin, its significance, and any recommendations on mitigation measures (if appropriate).	The adequacy of the environmental assessment and broader issues relating to Amiens Wetland are discussed in **Section** Error! Reference source not found. of this report.
	Hazards and Risk	

	Schedule 4 – Condition of Approval	Response
E23	All future Development Application shall be accompanied by a preliminary risk screening completed in accordance with State Environmental Planning Policy No. 33 – Hazardous and Offensive Development and Applying SEPP 33 (DoP 2011), with a clear indication of class, quantity and location of all dangerous goods and hazardous materials associated with the proposal. Should preliminary screening indicate that the proposal is 'potentially hazardous,' a Preliminary Hazard Analysis (PHA) must be prepared in accordance with Hazardous Industry Planning Advisory Paper No. 6 – Guidelines for Hazard Analysis (DoP 2011) and Multi-Level Risk Assessment (DoP 2011). The PHA should: a) Estimate the risks from the facility; b) Be set in the context of the existing risk profiles for the intermodal facility and demonstrate that the proposal does not increase the overall risk of the area to unacceptable levels; and c) Demonstrate that the proposal complies with the criteria set out in the Hazardous Industry Planning Advisory Paper No. 4 – Risk Criteria for Land Use Safety Planning.	A Preliminary Risk Screening in accordance with SEPP 33 for the Proposal has been undertaken. Hazards and risks associated with the Proposal may arise from a number of activities including remediation works (remaining after Early Works), rail and road logistics, storage of hazardous materials, refueling, waste disposal and equipment maintenance. Key hazards and risks associated with the Proposal include presence of contamination on site (including asbestos), loss of containment for flammable/combustible or corrosive liquids, fire and explosion, vehicle movements and machinery use, dangerous goods storage and transport and gas leaks. It is important to note that dangerous goods have been explicitly excluded from the types of freight that the Proposal would handle as they would not be accepted on the site, and would therefore also be excluded from the Proposal's warehouse, freight container storage and transit areas. Therefore, there is considered to be no risks from dangerous goods in freight, transit or storage and no assessment has been undertaken. The operational management plan for the site should reflect this approach. The adequacy of the environmental assessment and broader issues relating to hazard and risk are further discussed in **Section 3.10** of this report.
	Bushfire Management	
E24	All future Development Application shall be accompanied by an assessment against the Planning for Bushfire 2006 (NSW Rural Fire Service).	The adequacy of the environmental assessment and broader issues relating to bushfire management are further discussed in **Section** Error! Reference source not found. of this report.

Table 3-2 Secretaries Environmental Assessment Requirements Review

Secretary's Environmental Assessment Requirement	Response
General Requirements	
The Environmental Impact Statement (EIS) must meet the minimum form and content requirements in clauses 6 and 7 of Schedule 2 the *Environmental Planning and Assessment Regulation 2000* including but not limited to: • a summary of the EIS; • a statement of the objectives of the development, including consideration of the development's consistency with the aims and objectives of relevant State policies and plans; • an analysis of the development, including an assessment, with a particular focus on the requirements of the listed key issues, in accordance with clause 7(1)(d) of Schedule 2 of the Regulation (where relevant), including for normal and worst case scenarios (as relevant); • an identification of how relevant planning, land use and development matters (including relevant strategic and statutory matters) have been considered in the impact assessment (direct, indirect and cumulative impacts) and/or in developing management, mitigation, and monitoring measures, including 79C of the *Environmental Planning and Assessment Act 1979* (EP&A Act), applicable *State Environmental Planning Policies* (SEPPs) and the nature and extent of any prohibitions that apply to the development and demonstration that the site is suitable for the proposed use in accordance with SEPP 55; • a compilation of the measures proposed to avoid, minimise, manage, mitigate, offset and/or monitor any adverse effects of the development on the environment and any residual impacts; • likely sub-staging; • list the likely license requirements for proposed warehouse activities; • a justification of the development taking into consideration the objects of the EP&A Act; and • detail how ESD principles (as defined in clause 7(4) of the Regulation) will be incorporated in each stage of the development.	The EIS (Arcadis, 2016) has generally satisfied these requirements. The adequacy of the environmental assessment and broader issues relating to the proposal are further discussed in **Sections 3.3** to **3.16** of this report.
Notwithstanding the key issues specified below, the EIS must include: • an environmental risk assessment to identify the potential environmental impacts associated with the development (construction and operation), proposed mitigation measures and potentially significant residual environmental impacts after the application of proposed mitigation measures.	The EIS (Arcadis, 2016) has generally satisfied these requirements with the exception of the recommendations provided in Sections **3.3** to **3.16** The adequacy of the environmental assessment and broader issues relating to the proposal are further discussed in Sections **3.3** to **3.16** of this report.

Secretary's Environmental Assessment Requirement	Response
• Where additional environmental impacts are identified through this risk analysis, an appropriately detailed impact assessment of the additional environmental impacts shall be included as part of the Development Application.	
▪ a detailed assessment, where relevant, of the key issues below, and any other significant issues identified in the risk assessment. This must include: – adequate baseline data; – consideration of potential cumulative impacts due to other development in the vicinity; – measures to avoid, minimise and if necessary, offset the predicted impacts, including detailed contingency plans for managing any significant risks to the environment; and – a health risk assessment of local and regional impacts associated with the development, including those health risks associated with relevant key issues. The assessment should be undertaken with reference to the Centre for *Health Equity Training, Research, an Evaluations' practical guide to impact assessment* (August 2007) and shall include: o a discussion of the known potential developments in the local region; o an assessment of the impact on the environmental values of public health; and o an assessment of local and regional impacts including health risks.	There are a number of concerns relating to the Human Health Risk Assessment associated with the project, which are discussed further at **Section** Error! eference source not found..
Key Issues - The EIS must address the following specific matters:	
Statutory and Strategic Context – including Addressing the relevant planning provisions, goals and strategic planning objectives in the following: ▪ *NSW State Priorities;* ▪ *A Plan for Growing Sydney 2014* ▪ *State Infrastructure Strategy 2012-2032;* ▪ *NSW Freight and Ports Strategy 2013;* ▪ *NSW Long Term Transport Masterplan;* and ▪ *National Land Freight Strategy.*	The EIS (Arcadis, 2016) addresses the identified documents, with a review provided at **Section** Error! Reference source not found. of this document.
Compliance with the Approved Concept Proposal The EIS shall demonstrate that the proposal is consistent with the Concept Plan approval SSD 5066 dated 3 June 2016.	The proposal is inconsistent with the Concept Approval, due to the reliance of the proposed Stage 2 scheme on the modification to SSD_5066, as discussed at **Section** Error! Reference source not found..
Air Quality – Including: A comprehensive air quality impact assessment including: a) An assessment in accordance with the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (2005) (or its later version and updates);	There are a number of concerns associated with the Air Quality Assessment that potentially under estimate the emissions to air associated with the project, as discussed at **Section** Error! Reference source not found..

Secretary's Environmental Assessment Requirement	Response
b) An assessment of construction related impacts including dust and wind erosion from exposed surfaces and proposed mitigation measures and safeguards to control dust generation and other airborne pollutants and to minimise impacts on nearby receptors; and	
c) An updated assessment/review of direct and indirect greenhouse gas emissions arising from this development and associated impact mitigation requirements, in reference to the Concept Plan greenhouse gas assessment.	

Traffic and Transport – including A Traffic Impact Assessment that assesses intersection and road network impacts, including impacts on Cambridge Avenue. The traffic assessment shall; a) use the background growth models developed by RMS for the Liverpool/Moorebank area; b) provide details of the current daily and peak hour light and heavy vehicle, public transport, pedestrian and bicycle movements and existing traffic and transport facilities provided on the road network located adjacent to the proposed development; c) undertake a realistic and justified range of daily peak hour generation scenarios (to be determined in consultation with TfNSW, RMS and Liverpool City Council) including assumptions about light and heavy vehicle movements and the proportion of deliveries by railway and road; d) undertake detailed modelling analysis to asses network operation in consultation with RMS and identify intersection upgrade requirements. The modelling package is to be determined by RMS; e) consider the constructability constraints of proposed upgrade(s) at key intersections, such as vehicle swept paths, geometry and sight lines; f) provide details of the number of parking spaces, and justification of proposed parking against relevant guidelines / standards and Australian Standards; g) provide details of proposed staff and heavy vehicle accesses (including intersection location, design and site distance) and layout of the internal road network; h) demonstrate appropriate provision, design and location of on-site bicycle parking, and how bicycle provision will be integrated with the existing bicycle network; i) provide details of service vehicle movements and site access arrangements (including vehicle type and likely arrival and departure times of service vehicles); j) provide details of sustainable travel initiatives for workers and visitors, particularly for the provision of end-of-trip facilities, pedestrian and cyclist facilities in secure, convenient, accessible areas close to main entrances, incorporating lighting and passive surveillance k) assess construction traffic impacts, which may include a draft Construction Traffic Management Plan including: i. the identification of haulage routes and the details of existing traffic situation on these routes; ii. an assessment of construction traffic volumes (including spoil haulage/delivery of materials and equipment to the road corridor and ancillary facilities); iii. an assessment of potential impacts to the regional and local road network (including safety and level of service) and potential disruption to existing public transport services, pedestrians and cyclist movements and access to properties and businesses; iv. an assessment of cumulative impacts associated with other construction activities (if any); v. details of peak hour and daily truck movements, hours of operation, access arrangements at all stages of construction and traffic control measures for all demolition / construction activities;	There are a number of concerns associated with the Traffic and Transport Assessment that potentially underestimate the impacts to local traffic networks which will arise from the project, as discussed at **Section** Error! Reference ource not found.. Draft Construction Traffic Management Plans have been prepared for both the construction and operational phases which support the MPW Stage 2 EIS (see Appendix M).

Secretary's Environmental Assessment Requirement	Response
vi. an assessment of construction road safety at key intersections and locations subject to pedestrian / vehicle / bicycle conflicts; vii. details of any required temporary cycling and pedestrian access during construction; viii. details of access arrangements for workers to / from the site, including pedestrian and public transport linkages, emergency vehicles and service vehicle movements; and ix. details of mitigation measures for the identified impacts (if any). l) assess operational traffic and transport impacts to the local and regional road network, including: i. changes to local road connectivity and impacts on local traffic arrangements including Cambridge Avenue, road capacity/safety; ii. an assessment of the cumulative impacts associated with other planned and approved developments in the Moorebank precinct; iii. traffic capacity of the road network and its ability to cater for predicted future growth; and iv. details of mitigation measures for the identified impacts (if any) including how heavy vehicles would be prevented from using Moorebank Avenue south. m) Consider the use of heavy vehicles able to move two 40 foot containers; n) Consider the need for a bus stop on Moorebank Avenue; and o) Provide an updated Traffic Management and Accessibility Plan for the operation of the facility including: i. measures to prevent heavy vehicles accessing residential streets to maintain the residential amenity of the local community ii. details of public transport services and facilities; iii. details of cyclist facilities; and iv. details of driver code of conduct.	
Rail – Including: a) Detailed design and engineering drawings of the rail sidings and connections to the rail link included in the Moorebank Precinct East Stage 1 proposal (SSD 6766); b) Details of the train operating plans including likely rail routes and destinations, train size and configuration, service frequency, anticipated train path requirements, expected ramp up periods and peak demand; and c) Demonstrated engagement with and confirmation from all relevant rail networks owners including Sydney Trains regarding train path availability and future network enhancements which may be required to support the proposed operations and maintain sufficient capacity for other rail network users over the life of the project.	The EIS (Arcadis, 2016) makes reference to the rail link and the associated infrastructure development but the assessment is considered generally deficient. Cardno acknowledge that rail infrastructure development is largely captured by separate development proposals, *MP10_0193* and *SSD 6766*, however the EIS should provide a more detailed discussion of the potential impacts and interactions with of the rail link and associated infrastructure development and the interaction with the proposal.
Noise and Vibration – including: An updated assessment of noise and vibration impacts. The assessment shall:	

Secretary's Environmental Assessment Requirement	Response
a) assess construction noise and vibration impacts associated with construction on the proposal, including impacts from construction traffic and ancillary facilities. The assessment shall identify sensitive receivers and assess construction noise/vibration generated by representative construction scenarios focusing on high noise generating works. Where work hours outside of standard construction hours are proposed, clear justification and detailed assessment of these work hours must be provided, including alternatives considered, mitigation measures proposed and details of construction practices, work methods, compound design, etc; b) assess operational noise and vibration impacts and identify feasible an reasonable measures proposed to be implemented to minimise operational noise impacts of the intermodal facility and rail link, including the preparation of an Operational Noise Management and Monitoring Plan; c) clearly demonstrate that at each stage a best practice facility (terminal, warehousing and rail link including locomotives and rolling stock) to minimise noise emissions at the terminal and rail link will be adopted; d) consider the need for an automatic rolling stock wheel defect detection and response system; e) include a framework for on and off-site noise monitoring during operation and f) be prepared in accordance with: *NSW Industrial Noise Policy* (EPA 2000), *Interim Construction Noise Guideline* (DECC 2009), *Assessing Vibration: a technical guide* (DEC 2006), the *Rail Infrastructure Noise Guideline* (EPA 2013), *Development Near Rail Corridors and Busy Roads Interim Guideline* (DoP 2008), and the NSW Road Noise Policy 2011.	There are a number of concerns associated with the Noise and Vibration Assessment that potentially underestimate the impacts associated with the project, as discussed at **Section** Error! Reference source not found..
Infrastructure Upgrades/Contributions – including: a) an assessment of the impacts of the project on local infrastructure, demonstrating that satisfactory arrangements are in place to support and mitigate any impacts of Stage 2 of the Concept Proposal including applicable costs, timing, TEU thresholds and approval pathways for such measures; b) Consideration of any relevant Council's Developer Contributions Plan (or equivalent document requiring developer contributions), including the contributions plan for Prestons Industrial Area; and c) Consideration of the need to extend the Route 901 bus service.	The adequacy of the environmental assessment and broader issues relating to infrastructure are discussed in **Section 3.14** of this report.
Soil and Water – including: a) assess impacts on surface and groundwater flows, quality and quantity, with particular reference to any likely impacts on dragonfly species listed under the *Fisheries Management Act 1994*, the Georges River and Anzac Creek; b) assess flooding impacts and characteristics, to and from the project, with an assessment of the potential changes to flooding behaviour (levels, velocities and direction) and impacts on bed and bank stability, through flood modelling, including: i. hydraulic modelling for a range of flood events;	The Stormwater and Flooding Environmental Assessment (Appendix R of the EIS (Arcadis, 2016)) does not address the SEARs requirements, with the references within Table 1-1 that identifies how the SEARs have been addressed providing conflicting and partial responses, as discussed at **Section** Error! Reference ource not found. of this report.

Secretary's Environmental Assessment Requirement	Response
ii. description, justification and assessment of design objectives (including bridge, culvert and embankment design); iii. an assessment of afflux and flood duration (inundation period) on property; consideration of the effects of climate change, including changes to rainfall frequency and/or intensity, including an assessment of the capacity of stormwater drainage structures; and iv. relevant provisions of the *NSW Floodplain Development Manual 2005*. c) assess effects to downstream rivers, wetlands, estuaries, marine waters and floodplain areas, water dependent fauna and flora (including Groundwater Dependent Ecosystems); d) describe any mitigating effects of the proposed stormwater and wastewater management during and after construction on hydrological attributes such as volumes, flow rates, management methods and re-use options; e) identification of proposed monitoring of hydrological attributes; f) address drainage issues associated with the development / site, including the incorporation of Water Sensitive Urban Design measures, stormwater and drainage infrastructure such as on-site detention systems to ensure peak discharges and flow velocities post development shall not exceed existing peak flows and velocities; g) undertake an assessment of surface water quality during construction (including reference to water quality objectives for the relevant catchment where objectives have been determined), including an identification of works that may impact water quality, and a summary of proposed monitoring and mitigation measures in accordance with *Managing Urban Stormwater – Soils & Construction Volume 1 2004 (Landcom) and Volume 2* (DECC 2008); h) consideration of stormwater quality and management (including monitoring) during operation of the site with the objective of maintaining or improving existing water quality taking into account the Water Quality Objectives; i) consider whether the existing sewerage system can cater for the proposal and whether environmental performance of the existing system will be impacted; j) identify and assess the soil characteristics and properties that may impact or be impacted by the project, including acid sulfate soils, salinity, erdodibility, unstable or unsuitable ground and unrippable rock; and k) include a bulk earthworks strategy detailing the volume of spoil to be extracted from the site, planned reuse and amount of material to be imported.	
Aboriginal Heritage – including: An assessment of the heritage impacts of the proposal. The assessment shall: a) consider impacts to Aboriginal heritage (including cultural and archaeological significance), in particular impacts to Aboriginal heritage sites identified within or near the project should be assessed. The identification of cultural heritage values should be guided by the Guide to investigating, assessing and reporting on *Aboriginal Cultural*	As discussed in **Section 3.12** whilst this condition does not specifically require justification of the chosen option or mitigation measure, suitable information should be provided to ensure an adequate assessment of the proposed works has been undertaken including investigations into the heritage significance of site MA6.

Secretary's Environmental Assessment Requirement	Response
Heritage in NSW (DECCW 2000). Where impacts are identified, the assessment shall demonstrate effective consultation with Aboriginal communities in determining and assessing impacts and developing and selecting options and mitigation measures (including the final proposed measures) in accordance with *the Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW); and b) describe attempts to avoid impacts to cultural heritage values and identify any conservation outcomes. Where impacts are unavoidable, the EIS must outline measures proposed to mitigate impacts. Any objects recorded as part of the assessment must be documented and notified to OEH.	
Historic Heritage – including: An assessment of the heritage impacts of the proposal. The assessment shall: a) consider impacts to historic heritage. For any identified impacts, the assessment shall: i. include a statement of heritage impact; ii. be undertaken by a suitably qualified heritage consultant(s); and iii. outline the proposed mitigation and management measures (including measures to avoid significant impacts and an evaluation of the effectiveness of the measures). Mitigation measures should include (but not be limited to) photographic archival recording and adaptive re-use of buildings or building elements on site). Note: Where historical excavation is proposed, the heritage consultant undertaking the assessment must meet the NSW Heritage Council's Excavation Director criteria	Key limitations in the heritage impact assessments have been identified including limited investigations including an absence of investigations into the noise and vibration impacts to neighbouring heritage sites. These limitations are discussed further in **Section 3.12**.
Visual Amenity, Urban Design and Landscaping – including but not limited to: An assessment of visual impacts. The assessment shall: a) include a description of the visual significance of the affected landscape including an analysis of views from key vantage points; b) include artist's impressions of the development from key vantage points; c) assess the visual impact of the project on the landscape character of the area, including built form (materials and finishes) and the urban design (height, bulk and scale) of the proposal including views to and from the site; d) consider lighting impacts in the local area, analyse and describe the contribution and impacts of the proposed facility on light spill at the local scale and to sensitive receivers; e) include details of hard and soft landscaping treatment and design (including details of suitable landscaping incorporating endemic species); f) ensure the layout and design of the development has regard to the surrounding vehicular, pedestrian and cycling networks; and g) propose management/mitigation measures to address the visual impact of the proposal.	There are a number of concerns associated with Visual Amenity, Urban Design and Landscaping that may arise from the project, as discussed at **Section 3.11**.
Biodiversity – including: a) A Flora and Fauna assessment. The assessment shall:	As discussed in **Section** Error! Reference source not found. inconsistencies exist etween the framework for biodiversity assessment (FBA) and the assessment documentation provided. In this way this condition has not been met.

Secretary's Environmental Assessment Requirement	Response
b) assess impacts on the biodiversity values of the site and adjoining areas, including Endangered (and vulnerable) Ecological Communities and threatened flora and fauna species and their habitat, groundwater dependent ecosystems, impacts on wildlife and habitat corridors, riparian land, and habitat fragmentation and details of mitigation measures. The assessment shall be undertaken in accordance with the Framework for Biodiversity Assessment, unless otherwise agreed by OEH, by a person accredited in accordance with s142B(1)(c) of the *Threatened Species Conservation Act 1995*; c) consider of the OEH's Threatened Species Survey and Assessment Guidelines, any relevant draft or final recovery plans, and Commonwealth Significant Impact Guidelines; d) assess and document impacts related to the proposed project in accordance with the *Framework for Biodiversity Assessment* (OEH 2014), unless otherwise agreed by OEH, by a person accredited in accordance with s142B(1)(c) of the *Threatened Species Conservation Act 1995*. This assessment shall include consideration of any new impacts that are outside of previous assessments; and e) include a comprehensive offset strategy, or provide an updated strategy (including any new impacts if relevant), in accordance with the *NSW Biodiversity Offsets Policy for Major Projects including the Framework for Biodiversity Assessment* (OEH 2014), consistent with the 'avoid, minimise or offset' principle.	Whilst an offset strategy was provided, the EIS (Arcadis, 2016) states that an Offset strategy has not yet been developed and will be provided as part of the Project concept. Clarification should be sought as to the suitability of the offset strategy provided if this is not utilised in the EIS.
Contamination – including but not limited to: a) An updated contamination assessment in accordance with the guidelines under the *Contaminated Land Management Act 1997*. The assessment shall include the potential environmental and human health risks of site contamination on the project site, a Remedial Action Plan (if required), and consideration of implications of proposed remediation actions on the project design and timing (if relevant); and b) include an assessment of potentially contaminated areas in accordance with the *National Environmental Protection Measure 2013* in addition to an assessment of potential areas of Perfluorinated Compounds.	It is considered that a site specific RAP should be developed for remedial works, which is further discussed in **Section 3.9**. The report identifies that PFAS in groundwater requires ongoing monitoring through implementation of a groundwater management plan (GMP). The objectives of the GMP are considered generally acceptable, however further discussion is required regarding the potential implications of unacceptable levels of PFAS contamination in groundwater and surface water bodies. The adequacy of the environmental assessment and broader issues relating to contamination are further discussed in **Section 3.9**.
Hazards and Risks – including: A preliminary risk screening completed in accordance with *State Environmental Planning Policy No. 33 – Hazardous and Offensive Development and Applying SEPP 33* (DoP 2011), with a clear indication of class, quantity and location of all dangerous goods and hazardous materials associated with the proposal. Should preliminary screening indicate that the proposal is 'potentially hazardous,' a Preliminary Hazard Analysis (PHA) must be prepared in accordance with *Hazardous Industry Planning Advisory Paper No. 6 – Guidelines for Hazard Analysis* (DoP 2011) and Multi-Level Risk Assessment (Do 2011). The PHA should: a) Estimate the risks from the facility; b) Be set in the context of the existing risk profiles for the intermodal facility and demonstrate that the proposal does not increase the overall risk of the area to unacceptable levels; and	The adequacy of the environmental assessment and broader issues relating to hazard and risk are further discussed in **Section 3.10** of this report.

