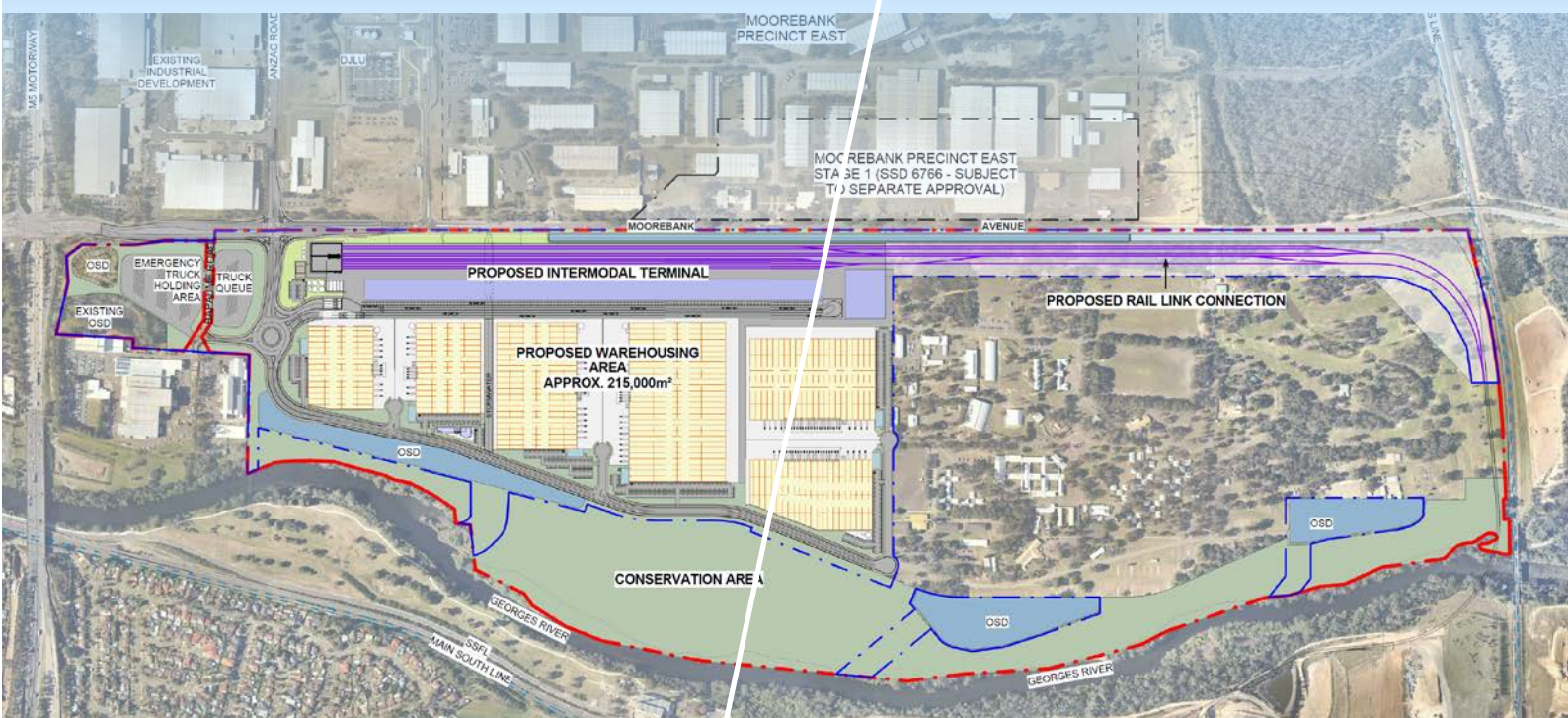


Moorebank Precinct West Stage 2

State Significant
Development Assessment
(SSD 7709)
May 2019



May 2019

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Cover photo

Attachment B of Attachment O, Consolidated Assessment Clarification Responses (Arcadis 2018)

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Glossary

Abbreviation	Definition
AEP	Annual Exceedance Probability
AHD	Australian Height Datum
Applicant	SIMTA, as Qube Holdings Limited
ARI	Annual Recurrence Interval
BAR	Biodiversity Assessment Report
CIV	Capital Investment Value
CIP	Community Involvement Plan
Commission	Independent Planning Commission
Consent	Development Consent
Council	Liverpool City Council
dB	Decibel
Department	Department of Planning and Environment
DJLU	Defence Joint Logistics Unit
DPI	Department of Primary industries
EIS	Environmental Impact Statement
ENM	Excavated Natural Material
EPA	Environment Protection Authority
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EP&A Regulation	<i>Environmental Planning and Assessment Regulation 2000</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Commonwealth)
EPI	Environmental Planning Instrument
EPL	Environment Protection Licence
ESD	Ecologically Sustainable Development
FBA	Framework for Biodiversity Assessment
FRNSW	Fire and Rescue NSW
GANSW	Government Architect New South Wales
GFA	Gross Floor Area
IMEX	Import/export
LEP	Local Environmental Plan
LGA	Local Government Area
LoS	Level of Service
Minister	Minister for Planning
MPE	Moorebank Precinct East
MPW	Moorebank Precinct West

OEH	Office of Environment and Heritage
OSD	Onsite detention
RMS	Roads and Maritime Services
RtS	Response to Submissions
SEARs	Secretary's Environmental Assessment Requirements
Secretary	Secretary of the Department of Planning and Environment
SEPP	State Environmental Planning Policy
SRD SEPP	<i>State Environmental Planning Policy (State and Regional Development) 2011</i>
SSD	State Significant Development
SSFL	Southern Sydney Freight Line
TEU	Twenty-foot equivalent unit. A measure of freight cargo, equivalent to a standard shipping container
TSC Act	<i>Threatened Species Conservation Act 1995</i>
VENM	Virgin Excavated Natural Material



Executive Summary

SIMTA, as Qube Holdings Limited (the Applicant) proposes to develop an intermodal freight terminal facility on land known as Moorebank Precinct West (MPW), located on the western side of Moorebank Avenue, Moorebank in the Liverpool Local Government Area.