Secretary's Environmental Assessment Requirement	Response
c) Demonstrate that the proposal complies with the criteria set out in the *Hazardous Industry Planning Advisory Paper No. 4 – Risk Criteria for Land Use Safety Planning.*	
Masterplan – including but not limited to: Consideration of the inter-relationships between the Moorebank Precinct West site with surrounding land uses, in particular the Moorebank Precinct East site. Connectivity between sites such as container, vehicle and pedestrian movements should also be considered (if proposed, or likely to occur in the future).	The EIS (Arcadis, 2016) generally meets the requirement for consideration of surrounding land uses and connectivity, which is further discussed in **Section** Error! Reference source not found.
Waste – including: An assessment of liquid and/or non-liquid waste generated on the site, how it will be identified, quantified, classified, documented and disposed of. The assessment shall also include a description of measures to be implemented to manage waste in accordance with the waste hierarchy. This assessment shall include waste management measures to ensure that the proposal considers the aims, objectives and guidelines in the *NSW Waste Avoidance and Resource Recovery Strategy 2014-2021*.	The adequacy of the environmental assessment and broader issues relating to waste are further discussed in **Section** Error! Reference source not found. of this eport.
Bushfire Management – including: An assessment against the *Planning for Bushfire 2006* (NSW Rural Fire Service).	The adequacy of the environmental assessment and broader issues relating to bushfire management are further discussed in **Section** Error! Reference source ot found. of this report.
Property and Infrastructure – including but not limited to: a) Assessing the impacts on affected properties and land uses, including impacts relating to access, land use, business activities, future development potential, and property acquisition; and b) Assessing the service demand, capacity and augmentation of existing and proposed utilities and infrastructure, including any relocation as a result of the development.	The adequacy of the environmental assessment and broader issues relating to property and infrastructure are further discussed in **Section** Error! Reference ource not found. of this report.
Freight Village The EIS shall address relevant legislation and Australian Standards relating to food premises, and whether a regulated system such as a warm water or water cooling system will be installed.	A number of deficiencies in the EIS (Arcadis, 2016) were identified with respect to the freight village. The adequacy of the environmental assessment and broader issues relating to the freight village are further discussed in **Section** Error! Reference source not ound. and **Section** Error! Reference source not found. of this report.
Staging The EIS is to include details regarding the staging of the proposed development, including likely timing for construction and operation of the warehousing and distribution facilities.	The EIS (Arcadis, 2016) generally provides sufficient discussion of staging of the proposed development.
Ecologically Sustainable Development (ESD) The EIS shall detail how the development will incorporate ESD principles in the design, construction and ongoing operation phases of the development.	The adequacy of the environmental assessment and broader issues relating to ecologically sustainable development are further discussed in **Section 3.13** of this report.
Plans and Documents	
The EIS must include all relevant plans, architectural drawings, diagrams and relevant documentation required under Schedule 1 of the *Environmental Planning and Assessment*	The EIS (Arcadis, 2016) generally provides sufficient plans and documentation.

Secretary's Environmental Assessment Requirement	Response
Regulation 2000. These documents should be included as part of the EIS rather than as separate documents.	
Consultation	
During the preparation of the EIS, you must consult with the relevant local, State or Commonwealth Government authorities, service providers, community groups and affected landowners. ▪ local, State or Commonwealth government authorities, including the: - Commonwealth Department of the Environment; - Environment Protection Authority; - Office of Environment and Heritage; - Transport for NSW; - Department of Primary Industries (Fisheries & Water); - NSW Rural Fire Service; - NSW Health; - Liverpool City Council; and - Campbelltown City Council. - service and infrastructure providers: - Roads and Maritime Services; - Sydney Trains; - Australian Rail Track Corporation; - NSW Ports; - Sydney Water Corporation; - Endeavour Energy; - Jemena; - Telstra; and - AGL Upstream Investments Pty Ltd. ▪ specialist interest groups, including Local Aboriginal Land Councils; and ▪ the public, including community groups and adjoining and affected landowners.	Sufficient consultation has been completed during the preparation of the EIS (Arcadis, 2016) including consultation with local, State and Commonwealth Government authorities.
The EIS must describe the consultation process and the issues raised, and identify where the design of the development has been amended in response to these issues. Where amendments have not been made to address an issue, a short explanation should be provided.	

3.3 Road Traffic and Transport

The MPW Stage 2 documentation, prepared by Arcadis (2016), provides an assessment of the proposed IMT development.

Specifically, *Appendix M* summarises the potential impacts that may occur as a result of development.

The following documentation was prepared and provided in Appendix M of the EIS (Arcadis, 2016) to support the development application for the MPW Stage 2:

> Preliminary Operational Traffic Management Plan

> Operational Traffic and Transport Impact Assessment Report

> Preliminary Construction Traffic Management Plan

> Construction Traffic Impact Assessment

The reports state that were prepared in accordance with the Secretary's Environmental Assessment Requirements (SEARs) (ref: SSD 16-7709, dated 14 July 2016) and revised environmental mitigation measures (REMMs) identified in the MPW Concept Plan Approval (SSD_5066).

The reports examines the traffic impact of the traffic generated by the Project (including the cumulative development impacts of the Project with MPE Stage 1) on the road network and assessed the intersections and road network impacts using evidence based on traffic modelling, and identifies mitigation measures to address these impacts.

3.3.1 Proposed Development

MPW Stage 2 (the Project) involves the construction and operation of an IMT facility and associated warehousing. The IMT facility would have the necessary infrastructure to support a container freight throughput volume of 500,000 TEUs per annum.

Specifically, the IMT facility within the Project site is understood to include the following key components:

> Truck processing, holding and loading areas – with entrance and exit from Moorebank Avenue via an upgraded intersection and a round-about to distribute traffic between the warehousing precinct and the IMT

> Rail loading and container storage areas – installation of nine rail sidings, with an adjacent container storage area serviced by manual handling equipment

> Administration facility – office building with associated car parking and light vehicle access from Moorebank Avenue

> The Rail link connection – rail sidings within the IMT facility, which would be linked (to the south) to the Rail link (constructed as part of the MPE Project (SSD 14- 6766)).

Also included within the Project are the following key components:

> Warehousing area – construction and operation of approximately 215,000 m2 GFA of warehousing, with warehouses ranging in size from 4,000 m2 to 71,000 m2. Included within the warehousing area would be ancillary offices, truck and light vehicle parking, associated warehouse access roads.

> Freight village – construction and operation of approximately 800 m2 of retail premises, with access from the internal road.

> Upgraded intersection on Moorebank Avenue and internal road – including works to Moorebank Avenue, Anzac Road to accommodate the proposed site entrance to Moorebank Avenue, and construction of an internal road.

> Ancillary works – including vegetation clearing, earth works, drainage and on-site detention, utilities installation/connection, signage and landscaping.

3.3.2 Cardno Assessment – Operational Traffic Impacts

The following sections outline the findings from the Operational Traffic and Transport Impact Assessment Report and the Preliminary Operational Traffic Management Plan (Arcadis, 2016).

3.3.2.1 Traffic Generation (Freight Village)

The Arcadis Operational Traffic Report (Proposal Overview, Section 1.6) states that a freight village of approximately 800m2 of retail premises is proposed within the Project.

Relevant Issues for Clarification

a) There is no evidence in the subsequent sections of the report informing or incorporating the traffic generation to and from the retail premises.

b) There is a risk that omitting the traffic generation for the freight retail premises may not provide an accurate performance of the assessed intersections listed in the report.

c) The report and architectural drawings do not indicate a proposed location for the retail premises or accessibility. It is not clear if the only access to the precinct; Moorebank Avenue and Anzac Road intersection is proposed as well as the main access to the retail premises.

3.3.2.2 Intersection Assessment

The Arcadis Operational Traffic Report (Study Area, Section 2.1) provides a list of 8 key intersections for the road network assessment.

> I-1 Moorebank Avenue / Anzac Road

> I-2 M5 Motorway / Moorebank Avenue

> I-3 M5 Motorway / Hume Highway

> I-4 Moorebank Avenue / Newbridge Road

> I-5 Moorebank Avenue / Heathcote Road

> I-6 M5 Motorway / Heathcote Road

> I-7 Cambridge Avenue / Glenfield Road

> I-8 Cambridge Avenue / Canterbury Road.

Relevant Issues for Clarification

a) In reference to Section 5.4.2 of the Arcadis Operational Traffic Report it is not clear the reasons omitting the intersection assessment of the Moorebank Avenue and Bapaume Road considering the proposed change of turning movements allowed at the intersection.

b) There is no evidence of existing and future conditions assessment at the above mentioned intersection with and without the Project.

c) There is no evidence if the proximity of the Bapaume Road intersection to the Moorebank Avenue and Anzac Road intersection has been considered in the assessment of the road network and potential traffic conflicts identified.

d) SIDRA summary of results are not provided. It is not possible to review outputs from SIDRA beyond the results listed for the overall of each of the intersections assessed.

   It is recommended to provide full details of the Level of Service (LoS) for each approach at signalised intersections. Particularly at the M5 Motorway and Moorebank Avenue interchange.

   The change of traffic patterns and increase traffic volumes due to the Project can be diluted in the overall performance of the intersection without considering that one or two particular movements of the interchange are directly impacted by the Project.

3.3.2.3 Historical Traffic Volume

The Arcadis Operational Traffic Report (Historical Traffic Volume Section 2.3, Table 2-2) provides details of historical traffic volumes at four (4) locations.

Moorebank Avenue north of Cambridge Avenue listed AADT:

> 14,348 (2002)

> 15,903 (2005)

> 14,098 (2009)

> 16,500 (2010)

Relevant Issues for Clarification

a) It appears inconsistent that the AADT in year 2005 is extremely higher (1,805) than in the AADT reported for year 2009.

b) It appears inconsistent that the AADT in year 2010 increases over 2,400 in one year in relation to the year 2009.

3.3.2.4 Crash Data – Black Spot Assessment

The Arcadis Operational Traffic Report (Crash Data, Section 2.5) provides an overall description of the crashes reported in the area.

Relevant Issues for Clarification

a) The Parsons Brinckerhoff Technical Paper 1 – Transport and Traffic Impact Assessment Section 2. 8, October 2015, indicates that the number of crashes on Moorebank Avenue (approx. 2.8km of Moorebank Road) have been assessed against the Black Spot criteria. The assessment from Parsons Brinkerhoff indicates that the area is considered as a black spot.

b) There is no evidence in the Arcadis report for a black spot assessment. Section 5.10.1 indicates that 51 crashes are reported on Moorebank Avenue during the period 2010 – 2015.

3.3.2.5 LoS Assessment – Existing Conditions 2015

The Arcadis Operational Traffic Report (Level of Service LoS, Section 3.3.1, Table 3-4) indicates that the M5 Motorway and Moorebank Avenue operates under existing conditions for year 2015 at LoS of C and delay of 31 seconds for both AM and PM conditions.

Relevant Issues for Clarification

a) The results for the existing conditions for year 2015 assessment listed in the Arcadis Construction Traffic Impact Assessment, Table 5-3 indicates a LoS of B and 24 seconds delay in the AM peak and a LoS of C and 30 seconds delay during the PM peak conditions. This is inconsistent between the two reports considering both reports are summarising the intersection performance for the same existing conditions.

b) SIDRA summary of results are not provided in any of the reports for cross referencing.

c) The results listed in the Arcadis Operational Traffic report do not provide details of existing back of queue length. It is not possible assess if the back of queue at key intersection spills back to the adjacent intersections under existing conditions.

3.3.2.6 Benefits of the Proposal

The Arcadis Report (Regional Benefits of the Proposal, Section 5.3) indicates as a benefit in the wider regional road network and increase in articulated truck flows, particularly on the M7, Hume Highway and Mamre Road south of the M4 Motorway as well as the M5 Motorway between Moorebank Avenue Interchange and the M7 Motorway.

Relevant Issues for Clarification

a) There is no traffic data provided in the report to support the above mentioned traffic increase in the wider road network.

b) It is not clear from the statement that an increase of heavy vehicles in the wider regional network could be considered as a benefit without establishing a suitable strategic model encompassing this scale of assessment.

c) Increasing the traffic in the wider regional network requires supporting and suitable traffic data and modelling to determine if additional traffic issues are generated or not. Some issues that would need further assessment of include:

> Additional traffic conflicts.

> Additional delays, longer queues and traffic congestion.

> Change of traffic patterns.

> Deterioration of intersection performance.

> Under or over utilisation of road infrastructure.

> Crash probability.

> Additional factors not directly related to traffic, i.e. Noise levels, air pollution, vibration levels.

3.3.2.7 Access Strategy

The Arcadis Operational Traffic Report (Proposed Site Access and Network Upgrades, Section 5.4) indicates that the Project will have two main access points.

Relevant Issues for Clarification

a) The statement that two main access would be provided appears inconsistent. Section 5.4 contradicts the proposed changes to Bapaume Road intersection listed in Section 5.4.2 (i.e. left turn out only)

b) There is no SIDRA intersection analysis undertaken or mentioned in the operational or construction traffic impact assessments. There is no evidence to support the existing and future conditions of the Bapaume Road intersection.

3.3.2.8 Internal Roundabout

The Arcadis Operational Traffic Report (Figure 5-7 and 5-9) illustrates a proposed internal traffic roundabout and a connection from the roundabout to the Bapaume Road.

Relevant Issues for Clarification

c) There is no evidence of intersection analysis undertaken at the roundabout or the link connecting to Bapaume Road. There is a risk that queue lengths from a poor performance at the roundabout may spill back into the Moorebank Avenue and Anzac Road intersection.

3.3.2.9 M5 Interchange Upgrades

The Arcadis Operational Traffic Report (M5 Motorway / Moorebank Avenue Intersection, Section 5.4.3) provides details of proposed upgrades for the interchange. Upgrades to the intersection are required primarily to cater for the MPW generated traffic and includes providing additional capacity on westbound on-ramp, eastbound off-ramp and increased storage lengths of the existing (two-lane) right turn bay on Moorebank Avenue northern approach. Changes to the signals to vehicle actuation to improve the performance of the west and north approaches are proposed.

Relevant Issues for Clarification

a) There is not support traffic analysis to indicate the extension of the proposed upgrades. It is not clear if a back of queue analysis has been undertaken for the storage lane capacity.

b) It is not clear if a ramp capacity has been undertaken. On-ramps and off-ramps of the interchange may not cater for the additional traffic spilling back into the interchange or main carriageway of the motorway.

c) There is no evidence in the reports for lane capacity – midblock level of service (LoS) on the M5 main carriageways with or without the Project.

d) There is no evidence for an assessment of the weaving and merging issues at the bridge between the M5 ramps of Moorebank Avenue and the Hume Highway.

   The existing conditions on the M5 Motorway are not listed in the report. It is not clear if the traffic impact assessment has considered the impacts on the Motorway.

   Over 70% of the total of heavy vehicles generated by the Project are proposed to use the M5 Motorway west of Moorebank Avenue.

3.3.2.10 Crashes on Moorebank

The Arcadis Operational Traffic Report (Impact on Crashes / Accidents, Section 5.10) indicates that the net impact of the additional traffic generated by the Project, as well as the proposed access points and improvements associated with the Project would result in an increase from 10.2 crashes per year to 11.6 crashes per year.

Relevant Issues for Clarification

a) There is no evidence of the details of the analysis undertaken to estimate the increased number of crashes in the local area. It is not clear if the analysis has considered the type of vehicle increment, background traffic growth and changes in the travel patterns.

b) Assuming the above mentioned increased of crashes in the local area, there is no evidence in the report for a black spot assessment under existing conditions or future conditions.

c) The Report states that the proposed access points and improvements associated with the Project would increase the number of crashes. There is no evidence in the report for mitigation measures to reduce or eliminate safety risks for any road users.

3.3.2.11 Public Transport

The Arcadis Operational Traffic Report (Impact on Bus Public Transport, Section 5.11) indicates that to improve bus transport access to the precinct, additional bus stops are proposed on the internal road in order to ensure a 400m walking distance to all proposed warehouses and offices.

Relevant Issues for Clarification

a) It is acknowledged that location of bus stops within the Project are to be provided in further stage of the design process. There is no evidence for a conceptual bus route or future walking catchment areas indicating the potential need for the internal circulation of buses.

   Potential safety issues and traffic conflicts may be generated between the heavy vehicles access and public transport route.

3.3.2.12 Emergency Services

There is no information in the Arcadis Traffic Assessment report for emergency services access, evacuation and alternate travel routes.

The Project proposes only one access to the Project precincts by the Anzac Road and Moorebank Avenue signalised intersection. The Project also proposes two exits, but only one of this exit points provides full connectivity to the local network; i.e. Moorebank Avenue SB and Anzac Road EB.

Relevant Issues for Clarification

a) It is inconsistent the proposed accessibility configuration strategy summarised above with the Arcadis Report Bushfire Protection Assessment, Section 4.2.

b) The Planning for Bushfire Protection 2006 Objective; *'Ensure that safe operational access and egress for emergency service personnel and residents is available'* appears to be met partially. The Compliance statement indicates that safe, alternate egress from the Project site is provided onto Moorebank Avenue. The second egress identified for the Project is via Bapaume Road, this exit only provides access to Moorebank Avenue northbound.

   Considering that the nearest fire brigade station is located on Anzac Road, the accessibility to and from the fire station and the Project can only be performed via the Moorebank Avenue and Anzac Road intersection.

3.3.2.13 Mitigation Measures and Network Improvement

The Arcadis Operational Traffic Report (Potential Infrastructure Upgrades, Section 6.1, Table 6-1) indicates that the current configuration on Anzac Road (eastern approach) will be retained.

Relevant Issues for Clarification

a) SIDRA intersection summary of results are not provided for revision. It is not possible to identify if the proposed intersection configuration, changes to signal timing and traffic volumes are impacting the lane capacity storage and performance of the Anzac Road approach.

b) The mitigation measures listed in Table 6-1 of the Arcadis Operational Traffic Report do not indicate the proposed changes to Bapaume Road as listed in Section 5.4.2.

c) Assessment of the intersections with and without the Project and direct impacts due to traffic generated by the Project are diluted within the overall performance of the analysed intersections presented.

   There is no detailed information from the intersection assessment to review direct impacts on particular movements at each intersection.

   The traffic generated by the Project may not have a direct impact to the overall performance of the intersection, however key movements may be directly related to the traffic generation, i.e. westbound on-ramp and eastbound off-ramp of the M5 Motorway interchange will receive the majority of the heavy vehicles of the Project. The information provided does not indicate if without the Project the mentioned ramps would still operate satisfactory or if only background traffic growth deteriorates the performance.

3.3.2.14 Active Transport Provision

The Arcadis Operational Traffic Report (Public Transport and Active Transport Provision) indicates that Bicycle and end of trip facilities would be provided in accordance with the *City of Sydney Section 3 – General Provisions*.

Relevant Issues for Clarification

a) There is no evidence of a bike plan assessment and compliance with the Liverpool requirements.

b) Section 2.7.2 Active Transport describes the existing conditions of the cycle infrastructure. The traffic generated by the Project, particularly the increase in heavy vehicles, which may create some traffic conflicts with cyclists on the road shoulders.

c) There is no information for turning paths for large vehicles at key intersections. Large vehicles may conflict with cyclists.

3.3.3 Cardno Assessment – Construction Traffic Impacts

The following sections outline the findings from the Construction Traffic Impact Assessment Report and the Preliminary Construction Traffic Management Plan (Arcadis, 2016).

3.3.3.1 Construction Vehicles Type

It is not possible to assess the vehicle type and dimension of the proposed construction vehicles accessing the site (i.e. rigid, trucks, truck and dog, etc.).

Relevant Issues for Clarification

a) There is no evidence of vehicle types proposed for the construction activities and maximum dimensions for the design vehicle.

b) There is no evidence if oversized vehicles are proposed or required for the construction activities and how the Project would mitigate any traffic conflict associated with entering or exiting the Project site.

3.3.3.2 Turning Paths – Construction Vehicles

It is not possible to assess the intersection geometry of the current or proposed intersections for a specific design vehicle.

Relevant Issues for Clarification

a) There is no evidence of truck turning swept paths. There is a risk that large construction vehicles may not have adequate turning paths to enter or exit the sites and conflicting with local traffic at the intersections.

3.3.3.3 Haulage Route

The Arcadis Construction Traffic Report (Construction traffic Distribution, Section 4.2) indicates that there can be minor truck movements via Cambridge Avenue for disposal of unsuitable material.

Relevant Issues for Clarification

a) Report does not indicate place for disposal of unsuitable material according to the Development Consent – Transport and Access Clause D11, (June 3 2016). Heavy vehicles via Moorebank Avenue (south) / Cambridge Avenue during early works are not permitted, with the exception of heavy vehicles travelling to and from the Glenfield Waste Facility.

3.3.3.4 Construction Program – Intersection Performance

The Arcadis Construction Traffic Report (Forecast Level of Service Scenario 1 and 2, Sections 5.5 and 5.6) provides details of the construction traffic on exiting conditions for the intersections of Moorebank Avenue and Anzac Rd and Moorebank Avenue and the M5 Motorway. (Refer to Tables 5-4, 5-5, 5-6 and 5-7 of the Arcadis Report)

Relevant Issues for Clarification

a) Works Period C duration listed in Table 3-1 indicates that construction program will continue until 2020. The Intersection assessment for construction activities are only referring to existing conditions.

   It is not possible to assess based on the information provided in the Arcadis Construction Traffic Impact Assessment if in year 2020 during Work Period C, (highest construction vehicles generation) the intersections adjacent to the Project would operate at satisfactory level of service.

b) The Arcadis Operation Traffic and Transport Impact Assessment indicates in Section 4.2, Tables 4-2 and 4-3 that the intersections of Moorebank Avenue with Anzac Road and the M5 Motorway will operate at near capacity during the AM peak and failed during the PM peak without the operational traffic generated from the Project.

   It is not possible to identify in the reports if the construction traffic generated from and to the site during the AM and PM peak would deteriorate the traffic performance of the above mentioned intersections. There is a risk that Works Period C with the highest traffic volumes may deteriorate the conditions of the exiting intersections approaching capacity.

c) The results for the existing conditions for year 2015 assessment listed in the Arcadis report Operation Traffic Impact Assessment, Table 3-4 indicates a LoS of C and 31 seconds delay in both peak periods. This is inconsistent with the information displayed in Table 5-3 of the Construction Traffic Impact Assessment summarising the intersection performance for the same existing conditions.

d) The Operation Traffic report indicates that the opening of the Moorebank Avenue and Anzac Road intersection will occur in 2019 (Refer to Arcadis Operation Traffic report Table 6-1).

   There is a discrepancy in the opening year proposed in the Operational Traffic Report and the requirements for construction access as listed in the Arcadis Construction Traffic Report Section 5, Table 5-1.

   There is a need for a construction access for trucks on Moorebank Avenue and Anzac Road in year 2018.

e) There is no evidence in the Construction Traffic Report if an interim intersection / temporary access is proposed at the Moorebank Avenue – Anzac Road prior to the opening of the upgraded intersection.

f) There is no evidence of the intersection performance of Moorebank Avenue, Anzac Road and M5 Motorway in period 2018-2019. This period appears to have yielded the highest construction traffic generation without the implementation of the proposed upgrades.

3.3.3.5 Road Occupancy Licence

There is no evidence in the report for the road occupancy licence process. The Arcadis Construction Traffic Report (Section 5.7.1) indicates that there may be a possibility that part of Moorebank Avenue would need to be closed from time to time.

Relevant Issues for Clarification

a) There is no indication for the duration of closures or suggested period lengths.

b) There is no indications of traffic detouring and traffic management.

c) There is no indication if a full closure or partial closure may be required and if opening at all times for through traffic will be maintained.

3.3.3.6 Mitigation Measures

The Arcadis Construction Traffic Report (Section 5.12) indicates that a road safety audit would be undertaken on Cambridge Avenue to identify potential traffic safety risks from the Project.

Relevant Issues for Clarification

a) It is not clear if the Moorebank Avenue intersections during construction activities or operational would require a road safety audit indicating how risks to cyclists on shoulder and pedestrian could be mitigated.

3.3.3.7 Traffic Generation

The Arcadis Construction Traffic Report (Appendix A, Tables A-6 and A-7) indicate that during Scenario 2 (year 2018) there would be some construction traffic entering the site via Moorebank Avenue and Bapaume Road.

Relevant Issues for Clarification

a) It is not clear the year when the proposed Bapaume Road intersection upgrade (right turn in banned) would be implemented.

b) It appears that the forecast traffic south of Moorebank Avenue and Chatham Avenue is too high in comparison to the proposed limited access for construction vehicles using this route, use only for accessing the Glenfield Waste Facility in accordance to the Development Consent.

3.3.4 Consistency with Concept Approval

A number of assessment requirements relating to Road Traffic and Transport are outlined in the MPW Concept Approval. These have been reviewed further in **Section 3.2** and it is important to note that aspects relating to Traffic and Transport, including Public Transport, need to be fully addressed in the MPW Stage 2 EIS. Supporting studies also need to assess traffic and transport in the context human health impacts, which are also a key consideration of the Concept Approval as traffic congestion can negatively impact on the health and wellbeing of the community. Further review details on Human Health impacts are provided in **Section 3.6**.

3.3.5 Recommendations

It is recommended that all “Relevant Issues for Clarification” as noted above are considered further and appropriately assessed.

Also any amendments to the traffic impact assessments and associated mitigation measures will need to be reviewed and incorporated into the Traffic Management Plans (see Appendix M of the EIS).

3.4 Noise and Vibration

The MPW Stage 2 documentation, prepared by Arcadis (2016), provides an assessment of the Project. Specifically, Section 8 and *Appendix N* summarise the potential noise and vibration impacts that may occur as a result of development.

Appendix N comprises the *MPW Stage 2 Noise and Vibration Impact Assessment (NVIA)*, Wilkinson Murray Pty Ltd, 20 October 2016.

3.4.1 Proposed Development

The Project involves construction and operation of a 500,000 TEU/annum rail to road intermodal terminal with associated rail link and warehousing facilities. Relevant to noise and vibration considerations, the Project will generate emissions from both the construction and operational phases. Key sources include:

Construction phase noise emissions associated with:

- Demolition works
- Fill placement and stockpiling
- Bulk earthworks including installation of drainage and utilities
- Intersection upgrades
- Installation of rail infrastructure
- Construction and fitout of warehousing
- Construction traffic noise generation

Noise emissions from the operational phase, associated with:

- Rail noise on the railway connection to the SSFL
- Site access, shunting and idling of freight trains within the site
- Operational heavy and light vehicle traffic generation
- Operation of reach stackers (for loading and unloading intermodal containers) and forklifts within the warehousing area
- Internal vehicle movements between the IMT and warehouse area.

3.4.2 Cardno Assessment

Cardno have commissioned Pacific Environment (PE) to undertake a review of the noise and vibration assessment for the Project. Detail of this review is provided in the following sections.

3.4.2.1 Construction Noise Criteria

Out of standard hours (OOH) noise criteria should consider background noise levels relative to the out of hour's period. Rating Background levels (RBL's) adopted should consider background noise conditions specific to the out of hour's period for each noise catchment area and whether lower ambient levels occur during the specific OOH period when a greater proportion of residents are typically home. Long term background monitoring data is available for the Project area with recent data presented on the MIC website.

3.4.2.2 Noise Modelling Inputs

The operational and construction noise assessment provides minimal detail with regard to noise sources and model assumptions applied. To verify the findings of the assessment, additional information would be required to understand the modelling inputs and outputs. Aspects requiring clarification include:

- Figures showing source locations adopted during acoustic modelling (construction and operations)
- A summary table detailing number and type of sources included in each model scenario (construction and operations)
- Assessment of annoying characteristics in consideration to the Interim construction noise guideline (ICNG) for particularly annoying construction noise sources.

It was not clear from the assessment whether internal movement of freight between the IMT and warehousing was included in the operational noise assessment. The air quality assessment included these additional internal movements as an air emission source. Noise contribution from internal truck movements would be expected and could potentially contribute to overall noise emissions.

3.4.2.3 Noise Model outputs

A comparison of predicted noise levels between the Concept Approval for Phase B, 0.5M TEU/annum (SLR, 2014) and MPW Stage 2 NVIA (Wilkinson Murray, 2016) indicated significantly lower noise levels for all receivers assessed. Results for Casula under adverse conditions were 10 dB quieter, Glenfield 20 dB quieter and Wattle Grove 5 dB quieter during the night time period.

Without detail on the number and location of noise sources assumed during noise modelling, it is not clear how this noise benefit was achieved.

Comparison of construction noise results also indicated significantly lower noise levels when comparing between the Concept Approval and MPW Stage 2 NVIA. As an example; construction of the rail access route (including bridge piling) across the Georges River was predicted to be 6 - 13 dB quieter in the MPW Stage 2 NVIA versus the Concept Approval NVIA. Both assessments presented similar noise source sound power levels.

The MPW Stage 2 NVIA (Wilkinson Murray, 2016) suggested that the Project would have minimal impact on the surrounding community when assessing rail noise levels and potential for sleep disturbance. It is also anticipated that rail and total noise would exceed World Health Organisation community noise guidelines as existing ambient noise levels already exceed this criteria (refer to **Section 3.6** where specific human health impacts are reviewed).

3.4.3 Consistency with Concept Approval

The results for the proposed MPW Stage 2 NVIA suggest significant noise benefits compared with the Concept Approval, specifically for operational noise. However given the limited information provided on modelling inputs and assumptions, it is not possible to validate whether the results represent a reasonable estimation of noise impact.

A number of assessment requirements relating to Noise and Vibration are outlined in Schedule 4 of the Concept Approval. These have been reviewed further in **Section 3.2** and it is important to note that items *E1 Operational Noise and Vibration* and *E2 Operational Noise and Vibration* have not been fully addressed in the MPW Stage 2 EIS and/or supporting NVIA.

3.4.4 Recommendations

The recommendations below have been identified to allow a comprehensive assessment of noise impacts from the Project:

- Justification of the background levels adopted for out of standard hour's works should be provided considering long term monitoring data is available.
- Assessment input data, including numbers type, and location of equipment referenced in each assessment scenario, duration adjustments and model assumptions applied should be clearly documented for clarity in the acoustic assessment. The level of detail currently provided does not allow for an independent assessment of model assumptions inputs and results.
- Annoying noise sources which would require the consideration of penalty adjustments should be clarified.
- The MPW Stage 2 NVIA should also consider World Health Organisation community noise guidelines to ensure the statements of impact for Noise and Vibration as well as Human Health are correct as it is anticipated that rail and total noise would these noise guidelines as existing ambient noise levels already exceed the criteria.
- Ensure all aspects of the Concept Approval (particularly Schedule 4) relating to Noise and Vibration are fully considered, addressed and referenced. Rail squeal and traffic noise levels are still significant concerns with the community which needs thorough assessment and mitigation.

3.5 Air Quality

The MPW Stage 2 documentation, prepared by Arcadis (2016), provides an assessment of the proposed IMT development. Specifically, Section 9 of the EIS and Appendix O provide an assessment of potential impacts that may occur as a result of development.

Appendix O comprises an Air Quality Impact Assessment (AQIA): (ENVIRON, 2016) *Moorebank Precinct West Stage 2 Air Quality Impact Assessment*, Ramboll Environ Australia Pty Ltd, 10 October 2016.

3.5.1 Proposed Development

The proposed development involves construction and operation of a 500,000 TEU/annum rail to road intermodal terminal with associated rail link and warehousing facilities. Relevant to air quality considerations, the Project will generate air emissions from both the construction and operational phases. Key air emission sources include:

Particulate matter and combustion emissions from the construction phase as associated with:

- Fill placement and stockpiling
- Bulk earthworks including installation of drainage and utilities
- Intersection upgrades
- Installation of rail infrastructure
- Construction and fitout of warehousing

Combustion emissions from the operational phase, as associated with:

- Idling and transit of diesel locomotive freight trains
- Operation of diesel powered reach stackers (for loading and unloading intermodal containers).
- Truck movements within the Site
- Operation of LNG powered forklifts within warehousing areas
- Warehouse heating

3.5.2 Cardno Assessment

Cardno commissioned Pacific Environment (PE) to undertake a review of the air quality assessment for the Project. Detail of this review is provided in the following.

3.5.2.1 Dispersion Model Configuration

Within the AQIA, information on model emission source configuration is limited to the statement in Appendix 1: "*All emissions source activities for construction and operation are represented by a series of volume sources, located according to site layout*". Accordingly, the assumptions and accuracy of the model configuration have not been reviewed.

With regard to this study, emission source parameters of interest include:

- Emission source number and location.
- Spatial allocation of the emission inventory.
- Temporal representation of emissions.
- Modelled pollutant emission rates.

It is noted that assumptions around these parameters can have a material influence on the magnitude of modelling predictions.

3.5.2.2 Emission Inventory

PE has conducted a detailed review of the operational emissions inventory. Based on this review the following general issues have been identified:

- The emissions inventory includes assumptions that are not qualified in the context the Project, and appear to reflect levels of activity that are inconsistent with the Project.
- The emissions inventory is based on annual average quantities, not differentiating between peak and average emission scenarios. The derivation of emission rates from annual inventory quantities is considered appropriate for the estimation of annual average pollutant impacts. Noting this, the use of annual average quantities (as applied within the AQIA) is considered optimistic for the assessment of short-term criteria (24 hours and less), where emissions should either reflect peak levels of activity that occur under routine operations, or address the variability of emissions directly within the model.

Further detail of this review is provided in the following sections.

Emissions from idling locomotives

Within the AQIA, emissions from idling locomotives are estimated to form a significant contribution to Project emissions, comprising 35% and 20% of operational phase NOx and PM2.5 emissions (respectively). Furthermore, the relatively confined[1] nature of these emission sources (e.g. 4 locomotives within a horizontal span of 80 m) means that these emissions possess a strong potential to produce localised peaks in predicted downwind pollutant levels.

The AQIA incorporates statements around a number of conservative assumptions for the emission estimation for idling locomotives. Noting this, there appear to be a number of levels of optimism in these estimates, especially for the estimation of the influence of peak operations on potential short-term impacts (e.g. averaging periods of 24 hours and less).

These relate primarily to the following:

- **The adopted rate of fuel consumption at idle**: The AQIA assumes 14 L/hr diesel consumption for locomotives at idle, as based on Lilley (1996). Qualification of this value is not provided. This value is lower than values applied in other publically available air quality assessments in New South Wales, which include:

    a. AECOM 2010 *Air Quality Impact Assessment – Mayfield Port-Related Activities Concept Plan*, AECOM Australia Pty Ltd, 19 July 2010. This study applies a value of 24 L/hr, approximately 70% higher than that adopted within the AQIA.
    b. SKM 2003 *Port Botany Expansion – Air Quality Study*, SKM Pty Ltd, 05/06/2003 which applies a value of 18.9 L/hr (based on three separate references), approximately 40% higher than that adopted within the AQIA.

    The average of the AQIA, SKM and AECOM values would equate to a fuel consumption of 19 L/hr, approximately 35% higher than that adopted within the assessment.

- **The assumed number of locomotives on the Site**: The AQIA assumes that one train, which includes 4 locomotives, is present for all hours of the year. In contrast, the noise impact assessment for the Project states:

    "The client has advised that, on average, there would be eight locomotives within the rail terminal simultaneously. Some of the locomotives would be idling and stationary, while some would be moving along the length of the terminal."

    If estimates were to be based on average fuel consumption values[2] and average locomotive numbers (as defined within the noise assessment), this would result in an emission estimate equal to approximately 270% of that adopted within the AQIA. Further, this increased estimate may be appropriate for the prediction of long term average impacts, but may not adequately capture routine peak activity rates, as suitable for the estimation of short term average impacts (e.g. averaging periods of 24 hours and less). The AQIA does not provide information on the maximum number of

[1] For example, as compared to diffuse source groups (trucks, reach stackers), which extend approximately 2 kilometres across the site.
[2] across the AQIA, SKM and AECOM references.

locomotives that would be on the site during peak operating capacity, hence a suitable scenario for short-term operations is unclear.

Fleet utilisation

Fleet utilisation values do not appear to reflect typical values or the operational capacity of the Project:

> Within the AQIA, emissions from reach stackers are estimated to form a significant contribution to Project emissions, comprising 27% and 46% of operational phase NO_x and $PM_{2.5}$ emissions (respectively). Section 5.3.2 of the AQIA states that "*The proposal would employ up to 12 reach stackers… …it has been assumed each reach stacker would operate at a utilisation of 50%."*

For this class of equipment, a fleet utilisation of 50% is considered unrealistic both for the estimation of long term and short term pollutant impacts, where given the associated capital investment, it would not be common practice to stable 50% of the fleet for the duration of the Project. Values of 85% (e.g. 10 reach stackers in use / 2 in storage) would be considered more consistent with typical fleet operations for such facilities, whilst 100% utilisation would reflect the capacity of the Project. 100% fleet utilisation has been assessed within the noise impact assessment as a scenario "unlikely to occur regularly", but still within the operational capacity of the Project and suitable for assessment. Higher utilisation figures (85% - 100%) would result in a 70% - 100% increase in the inventory estimates, for what is estimated to be a key emission source group.

> Within the AQIA, emissions from LNG forklifts comprise 2% and 4% of operational phase NO_x and $PM_{2.5}$ emissions. Section 5.3.4 of the AQIA states that: "*The warehousing area would employ up to 24 LNG forklifts and it is assumed that each would operate at a utilisation of 50%."* As with the reach stackers, a fleet utilisation of 50% is considered unrealistic. Values in the vicinity of 85% would be considered more consistent with typical intermodal fleet operations. Adoption of an 85% fleet utilisation would result in an increase of 70% of LNG forklift emissions.

LNG forklift emission estimates

The LNG forklift emission estimates do not appear consistent with the documented equations and input values. As an example, **Table 3-3** provides an independent estimate of NOx emissions, as based on the inputs and equations provided in Section 5.3.4 of the AQIA.

Table 3-3 Example estimate of NOx emissions

Parameter	Value	Units	Basis
Fleet Number	24	-	AQIA (Section 5.3.4)
Fleet Utilisation	50%	-	
Engine Capacity	224	kw	
Operating Load Factor	0.2	-	
Operational Period	8760	hr/yr	
Operating Intensity	4,709	MWh/yr	Calculated - Eq.3 (AQIA)
NOx Emission Factor	0.7	kg/MWh	AQIA (Section 5.3.4)
Calculated NOx Emissions	3,297	kg/yr	Calculated - Eq.3 (AQIA)
AQIA Estimate	2,336	kg/yr	AQIA (Section 5.3.4)
Difference	+41%	-	Calculated

This difference appears for LNG forklifts across all pollutants. When considered in conjunction with a fleet utilisation of 85%, this would result in LNG forklift emissions that are approximately 240% higher than those adopted within the AQIA.

Trucking

Section 5.3.3 of the AQIA states that "*Emission estimates for trucks in travel mode are assumed to account for the type of short term idling expected for the proposal, and therefore idling emissions are not considered separately.*" The exclusion of specific idling emissions for intermodal trucking appears potentially optimistic. Idling would be typically expected at arrival, queuing and departure from the following points:

> Truck processing gates

> Truck holding area

> Truck loading areas

> Weighbridges

Details of truck movement emission calculations have not been provided, accordingly these estimates have not been reviewed. It is noted that the truck emissions are based on emission factors for travel at 50 km/h. This value seems high for trucks travelling within the facility. This assumption is not qualified in the context of proposed speed limits for the Site, but may represent an underestimate if lower vehicle speeds are present (e.g. a site speed limit of 25 km/h).

Sensitivity of operational inventory to assumptions

The emission inventory review has noted that changes to assumptions would result in changes to various emission estimates including:

> Locomotive idling emissions that are 270% of those adopted within the AQIA.

> Reach stacker emissions that are 170% of those adopted within the AQIA.

> LNG forklift emissions that are 240% of those adopted within the AQIA.

Table 3-4 provides a summary of the influence of these changes with respect to total emissions from the Site, as based on the AQIA emission inventory quantities.