The development is Stage 2 of the approved MPW Concept proposal. The proposal comprises:

- earthworks including the importation of 1,600,000 cubic metres (m³) of fill and vegetation clearing
- intermodal terminal (IMT) facility to accommodate 500,000 twenty-foot equivalent unit (TEU) container throughput capacity per annum
- container storage area
- rail connection and internal road infrastructure
- 215,000 square metres (m²) gross floor area (GFA) of intermodal warehouse use
- 800 m² GFA freight village including retail use
- stormwater management infrastructure, including six onsite detention (OSDs) basins
- upgrade of Moorebank Avenue/Anzac Road intersection
- ancillary works including utilities installation/connection, signage and landscaping.

A concurrent Modification Application (SSD 5066 MOD 1) has also been lodged, to amend the terms of the existing Concept consent to facilitate this development.

The MPW Stage 2 proposal has a Capital Investment Value (CIV) of \$533 million and would generate approximately 750 operational jobs and 1,100 construction jobs.

Statutory context

The proposal is SSD under clause 19 of the *State and Environmental Planning Policy (State and Regional Development) 2011* (the SRD SEPP), as it is development for the purposes of railway freight terminals and associated railway infrastructure for the purposes of container packing, storage or examining with a CIV of more than \$30 million.

The Independent Planning Commission is the consent authority, as Liverpool City Council objected to the proposal and more than 25 public submissions objected.

Engagement

The application was publicly exhibited from 26 October 2016 until 25 November 2016 (a period of 31 days). The Department of Planning and Environment (the Department) received a total of 137 submissions — seven from public authorities, and 130 from the public. An additional eight submissions from public authorities were received on the Applicant's Response to Submissions (RtS). All individual members of the public making submissions objected to the proposal, as did the Liverpool Action Group and the Ryde - Hunter's Hill Flora and Fauna Preservation Society. In March 2017, the Department met with community representatives who presented their concerns about the overall Moorebank Intermodal Precinct development.

Community concerns related to traffic impacts, pollution, environment / ecological impacts, noise impacts, air quality, health, suitability of the site, in-principle objection, insufficient information and lack of community consultation, impact from lighting, and dangerous goods and chemicals.

Assessment

The Department identified the key issues for assessment as the proposed site and built form layout and design, in particular the buffer to the Georges River, site landscaping and stormwater management; and soils and water, traffic, noise, air quality, biodiversity and contamination impacts.

The application was assessed against the Department's recommended conditions for the MPW Concept Modification Application and, should the Modification Application be approved, the Stage 2 application would be consistent.

The existing MPW Concept consent requires a riparian corridor between the Georges River and the development site to protect biodiversity values, habitat connectivity and soil and bank stability. The Department is concerned that parts of the development are located too close to the top of bank on the Georges River. It is recommended that the corridor is widened to include all land affected by the 1% AEP flood (aka. the 1 in 100 year flood event) plus a buffer to the development.

The Department acknowledges the importance of maintaining clear access for the safe and efficient movement of containers and vehicles throughout the site. However, the Department has concluded that there is insufficient landscaping across this large site and increased vegetation cover is needed for employee amenity, visual screening and shade (to promote site cooling). The Department has recommended a series of design criteria to inform a revised landscape layout, including wider, vegetated setbacks from internal and external roads, and planting canopy trees within car parks. This would be supported by other urban design requirements such as the use of cool building and pavement materials (such as green roofs), and improvements to the proposed drainage and stormwater plans by incorporating water sensitive urban design.

The Department's assessment of the Applicant's proposed drainage and stormwater plans was assisted by an independent review by Alluvium. It was concluded that the proposal for hard engineered structures, such as deep and narrow concrete-lined channels/basins and dual function (onsite water detention and treatment) basins, does not reflect good practice or water sensitive urban design principles. The Department has recommended clear objectives and criteria for revising the stormwater design, including sloped sides to all basins, which would increase sunlight to facilitate growth of water-filtering vegetation in the bottom of the basins, reduce safety issues and improve maintenance access. The Department supports other improvements already committed to by the Applicant, including the use of rock boulders to line outlets to the Georges River and some upstream water treatment systems, such as raingardens.

The Department sought advice on air quality from Todoroski Air Sciences. The Department considers that soils and water impacts can be effectively managed by undertaking land disturbance and filling in a phased manner, impacting a maximum contiguous area of 65 hectares at any one time, being equal to around one-third of the site area. No disturbance of other areas on site should be permitted until defined triggers for stabilisation of the previous area of disturbance have been met.

The Department's assessment concluded that the proposal would significantly increase traffic to and from the site and impact on the regional road network. The Applicant has consequently entered into a Voluntary Planning Agreement for Roads and Maritime Services to make a cash contribution of \$48 million to regional road upgrades. The Department considers that operational traffic impacts are manageable subject to the planning agreement and upgrade of the Moorebank Avenue/Anzac Road intersection (site access). As construction impacts are primarily associated with fill importation, the Department recommends a precinct-wide (MPW +

MPE) cap on fill importation of 22,000 m³ per day, consistent with the Commission's requirements for the MPE Stage 2 application.

The Department's assessment of construction and operational noise impacts was assisted by EMM Consulting. It was concluded that construction impacts can be managed effectively through a Construction Noise and Vibration Management Plan and compliance with standard construction hours, with extended works permissible under an out of hours work protocol (if further justification is developed). Operational noise impacts are expected to comply with the project specific noise criteria as modelled with a noise barrier on the western side of the site, with minor (1dB) exceedences west of the site. To address rail noise, the Department recommended applying the controls adopted for MPE Stage 1 for port shuttle trains and imposing noise management controls and monitoring for all other trains (eg. regional trains) using the rail link from the Southern Sydney Freight Line.

Locomotives accessing the site from Port Botany would also be required to comply with the Applicant's agreed standards on diesel particulate emissions and future improvements, which were developed and approved subsequent to the MPE Stage 1 intermodal terminal development consent.

The Department has considered the impacts on biodiversity values associated with clearing and filling the site, and has concluded that the Applicant proposes to adequately offset those impacts. The Department's assessment considered recently discovered threatened species, i.e. *Hibbertia puberula* subsp. *puberula*, and Koala. Both these species were found on the site post EIS exhibition, and offset credits were recalculated accordingly. Despite this, the Department considers additional measures are needed to protect the Koala and has recommended that the Applicant prepare a Koala Management Plan to minimise potential future impacts and identify habitat connectivity.