Table 3-4 Summary of Influence of Revised Inventory Assumptions to Operational Emissions

Source Group	Change	Increase relative to Site Inventory Total	
		NOx	PM2.5
Fleet Number	24	+60%	+34%
Locomotives	- Adoption of average locomotive fuel consumption from the AQIA, AECOM (2010), SKM (2003). Adoption of average locomotive numbers (as defined in the noise assessment).	+19%	+32%
Reach Stackers	Nominal (85%) fleet utilisation for reach stackers.	+3%	+6%
LNG Forklifts	- Nominal (85%) fleet utilisation for LNG forklifts. Revision of LNG forklift calculations to reflect reported inputs.	+1%	+3%
Truck Idling	4 minutes idling for each truck vehicle movement[3,4]	+83%	+74%
Total		+60%	+34%

[3] NOx emission factors from: PIARC 2012 *Road Tunnels: Vehicle Emissions and Air Demand for Ventilation, PIARC Technical Committee C4 Road Tunnels Operation*, PIARC 2012

[4] PM emissions factors from Environ 2008 *Revised Port of Oakland 2005 Seaport Air Emissions Inventory*, prepared for the Port of Oakland, Environ International Corporation, March 14, 2008

The changes outlined in **Table 3-4** are considered to be potentially material with regard to the prediction of compliance with air quality criteria, and identification of the required levels of mitigation. In addition, given that emissions are not evenly distributed across the Site, these changes could result in increases to model predictions in excess of the total change estimated in **Table 3-4**, and be more aligned to the percentage change associated with a particular source group, i.e. in cases where a given source group is has a dominant influence on downwind model predictions.

3.5.2.3 Best practice determination

The materiality of several measures included within the best practice determination is not clear. This includes limitations in the practicality of implementing emission reduction measures to locomotives that are outside of the Project's operational control (noted as being the majority of locomotives), as well as best practice determinations to:

- Consider ultra-low emitting switch locomotives having regard to technical, logistical and financial considerations.
- Consider an accelerated upgrade program for future Project development stages.
- Consider air emissions and where possible improve air emission performance as part of locomotive maintenance.
- Consider automatic engine shut down / start up systems as part of upgrades.
- Aim to meet Tier 3/Euro Stage IIIA or regulated emission performance for new locomotives for future Project development stages.

3.5.3 Consistency with Concept Approval

The Concept Approval conditions require that port shuttle operations must use locomotives that incorporate "*best practice noise and emission technologies*". The best practice determination has nominated that procurement will consider ultra-low emitting switch locomotives, having regard to technical, logistical and financial considerations. As raised in the previous section, the materiality of this measure is not clear.

Based on this review, it has been identified that the AQIA for the Project:

- Does not include detail of the dispersion model configuration.
- Does not provide justification or context of emission inventory assumptions relevant to the extent of the Project.
- Includes underestimation of air emissions that is potentially material with regard to the prediction of compliance with air quality criteria, and identification of the required levels of mitigation.

3.5.4 Recommendations

The recommendations below are identified to address the identified impacts associated with air quality, in order to allow a comprehensive assessment of the Project:

- The emission inventory be revised to reflect the extent of air emissions that are proposed as part of the Project, including an allowance for peak levels of activity that would occur under routine operations.
- The air quality assessment be revised to incorporate a revised emission inventory such that compliance with impact assessment criteria can be assessed, with identification of relevant mitigation strategies.

3.6 Human Health

The MPW Stage 2 documentation, including the EIS prepared by Arcadis (2016), provides an assessment of the proposed IMT development.

Specifically, *Section 10* of the EIS and *Human Health Risk Assessment* (Appendix P in the EIS) summarises potential human health impacts that may occur as a result of development.

3.6.1 Proposed Development

The Project is seeking to build and operate the IMT facility under the MPW Stage 2 Project. As such a reassessment of human health considerations is appropriate for this revised development extent. These elements were assessed against the SEARs and REMMs identified in the Concept Approval.

The main human health impacts are expected to arise from noise/vibration and air quality emissions and associated impacts to the surrounding community from activities involving transport (road and rail) during both construction and ongoing operations. The proposed development is situated in an area with existing levels of noise and air pollution and traffic congestion, any additional pressures and impacts can directly affect the health and wellbeing of the broader community.

3.6.2 Cardno Assessment

A Health Impact Assessment (HIA) has not been completed to support the MPW Stage 2 Project but a HIA was previously prepared for the MPW Concept Plan Approval (EnRisks 2014). EnRisks previously identified a range of potential health impacts (both positive and negative) on the wellbeing and health of local communities (including sensitive receptors). Within the previous HIA impacts from light spill, noise, vibration, local and regional air quality, remediation of contaminated land, landscape and visual character, local ecology, flood control, water quality, and waste management were all considered, however many of these aspects were not reviewed in the MPW Stage 2 EIS (Arcadis 2016) as only assessments of air, traffic and noise impacts were provided.

The EIS (Arcadis 2016) provides an overarching review and assessment of factors affecting human health and is also supported by a Health Risk Assessment (HRA) (Project No. AS121964, Final_Rev 1) prepared by Ramboll Environ (dated 13 October 2016). The Human Health Risk Assessment (Ramboll Environ, 2016) was prepared to assess potential health risks posed by air and noise emissions on the surrounding community arising from the construction and operation of the Project. Ramboll Environ noted the HRA was prepared in accordance with the *Health Impact Assessment - A Practical Guide- Centre for Health Equity Training, Research and Evaluation (CHETRE, 2007)* and *Environmental Health Risk Assessment: Guidelines for Assessing Human Health Risks from Environmental Hazards (enHealth, 2012)*.

The EIS (Arcadis, 2016) and HRA (Ramboll Environ, 2016) were restricted to health risks associated with human exposure to noise and air emissions from the Project. The key air pollutants evaluated in the local air quality assessment were considered as chemicals of potential concern (COPCs) and inhalation of air was the only exposure pathway evaluated. It is indicated that short and long-term exposure to PM_{10}, $PM_{2.5}$ and NOx would present low health impacts for the surrounding community. Likewise, short-term exposure to SO2 and CO would result in negligible impacts to the surrounding community. Predicted excess lifetime cancer risks for resident/school students, commercial/industrial workers and recreational populations within the study area we found not to exceed levels of acceptable risk.

Ramboll Environ assessed that the Project's operation and cumulative assessment scenario complied with the World Health Organisation community noise guidelines at all residential receivers. However, it is anticipated that rail and total noise would exceed World Health Organisation community noise guidelines as existing ambient noise levels already exceed this criteria. Ramboll Environ suggested that the Project would have minimal impact on the surrounding community. A similar justification was used by Wilkinson Murray when assessing rail noise levels and potential for sleep disturbance. Both consultants indicate that impacts on health and amenity are negligible as receivers are currently exposed to higher levels of rail noise from existing services.

As local residents are currently exposed to unacceptable levels of rail noise, which are understood to be above World Health Organisation community noise guideline criteria, it is implied that they are able to tolerate future noise level exceedances. If existing rail noise is identified as an issue for sensitive receivers, it is concerning that the Project is being considered without amelioration of noise levels from the Southern Sydney Freight

Line. In addition to existing sources, further intensive development in this region is likely to result in background noise creep which may lead to a greater potential for annoyance and impacts on amenity and sleep disturbance.

Also, the precinct amenities/freight village will include a takeaway/café, commercial premises, car parking and an outdoor seating area. If issued, the consent will require detailed floor and section plans for the food premises to be submitted to the Department prior to the issue of the construction certificate. The plans shall demonstrate compliance with the *Food Act 2003*, Australia New Zealand Food Standards Code and Australian Standard *AS 4674-2004 Design, Construction and Fit-Out of Food Premises*.

Additionally, the Department should confirm whether regulated systems as defined under the *Public Health Act 2010* and *Public Health Regulation 2012*, such as warm water or water-cooling systems will be installed on the premises.

The Noise Assessment results for the proposed MPW stage 2 NVIA reviewed in **Section 3.4** suggest significant noise benefits compared with the Concept Approval, specifically for operational noise. However given the limited information provided on modelling inputs and assumptions, it is not possible to validate whether the results represent a reasonable estimation of noise impact.

Air quality and noise/vibration impacts can directly impact on the health and wellbeing of the surrounding community and thus the HRA (Ramboll Environ, 2016) and EIS (Arcadis, 2016) should be reviewed and revised in consideration of any amendments to either the air quality and/or noise and vibration impact assessments.

3.6.3 Consistency with Concept Approval

A review of the approved Concept Approval has been undertaken to identify if there are any inconsistencies in relation to thorough assessment of human health impacts.

The Concept Approval includes a set of requirements to be addressed in future development applications such as consent item *E1 Operational Noise and Vibration* in Schedule 4, which requires a range of measures to be considered to ensure the operational noise impacts are considered and appropriately managed in future Development Applications. The EIS has considered these aspects to be not applicable and Appendix A of the EIS included a statement which notes:

> *Conditions relating to construction of rail link (with the exception of the rail sidings at the IMT facility and the rail link connection on the MPW site) are not relevant to the Proposal as they will be designed and constructed as part of the MPE Stage 1 Project - SSD: 14-6766 (subject to approval). The remainder of these conditions are applicable to the Proposal and would be considered in the EIS.*

Also, *E2 Operational Noise and Vibration* in Schedule 4 requires that:

> *Development Applications for both the IMEX and interstate terminal shall include a report to identify:*
>
> *a) The extent of wheel squeal across the fleet of rail vehicles that will frequently use the terminals. This should identify the number of occurrences of brake squeal, the typical noise levels associated with brake squeal (including the frequency content), and the operational conditions under which brake squeal occurs (e.g. under light braking, hard braking, low / medium / high speed, effects of temperature and weather, etc.);*
>
> *b) The root cause of brake squeal, including the influence of the design, set-up and maintenance of both brake shoes and brake rigging;*
>
> *c) Possible solutions to mitigate or eliminate brake squeal, including modifications to brake rigging and alternative brake shoe designs and compounds; and*
>
> *d) Any monitoring system proposed to capture brake squeal.*

It is noted that Section 8 and Appendix N of the EIS (Arcadis, 2016) provide assessment of specific noise and vibration assessment requirements. The Noise Impacts have been reviewed further in **Section 3.4** of this report, however it is important to note that the limited information provided on modelling inputs and assumptions, it is not possible to validate whether the noise and vibration assessment results represent a reasonable estimation of noise and vibration impacts

3.6.4 Recommendations

The recommendations below are identified to address the identified human health impacts and to allow a comprehensive assessment of the Project:

- Further commitments are required, prior to consent being issued, to reduce exposure to existing unacceptable noise levels from the SSFL and identify opportunities to mitigate noise impacts arising from the Project. Council's Environment and Health Section also supports a comprehensive review of the EIS and Health Risk Assessment by NSW Health.
- If the Project is approved, all best practice measures outlined in the Air Quality Best Practice Review (Appendix O of the EIS) should be implemented to further reduce air pollution levels and the associated health risks.
- If the Project is approved, all best practice measures outlined in the Noise and Vibration Impact Assessment (Appendix N of the EIS) should be implemented to further reduce noise and vibration impacts and the associated health risks to the community.
- Plans for the freight village (precinct amenities area including café, commercial premises, car parking and an outdoor seating area) should demonstrate compliance with the Food Act 2003, Australia New Zealand Food Standards Code and Australian Standard AS 4674-2004 Design, Construction and Fit-Out of Food Premises prior to consent being issued.
- Further information should be provided clarifying whether regulated systems as defined under the Public Health Act 2010 and Public Health Regulation 2012, such as warm water or water-cooling systems will be installed on the premises prior to consent being issued.
- Air quality and noise/vibration impacts can directly impact on the health and wellbeing of the surrounding community and thus the HRA (Ramboll Environ, 2016) and EIS (Arcadis, 2016) should be reviewed and revised in consideration of any further amendments to either the detailed air quality and/or noise and vibration impact assessments.

3.7 Biodiversity

The MPW Stage 2 EIS (specifically *Section 11*), prepared by Arcadis (2016), provides an assessment of the IMT development proposed. Specifically, Arcadis have prepared a Biodiversity Assessment Report (BAR) (*Appendix Q* of the EIS) and Biodiversity Offset Strategy (BOS) in accordance with the Framework for Biodiversity Assessment (FBA) (OEH, 2014a), which is the methodology specified for assessing impacts to biodiversity in the Biodiversity Offset Policy for Major Projects (OEH, 2014b). Some additional assessment is included in the report pertaining to Groundwater Dependant Ecosystems, although this is not formally assessed by the FBA. A separate assessment report was prepared for Amiens Wetland by John Porter (2016), which was not the subject of this review, but is of relevance to the vegetation typing onsite, discussed further below.

3.7.1 Proposed Development

On 3 June 2016, a Concept Plan Approval (SSD 5066) was granted for the development of the MPW Project. The impacts of this Concept Plan on biodiversity were at the time assessed by Parson Brinkerhoff (PB, 2015), incorporating several earlier surveys and assessments.

The BAR and BOS prepared by Arcadis (2016), relies on ecological data collected and presented in these biodiversity assessments of the site and builds on the assessments, providing:

> A revised calculation of the biodiversity impacts within the Moorebank Development Site;

> A separate calculation of additional impacts outside the Moorebank Development Site as a result of additional design development for the Project.

3.7.2 Cardno Assessment

Review of the BAR and BOS has identified a number of deficiencies and/or areas that require further work by SIMTA, as outlined below.

Ecosystem credits – under the FBA, ecosystem credits are a measurement of the value of EEC, CEECs and threatened species habitat for species can be reliably predicted to occur within a Plant Community Type (PCT). PCT's are defined by OEH (2016), and are the effective trading unit for 'offsets' using biodiversity credits in NSW. The following comments relate to the assessment of ecosystem credits within the BAR and BOS (Arcadis 2016):

> As this was a desktop review, field validation of the vegetation classification and mapping boundaries provided in Arcadis was not undertaken, although this review was supplemented by analysis of regional vegetation mapping, aerial photography and Google Street view. From this desktop assessment, it appears that large parts of the development site may retain 'native vegetation' as defined under the FBA, that have not been assessed or mapped, or if they have this has not been discussed in Arcadis (2016). In particular, north of Anzac Road and around the central parts of the site, it is apparent that although these areas are highly modified, it is possible that some areas may retain >50% native vegetation cover, with remnant trees occurring as 'scattered paddock trees'. Whilst there is no comment or assessment of these areas in Arcadis (2016), PB (2015) do note the presence of 'remnant' trees across the site.

> The assessment undertaken by John Porter (2016), states: "*The evidence assembled for this report from published and unpublished reports, literature, historical maps and documents strongly supports the conclusion that the Amiens wetland is a natural floodplain wetland of the Georges River"*. Section 5.3 of Arcadis (2016), states that other than Georges River and Anzac Creek, "*other hydrological features are restricted to constructed artificial wetlands and detention basins in the MPW site*." The Porter (2016) report may not have been available to Arcadis at the time of preparing the BAR, but it is likely that given this information an additional PCT is present onsite, Coastal Freshwater Lagoons of the Sydney Basin Bioregion and South East Corner PCT633/BVT: ME007), albeit in a degraded state (see Porter 2016).

> The vegetation classification otherwise appears to be an accurate reflection of the recorded species assemblages provided in the report, and is mostly consistent with the regional classification. It is noted the Arcadis differ from PB on the presence of one vegetation type, Warm Temperate Layered Forest (Tozer et al 2006; 2010), the equivalent PCT for this being, Sydney Blue Gum X Bangalay – Lilly Pilli

Moist Forest (PCT 1245 / BVT ME044). The Arcadis interpretation of the regional mapping reclassifies these areas of vegetation as Cumberland River Flat Forest (Tozer et al 2006; 2010), the equivalent PCT being, Rough-barked Apple – Forest Red Gum grassy woodland on alluvial soils (PCT 835 / BVT ME018). This is in my opinion a more likely PCT given the location, landscape and species assemblage.

> Powerful Owl and Barking Owl are both considered to have 'moderate' likelihood of occurrence on the development site, with PB noting '*marginal potential breeding habitat in Alluvial Woodland*' (PCT835) and '*…foraging habitat along forest edges*' for Barking Owl and '*potential breeding and foraging habitat present in the Alluvial Woodland*' for Powerful Owl. Arcadis have however (Section 7.1) excluded breeding habitat for these two species, noting that they have a high offset multiplier of 3.0, which they state is only relevant to breeding habitat, and the Offset Multiplier is reduced to 1.5.

  The relevance and accuracy of this statement is uncertain. This statement is attributed to the BBAM (or BioBanking Assessment Methodology, OEH, 2014c), but this apparent reduction for breeding habitat does not form a part of the BBAM, which is in any case irrelevant to this assessment as the assessment of impacts follows the FBA Methodology, not the BBAM. Further, both PB and Arcadis confirm breeding habitat onsite (as above and Table 8-6, Section 8.2.1.5; Arcadis, 2016).

  Given two of the PCTs (ME005 and ME018) recorded onsite are endangered ecological communities (EEC), Castlereagh swamp Woodland and River-flat Eucalypt Forest respectively (Note: the third PCT is listed as a vulnerable ecological community [VEC], Castlereagh Scribbly Gum Woodland), and the two most impacted upon ME003 (15.51 ha) and ME018 (28.94 ha) are 'EEC' and consequently the multiplier remains to be 3.0 for the final 'ecosystem credit' calculation. Therefore, the reduction of the Offset Multiplier for the Barking and Powerful Owl has no effect on credit calculations.

Species credits – this class of biodiversity credit is required for impacts on threatened species that cannot be reliably predicted based on habitat surrogates. It is of most relevance to threatened flora, but some cryptic or rare threatened fauna are also considered to be 'species credit species'.

> The Arcadis assessment identifies the presence of two species credit species, following the PB (2015) report. These two species, *Persoonia nutans* and *Grevillea parviflora subsp. parviflora* are noted to have an abundance of 'approximately' 10 and an 'apparent' 16 individuals respectively, and are 'possibly to be present in the soil seedbank'. PB (2015) identifies a further six species as potentially occurring in the soil seed bank, although the likelihood of these species occurring onsite is not discussed in the BAR (*Acacia bynoeana, A. pubescens, Dillwynia tenuifolia, Leucopogon exolasius, P. hirsuta* and *Pultenaea parviflora*), nor are any additional surveys undertaken.

> Extensive fauna surveys were undertaken by PB (2014a, 2014b, 2015), which have been the basis for inclusion and exclusion of some species credits from the FBA by Arcadis (2016). With regards to fauna species credit species, some species have been excluded on the basis of adequate survey (Section 6.6 of the FBA), however adequate survey has actually not been completed. In particular, four species have been removed from further assessment that are noted to have a 'moderate' likelihood of utilising the development site (see Table 7-3, in Arcadis 2016). These are, Eastern Osprey, Eastern Pygmy Possum, Green and Golden Bell Frog and Regent Honeyeater.

> *Eastern Osprey*: the assessment by Arcadis notes '*foraging habitat present*' (described as: *land within 40m of fresh/brackish/saline waters of larger rivers…*), although breeding habitat is noted to be unlikely. There is no distinction in the FBA for this species based on the type of *habitat* being utilised, and therefore any impacts on foraging, breeding and/or roosting habitat should be considered in the species credit calculations.

> *Eastern Pygmy Possum*: the assessment by Arcadis notes '*marginal habitat present*' (described as: *woodlands and heath, occasionally rainforest where it forages for nectar and pollen of banksias, eucalypts and bottlebrushes. Shelters in tree hollows, rotten stumps, holes in the ground or abandoned birdnests*), but excludes the species due to adequate surveys. Whilst extensive surveys did form a component of the PB (2015) report, these surveys included techniques that were unlikely to detect such a small species (15-43 g). Survey techniques attributed by PB (2015) to the targeted survey of Eastern Pygmy Possum included, spotlighting and Elliot trapping, using Elliot A and B sized traps. These traps are unlikely to be triggered by a species as small as the Eastern Pygmy Possum, with more appropriate sized trap for targeting this species being an Elliot E. More recently the use of small

nest boxes have proven much more effective in detecting this species when present (Ruegger et al 2012). It is noted that hairtubes were also included in the survey, although evidently these were not targeting Eastern Pygmy Possum as they are not listed as a 'targeted species' under this technique (see Table 2.6; PB 2015). Evidently PB have considered this species to be present on site (see Table 3.10 and 3.11), giving it a 'moderate' likelihood of occurrence and undertaking a significance assessment for this species (see Appendix D, PB 2015).

> *Green and Golden Bell Frog*: this species is also noted by PB (2016) to have less survey effort than that recommended by Department of Environment and Energy (DEE) survey guidelines, with justification on the presumed absence attributed to '*call playback also being conducted and previous surveys have* been *conducted of the site and* surrounds'. There is no comment, reference or justification of these 'previous surveys', nor that call playback is somehow able to sufficiently enhance detection such that survey effort can be reduced. Call playback forms a standard component of targeted surveys for this species (DEC, 2009). There is no discussion on whether the surveyors checked a reference site to determine if the species was calling. Notes on the weather conditions during night survey on 8, 10 and 12 November 2011, note one storm event on 9 November followed by cooler conditions. Ideal survey conditions for Green and Golden Bell Frogs are warm, wet nights following prolonged periods of rainfall.

  Given the survey period is less than the recommended by the OEH and DEE Guidelines, there is minimal discussion on prevailing weather conditions to begin calling, and there is no comment on whether a reference site was checked, 'adequate survey' in accordance with Section 6.6 of the FBA has not been undertaken.

> *Regent Honeyeater*: the assessment by Arcadis notes 'marginal habitat present', and that the species '*may forage sporadically on the site*'. It appears that this species was also excluded from the assessment due to adequate survey, although PB (2015) note that survey for Regent Honeyeater was '*not considered adequate… with the species presumed to occur intermittently on site based on habitat assessment*.'

Credit calculations

Arcadis (2016) have prepared a BOS in 'Chapter 10: Offsetting Impacts' of the BAR, but the report refers to another document that is yet to be prepared that will be '*A comprehensive BOS*'. However, Chapter 10 is considered to meet the requirements of a BOS under the BOPMP (OEH 2014b), as it states the type and amount of the biodiversity (ecosystem and species) credits the Project requires to offset the impacts of the development. The recommendation to prepare a separate document is not entirely necessary.

Within Chapter 10, Arcadis (2016) state that '*the BOS will be prepared with the objective of offsetting all biodiversity impacts within the Moorebank Precinct*'. Whilst some credit generation may be achievable in the Moorebank Precinct with a Biobanking Agreement, subject to the comments provided above and below, it is apparent that biodiversity credits will need to be purchased offsite, as there will be insufficient land within the Moorebank Precinct to generate the quantum required. The preparation of a Biobanking Agreement for retained lands in the Moorebank Precinct will be necessary, with additional credits readily available in the market. Should these measures not address the credit requirements, Supplementary Measures under the BOPMP may be required.

Ecosystem credits

> *Landscape score* – It is noted that the 100 ha inner assessment circle has not been centred over area of most impact (see Appendix 4, OEH 2014a). This has the effect of driving the landscape score down. For most of the vegetation assessed in the BAR, a landscape score of 12.8 has been used, with a separate landscape score of 24.8 provided for an additional 1.68 ha of impact to ME018 (the reasoning for this additional assessment circle is not well justified). With the 100 ha circle placed in the north of the site the '% Native vegetation cover' goes from 31-35% down to 11-15%, rather than 16-20% down to 11-15% as assessed by Arcadis (2016). With all other landscape variables entered into the Tool equivalent to those in the Arcadis report, a landscape score of 26.8 is calculated.

  Further, using the Sydney Metro Catchment Management Area (OEH 2013) regional vegetation mapping, the 1,000 ha outer assessment circle of 26-30% was calculated, as opposed to 16-20% calculated by Arcadis. As there is no change in the % cover before and after the development, this

has no effect on the landscape score, but it is notable that in our assessment the % cover was calculated as ~300 ha before, and with ~45 ha of clearing it barely avoids crossing an increment. If the additional 1.68 ha of clearing is considered in the same assessment, the % cover in the outer assessment circle would also change, and this would increase the landscape score component to 27.8.

> *Site value* – there is large discrepancy in the Benchmarks quoted in the Arcadis report (see Tables 6-8 and 6-9). It is uncertain whether the benchmarks for ME018 have been transcribed incorrectly, but the assessment undertaken for this report has different benchmarks to this in the FBA Tool and the VIS database (OEH 2016c). Another reason for this may have been that the two different assessments undertaken by Arcadis were commenced prior to a benchmark update in the FBA Tool and VIS, but without the access to the actual assessment this remains unknown. What is known, is that the Site Value score are substantially lower in the Arcadis report than those calculated for this review (e.g. ME018 = 35.76, Table 6-10, Arcadis; and ME018 = 49.13). This has also had a substantial impact on the credit requirement for the site.

> When the same plot data is entered in the Tool with this revised landscape score and the TS Multiplier unaltered, the results of the assessment are quite different:

  - ME003 = 15.51 ha of impact = 734 credits required (as opposed to 427)
  - ME005 = 0.92 ha of impact = 29 credits required (as opposed to 30)
  - ME018 = 28.94 ha of impact = 1,260 credits required (as opposed to 867)

  (**Note:** the above analysis does not include the additional 1.68 ha of impact)

Species credits

> If Eastern Pygmy Possum and Eastern Osprey are considered to occur in the 'Alluvial Woodland' (Forest Red Gum – Rough-barked Apple grassy woodland - ME018), this would require an additional offset of 579 and 376 species credits for these individuals. This is based on the entire area of Alluvial Woodland being potential habitat for these species, which may not be the case.

> Additional assessment of the impacts to *G. parviflora* ssp. *parviflora* and *Persoonia nutans* provided the same result for *P. nutans*, but a slight variation in the results for *G. parviflora* ssp. *parviflora*, with 224 (14 credits/individual) as opposed to 235 (15 credits/individual). There is no reason that the FBA methodology should calculate this differently, unless there has been some change in the Threatened Species multiplier since the original assessment.

3.7.3 Consistency with Concept Approval

There is some small change to the classification of some vegetation in the Arcadis (2016) mapping, although the revised map unit appears to be a better fit for the vegetation that would naturally occur at the site.

Some individual flora and fauna species that are considered 'species credits' under the FBA have not been considered by Arcadis, although PB (2015) has expressed likelihood of their presence.

Three stormwater outlets have been added to the Arcadis assessment, these have been assessed as additional impacts with a separate FBA assessment, due to a differing landscape score, although as above it is not well explained why these should be assessed separately.

3.7.4 Recommendations

The recommendations below are identified to address the identified impacts associated with the Project to allow a comprehensive assessment of the Project:

> Assessment of the potential for areas of scattered 'remnant' trees should be undertaken, to determine the likely existence of native vegetation as defined by the FBA and ascertain whether the site value of these patches is >17/100, consequently requiring additional offsetting.

> Coastal Freshwater Lagoons (PCT 633 / BVT: ME003) should be added to the impact assessment.

> A number of 'species credit species' have been removed from the assessment based on adequate survey, although this has been documented not to have been the case by both Arcadis and PB. It is

likely that some of these species may have been removed from the 'candidate species list' prior to survey in accordance Section 6.5.1.3 of the FBA, but this has not been expressed in the BAR. Given the 'moderate' likelihood of occurrence determined by both Arcadis and PB (2015), an 'Expert report' is required by the methodology unless further survey or justification of 'previous survey' can be provided.

> There was no apparent resurvey for two threatened flora previously recorded, to determine if the initial counts of the flora species credit species were accurate. Given there was some ambiguity in the initial count, stem counts, presence of ramets/suckers should be considered to determine if numbers of individuals are accurate. The absence of any comment on the other six flora species credits that PB (2015) considered likely to occur in the seed bank leaves further ambiguity in the Arcadis assessment as to whether they believe these species may or may not be present, and consequently whether additional survey should have been considered.

> The landscape value has been significantly underestimated, with the 100 ha assessment circle not centred on the area of most impact. It is also not clear why two separate landscape scores are necessary. The whole development should be assessed as one impact, meaning that the whole assessment will need to be run with the landscape score of 26.8. In addition, if the assessment is limited to one 1,000 ha assessment circle (rather than 2), the landscape score will increase further to 27.8, also requiring additional offsetting.

> The cost implication of these changes will be quite significant. There is an estimated ~700 ecosystem and ~1,000 species credits shortfall. It is noted that the BOS is intending to identify offsets within the Moorebank Precinct which will provide large savings, and there is little previous sales history to estimate the actual market price of buying all of the ecosystem and species credits required, but one of the PCT's, Forest Red Gum – Rough-barked Apple grassy woodland – PCT835 / BVT: ME018), has a substantial sales history and has sold from $9,000-17,000 / credit.

3.8 Hydrology

The MPW Stage 2 documentation, prepared by Arcadis (2016), provides an assessment of the IMT development proposed.

Specifically, *Appendix R* summarises the potential impacts that may occur as a result of development.

3.8.1 Proposed Development

The Project is seeking to build and operate the IMT facility under the MPW Stage 2 proposal. As such a reassessment of hydrology, flooding and water quality considerations is appropriate for this revised development extent. These elements were assessed against the SEARs and REMMs identified in the Concept Plan approval.

3.8.2 Cardno Assessment

Following a review of the Stormwater & Flooding Environmental Assessment (August 2016), a number of questions, clarifications and comments were compiled. Outcomes are summarised below.

- The summary of REMMs and SEARs in the EIS (Arcadis, 2016) (Table 1-1) provides references to where these items are addressed in the report, however the references are not specific enough to be clear on where various items are addressed. For example the first row of Table 1-1 refers to “EW Design Dwg”. It is unclear what EW is (assume early works), or which design drawing is being referenced. Perhaps this is referring to the Erosion & Sediment Control Plan (E&SCP) in Appendix B. However this plan is for “Stage 1 Early Works”, whereas this should be for Stage 2. Furthermore the preceding page to the E&SCP identifies the plan as the “Early Works Layout Plan”, which is contrary to the title of the plan.
- The E&SC Plan has inadequate detail, and lacks standard requirements such as clean and dirty water drains and sediment basin details.
- Reference is provided to Sections 5.3 and 5.4 (Arcadis, 2016) to address REMM 9B. These sections do not contain any discussion of site compounds, stockpiling, or storage areas for sensitive plant, equipment and hazardous materials as required by REMM 9B.
- Reference is provided to “C Design Drawing” to address REMM 9E. It is unclear what this is referring to.
- REMM 9F requires assessment of effects of flood events on construction phase works. Reference is provided to DD Section 5 to address this REMM. It is unclear what DD means, or which sub-section within Section 5 addresses this REMM. Section 5.4 (Construction Phase) provides some general principles for flood mitigation, but no actual assessment appears to have been undertaken or presented.
- Reference is provided to “C Design Drawing” to address REMM 9K, which is with regards to surface water drainage infrastructure. It is unclear what this is referring to, perhaps it is the “Stormwater Drainage proposed catchment plan” in Appendix B.
- REMM 9L details the elements which should be included in a Soil and Water Management Plan (SWMP). Reference is provided to “C Design Drawing” to address this REMM, however it is unclear what this is referring to. Assuming this is referring to the E&SCP provided in the appendices, this plan does not include any of the elements required by the REMM.
- Reference is provided to “Design Drawing” and “C Design Drawing” to address REMMs 9M to 9S. It is unclear what this is referring to. It is noted that none of the drawings provided address these REMMs.
- The stormwater management plan provided (assuming this is the plan on Page 23 – there is no title) does not include sufficient detail in terms of flow conveyance in the 10%, 2% and 1% AEP events, as required by the 9V REMM.
- SEAR 8b details a range of requirements to be undertaken as part of the flood assessment. Reference is provided to Sections 4 and 5, however these sections do not adequately address the specific requirements of SEAR 8b.

- Flood modelling includes a section of the Georges River only, and does not consider Anzac Creek. Previous proposals included a rail link and crossing over Anzac Creek, with supporting flood assessments. For completeness and transparency, it is suggested that a complete model be presented which includes Anzac Creek and the proposed rail link.
- An annotation on Table 4-1 of the EIS (Arcadis, 2016) notes that the 'base case' flooding results actually reflect inclusion of the MPE Stage 1 Rail Link. This is somewhat misleading in that the 'base case' is in fact a developed scenario, which is not mentioned in the report when discussing impacts. It is suggested that Table 4-1 be modified as follows:
  - Add a column to present existing scenario results.
  - Rename the "base case" column to "Stage 1 Rail Link".
  - Add a column to present impacts from the existing scenario.
- Furthermore the report should elaborate on the scenarios used when discussing flooding impacts, i.e. impacts from the existing scenario, or impacts from the Stage 1 Rail Link scenario.
- PMF elevations appear to exceed cross section extents for a number of sections.

3.8.3 Recommendations

The recommendations below are identified to address the identified impacts associated with stormwater and flooding to allow a comprehensive assessment of the Project:

- Provide clear and specific references to where REMMs and SEARs are addressed in the report, including section, drawing title, drawing number etc.
- Given that the development works area far exceeds 2,500 m², development of a SWMP would be appropriate, rather than an E&SCP, as per guidance contained within the Blue Book (Landcom, 2004).
- A SWMP typically provides more detail than an E&SCP. As such, the following should be included in the SWMP, or additional supporting documentation provided in the report as necessary:
  - High-flow bypass weir designs for sediment basins.
  - Sediment basin overflow discharge locations and connections. The note provided advising that this be determined by the contractor is not considered to be sufficient for a project of this scale and significance.
  - Expected clean-out frequency of basins.
  - Clean and dirty water drains.
- Extend flood modelling to include Anzac Creek and any proposed crossings.
- Ensure all cross sections are sufficiently extended to capture PMF extents.
- Present a complete model which includes Anzac Creek and the proposed rail link.
- Add columns to Table 4-1 to include existing scenario results and impacts from this scenario. Rename the "base case" column to "Stage 1 Rail Link".
- Elaborate in the report on the scenarios used when discussing flooding impacts.

3.9 Soils, Contamination and Geotechnical

The MPW Stage 2 documentation, prepared by Arcadis (2016), provides an assessment of the proposed IMT development.

Specifically, *Section 13* and *Appendix S* of the EIS summarise the potential contamination impacts that may occur as a result of the proposed development.

3.9.1 Proposed Development

The broader Project involves construction and operation of a multi-purpose IMT that enables interstate and intrastate freight distribution and port shuttle movement. The Project site has previously been occupied by Defence, comprising the SME and other minor Defence units. Defence has vacated the Project site, and relocated to a site in West Wattle Grove.

As a consequence of former occupation by Defence and the practice of contaminating activities the site has legacy contamination to soil and groundwater. The site also encompasses areas of acid sulfate soil risk and is neighboured by properties with capability to act as offsite contamination sources including the Glenfield Waste Facility to the west and Railcorp land to the south east. The nature and extent of contamination at the site has been assessed and investigated from 1994 with the most recent relevant assessments associated with the Project including:

- *Phase 2 Environmental Site Assessment* (PB, 2014a).
- *Preliminary Remedial Action Plan* (RAP) (PB, 2014b).
- *Phase 1 Environmental Site Assessment* (PB, 2014c).
- *Site Audit Report and Site Audit Statement* (AECOM, 2014).
- *Post Phase 2 Environmental Site Assessment* (Golder, 2015a).
- *The Validation Plan – Principles* (Golder, 2015b).
- *The Demolition and Remediation Specification* (Golder, 2015c).
- *Site Contamination Summary Report* (Golder, 2016)

The Concept Plan Approval included the following:

- **Concept Proposal**: the Concept involves the use of the site as an intermodal facility, including a rail link to the Southern Sydney Freight Line, warehouse and distribution facilities, and associated works.
- **Early Works (Stage 1)**: involves: the demolition of buildings, including services termination and diversion; rehabilitation of the excavation/ earthmoving training area; remediation of contaminated land; removal of underground storage tanks; heritage impact remediation works; and the establishment of construction facilities and access, including site security.

The remediation works are subject to an audit by an accredited contaminated land Auditor, and the Auditor will prepare a section A, Site Audit Statement. When complete the Site Audit Statement will be provided to the consent authority to satisfy the obligations under Clause 7(1) of State Environmental Planning Policy 55 and the MPW Concept Plan Approval Minister's Conditions of Approval (MCoA) B1 to B3.

3.9.2 Cardno Assessment

Cardno completed a review of the EIS (Arcadis, 2016) to assess the adequacy of the document, the potential impact resulting from the proposed modification and the Concept Approval requirements. It is noted that the EIS was prepared with consideration of the SEARs and REMMs identified in the MPW Concept Plan Approval (SSD_5066).

Below is a summary of the EIS review with regard to contamination and geotechnical performance:

- The body of the EIS (Arcadis, 2016), specifically Section 13, is ambiguous in distinguishing the specific remediation works to be completed during Stage 2 of the Project. The section discusses in detail the contamination and remediation relevant to the Stage 1 Early Works phase of the Project. Content relating to contamination and remediation associated with Stage 2 is limited and brief. Table 13-5 of

the EIS lists the potential contaminants remaining at the site after Early Works completion (relevant to the Project) as:

- Stockpiles of demolition waste at the former sewerage treatment plant
- Stockpiles of demolition waste at the golf course
- Fill materials across the general site areas and in the north western corner of the site
- Underground services that may contain hazardous materials
- Groundwater across the general site areas, particularly in close proximity to watercourses

The body of the EIS (Arcadis, 2016) should provide more detail regarding the nature and extent of the contamination remaining following Stage 1 works and a more detailed discussion of the proposed *remedial* works. The discussion should refer to previous investigations where the contaminated areas were assessed. It is noted that Appendix S of the EIS contains some of this information however it is not well referenced within the body of the report.

> The EIS (Arcadis, 2016) notes that the geology of the site is comprised of shallow clayey sand soils, with frequent ironstone nodules. These soils typically are very prone to wind, sheet and rill erosion if exposed. Section 13.2.3 of the EIS states that the "*areas of the site to be raised (*by importation of fill*) would be made ready for receival of materials through stripping of topsoil, levelling the site and removal of contaminated material as part of Early Works*". Given that the local geology has a high susceptibility to erosion it is considered that the EIS should include more discussion regarding the management of erosion prone soils during stripping and levelling to ensure that potentially airborne or waterborne contaminants are sufficiently controlled.

> Section 13.2.3 of the EIS (Arcadis, 2016) states that approximately 1,600,000 m^3 of clean fill would need to be imported to the site. The term "clean fill" is indistinct and unclear. It is recommended that the EIS include a specific definition of clean fill that describes what soil types are considered suitable for import. The definition should include reference to any relevant NSW EPA guidelines.

> The EIS (Arcadis, 2016) states that approximately 1,600,000 m3 of soil will be imported to the site and used as fill material. Importation of soil from offsite sources is considered a high risk activity with respect to possible introduction of contamination including but not limited to asbestos and acid sulfate soils. The EIS should include a detailed description of the desired fill type and the process/procedure that will be implemented to ensure an adequate assessment of contamination has been undertaken. If possible the EIS should also provide an indication of the possible source(s) of imported fill e.g. surplus spoil generated during local civil projects. The volume of material required for importation is considered significant and the EIS should discuss the potential sources of soil.

> Section 13.4.2 EIS (Arcadis, 2016) states that a site specific Remediation Action Plan (RAP) is not considered to be required for the Project. It is considered that the areas of the site requiring remediation during Stage 2 would be best managed by a site specific RAP, particularly given the potential for unexploded ordinance and buried waste to exist at the site. It is noted that the preliminary RAP was prepared by PB in 2014, however, since that date the site has been subject to substantial additional investigation and as such the preliminary RAP should be updated/revised to consider the results of any subsequent relevant environmental assessments following 2014.

> The EIS (Arcadis, 2016) states that a GMP would be implemented for two years post operation of the Project. The EIS lists the objectives of the GMP but excludes a discussion regarding the capability of contamination originating at the site to potentially restrict the usability of nearby surface water bodies, particularly the Georges River. The river is commonly utilised by recreational and commercial users. The GMP should provide discussion regarding possible future PFAS contamination that exceeds acceptable levels (yet to be published) that could potentially restrict usage of the Georges River for recreational and commercial users. This scenario is particularly pertinent to PFAS, which have been identified in groundwater beneath the site and is understood to flow towards the Georges River. The implications of PFAS contamination to the Georges River and downstream receptors is potentially significant and requires more consideration in the EIS.

Previous geotechnical critique was based on a distinct change in the Project resulting from the proposed Section 96 modification, which proposed a change from low to high import of materials. Insufficient

discussion of suitability of the subgrade material for both founding conditions and contamination management was provided. The documents Golder (2016) stated I.e. the previous submission stated Golder (2016) that *"Importation of sandstone fill presents a number of benefits for the management of asbestos contamination, potential UXO/EOW and subgrade performance issues"*. The revised assessment provides clarity in terms of the nature and geotechnical performance of ground conditions and how these conditions will be improved through compaction and capping, as well as subsequent targeted footing designs.

Golder (2016) discusses the importation of crushed sandstone from tunnelling projects across Sydney. Whilst crushed sandstone can be suitable as engineered fill, further parameters should be provided in regard to its environmental (e.g. saline) and geotechnical performance (clay and shale content). This should be addressed under a fill management protocol to ensure appropriate QA/QC in accordance with EPA, Council and Australian Standards.

3.9.3 Recommendations

The recommendations below are identified to address the identified impacts associated with contamination to allow a comprehensive assessment of the Project:

- The body of the EIS (Arcadis, 2016) should provide more detail regarding the nature and extent of the contamination remaining following Stage 1 works and a more detailed discussion of the proposed remedial works. The discussion should refer to previous investigations where the contaminated areas were assessed. It is noted that Appendix S of the EIS contains some of this information however it is not well referenced within the body of the report.
- The local geology has a high susceptibility to erosion it is considered that the EIS should include more discussion regarding the management of erosion prone soils during stripping and levelling to ensure that potentially airborne or waterborne contaminants are sufficiently controlled.
- The term "clean fill" is indistinct and unclear. It is recommended that the EIS include a specific definition of clean fill that describes what soil types are considered suitable for import. The definition should include reference to any relevant NSW EPA guidelines.
- The EIS should include a detailed description of the desired fill type and the process/procedure that will be implemented to ensure an adequate assessment of contamination has been undertaken. If possible the EIS should also provide an indication of the possible source(s) of imported fill e.g. surplus spoil generated during local civil projects. The volume of material required for importation s considered significant and the EIS should discuss the potential sources of soil.
- It is noted that the preliminary RAP was prepared by PB in 2014, however, since that date the site has been subject to substantial additional investigation and as such the preliminary RAP should be updated/revised to consider the results of any subsequent relevant environmental assessments following 2014.
- The GMP should provide discussion regarding possible future polyfluoroalkyl substances (PFAS) contamination that exceeds acceptable levels (yet to be published) that could potentially restrict usage of the Georges River for recreational and commercial users. This scenario is particularly pertinent to PFAS, which have been identified in groundwater beneath the site and is understood to flow towards the Georges River. The implications of PFAS contamination to the Georges River and downstream receptors is potentially significant and requires more consideration in the EIS.
- Further parameters should be developed addressing the environmental (e.g. saline) and geotechnical performance (clay and shale content) of crushed sandstone. This should be addressed under a fill management protocol to ensure appropriate QA/QC in accordance with EPA, Council and Australian Standards.