The Department considers that completion of remediation prior to construction is a key outcome, which is consistent with the views of the Applicant. The Department has therefore recommended that a final Site Audit Statement, endorsed by a Site Auditor, be provided by the Applicant prior to construction. Any environmental management obligations attached to that Site Audit Statement would be set out in an associated site long term management plan. As there could be unexpected finds, including unexploded ordnance, the Department recommends a comprehensive unexpected finds protocol, with the protocols for management of ordnance prepared by a suitably qualified consultant/contractor listed on the Department of Defence Panel.

The Department has considered the key community concerns, the main impacts of the proposal as assessed and taking into account the advice of independent consultants and agencies and consistency with the Concept approval.

The Department has also considered the merits of the proposal in accordance with relevant matters under Section 4.15(1), the objects of the Environmental Planning and Assessment Act 1979, the principles of Ecologically Sustainable Development, and issues raised in all submissions as well as the Applicant's response to these.

Overall, the Department considers that the proposal has considerable strategic merit as an important element of future freight distribution in Western Sydney and the State broadly. As set out in the NSW Freight and Ports Plan, intermodal terminals within Greater Sydney are 'critical for increasing the utilisation of the rail freight network, particularly containers to and from Port Botany'. Moorebank Intermodal is identified as an 'important freight and logistics precinct' in Building Momentum: State Infrastructure Strategy 2018-2038, and the Moorebank Intermodal projects are acknowledged in strategic planning documents as part of achieving the NSW Government's strategic aim to increase the rail share of freight transport in NSW.

The Department considers that the recommended conditions of consent provide a comprehensive, strict and precautionary approach to ensuring the proposal can be constructed and operated in accordance with the requirements of Government policy and guidance, and residual impacts would be effectively managed.

The Department concludes the proposal is in the public interest and recommends that the application be approved subject to conditions.



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1. Introduction

This report provides an assessment of a State significant development (SSD) application for an intermodal freight terminal facility on land known as Moorebank Precinct West (MPW), located on the western side of Moorebank Avenue, Moorebank.

The development is Stage 2 of the approved MPW Concept proposal (SSD 5066). The proposal comprises:

- earthworks including the importation of 1,600,000 cubic metres (m³) of fill and vegetation clearing
- intermodal terminal (IMT) facility to accommodate 500,000 twenty-foot equivalent unit (TEU) container throughput capacity per annum
- container storage area
- rail link and internal road infrastructure
- 215,000 square metres (m²) gross floor area (GFA) of intermodal warehouse use
- 800 m² GFA freight village including retail use
- stormwater management infrastructure, including six onsite detention (OSDs) basins
- upgrade of Moorebank Avenue/Anzac Road intersection
- ancillary works including utilities installation/connection, signage and landscaping.

The application has been lodged by SIMTA, as Qube Holdings Limited (the Applicant). The site is located within the Liverpool local government area (LGA).

1.1 Site description

Moorebank Intermodal Precinct

The Moorebank Intermodal Precinct (also known as the Moorebank Intermodal Freight Precinct or Moorebank Logistics Park) is located at Moorebank Avenue, Moorebank, south of Liverpool, and is proposed to comprise an interstate, intrastate and port shuttle freight and logistics handling facility for the Sydney Metropolitan Area. The Precinct covers an area of approximately 303 hectares and extends from the M5 South Western Motorway and the Defence Joint Logistics Unit (DJLU) site in the north and north-east, to the East Hills Rail Line in the south. It is divided into two sites: MPW and Moorebank Precinct East (MPE) (**Figure 1**).

Two separate conceptual approvals cover the MPW and MPE sites:

- a concept approval for MPW: an import/export (IMEX) port shuttle freight terminal and a separate interstate/intrastate freight terminal and associated warehousing and estate works (SSD 5066) – see **section 1.2**.
- a concept plan approval for MPE: an IMEX port shuttle freight terminal, rail link to the South Sydney Freight Line (SSFL) and associated warehousing and estate works (MP 10_0193) – see **section 1.3**

The site and surroundings

The MPW site is located on the western side of Moorebank Avenue, and forms the western section of the Moorebank Intermodal Precinct (refer to **Figure 1**).

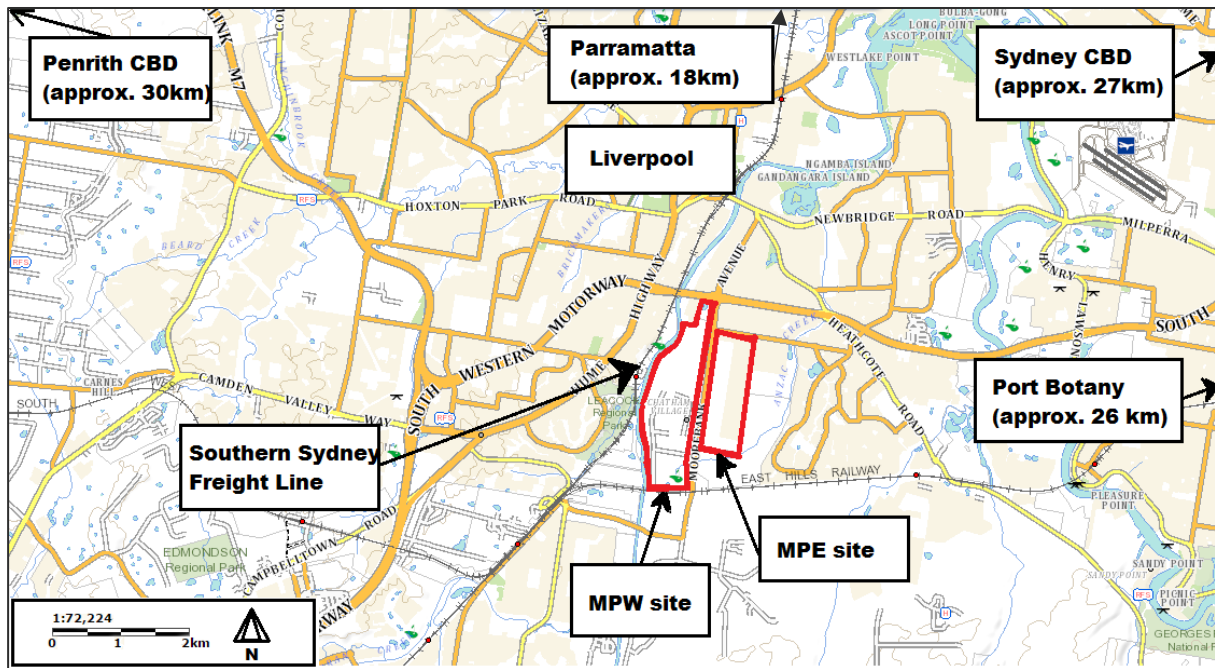


Figure 1 | Site location (outlined red) (Base source: SIX Maps)

The MPW site is irregular in shape, approximately 3 km from north to south and 960 m from east to west at its widest point, and covers an area of approximately 220 ha. It is situated between the Georges River to the west (with the SSFL running north-south to the west of the river); and Moorebank Avenue, the MPE site, densely vegetated Commonwealth Land (known as the 'Boot Land') and the DJLU site to the east. The Holsworthy Military Reserve is located south of the East Hills line.

The surrounding area is comprised of a number of different land-uses. To the north, beyond the DJLU, is a 200 ha industrial precinct, which supports a range of uses including freight and logistics, heavy and light manufacturing, office and business park developments. Residential land uses are beyond.

The closest residential properties to the site are located in Casula to the west (approximately 200 m), Wattle Grove North to the north-east (approximately 650 m), Glenfield to the south-west (approximately 800 m) and Wattle Grove to the east (approximately 1 km).

The M5 South Western Motorway is located to the north of the site and the Southern Sydney Freight Line is located approximately 1 km west. The East Hills line is located to the south of the site. The location of the site in the context of major transport corridors and infrastructure is shown in **Figure 2**.

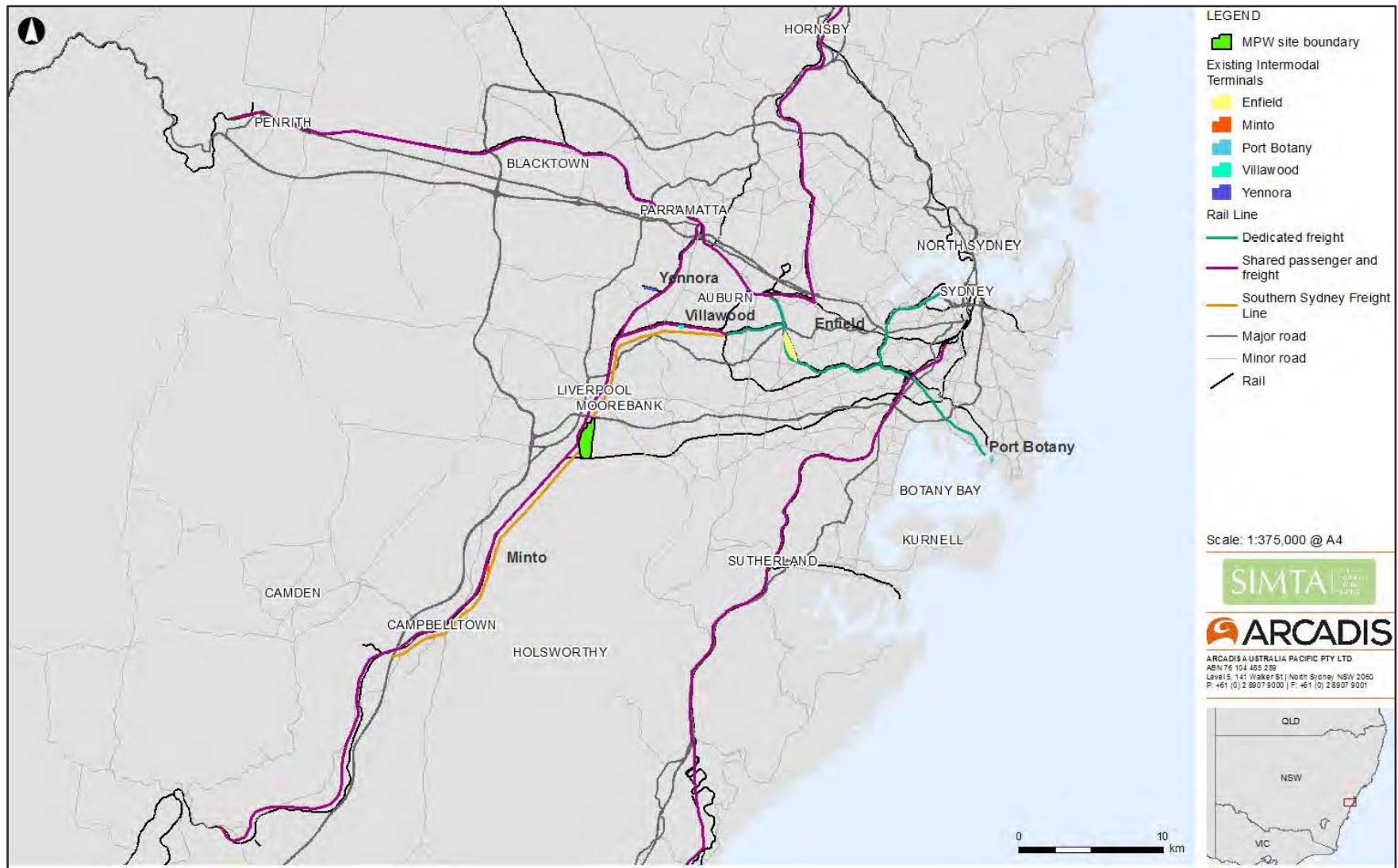


Figure 2 | Metropolitan transport context (Source: Figure 2-1, EIS)

1.2 Voluntary planning agreement

Under the Liverpool Local Environmental Plan (LEP) 2008, the Applicant must make satisfactory arrangements to contribute to the provision of relevant State public infrastructure for development applications on the MPW site. The requirement to make satisfactory arrangements was set when the site was rezoned for future use as an intermodal terminal, and applies where the site is developed intensively for an intermodal terminal.