3.10 Hazard and Risk

The MPW Stage 2 documentation, prepared by Arcadis (2016), provides an assessment of the proposed IMT development. Specifically, *Section 14* of the EIS summarises the potential hazards and risks that may occur as a result of development. A hazard and risk impact assessment has also been prepared for the Project, in accordance with the *State Environmental Planning Policy No. 33- Hazardous and Offensive Development* (SEPP 33).

A number of dangerous goods have the potential to be transported, on the surrounding rail network to and from the site. Notwithstanding this, the EIS has noted that the site would not receive or store dangerous goods in quantities greater than the screening thresholds identified in Applying SEPP 33. On this basis a Preliminary Hazard Assessment (PHA) is not required at this stage.

3.10.1 Proposed Development

The Project is seeking to build and operate the IMT facility under the MPW Stage 2 proposal. As such a reassessment of risk and hazard considerations is appropriate for this revised development extent. These elements were assessed against the SEARs and REMMs identified in the Concept Approval.

Dangerous goods have been explicitly excluded from the types of freight that the Project would handle (i.e. they would not be accepted), and would therefore also be excluded from the Project's warehouse, freight container storage and transit areas. Therefore, there is considered to be no risks from dangerous goods in freight, transit or storage and no assessment has been undertaken.

The IMT facility will also have an above ground mobile refuelling tank located adjacent to the proposed locomotive shifter. The contained tank would store diesel fuel (class C1 combustible liquid), with a maximum capacity of approximately 60,000 litres.

3.10.2 Cardno Assessment

Section 4 of the EIS indicates that a mobile refuelling station would be located within the IMT facility for the refuelling of locomotives. It is anticipated that the refuelling station would consist of a self-bunded diesel fuel tank with a maximum capacity of 60,000 litres. In contrast, Section 22 of the EIS indicated that 190KL of diesel fuel would be stored onsite in two separate 97KL self-bunded tanks. Given the disparities outlined above, further clarification is required regarding the quantity of combustible liquids (i.e. class C1 diesel fuel) to be stored and handled at the site.

Additionally, the EIS states that the Operational Environmental Management Plan (OEMP) will include a Pollution Incident Response Management Plan and a refuelling procedure. To supplement this documentation, the Environment and Health Section of Council has recommended that a Forecourt Management Plan is also prepared and implemented for the facility. The plan shall include details of daily operations and management of the forecourt area (including any policies, procedures and staff training). The Forecourt Management Plan is to be prepared in accordance with the 'Environmental Action for Service Stations' guideline prepared by the Department of Environment and Climate Change NSW (DEC 2008/52) dated October 2008.

Furthermore, the Pollution Incident Response Management Plan shall be prepared in accordance with the Environmental Guidelines: *Preparation of Pollution Incident Response Management Plans* prepared by the NSW Environment Protection Authority dated 2012.

3.10.3 Consistency with Concept Approval

A review of the approved Concept Approval has been undertaken to identify if there are any inconsistencies in relation to thorough assessment of hazards and risks. The Concept Approval includes a set of requirements to be addressed in future development applications such as consent item *E23 Hazard and Risks* in Schedule 4 which requires that:

> All future Development Applications shall be accompanied by a preliminary risk screening completed in accordance with *State Environmental Planning Policy No. 33- Hazardous* and *Offensive Development and Applying SEPP 33* (DoP 2011), with a clear indication of class, quantity and location of all dangerous goods and hazardous materials associated with the Project. Should preliminary screening indicate that the Project is 'potentially hazardous', a Preliminary Hazard Analysis (PHA) must be prepared in accordance with the *Hazardous Industry Planning Advisory Paper No. 6 – Guidelines for Hazard Analysis* (DoP 2011) and *Multi-Level Risk Assessment* (DoP 2011), The PHA should:

a) Estimate the risks from the facility

b) Be set in the context of the existing risk profiles for the intermodal facility and demonstrate that the Project does not increase the overall risk of the area to unacceptable levels; and

c) Demonstrate that the Project complies with criteria set out the *Hazardous Industry Planning Advisory Paper No. 4 – Risk Criteria for Land Use Safety Planning.*

3.10.4 Recommendations

The recommendations below are identified to address the identified impacts associated with Hazard and Risk to allow a comprehensive assessment of the Project:

> Further clarification is required regarding the quantity of combustible liquids (i.e. class C1 diesel fuel) to be stored and handled at the site as the refuelling station is noted that it would consist of a self-bunded diesel fuel tank with a maximum capacity of 60,000 litres. In contrast, Section 22 of the EIS indicated that 190KL of diesel fuel would be stored onsite in two separate 97KL self-bunded tanks.

> It is recommended that a Forecourt Management Plan be prepared to supplement the OEMP, Pollution Incident Response Management Plan and a refuelling procedure.

> The Pollution Incident Response Management Plan should be prepared in accordance with the Environmental Guidelines: *Preparation of Pollution Incident Response Management Plans* prepared by the NSW Environment Protection Authority dated 2012.

> Considering the potential risks and hazards to the local community and environment, Council also requests they be provided with draft copies of all site emergency management plans (including the Pollution Incident Response Management Plan) for review to allow any comments to be provided prior to construction and operations commencing as part of the construction certificate requirements.

3.11 Visual Amenity

The MPW Stage 2 documentation, prepared by Arcadis (2016), provides an assessment of the proposed IMT development.

Specifically, *Section 15 and Appendix T* address the potential visual impacts that may occur as a result of development.

3.11.1 Proposed Development

The Visual Impact Assessment (VIA) has been conducted in order to satisfy the requirements detailed in the Conditions of Approval and SEARs. The VIA methodology involved:

- **Viewpoint Identification** – to recreated and match those used in the MPW Concept EIS (All viewpoints were located within 2kms of the Project site)
- **Site Inspection** – To assess the relevance of each viewpoint location used in the MPW Concept EIS and to assess the visual impacts of the Project on that location.
- **Visualisation of the Development** – Artist three dimensional model developed of the Project and added to viewpoints in order to create a before and after visualisation for assessment.
- **Assessment of Visual Impact** – Qualitative assessment of the Project of the visual impacts on each viewpoint.

The qualitative criteria used to assess each viewpoint included:

- Site context
- Setting
- Site elements
- Site character
- Adjacent development
- Distance to view (foreground, middle-ground, background)
- Land use
- Visual prominence
- Potential changes of the view setting

All of these parameters were used to generate an assessment of the Project both during construction and operation.

3.11.2 Cardno Assessment

The methodology utilised in the EIS is based on a review of various views to the site and associated infrastructure, with assessment of these views then made based on Visual Sensitivity and Visual Adaptation to establish an overall visual impact. The viewpoints are identified in **Figure 3-2** and assessed in **Table 3-5**.

Figure 3-2 VIA Viewpoint locations and directions

Table 3-5 Viewpoints Assessed

Viewpoint ID	Location	Type
01	Southern section of Leacock Regional Park	Public Space
02	Leacock Regional Park and associated residential heritage properties backing onto the parklands	Public Space
03	Carroll Park and associated residential properties backing onto the park.	Public Space
04	Casula Powerhouse Arts Centre	Public Space
05	Georges River Casula Parklands	Public Space
06	St Andrews Park and associated properties surrounding the park, as well as properties that back onto the SSFL.	Residential
07	Junction of M5 South Western Motorway and Moorebank Avenue	Public Road/Industrial
08	Moorebank Avenue heading south	Public Road/Industrial

Assessments were then conducted for both construction and operational scenarios. The results of the assessments can be seen below in **Table 3-6**.

Table 3-6 Summary of Visual Assessments

Construction			
Viewpoint ID	**Visual Adaptation**	**Visual Sensitivity**	**Visual Impact**
01	Low	Low	Low
02	Low/Moderate	Moderate	Moderate
03	Moderate	Moderate	Moderate
04	Low	Moderate	Low/Moderate
05	Negligible	Moderate	Negligible
06	Low	Moderate/High	Moderate
07	Moderate	Low	Low/Moderate
08	High	Low	Moderate
Operation			
Viewpoint ID	**Visual Adaptation**	**Visual Sensitivity**	**Visual Impact**
01	Low	Low/Moderate	Low/Moderate
02	Low/Moderate	Moderate	Moderate
03	Moderate	Moderate	Moderate
04	Low	Moderate	Low/Moderate
05	Negligible	Low/Moderate	Negligible
06	Low	Moderate	Low/Moderate
07	Moderate	Low	Low/Moderate
08	High	Low	Moderate

The findings of the VIA associated with the EIS are favourable for the Project. This is potentially due to the assessment not thoroughly covering all potential visual impacts. As mentioned above there are 8 viewpoints used to assess the visual amenity impacts of the Project. **Figure 3-2** shows that Viewpoint 05 (looking north northeast) does not face the proposed development and Viewpoint 06 (looking east) only observes the final northern extent of the site. If these viewpoints were looking southeast, they would instead be looking directly at the Project and it is anticipated that their Visual impact would be increased negatively. Similarly Viewpoint 07 could be located at the intersection of Moorebank Avenue and Anzac Road, which is much closer to the Project than its assessed location, which would also negatively increase its visual impact.

The results of the VIA suggest that overall the impact of the Project on the visual amenity of the area is Low/Moderate. This assessment is highly dependent on maintaining the vegetation buffer between the MPW site and the Georges River. If this buffer was to be removed in future planning iterations, it is anticipated that the visual impact of the site would generally shift to High/Moderate or even High.

The VIA generally considers the best case (lowest visual impact), rather than the worst case analysis. The visual assessment for the construction scenario is very limited. With the construction activities anticipated to be ongoing for 36 months, a much more rigorous assessment should be conducted. The findings of this assessment are anticipated to identify that the visual impact of construction activities would negatively impact the amenity of the surrounding area due to the scale of vehicle movements and on site infrastructure, such as cranes and associated plant, all of which receives limited consideration in the assessment.

Viewpoint 02 has had its visual impact understated. This viewpoint is from Leacock Regional Park, which is frequented for exercise and by dog walkers. The Park also includes a heritage site. From the artists site impression the visual outlook from this site has changed from an elevated outlook over what appears under

the current visual scenario as limited warehousing dispersed amongst a heavily treed area. The future outlook would primarily comprise the warehousing within the MPW site. This is a significant change from a natural outlook, to an industrial outlook and is more appropriately categorised as High/Moderate or High.

Viewpoint 04 has been assessed under the best case scenario. The artist's impression shows no noticeable change to the outlook from the Casula Powerhouse site. The impression is dominated by the Powerhouse in the foreground of the site, with very little exposed background. This viewpoint should have been taken facing east, with the Powerhouse behind the photographer. This would give a better understanding of the visual impact of the Project on the Powerhouse when users are enjoying the open space around the site rather than when they are looking at the Powerhouse building. This conservative assessment has understated the visual impacts on the Casula Power Station.

3.11.3 Consistency with Concept Approval

The assessment conducted for this EIS has varying consistency with the assessment conducted for the MPW Concept Approval, with the visual impacts generally downgraded for this EIS submission.

The Concept Approval found that construction visual impacts ranged from Negligible to Moderate/High, however the highest construction visual impact is Moderate, which demonstrates a reduction in visual impact between assessments. Moderate/High impacts were assessed for many viewpoints in the Concept Approval due to tall cranes above the tree line, however this EIS assessment does not have any viewpoints rated Moderate/High for visual impact. This is particularly not appropriate when assessing Viewpoint 08, as construction activities will be high visible along Moorebank Avenue. The Concept Approval submission found that construction activity would be generally limited to day time hours, with lighting located in areas that would limit light spill, which is consistent with the Stage 2 EIS submission.

The Concept Approval also assessed the impacts that the MPW site would have during operation. The Concept Approval found that the visual impacts during operation ranged from Negligible to Moderate/High, which has not been reflected in the Stage 2 EIS. The highest assessed impact during operation was determined to be Moderate, which is a downgrade on the findings of the Concept Approval EIS. The Concept Approval EIS found that the greatest visual impact would be on the public park and residential receptors in the elevated areas to the west of the Georges River. This has been reflected in the Stage 2 EIS, however there is a downgrade of the overall visual impact from Moderate/High to Moderate. The Concept Approval also determined that these same residential receptors would experience a noticeable change in brightness of the area on a clear night, however the Stage 2 EIS has assessed that there will be minimal impact to residential receptors on the western bank of the Georges River. The warehouse aspect of the development was found to dominate views of the MPW site in the Concept Approval and this has also been reflected in the Stage 2 EIS. Both assessments suggest that established landscaping will reduce the impacts, however neither assessment take into account the time that would be required for this landscaping to be established.

As stated above the Stage 2 EIS assessment of the Project has varying consistency with the MPW Concept Approval and importantly the visual impacts have been un appropriately been downgraded for this submission.

3.11.4 Recommendations

The recommendations below are identified to address the identified impacts associated with visual assessment to allow a comprehensive assessment of the Project:

- A more thorough VIA should be conducted for the construction and operational scenarios to ensure that the worst case visual impacts are captured and understood. With this assessment only using 8 viewpoints, rather than up to 20 viewpoints utilised for a previous assessment of the MPE site, it would appear that this assessment may not have captured all potential impacts of the Project. One viewpoint that must be assessed is Moorebank Avenue intersection of the East Hills Rail Line looking northwest.
- Impacts of cranes required for construction should be assessed to capture their visual impact during construction.
- It is recommended that container stacking height be limited to the height of the planted screen. This will reduce the visual impact of the Project, particularly from viewpoints 07 and 08. Planting heights

should be considered as short term buffer rather than full mature tree growth (20-30 years). This will ensure that the negative visual amenity impact is reduced in the short – medium term.

> It is recommended that artist mock ups of the development include stacked containers at full stack height, with mismatched colour schemes, to simulate the facility in operation. This will allow for the colour impact on the visual amenity to be assessed.

> Impacts of the new rail spur were not assessed. Additional assessment from areas adjacent to the new rail corridor are required to understand the visual impacts generated. Careful assessment must be undertaken to exclude assessed impacts of the MPE development to not influence the MPW assessment.

> Additional assessment should be undertaken to assess the Project against other potential land uses like residential/mixed use to determine the specific influence of this development compared to others.

3.12 Heritage

The MPW Stage 2 documentation, prepared by Arcadis (2016), provides an assessment of the proposed IMT development.

Specifically, *Section 16* and *Appendix U* summarise the potential Aboriginal Heritage impacts; and *Section 17* and *Appendix V* summarise the potential Non-Indigenous Heritage Impacts that may occur as a result of development.

3.12.1 Proposed Development

The proposed development will include ancillary works resulting in:

- Vegetation clearing
- Earth works (including the importation of 1,600,000m^3 of fill); and
- Landscaping.

This would accommodate approximately 215,000m^2 of warehousing plus ancillary offices and access roads. Works will encompass the construction area of the proposed development, as identified in Figure 0-1 of the EIS.

No construction works are proposed in the George River Riparian Corridor as part of the MPW Stage 2 proposal.

Archaeological investigations within the proposed site boundary have identified a number of Aboriginal and European sites and objects located within the Project boundary. A number of these sites are impacted as part of the already approved Stage 1 Early Works for the site. In addition to the Aboriginal sites already approved for salvage or impact, the following Aboriginal sites or objects are proposed to be impacted as part of the proposed Stage 2 construction works:

- MA6 and MA7 culturally scarred trees
- MA10 Potential Archaeological Deposit (PAD)
- MA14 artefact and archaeological deposit
- MPW Stage 2 Terrace PAD (PAD2)
- Tertiary Terrace between MA10 and 14

Of these, MA6 is deemed to have high archaeological significance, MA14 has moderate to high archaeological significance; PAD2 and Tertiary Terrace have moderate archaeological significance. The remaining sites have low or low to moderate archaeological significance.

Mitigation measures associated with these proposed impacts include removal of the culturally scarred trees to a location identified by the Registered Aboriginal Parties (RAPs) and the salvage of artefacts from the other impacted sites.

No impacts to Indigenous heritage are proposed as part of the Stage 2 operations as all sites within the Project boundary will be removed during construction.

In addition to the Non-Indigenous sites already approved for impact as part of the Early Works, one additional heritage item was identified as requiring consideration in the Stage 2 design and operation, the Moorebank Cultural Landscape. In addition to this, three heritage items located adjacent to the site boundary also required additional assessment as part of the proposed Stage 2 works. These are:

- Kitchener House
- Glenfield Farm; and
- Casula Power Station.

The key impacts to the Moorebank Cultural Landscape would occur during construction through the disturbance of archaeological deposits, removal of landscape elements; and partial loss of the existing landscape setting, historical associations and the landscape's research potential. This impact is defined as negligible above that which was assessed and approved in the MPW Concept Plan EIS. This impact is

proposed to be mitigated through the incorporation of existing road names and places, and the continued commemoration of significant events and individuals.

Impacts to adjacent sites listed above are identified as having limited impacts to visual amenity due to the existing and proposed vegetative screenings. Casula Powerhouse is the only one of the adjacent heritage sites which has been considered as a sensitive receiver as part of the Noise and Vibration Assessment (Wilkinson and Murray, 2016) in Appendix N of the EIS. The assessment found that during operations and construction the adopted noise criteria for the site will not be exceeded. Kitchener House and Glenfield Farm were not assessed for noise and vibration impacts as part of the Stage 2 proposal.

3.12.2 Cardno Assessment

In addition to the proposed impacts during the early works, the proposed stage will likely result in the impact of all six Aboriginal sites listed above including a total loss in value of MA6 which has high archaeological significance and MA14 which has moderate to high archaeological significance. It is noted that avoidance of MA6 and MA7 will be considered, however there is no commitment to the protection of these sites and so it is assumed they will be impacted resulting in "total loss of value" as described in Table 16-8 of the EIS. Appendix U (Artefact, 2016a) states that "*Ongoing archaeological investigations within the MPW site indicate the potentially high archaeological significance of that site*" (MA6) however, it only addresses this by stating that "*further information on the archaeological significance of that site will be available following completion of mitigation measures for the MPW Project*."

Considering the potential significance of MA6, the lack of investigation of the significance MA6 and how the proposed mitigation measure will impact on the significance of the site, the information provided is not adequate for determination of this Project. Appendix U recommends the development of an Aboriginal Cultural Heritage Assessment Report (ACHAR) to address this issue, however without this being undertaken as part of this EIS it is difficult to assess the extent in which the proposed works will impact on the indigenous heritage of the site and what the total impact to the heritage of the site will be.

The information provided within Appendix V and Section 17 of the EIS is very inconsistent in approach making it difficult to determine the total extent of heritage impacts and the proposed level of mitigation for non-indigenous heritage. The Moorebank Cultural Heritage Landscape is described in the EIS as being impacted through the disturbance of archaeological deposits, removal of landscape elements, partial loss of the existing landscape setting, historical associations and the landscape's research potential. Appendix V describes this impact as negligible above that assessed and approved in the MPW Concept Plan EIS, however, the cumulative impact of the culmination of stages 1 and 2 are not addressed. In order to ensure the impacts to this site are fully addressed this assessment should be revised to assess the impacts as a total rather than that above what is already assessed. This is especially true for this site as it is noted in Appendix V (Artefact, 2016b) that "*the archaeological deposits identified within the proposal (landscape) have the potential to yield information that would contribute to an understanding of its cultural history"* and that *"the landscape as a whole is also notable as a locally distinct and representative cultural landscape*".

The EIS has failed to assess the potential Noise and Vibration Impacts on adjacent sites Kitchener House and Glenfield Farm. Due to the heritage significance of these sites additional assessment should be undertaken to ensure the potential impacts to this site are completely considered.

3.12.3 Consistency with Concept Approval

Technical Paper 10 of the Concept Approval identified that Aboriginal consultation with the RAPs indicated that some of the RAPs identify MA6 as a site of high significance to the community. As this significance was known from the concept investigations it is unclear why further investigations have not already been undertaken, such as the engagement of an anthropologist to understand the significance, rather than deferring these matters further. This additional anthropological work should be completed prior to any approval of this stage to ensure that the heritage significance of these works is understood and that the mitigation measures proposed are suitable.

The Concept Approval identified that MA6 would be within the conservation areas of the proposed development. The proposed Stage 2 works, however, identify that the tree is now proposed for removal which is not consistent with the Concept Approval. This change in scope should be recognised in the EIS and more adequately assessed. As mentioned above the level of assessment of site MA6 is not adequate to determine the extent of impact.

Additionally, Condition E19 states that "*All future applications relevant to MA6 and MA7 (scarred trees) shall include a consideration of options for managing impacts, including evidence of consultation with Registered Aboriginal Parties".* Whilst RAPs were considered in the development of the proposed mitigation measures, it is unclear how this mitigation measure can be deemed acceptable if the significance of the site it not truly understood or recognised. It was even noted during the consultation process by members of the RAPs that scar trees are designed to stay in place in perpetuity as any removal is considered destructive and that if the tree is to be protected then a buffer zone should be added to the tree to ensure the tree is not removed in the future due to risk of injury to staff due to falling limbs. Whilst this condition does not specifically require justification of the chosen option or mitigation measure, suitable information should be provided to ensure an adequate assessment of the proposed works.