Given this proposal would contribute to a significant net increase in traffic to and from the site, the Applicant is required to make satisfactory arrangements to contribute to provision of State and regional road upgrades. It was established that the planning agreement would be entered into between the Applicant and RMS, for the public purpose of the provision of (or the recoupment of the cost of providing) transport or other infrastructure relating to the land. The Applicant subsequently made an offer to Roads and Maritime Services (RMS), as a planning authority, to enter into a planning agreement, under which Applicant proposes to:

- make a cash contribution of \$48 million to regional road upgrades; and
- upgrade Moorebank Avenue south of the entrance to MPE freight terminal or, if an environmental impact assessment is completed and a separate planning approval granted at a later date, relocate Moorebank Avenue to the east of the MPE site (known as the Moorebank Avenue realignment).

The draft planning agreement was exhibited from 1 November 2018 to 29 November 2018. Eleven submissions were received, which were considered by RMS. No amendments were made to the planning agreement based on the issues raised in submissions, but amendments were subsequently made to alter the alignment of the proposed Moorebank Avenue realignment so the road would not impact on the DJLU land, and reflect Commonwealth approval requirements. The planning agreement was executed by the parties on 25 March 2019.

On 23 April 2019, the Acting Deputy Secretary, under delegation from the Planning Secretary, certified in writing to the consent authority that satisfactory arrangements have been made to contribute to the provision of relevant State public infrastructure in relation to the development on the site.

1.3 Related development

On 3 June 2016, the Planning Assessment Commission — now the Independent Planning Commission (the Commission) — approved the following applications for the MPW site under development application SSD 5066, as delegate of the Minister for Planning:

- Concept Approval: 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
- Stage 1 Early Works: 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 MPE Stage 1 early works are ongoing.

The Department has concurrently assessed an application to modify the Concept consent, in conjunction with this application for MPW Stage 2. The application seeks to modify the Concept proposal parameters to allow for:

- Importation of 1,600,000 m³ of fill for bulk earthworks

- Amendment to the intermodal terminals (i.e. the development of a single terminal on site, and deletion of a southern terminal)
- Reclassification of the northern intermodal terminal to handle interstate, intrastate and Port shuttle freight and the movement of freight between MPW warehouses and the MPE intermodal terminal
- Amendment to warehousing, freight village, parking, building heights and the number of onsite detention basins
- Consolidation of staging
- Inclusion of the ability to subdivide the site under a future development application
- Expansion of the site boundary for upgrade of the Moorebank Avenue/Anzac Road intersection, affecting neighbouring land.

1.4 Other development approvals

MPE Concept Plan

On 29 September 2014, the Commission (as delegate of the Minister for Planning) approved a Concept Plan (MP 10_0193) for the use of the MPE site as an intermodal facility, which includes:

- a rail link to the Southern Sydney Freight Line (SSFL) within an identified rail corridor
- warehouse and distribution facilities
- freight village (ancillary site and operational support services)
- stormwater, landscaping, services and associated works.

On 12 December 2014, the Commission (as delegate of the Minister for Planning) approved a modification to the Concept Plan approval (MP10_0193 MOD 1) for revisions to the land description, voluntary planning agreement and statement of commitments.

On 31 January 2018, the Commission (as delegate of the Minister for Planning) approved a second modification to the Concept Plan approval (MP10_0193 MOD 2). This included approval for:

- increasing the MPE site area and amend the site boundary to include works on Moorebank Avenue and drainage works to the south and east of the site
- upgrade works to Moorebank Avenue from the northern to southern extent of the site
- provision of a new and interim site access
- reconfiguration of internal road layouts and use of all internal roads by both light and heavy vehicles
- importation of approximately 600,000 m² of clean fill for bulk earthworks
- revised warehousing and freight village locations and layouts
- expansion of land-uses within the freight village
- revision of the staging of the project.

The modification approval included provision for the concept of subdivision, subject to a future staged development consent.

MPE Stage 1

On 12 December 2016, the Commission (as delegate of the Minister of Planning) approved MPE Stage 1 (SSD 6766) for construction and operation of the following within the intermodal site:

- intermodal facility operating 24 hours a day, seven days a week handling container freight with a volume of up to 250,000 TEU per annum, including truck processing and loading area, rail loading and container storage areas, and an administration facility and associated car parking
- a rail link running adjacent to the East Hills Rail Line, connecting the southern end of the site to the SSFL
- associated works including rail sidings, vegetation clearing, remediation and levelling works, and drainage and utility installation.

Construction works for the intermodal terminal are substantially progressed on the site.

MPE Stage 2

On 31 January 2018, the Commission granted development consent for MPE Stage 2 (SSD 7628). This included approval for:

- earthworks including the importation of 600,000 m³ of fill
- 300,000 m² GFA of warehousing
- 8,000 m² GFA freight village
- establishment of internal roads, connection to the surrounding road network/site access
- raising the level and upgrading Moorebank Avenue, upgrade of Moorebank Avenue intersections and temporary diversion road
- ancillary works including stormwater/flooding drainage infrastructure, utilities, vegetation clearing, landscaping, earthworks, remediation and signage.

Subdivision was also included as part of the MPE Stage 2 development application. However, the Commission concluded it did not have sufficient information to approve or refuse subdivision when it approved the remainder of the MPE Stage 2 proposal. As a result, subdivision was excluded from the 31 January 2018 consent and it was referred to the Applicant for further assessment. The Applicant later provided a supplementary report providing further information about the subdivision proposal (the 'Subdivision Report'). The Department reviewed the report and, in December 2018, recommended that the subdivision proposal was approvable. The Applicant subsequently prepared revised subdivision plans in February 2019, which were also reviewed by the Department and also considered to be approvable. On 4 April 2019, the Commission approved the subdivision part of MPE Stage 2.



2. Project

2.1 Description of the development

The key components and features of the proposal (as refined in the Response to Submissions and Consolidated Assessment Clarification Responses) are provided in **Table 1** and are shown in **Figure 3** and **Figure 4**.