The SEARs requires that the EIS "*Consider impacts to historic heritage*" (Condition 10a). The potential noise and vibration impacts have not been considered for the two adjacent non-indigenous heritage sites and so this requirement has not been met.

3.12.4 Recommendations

The recommendations below are identified to address the identified impacts associated with Indigenous and non-Indigenous heritage to allow a comprehensive assessment of the Project:

- An ACHAR for sites MA6 and MA7 should be undertaken prior to determination to ensure the extent of heritage impacts as a result of the proposed works is fully understood.
- An anthropological study should be included in the ACHAR to ensure that significance of the identified scarred trees is full understood and to make sure suitable mitigation measures are utilised in the Project going forward.
- The Non-Indigenous Heritage Impact Assessment should be revised to assess the cumulative impact on the Moorebank Cultural Heritage Landscape to ensure an adequate level of assessment has been undertaken and that the proposed mitigation measures are suitable.
- Additional assessment is required to determine the level of acoustic and vibration impacts on the listed heritage sites adjacent to the proposed development area.

3.13 Greenhouse Gas and Ecologically Sustainable Development

The MPW Stage 2 documentation prepared to support the EIS (Arcadis, 2016), provides an assessment of the proposed IMT development. Specifically, Section 18 of the EIS provides an assessment of potential greenhouse gas (GHG) impacts that may occur as a result of development.

3.13.1 Proposed Development

The proposed development involves construction and operation of a 500,000 TEU/annum IMT with associated rail link and warehousing facilities. Relevant to GHG emission considerations, the Project will generate emissions from both the construction and operational phases. Key GHG emission sources include:

GHG emissions from the construction phase associated with:

> Fill placement and stockpiling

> Bulk earthworks including installation of drainage and utilities

> Intersection upgrades

> Installation of rail infrastructure

> Vegetation clearing (carbon sequestration loss)

> Construction and fitout of warehousing, site offices, fences/hoardings

> Structural, pavement, internal fitout and landscaping works

> Commissioning and general construction works.

GHG emissions from the operational phase associated with:

> Locomotive trains (Diesel)

> Fuel use for equipment fleet (LNG and Diesel)

> Sulphur hexafluoride (SF6) losses in switchgear.

> Refrigerant (HFC R134a) losses

> Electrical use (kWh/yr)

3.13.2 Cardno Assessment

Arcadis (2016) has provided a review of GHG emissions associated with MPW Stage 2 using the previous GHG assessment undertaken by PB in 2015 to support the MPW Concept Approval. The assessment broke up the construction phases (Phases A, B and C) and operational phases (Phases B, C and Full Build) of the MPW Project to forecast likely GHG emissions.

3.13.2.1 Assumptions

Although the structure of the assessment into various phases provides a reasonable approach to assessing the quantum of emissions, the basis for many of the assumptions used in the GHG assessment calculations are not provided. Therefore it is difficult to cross check the assumptions and correlations between the assumptions used in other key impact assessments such as for traffic and air quality to ensure consistency of data inputs which are used for the GHG assessment.

It is also noted that *Section 18.2.2 Assumptions and Exclusions* has referenced National Greenhouse Accounts (NGA) Factors as the 2015 NGA factors used to base emission calculations upon. It is noted that these NGA factors are regularly reviewed and revised to ensure GHG emission accounts use the latest available information. More current NGA factors were released in August 2016 and as the EIS was dated October 2016 the GHG assessment should therefore include a review of any potential changes and provide reference to this latest version of the NGA Factors.

The assumptions around these parameters can have a material influence on the magnitude of calculated emission predictions and therefore the findings of the GHG assessment.

3.13.2.2 Relationship to other impact assessments

A detailed review of transport and air quality related environmental impacts have been provided in **Section 3.3** and **Section 3.5**. Some inconsistencies in emission estimates within these assessments have been identified which raises the question that assumptions used in the GHG assessment may not be fully representative of the Project. Therefore the GHG assessment should be reviewed to consider any further work or amendments suggested to either the traffic or air quality assessments.

3.13.2.3 Review of Mitigation Measures

A number of mitigation measures have been included in the GHG assessment which are generally sound, however the following details of specific mitigation measures noted in *Table 3: Revised Environmental Management Measures (REMMs) prescribed for the MPW Concept Plan Approval and analysis of relevance to the Proposal* have not been discussed or addressed appropriately in Section 18 of the EIS as is stated:

Table 3-7 Review of Mitigation Measures from REMMs (Table 3 of Appendix A of EIS (Arcadis 2016))

REMM	Mitigation Measure	Comment
11A	Consider the use of vehicles with minimum emissions ratings of 7.5 for passenger vehicles and 6 for light commercial vehicles, as described in the Green Vehicle Guide (http://www.greenvehicleguide.gov.au/GVGPublicUI/home.aspx).	This detail has not been discussed in sufficient detail within Section 18 of the EIS as noted.
11E	Establish an Environmental Management System (EMS) that involves regular monitoring, auditing and reporting on energy, resource use and GHG emissions from all relevant activities; include energy audits with a view to progressively improving energy efficiency and investigation of renewable energy sources (e.g. onsite solar generation), where feasible.	This detail has not been discussed in sufficient detail within Section 18 of the EIS as noted.
11F	Investigate methods to reduce losses from industrial processes (refrigerants and SF6).	This detail has not been discussed in sufficient detail within Section 18 of the EIS as noted.

3.13.3 Consistency with Concept Approval

The SEARs require *"An updated assessment/review of direct and indirect greenhouse gas emissions arising from this development and associated impact mitigation requirements, in reference to the Concept Plan greenhouse gas assessment".*

The Concept Approval conditions of consent do not include any specific requirements in relation to GHG emissions however the supporting environmental assessment includes a range of assessment details, best practices and mitigation measures in relation to GHG emissions, which form the basis of the Concept Approval. These aspects have been considered in the review above and recommendations below.

3.13.4 Recommendations

Based on this review, it has been identified that the GHG assessment for the Project:

- Needs to provide further detail as to the basis of assumptions used to calculate emissions
- Needs to provide further information which correlates assumptions used in both the traffic and air quality impact assessments.
- The GHG assessment should provide further review and assessment of aspects identified in the REMMs (refer to Table 3 of Appendix A of the EIS (Arcadis 2016)) and further details incorporated into the mitigation measures to outline how aspects identified above in **Table 3-7** will be included in the Project.

3.14 Property and Infrastructure

The MPW Stage 2 documentation, prepared by Arcadis (2016), provides an assessment of the proposed IMT development.

Specifically, *Section 20.3 Property and Infrastructure* and *Appendix H Utilities Summary Report* summarises the potential property and infrastructure impacts that may occur as a result of the development.

3.14.1 Proposed Development

The proposed development involves a change of land use from Defence (existing) to Industrial (proposed) through the construction of an IMT and specifically the MPW discussed in the EIS (Arcadis, 2016). The proposed development would involve a substantial escalation in activity on the site, which has currently been vacated by the Department of Defence.

MPW would involve the construction of, but not limited to, a new rail-spur from the existing SSFL and associated internal rail infrastructure, freight handling infrastructure, freight storage areas (including warehousing facilities), internal roads, parking facilities, site offices and employee amenities.

The MPW Stage 2 proposal has identified the following affected properties through the construction and operational stages of the development.

Table 3-8 Property Identified as Impacted

Site	Lot Number	Ownership	Current Land Use
Proposed MPW Site	Lot 1, DP 1197707, Lots 100 and 101 DP1049508	Commonwealth of Australia (leased by SMITA)	Land was previously used by the Department of Defence as the School of Military Engineering. This facility was used for training and housing of defence personnel.
Moorebank Avenue	Lot 2, DP 1197707	Commonwealth of Australia and Liverpool City Council.	Moorebank Avenue currently runs between the M5 intersection to the North and Cambridge Avenue to the south. The road is currently available for public use. North of Anzac Parade, Moorebank avenue is owned and maintained by the RMS/Liverpool City Council. South of Anzac Parade the road is owned by the Commonwealth of Australia and is a private road, available for use by the public.
Anzac Road	Public Road Reserve	Liverpool City Council	Anzac Road runs between Moorebank Avenue and Heathcote Road. It is a major access route for residents of the Wattle Road estate and the Moorebank Business Park.
Bapaume Road	Public Road Reserve	Liverpool City Council	Bapaume Road is the access road to the industrial facility currently operated by ABB and Moorebank Avenue.
Georges River	Georges River	Crown Lands	This area is located to the west of the MPW site and north of the East Hills commuter rail line. This land is natural and includes the banks and water course of the Georges River.
Commonwealth Hourglass Land	Lot 4, DP 1130937	Commonwealth of Australia	This land is located on the western bank of the Georges River and directly north of the Glenfields Waste Facility. It is currently forested, natural land.
Bootlands	Lot 4, DP 1197707	Commonwealth of Australia	The land is located north of the East Hills rail line, east of the MPW proposed site and south of the MPE site. This land is mostly undisturbed, however a small area has been cleared and used for rail activities, including a spur of the East Hills rail line.

Other sensitive properties and infrastructure were also identified within the local site area which include;

- MPE site on the eastern side of Moorebank Avenue.
- All Saints College, approximately 400m west.

- Casula Powerhouse, approximately 370m north-west.
- Glenfield Farm listed on the State Heritage Register, approximately 650m west.
- Holsworthy Military Area, approximately 3km east.

The EIS has also identified adjacent properties to the Project that will be very closely affected by the proposed development, including;

- The recently constructed DJLU site located along Moorebank Road, north of the proposed MPE site.
- The ABB site, directly adjacent to the MPW site to the north.
- The Moorebank Business Park, located north of the DJLU site on Moorebank Avenue. The Moorebank Business Park is current tenants include BMW, Toyota and Electrolux, among others.

By progressing with the Project, the EIS has identified that there will be increased demand on the existing infrastructure and utilities. These effects include;

- Increased vehicle movements (in particular heavy vehicle movements) along Moorebank Avenue, due to trucks entering and exiting MPW.
- Increased electrical energy consumption above the existing site usage.
- Increased potable water consumption above the existing site usage.
- Increased sewer requirements above the existing site requirements.
- No major increased demand on communication infrastructure.
- No increased demand for natural gas services.

By observing the above

- The Project would increase the demands on existing utilities infrastructure systems within the area. The increased demands identified are not insignificant and engagement with utilities providers should be conducted. These increased demands include;
    - 2,826, new round trip external truck movements per day.
    - 350kL/day, ultimate additional potable water capacity.
    - 270kL/day, ultimate additional waste water capacity.
    - 9.75MVA, additional electrical power requirement per day.

3.14.2 Cardno Assessment

The EIS identified impacts to the existing property resulting from the Stage 2 project. The impacts have been categorised into Construction and Operational impacts. **Table 3-8** highlights the affected properties identified in the EIS.

Table 3-9 Summary of Visual Assessments

Impact on Existing State	*Construction*	*Operation*
Site		
MPW Site	Impact	Impact
Moorebank Avenue	Impact	Impact
Anzac Road and Bapaume Road	Impact	Impact
Georges River	Not Discussed	Impact
Commonwealth Hourglass Land and Bootlands	Not Discussed	No Impact
Land Ownership		
MPW Site	No Change	No Change
Moorebank Avenue	No Change	No Change

Anzac Road and Bapaume Road	No Change	No Change
Georges River	Not Discussed	No Change
Commonwealth Hourglass Land and Bootlands	Not Discussed	No Change
Land Use		
MPW Site	Impact	Impact
Moorebank Avenue	Impact	No Impact
Anzac Road and Bapaume Road	Impact	No Impact
Georges River	Not Discussed	No Impact
Commonwealth Hourglass Land and Bootlands	Not Discussed	No Impact

As **Table 3-8** highlights there are significant impacts to large areas of property if the Project was to move to construction. This would involve major changes to the land use of the proposed MPW site which would change from Defence to Industrial and would require a significant amount of construction activities to complete.

What is not identified in the EIS is impacts of Rail Infrastructure on the property. As the MPW site will require rail access, it will be necessary to connect to the SSFL. This will require significant construction activities associated with rail turnouts and a new rail corridor to access the MPW site. It will also require the construction of a new Georges River bridge crossing, which will have impacts on the existing waterway. Appendix F of the EIS states that the connection to the SSFL will take place through the existing Glenfields Waste Facility. This will involve significant changes to the land use of this area and potentially require a change in land ownership. These details have not been explored in the EIS, with thorough investigation required prior to progressing through the approvals process.

Although some of the surrounding properties are not directly influenced, their impacts have been lightly touched on, with respect to:

- Traffic
- Air Quality
- Noise and Vibration
- Human Health
- Visual
- Socio-economic

In some cases the indirect impacts should not be considered insignificant. For example the impacts of the Project on the Casula Power Station Centre, which will have its visual amenity greatly impacted by the development of the Project.

The proposal has identified the requirement for changes to some existing infrastructure to ensure sufficient service is provided to the proposed development. Such infrastructure includes intersection upgrades as discussed earlier in the traffic assessment and augmentation to Sydney Water and Endeavour Energy utilities. The EIS has not identified specific contributions that the developer will provide to these organisations and has highlighted that the contributions will be address when required. This is vague and creates uncertainty as to the general scope of developer contributions. The framework for developer contributions should be mentioned and estimated costs quantified to give Council, Sydney Water and Endeavour Energy an understanding of anticipated contributions to infrastructure upgrades.

The EIS has appropriately identified existing and anticipated demand for utility services. The EIS has detailed how the service demand will change and has highlighted if the existing capacity is satisfactory or whether upgrades/changes to the utilities are required. It has identified that there will be a need to upgrade some Endeavour Energy assets, as well as some Sydney Water assets. High level description of what this augmentation entails has been mentioned in the EIS, however this will need to be closely developed in collaboration with the utility owners to ensure requirements of the asset owners are address, as mentioned in this EIS. Evidence of this correspondence should be included in future submissions.

3.14.2.1 Alternative IMT Sites

Consideration in the EIS has not been given to alternative locations for an IMT or for alternative uses of the Project site. Consideration should be given to alternative locations that may require less capital investment and will have reduced environmental impacts. This could be achieved through upgrading of existing IMT sites that are currently operational. Proposed alternative locations for an IMT hub are detailed below:

Badgerys Creek/Western Sydney Airport

The development of a Western Sydney Airport will result in major government infrastructure investment within the area and Badgerys Creek becoming a focus of the Western Sydney Region. The area will be required to become a transport hub and with immediate access to air freight, provides a great alternative location for an IMT facility. Badgerys Creek will be sufficiently isolated from residential areas and communities, limiting the impacts of noise, vibration, reduced air quality, etc., to members of the community. The Badgerys Creek option will be reliant on access to Port Botany via rail, however with the development of the Western Sydney Airport, it provides further justification for the expansion of the South West Rail Link.

Enfield

Prior to construction, the Enfield site was originally proposed as a 500,000 TEU facility, however this was reduced to 300,000 TEU after community consultation. As a result the current operating site has been design for potential future expansion. The Enfield site has greater rail access compared to the MPW site as it is located approximately 17kms from Port Botany and has double track rail access for the full distance, compared to approximately 40kms of mixed single and double rail track access along the SSFL for the MPW site. The potential community and environmental impacts of expanding the Enfield site should be justified against the impacts of the MPW Project in order to fully understand the benefits of a potential upgrade.

Chullora

The Chullora IMT facility has the capability to increase its capacity from 300,000 to 600,000 TEU. Historically Chullora has been the major interstate rail freight IMT hub for Sydney. With the surrounding area containing many industrial sites and with existing rail sidings, repurposing this site into a larger IMT facility would have minimal environmental impact. Chullora has the advantage of not being dependent on one individual intersection for its road traffic and as a result has a strategical advantage flexibility over the MPW site.

Smaller Existing IMT Facilities

Currently small IMT facilities exist in Villawood, Yennora, Cooks River, Minto, Leumeah and Ingleburn. Upgrading all of these existing facilities could realise a potential increased throughput of 500,000 TEU per annum. If this approach was taken, impacts would be spread over the Sydney region rather than focused on one greatly impacted site.

With the exception of constructing an IMT hub at Badgerys Creek, upgrades to existing facilities would involve much less capital investment compared with the estimated cost of the MPW site.

3.14.2.2 Alternative MPW Land Uses

There are also other uses for the MPW site that would have a much more positive effect on the community and the environment within the Liverpool LGA. Given the MPW site location and scale, it presents a unique opportunity within the Greater Sydney South West region for a number of beneficial land uses. Some potential land uses include:

Moorebank Riverside Vision

The MPW site has been identified by Council as a first-rate riverside, residential lifestyle precinct. Such a precinct could be master planned to involve a town centre, employment lands, a mixture of residential densities and the development of the Georges River Foreshore. The benefits of such a development would include:

> Location of key housing adjacent to employment hubs and major transport networks.

> Positive community and environment impacts compared with the MPW Project.

> The capacity for over 16,000 new dwellings.

> Providing access to the Georges River for the public.

> Promote the development of the Moorebank Train Station.

High Tech Innovation Centre

The general industrial character of the site could be developed into a high tech innovation centre consisting of numerous light industrial uses. With negative impacts environmental and community impacts of the Project like noise, vibration and air quality highlighted, encouraging high tech industries onto the MPW site would lower these potential impacts, while also creating positive employment outcomes. A Moorebank Innovation Centre could be very well placed to benefit from rapid shifts occurring currently within the Sydney economy.

Education Precinct

The combined area of the MPW and MPE sites would be large enough to develop a tertiary education facility comprising of a university campus and/or a TAFE campus. The placement of a campus in the Moorebank area would service the demand for increased training and education within the growing south west Sydney region. Student accommodation and associated commercial services would also be included within the development and such a precinct would support the construction of a Moorebank Train Station. This development would also allow for improvement of the Georges River waterfront and would open the area up to public access. Importantly the Precinct would also increase employment opportunities for local members of the community, while also providing potential future employment for students.

Mixed Use

A combination of the above alternatives can be used to develop a mixed use site. For a mixed use site to become successful within the area, the following general rules would need to be applied, for example:

> Residential uses to occupy the areas adjacent to the Georges River and the southern area towards the proposed Moorebank Train Station, to increase visual amentiy.

> Commercial use to provide a barrier between industrial use and residential use and to take advantage of the high volume transport routes.

> Industrial use to occupy the northern area of the site, adjacent to existing industrial sites.

This above summary demonstrates that for a similar capital investment, existing IMT facilities can be upgraded to cope with the anticipated TEU demand increase, while generating similar amounts of employment and greater public benefit from alternative uses of the land.

3.14.3 Consistency with Concept Approval

The Infrastructure and Property assessment is mostly consistent with the Concept Approval, with respect to the assessment of the Southern Rail Access Option for the MPW site.

Generally the Project is consistent with the utilities requirements of the Concept Approval for the planning stage of the Project. The main Concept Approval requirement during planning, is to undertake an investigation into the services that exist on site and assess if they are adequate for the proposed development and if not detail how they will be upgraded to achieve the site demands. This has been completed in the

Additional utilities requirements have been detailed in the Concept Approval, however they are to be confirmed prior to construction and as such only estimations existing in this EIS.

The SEARS requires for service demand, existing capacity and future demands to be detailed within the Stage 2 EIS, which has been achieved.

The SEARs requires consideration to be given to the Liverpool City Council's Developer Contributions Plan including giving special attention to the contributions plan for the Prestons Industrial Area. Consideration has been given, however there is no commitments to developer contributions. It has been identified that the Preston Industrial Area has significant differences with the current Project and as a result the developer contributions for the Preston Industrial Area may not be appropriate for this Project. Major aspects of the Preston Industrial Area contributions, including but not limited to; location to surrounding developments, drainage infrastructure, need for transport infrastructure and ownership agreements differ from this Project and may require different developer contributions.

3.14.4 Recommendations

The recommendations below are identified to address the identified impacts associated with existing and future infrastructure to allow a comprehensive assessment of the Project.

> As previously mentioned in past assessments, a large deficiency in developer contributions exist, which should be addressed prior to determination. The EIS has identified that Council does not have a contributions framework in place for this type of development. It is recommended that a VPA be established between Council and SMITA to ensure developer contributions towards existing infrastructure is captured.

> Evidence of engagement and correspondence with Council regarding developer contributions should be included as part of any future government approvals.

> Evidence of engagement with utilities providers should accompany any future development approval process. This will aid in understanding developer contributions that might be required to upgrade existing infrastructure and demonstrate agreement with utilities providers. Evidence of engagement with Endeavour Energy has been provided in Appendix H. Engagement with Sydney Water, however this engagement only details the connection requirements to receive a Section 73 certificate.

3.15 Waste

The MPW Stage 2 documentation, prepared by Arcadis (2016), provides an assessment of the proposed IMT development. Specifically, Section 20.1 of the EIS (Arcadis, 2016) summarises the potential waste impacts that may occur as a result of development and an outline of proposed impact mitigation measures is also provided.

3.15.1 Proposed Development

The Project is seeking to build and operate the IMT facility under the MPW Stage 2 proposal. A range of waste generating activities will occur as part of the construction and operations phases of the proposed MPW Stage 2 of the overall Project and therefore a reassessment of waste considerations is appropriate for this revised development extent. These elements were assessed against the SEARs and REMMs identified in the concept plan approval.