Table 1 | Main components of the project

Aspect	Description
Project Summary	Construction and operation of an intermodal freight terminal facility, comprising rail intermodal area, intermodal warehousing and distribution facilities, rail infrastructure and associated works.
Site Preparation / Earthworks / Fill	<ul style="list-style-type: none">• Importation of 1,600,000 m³ of clean fill to the site• Clearing of all vegetation, other than vegetation in the conservation area.
IMT Facility	<ul style="list-style-type: none">• Container freight throughput volume of 500,000 TEU pa• Installation of nine rail sidings and locomotive shifter• Capacity to receive trains up to 1,800 m in length• Container storage area (maximum height 13 m) serviced by manual handling equipment• Container wash-down facilities and de-gassing area• Administration area including:<ul style="list-style-type: none">◦ administration facility (590 m² and maximum building height of 5.2 m)◦ engineer's workshop (785 m² and maximum building height of 21 m)◦ fuel storage◦ associated car parking• Truck processing, loading, holding and queuing areas• Internal vehicle access roads
Rail Connection	<ul style="list-style-type: none">• Construction of a rail connection linking sidings within the IMT to the Rail Link (constructed as part of MPE)• Operation of the rail connection and use of the MPE Stage 1 Rail Link (to the SSFL).
Freight Village	<ul style="list-style-type: none">• Construction and fit-out of a freight village, comprising:<ul style="list-style-type: none">◦ 800 m² GFA including retail use◦ maximum building height 6 m• 25 parking spaces.
Intermodal Warehousing	<ul style="list-style-type: none">• Construction of six warehouses (and ancillary offices) comprising:<ul style="list-style-type: none">◦ maximum 215,000 m² GFA◦ buildings ranging in size from 21,000 m² to 61,000 m²◦ 13.7 m height (indicative maximum building height 21 m)◦ 900 parking spaces• Internal roads.
Hours of Operation	<ul style="list-style-type: none">• Operation of the IMT and warehousing 24 hours a day, seven days a week.
Intersection Works	<ul style="list-style-type: none">• Upgrade of Moorebank Avenue/Anzac Road intersection (the access to the site).

Aspect	Description
Landscaping / Drainage	<ul style="list-style-type: none"> Stormwater, drainage and flooding infrastructure including: <ul style="list-style-type: none"> construction of six onsite detention (OSD) basins, major east-west covered culvert and associated drainage infrastructure construction of three OSD outlet channels discharging to Georges River construction of additional piped outlet to Georges River in the Endeavour Energy easement OSD outlet to Anzac Creek stormwater pits, pipes and drains Landscaping including tree, shrub and turf planting Lighting throughout the entire site Palisade and chain-link security fencing 5 m high noise wall along the western boundary of the main north/south warehouse access road, adjacent to the conservation area.
Remediation and associated vegetation clearing	<ul style="list-style-type: none"> To be continued under the MPW Stage 1 development consent Clearing of EECs is proposed under this development application in order to enable remediation to be finalised. Clearing of EECs was not permitted as part of MPW Stage 1 Early Works Remediation to be completed prior to importation of fill and construction occurring
Signage	<ul style="list-style-type: none"> Backlit illuminated signage including site identification, directional and wayfinding signage Signage located at main entrance off Moorebank Avenue, and within IMT facility, warehousing area and freight village
Utilities	<ul style="list-style-type: none"> Installation and connection to utilities and services (as required).

The Department notes the proposal originally included subdivision. However, the Applicant has advised it no longer seeks approval for this component.

As discussed in **Section 1.2**, the Applicant has entered into a Voluntary Planning Agreement with RMS. The planning agreement commits the Applicant to contribute to regional road works, and either an upgrade to Moorebank Avenue south of the entrance to MPE port shuttle freight terminal, or the Moorebank Avenue realignment discussed in **Section 1.2** (subject to a separate, future planning approval).

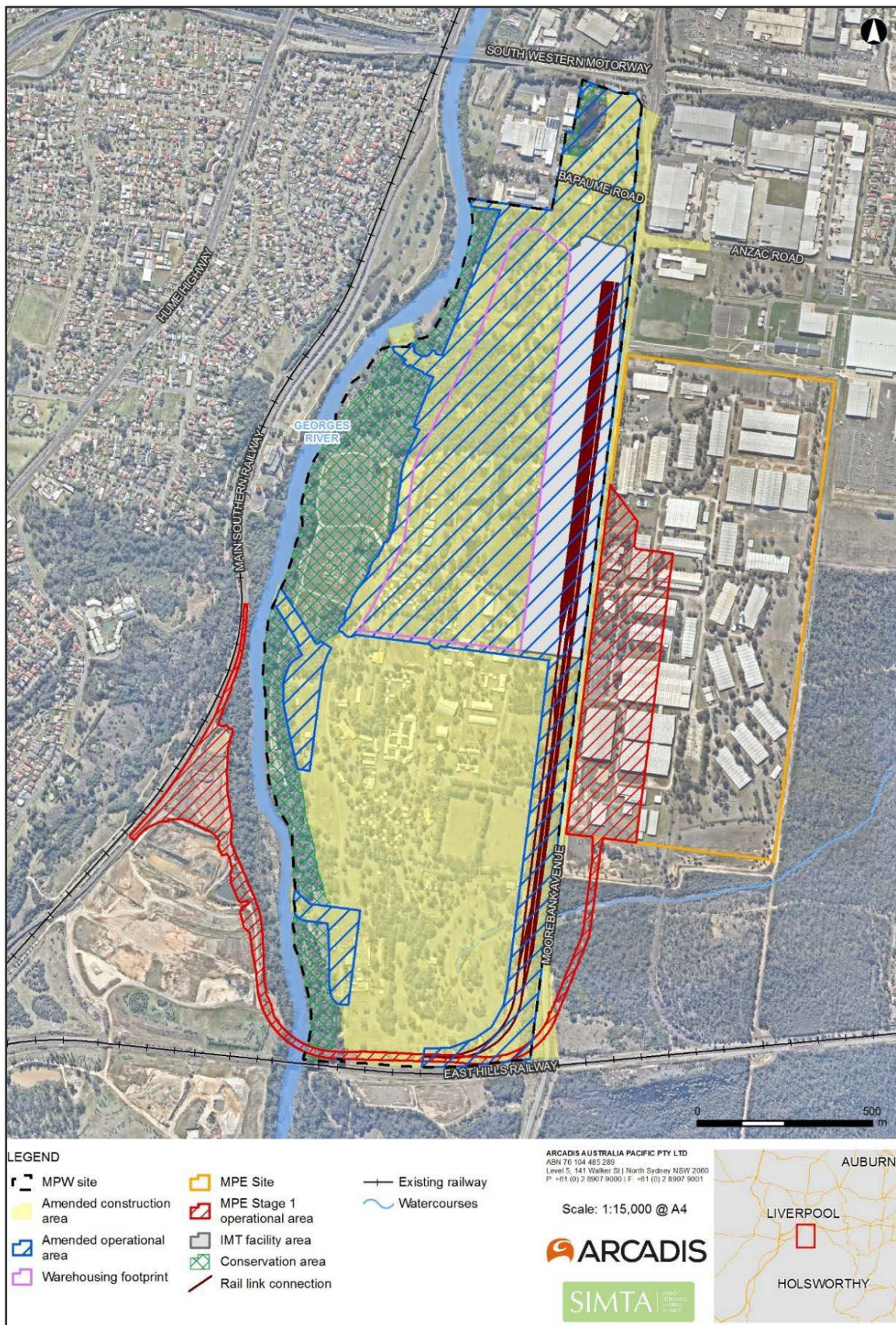


Figure 3 | The MPW site in relation to existing MPE Stages 1 and 2 sites (Base source: Appendix O: Consolidated Proposal Description of the RtS)

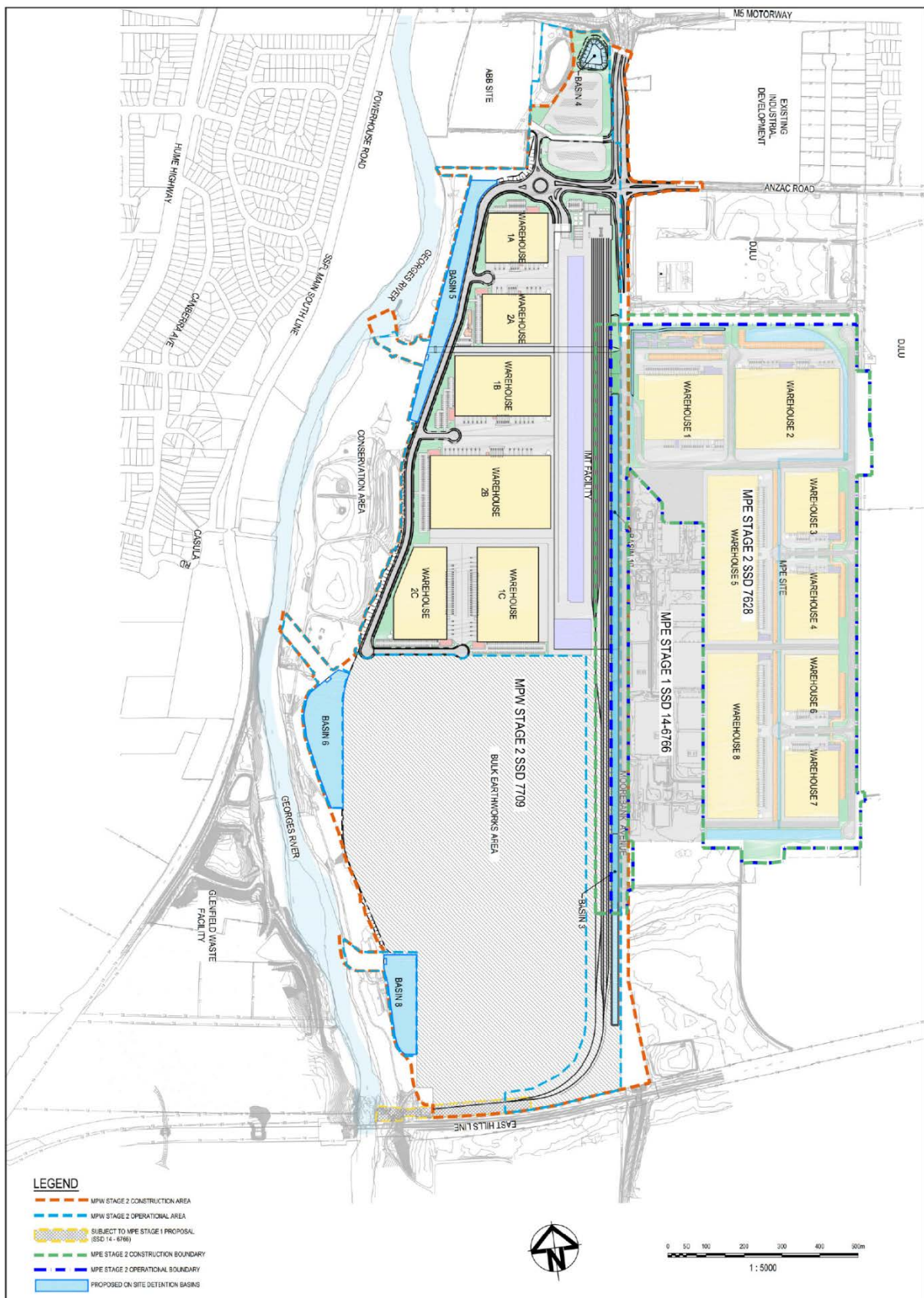


Figure 4 | MPW Stage 2 project layout

2.2 Physical layout and design

Access

A new site access would be constructed at the intersection of Moorebank Avenue and Anzac Road. The proponent proposes to upgrade the existing intersection to provide additional capacity, including turning lanes into and out of the site. Heavy vehicles would enter the site from Moorebank Avenue southbound via right turning lanes on the upgraded intersection. Vehicles may alternatively leave the site northbound via the existing Bapaume Road, which would be connected to the proposed internal (private) road network.

Access within the MPW site would be via a new internal road network shown in **Figure 4**. The main access road would be four lanes from the entry at the Moorebank Avenue/Anzac Road intersection to a roundabout within the site, where vehicles would be able to access:

- the intermodal terminal (south exit)
- the truck queuing area, to await scheduled times to enter the intermodal terminal, and the emergency truck holding area (north exit)
- the warehousing area (west exit).

The Applicant is concurrently seeking a modification to the MPW Concept consent to allow transfer of freight between MPW and MPE. Designated 'site transfer trucks' would exit via the site access, and turn right onto Moorebank Avenue before entering MPE by the main site access to the MPE terminal.