3.15.2 Cardno Assessment

A review the EIS (Arcadis, 2016) and supporting documentation has identified some key aspects relating to waste management that are either deficient or require further work by SIMTA. Types of waste have been characterised and quantified within the EIS and opportunities to minimise, reduce, reuse, and recycle waste materials associated with the Project have also been identified during both the construction and operational stages.

The SEARs require the environmental assessment to review and consider the *NSW Waste Avoidance and Resource Recovery Strategy 2014-2021* and associated requirements. Cardno has identified that further details are required relating to a range of aspects identified in both the construction and operational phases. Following review of the waste management assessment provided a number of questions, clarifications and comments have been compiled in relation to the mitigation measures outlined in Section 20.1.5 of the EIS (Arcadis, 2016), which include:

Construction

> Characterisation of construction waste streams – further detail needs to be provided in the Construction Environmental Management Plan (CEMP) to ensure materials are characterised and segregated to avoid potential cross contamination or mixing of recyclable or reusable wastes from non-recyclable and/or hazardous wastes

> Hazardous materials – further detail needs to be provided in the CEMP on how hazardous materials will be identified, managed, handled, and disposed of in a lawful manner to ensure no further harm to the environment or personnel on site.

> Targets for reuse and recycling of waste – further detail needs to be provided in EIS and CEMP to better outline how performance targets will be set, monitored and reported on during construction.

> Education initiatives – all waste management implementation plans designed to deliver the *NSW Waste Avoidance and Resource Recovery Strategy 2014-2021* targets need to include an education and behaviour change element. Therefore further details should be incorporated in the CEMP on how education and training programs will be provided and waste management objectives are communicated to all staff working on the site. This should include information in formal training and induction programs for all personnel, provision of appropriate waste bins and signage providing clear communications on where and how recyclable, reusable and waste material should be stored and managed.

Operations

> Targets for reuse and recycling of waste – further detail needs to be provided in the EIS and OEMP to better outline how performance targets will be set, monitored and reported on during operations.

> Education initiatives – Further details should be incorporated in the future OEMP on how education and training programs will be provided and waste management objectives are communicated to all staff working on the site. This should include information in formal training and induction programs, access to site management plan requirements for all personnel, provision of appropriate waste bins

and signage providing clear communications on where and how recyclable, reusable and waste material should be stored and managed.

3.15.3 Consistency with Concept Approval

A comparative review of the Concept Approval (SSD 5066) has confirmed that the EIS has generally addressed the requirements for waste management as specifically noted in the following consent conditions:

> *B13 - The reuse and/or recycling of waste materials generated on site shall be maximised as far as practicable, to minimise the need for treatment or disposal of those materials off site;*
>
> *B14 – All liquid and/or non-liquid waste generated on the site shall be assessed and classified in accordance with Waste Classification Guidelines (Department of Environment, Climate Change and Water 2009); and*
>
> *B15 – All waste materials removed from the subject site shall only be directed to a waste management facility or premises lawfully permitted to accept the materials.*

Also, consent condition D20 (e), (iii) is associated with requirements in the CEMP which need to include:

> *"measures to monitor and manage waste generated during construction including but not necessarily limited to: general procedures for waste classification, handling, reuse, and disposal; use of secondary waste material in construction wherever feasible and reasonable; procedures for dealing with green waste including timber and mulch from clearing activities; and measures for reducing demand on water resources (including potential for reuse of treated water from sediment control basins"*

However some further improvements to the management of waste during the Project, especially in relation to specification of waste reduction targets, should include education of personnel, enhancement of construction and operational management plans. These are outlined below in the recommendations.

3.15.4 Recommendations

The recommendations below are identified to address the identified impacts associated with waste management to allow a comprehensive assessment of the Project:

- Education initiatives – All waste management implementation plans designed to deliver the *NSW Waste Avoidance and Resource Recovery Strategy 2014-2021* targets need to include an education and behaviour change element. Therefore further details should be incorporated in both the CEMP and OEMP to provide details on how education and training programs will be provided and waste management objectives are communicated to all staff working on the site. This should include information in formal training and induction programs for all personnel, provision of appropriate waste bins and signage providing clear communications on where and how recyclable, reusable and waste material should be stored and managed.
- Characterisation of construction waste streams – Further detail needs to be provided in the future CEMP and OEMP to ensure materials are characterised and segregated to avoid potential cross contamination or mixing of recyclable or reusable wastes from non-recyclable and/or hazardous wastes
- Hazardous materials – further detail needs to be provided in the CEMP on how hazardous materials will be identified, managed, handled, and disposed of in a lawful manner to ensure no further harm to the environment or personnel on site.
- Targets for reuse and recycling of waste – Further detail needs to be provided in EIS on how the OEMP and CEMP will define how performance targets will be set, monitored and reported on during both the construction and operations phases of the Project.

3.16 Socio Economic

The MPW Stage 2 documentation, prepared by Arcadis (2016), provides an assessment of the proposed IMT development.

Specifically, *Section 20.5* summarises the potential Socio-economic impacts that may occur as a result of the Project. This section assess the impact that the Project will have on the socio-economic issues, both regionally and locally during construction and operation of the MPW facility.

3.16.1 Proposed Development

The Project has been identified as having both positive and negative socio economic impacts on the community. The EIS has identified that the Project is to be constructed within the Liverpool LGA, which according to the 2011 census ranks 103 out of 153 LGAs in NSW for disadvantage. The EIS also identifies that the employment levels within the adjacent suburbs of Casula, Moorebank and Wattle Grove are between 93-95%, which is above the NSW average of 93%. The EIS concludes that the area of the proposed development has a demographic consistent with the remainder of the Greater Sydney region and has above average advantage compared to the rest of NSW.

Throughout the construction phase of the Project both positive and negative impacts have been identified. Positive impacts include, the creation of 570 jobs during peak construction and the potential for increased trade to local business. Negative impacts include, decreased access to surrounding roads such as Moorebank Avenue, increased disruption and disturbance to local business and residence, decreased air quality and increased noise levels due to construction activities, decreased visual amenity and increased heavy vehicle movements along surrounding roads.

Similarly to the construction phase, both positive and negative impacts have been identified for the operation of the Project. The EIS has identified that long-term, positive impacts are anticipated to be experienced at a regional level and the short-term positive and negative impacts are expected to be experienced on a local level. Positive impacts include, the creation of approximately 1,200 jobs at the facility, the site being situated in an ideal location for such a facility (adjacent to a dedicated freight rail line and a major Sydney freeway), the regional reduction of road freight traffic and the anticipated increased trade to businesses within the local area. The negative impacts include, increased stress and anxiety experienced by the community, decreased air quality (considered negligible), increased road traffic and facility noise, decreased visual amenity and increased light pollution and decreased health outcomes due to air quality and noise impacts (considered negligible).

3.16.2 Cardno Assessment

The Socio-economic impacts assessment has used both quantitative and qualitative information to support finding of the Project assessment. Specifically, the assessment identified potential impacts to traffic, employment, demographic changes, noise and vibration, air quality and visual amenity will possibly impact on the general socio-economic status of the local community.

Community consultation is mentioned as a mitigation and improvement measure, however there is no mention of how much weight will be given to community issues that are identified during the process. Providing details of how community concerns will be addressed will allow community consultation to be very effective, as community members will feel appropriately engaged, with clear outcomes for their concerns.

The construction phase impacts on access arrangements, community perception, air quality, noise, visual amenity and traffic/transport would occur for a period of 36 months. These impacts are classed in the EIS as negative short-term. However, with the construction anticipated to be conducted over 36-months it is more appropriately categorised at a minimum as medium-term. The EIS has identified that these impacts will only be temporary, however due to the anticipated duration of the construction phase these impacts should not be considered as negligible.

Similarly, the EIS has identified that local positive and negative impacts of the site operation are anticipated to be short-term. With the MPW proposed to be operated indefinitely, it is not believed appropriate to class these impacts as anything other than long-term.

A positive identified is the decrease of road freight on a regional level. This reduction, however must be considered against the large increase in the road freight that would be anticipated around the proposed site

within the Liverpool LGA. There is anticipated to be an increase of approximately 2,826 round trip truck movements per day entering/exiting the proposed site. This is a significant increase of heavy vehicles in the area which will have negative impacts on road maintenance and increased road safety risks.

As discussed in Section **3.16.2** there are numerous benefits to the Socio-economic status of the Liverpool LGA through the relocation of the proposed IMT TEU capacity to other sites within Sydney and utilising the MPW site in other ways, such as Riverside Residential Development, a High Tech Innovation Centre or and Education Precinct. As detailed above these alternative developments could have far greater positive Socio-economic outcomes for the area, while greatly reducing the negative impacts. The suggested alternative will still give the Sydney region the required increased TEU processing capabilities, provide greater net benefits for the Liverpool LGA, for a similar capital investment.

3.16.3 Consistency with Concept Approval

The Stage 2 EIS for the Project is generally consistent with the Concept Approval. The Concept Approval is written with respect to a Northern, Central or Southern rail access option. For the Stage 2 EIS only the Southern rail access option is considered and as a result some socio-economic impacts have been lessened by moving the rail access connection to the south and further away from sensitive property.

The Stage 2 EIS and the Concept Approval have similar findings with respect to Socio-economic impacts. Both submissions anticipate that the Project will have positive impacts on local employment, minimal changes to the areas demographic. Negative impacts are expected on social amenity (noise, traffic, air quality, and vibration), no direct impacts to businesses within the local area have been identified. However, there is potential for positive impacts to local business if an appropriate locally focused procurement policy is put in place for both construction and operation. The procurement policy should place a higher emphasis on local employment and products to incentivise local job creation and economic input.

Neither the SEARs nor the Conditions of Approval require an assessment of the Socio-economic impacts of the Project and this assessment has been included in the EIS to ensure a thorough investigation.

3.16.4 Recommendations

The recommendations below are identified to address the identified impacts associated with Socio-economic to allow a comprehensive assessment of the Project:

> The negative socio-economic impacts have been down played, by suggesting that they will only be experienced temporarily. More focus should be given to mitigation measures of these expected negative impacts prior to approval being granted.

> It is recommended that a tracking system be developed to ensure all community feedback and complaints are captured, assessed and the appropriate action taken. This can be cover by a Statement of Commitments to demonstrate how all negative impacts to the local community will be mitigated during construction and operation of the Project.

> Commitments should be made to employ 25% of the construction and operational workforce from within the Liverpool LGA to ensure that the identified positive socio-economic impacts are realised.

> Any assessment of operational workforce should account for future trends and emerging technologies in optimisation and automation of similar facilities to accurately capture life-cycle employment levels of the facility during operation.

> The developer should provide a register of preferred supplies to ensure that procurement of workforce and sub-contractors comes from local businesses to ensure anticipated positive socio-economic impacts are realised in the local area.

> As economic conditions are fluid, anticipated employment numbers and greater economic impacts should be reassessed prior to construction approval being granted to ensure that an accurate representation of the employment and local socio-economic impacts can be reviewed.

> A full net economic assessment of the Liverpool LGA should be conducted and provided to ensure that negative impacts like increased road maintenance, increased congestion, decreased air quality can be quantified against social and economic benefits.

- A Statement of Commitment should be prepared to detail how the developer is going to mitigate anticipated negative impacts to noise and vibration, air quality, visual amenity and traffic will be carried out.
- The developer should investigate the potential for local TAFE and University campuses to conduct employment development training courses to encourage local community members to enrol and improve the personal skills. This could lead to an improved skilled workforce within the local community, which will be able to service the expected employment requirements.

4 Conclusions & Recommendations

This section provides a summary of findings and overall conclusion to the study, along with associated recommendations.

A review of the MPW Stage 2 development has been undertaken to inform the Liverpool City Council (Council) submission to the public exhibition of the Environmental Impact Statement (EIS) (Arcadis, 2016). The review considered Stage 2 in the context of Concept Approval (SSD_5066) for Moorebank Precinct West (MPW), along with the associated Conditions contained within Schedule 4 that are of relevance to Stage 2, the Revised Environmental Management Measures (REMM's) and the Secretaries Environmental Assessment Requirements (SEARs).

Stage 2 is heavily dependent on the early works package progressing. Consequently, the review has also considered the proposed Section 96 modification to the Concept Approval. The focus of the review is on Stage 2 of the MPW project, however, given the proximity of the Moorebank Precinct East (MPE) site to MPW and similarity of use, there is the potential for large scale and wide ranging cumulative environmental impacts.

The review has identified that environmental impacts of the proposal are extensive and primarily focused on the area immediately surrounding Moorebank and the key transport routes servicing the site. The review of the EIS and supporting documentation has identified that the MPW Stage 2 Project raises a number of concerns due to the range of impacts on the environmental, social and economic fabric of the locality. Many of these concerns have previously been raised by Council and are yet to be adequately addressed.

The gaps in assessment are particularly evident when viewed in the context of the REMM's and the Conditions of Approval Schedule 4. The REMM's and Schedule 4 were specifically identified previously by the proponent and the Department of Planning and Environment (DP&E) respectively to limit the impacts of the project on the surrounds. Impacts including traffic, noise, air quality, flooding, biodiversity, visual and heritage are not addressed to a degree that would allow a determining authority to make a decision on such a significant development with confidence.

The flaws in the EIS analysis and residual impacts which have not been mitigated suggest that the proposal should not be approved in its current form. The following subsections summarise the key issues associated with the project and propose a way forward.

Cumulative impacts remain insufficiently addressed despite ongoing requests from agencies and the community to undertake a precinct wide master planned approach. It is essential that a precinct-wide planning process be undertaken, informed by the agreement between Sydney Intermodal Terminal Alliance (SIMTA) and Moorebank Intermodal Company (MIC) as to the extent of cooperation and integration of the two proposed Intermodal Terminals (IMT's), while also considering Council's strategic intent for the site and surrounds. Inputs would also be required from other stakeholders including the DP&E, Transport for NSW and RMS.

The sub-sections below provide a brief summary of the reoccurring themes identified by the review.

4.1 Reoccurring Themes

The assessment identified a number of reoccurring themes that have not been adequately addressed in the Stage 2 EIS that continue to be major shortcomings of the Project. The following requires the immediate attention of the proponent prior to any determination:

4.1.1 Concept Approval/Stage 1 Modification

A modification to Concept Approval SSD_5066 under Section 96 of the EP&A Act has been lodged by SIMTA with DP&E for amendments to the Stage 1 (Early Works) package. The Stage 1 Early Works that are proposed to be modified are essential to the subsequent development of Stage 2.

The reliance of Stage 2 on Stage 1, should prevent the Stage 2 assessment from being undertaken before the Stage 1 modification is determined. This is particularly important given the modification does not have a strong legal basis, as it does not satisfy the 'substantially the same' test.

4.1.2 Traffic and Transport

A number of the assumptions used to inform the environmental assessments are either not identified or not considered rigorous or conclusive enough to fully assess traffic impacts. The Project's traffic and transport assessment is a key consideration with the potential to create impacts across a number of environmental aspects.

The review of the traffic and transport movements associated with the Project identified that the Project would impact on road congestion in proximity to the site, noise, air quality, visual amenity and subsequently human health and thus a thorough assessment of the traffic environment and associated impacts is critical for both the construction and operational stages.

4.1.3 Local Infrastructure Contributions

A major gap identified in the MPW Stage 2 EIS is a lack of commitment to providing Local Infrastructure Contributions. Consideration was required to be given to the relevant Council's Contributions Plan or equivalent by the SEARs. The EIS (Arcadis, 2016) does not commit to payment of contributions, only that they would be considered once the RMS Precinct Model is finalised. Lack of commitments during the planning approvals phase is likely to result in Council having to fund assets and gaps in infrastructure created by the Proposal, which places an inequitable burden on Council and could set an unwelcome precedent for similar development in NSW.

It is recommended that a VPA between SIMTA and Council is prepared to ensure a fair and equitable outcome regarding local infrastructure contributions is achieved. Alternatively, the DP&E is able to impose a condition under Section 94A of the EP&A Act, in accordance with the provisions listed at Clause 94B (2) of the EP&A Act.

4.1.4 Biodiversity

The biodiversity review identified a number of inconsistencies and shortcomings with both the biodiversity assessment and associated FBA analysis. These issues have the potential to substantially reduce the significance of the Project impacts on biodiversity, while significantly underestimating the ecosystem credits required by between approximately 700 and 1,000, with credits anticipated to be priced at between $9,000 and $17,000 per credit. The deficiencies in the Biocertification calculations are extensive requiring reassessment and a revised FBA.

The revised FBA should review the landscape value, which has been significantly underestimated, with the whole development assessed as one impact. This would mean that the whole assessment will need to be run with the landscape score of 26.8. The implications for the revised landscape score would be an increase in biodiversity impacts and a substantial increase in credit purchase costs.

4.1.5 Lack of Firm Commitments

Whilst the prescribed commitments were identified as part of the EIS (Arcadis, 2016), a number of deficiencies were identified that relate to a lack of adequacy and completeness. These include deferring and potentially avoiding essential infrastructure contributions payments.

The Traffic, Stormwater/Flooding, Biodiversity and Heritage assessments do not provide comprehensive assessments that addresses the identified commitments in Schedule 4 of the Concept Approval, or the REMM's, with further assessment and commitments required. Given the high potential for impact rigorous commitments should be made to achieve specific environmental criteria. Without clear commitments there are likely to be impacts on the environment and human health, resulting from noise, reduced air quality and visual amenity, as well as increased truck movements.

4.1.6 Ongoing Regulation Requirements

Council has concerns in relation to the ongoing regulation of the proposed facility. Council is not equipped with the resources and manpower to oversee a facility of this size and operational capacity. This will lead to inadequate regulation of the site with major implications for the environment and community. The Federal and State Government must take a lead role in the regulation of the development if approval is granted. This will ensure that the community and environment are best protected from the impacts that are likely to result from the proposed development. The EPA is therefore believed to be the most appropriate regulatory authority for the proposed development and associated activities should approval be granted.

4.1.7 Cumulative Effects

The cumulative effects of the MPW and MPE proposals have not been adequately assessed or addressed. The EIS does not address the request to combine the two sites through a master planned approach, or acknowledge that the proposal should be developed and assessed to establish whether an IMT of this scale at Moorebank is reasonable. An agreement between MIC and SIMTA has been acknowledged in a media release in June 2015. Consequently, it is reasonable to expect that a combined solution could have been developed in this time. The lack of a master planned approach ensures the cumulative impacts of the MPW and MPW sites are not clearly articulated and an assessment of whether the significant environmental impacts can be mitigated preferably on land under the proponents control.

4.2 Recommendations

Cardno's review has identified a number of recommendations that include additional assessment requirements, identification of management plans and operational procedures and firmer commitments relating to compensation schemes and long term environmental monitoring.

The Section 96 modification to the Concept Approval should be determined prior to any further consideration of the Stage 2 Project, due to the reliance of Stage 2 on the Concept Approval and associated early works. Prior to the issue of an Occupation Certificate (Interim or Final), written certification from a suitably qualified person(s) shall be submitted to the Principal Certifying Authority and Consent Authority stating that all works/methods/procedures/control measures/recommendations approved by the Consent Authority in the following reports (including but not limited to) have been completed:

> Environmental Impact Statement

> All other Environmental Assessment reports supporting the application.

The preparation of a precinct wide master plan for the Moorebank Area (inclusive of the MPW and MPE sites, as previously recommended by the PAC, is an overarching recommendation that is necessary, justified and in the public interest. The outcome of the master planning process would provide additional certainty for the community and would address the currently unmitigated residual impacts.

Due to Council's concerns in relation to resourcing the regulation of the development, the EPA (with support of other State and Federal Government agencies) is the most appropriate regulatory authority for the proposed development and associated activities, should approval be granted.

Overall, in its current state, the Project Application does not adequately address a number of key environmental matters which, if left unchecked, have the potential to cause significant impacts to the built and physical environment of the locality and wider region. Consequently, it is recommended that the MPW Stage 2 Project Application not proceed in its current state.

5 References

Arcadis (2016), *MPW Stage 2 Environmental Impact Statement*

Cardno (August 2016) *SIMTA Intermodal Terminal Project – Moorebank Precinct West, Peer review of Proposed Modification*

Golder (2016a) *Geotechnical Interpretive Report*

Golder (2016b) *Moorebank Intermodal Terminal Contamination Summary Report Stage 2 SSD*

Office of Environment and Heritage (OEH) (2014a) *Framework for Biodiversity Assessment: NSW Biodiversity Offsets Policy for Major Projects*. Published by the State of NSW and Office of Environment and Heritage.

Office of Environment and Heritage (OEH) (2014b) *Biodiversity Offsets Policy for Major Projects*. Published by the State of NSW and Office of Environment and Heritage.

Office of Environment and Heritage (OEH) (2014c) *Biobanking Assessment Methodology*. Published by the State of NSW and Office of Environment and Heritage.

Parsons, Brinkerhoff (2014a), *Phase 2 Environmental Site Assessment Moorebank Intermodal Terminal*

Parsons Brinckerhoff (2014b), *Moorebank Intermodal Freight Terminal – Ecological Impact Assessment. Prepared for the Moorebank Intermodal Company*

Parsons Brinckerhoff (2015), *MPW Final EIS*

Wilkinson, Murray (2015), *SIMTA Intermodal Terminal Facility – Stage 1 – Noise and Vibration Impact Assessment*

Wilkinson, Murray (2016), *Noise and Vibration Impact Assessment*