No heavy vehicle access is proposed to and from the development via Cambridge Avenue, located south of the East Hills line.

Intermodal terminal and rail connection

The proposal includes a rail freight intermodal terminal along the eastern side of the site. A diagram of the terminal is provided in **Figure 5**.

The terminal would include nine rail sidings, with the four eastern 'entry' sidings capable of servicing up to 1,800 m long trains. The eastern-most siding is siding 1, and the western-most siding is siding 9. Trains entering the site would be shunted where necessary into trains of under 900 m in length, and enter the five western 'handling' sidings, for container loading and unloading. A locomotive shifter at the north of the site would allow locomotives to move between the sidings, enabling reconfiguration of trains leaving the site. Refuelling would take place in this area using a mobile refuelling station.

Containers would be loaded and unloaded from the handling tracks onto the loading areas on the western edge of the intermodal terminal. Containers would be moved using reach stackers. The Applicant has defined container storage to be in stacks within the intermodal terminal area, four containers wide, six containers deep, and up to five containers high.

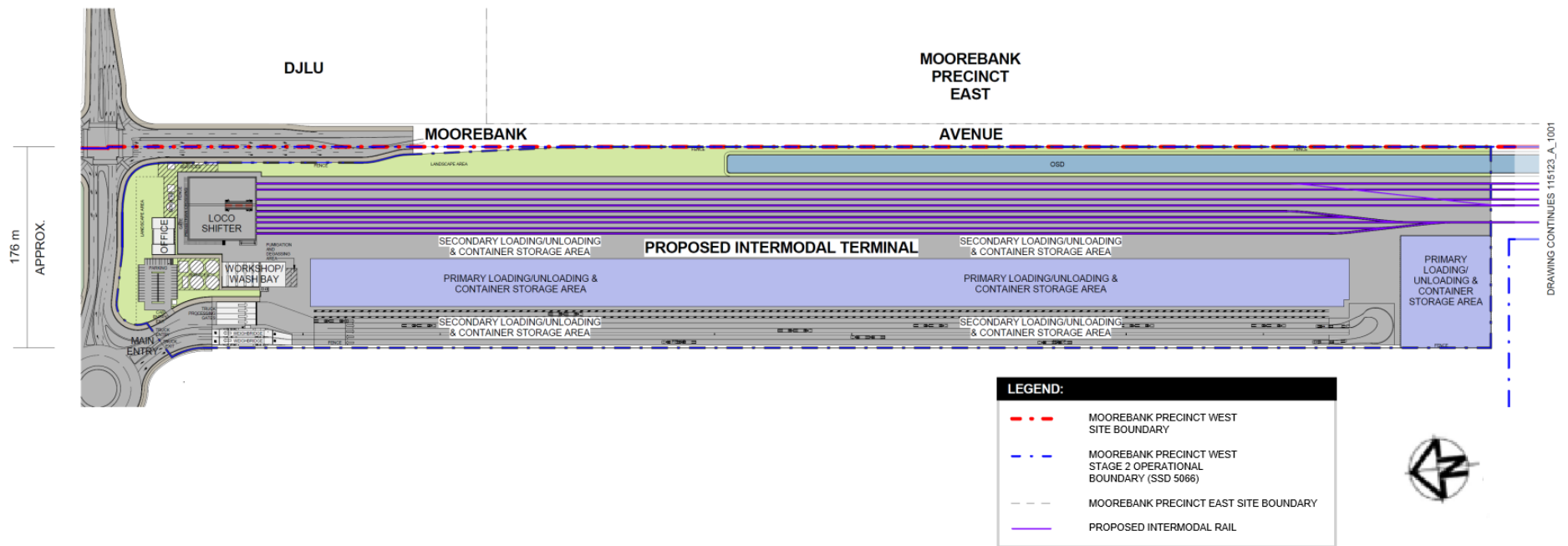
Trucks would enter the site at the northern truck processing gates before proceeding to the loading areas. Vehicles would be able to access the length of the sidings, by two access roads — one to the east of the area, and one between sidings 2 and 3. Trucks exiting the intermodal area would turn around in the south of the site, and pass over weighbridges before exiting by the main roundabout.

An administration area within the intermodal terminal would include offices and light vehicle parking, accessible by a slip road before the main truck processing gates. The offices would include staff offices and reception, meeting rooms, amenities, crib room, and an outdoor area.

Within the area, the Applicant proposes to establish a workshop for the purpose of maintaining heavy vehicles accessing the site.

The intermodal area would also include facilities for container washdown in a dedicated bunded bay, and a de-gassing and fumigation area.

The intermodal terminal would connect to the rail link under construction as part of the MPE Stage 1 development via a rail connection from the sidings to the rail link (close to the south-eastern corner of the MPW site).



Warehousing area

The proposal seeks approval for six warehouses, with a total gross floor area of 215,000 m². This comprises over 70% of the total warehouse floorspace permitted under the approved concept proposal for the MPW site (300,000 m²). In accordance with the Concept consent, the warehouses would only be used for activities associated with freight using the MPW intermodal terminal and, as the Applicant also requests under the Concept modification, the MPE terminal. The Applicant seeks for the maximum warehouse height to be set at 21 metres above finished ground levels, as per the pending Concept modification; however, the Applicant is seeking approval for all warehouses to be built to 13.7 m in height. Each warehouse would include 1,000 m² of office space.

The proposal also seeks approval for a freight village, which would comprise uses including a café, commercial premises, amenities and services.

Table 2 | Warehousing and freight village

Building	Location	Key parameters
Warehouse 1	Northern-most warehouse, located directly south of the proposed main site entry roundabout	13.7 m height 21,500 m ² GFA, plus 1,000 m ² office GFA 95 parking spaces
Warehouse 2	Directly south of Warehouse 1, north of the open stormwater channel and adjacent to the IMT facility.	13.7 m height 23,000 m ² GFA, plus 1,000 m ² office GFA 96 parking spaces
Warehouse 3	Directly south of the open stormwater channel and Warehouse 2, and adjacent to the IMT facility	13.7 m height 40,000 m ² GFA, plus 1,000 m ² office GFA 160 parking spaces
Warehouse 4	Directly south of Warehouse 3 and adjacent to the IMT facility	13.7 m height 61,000 m ² GFA, plus 1,000 m ² office GFA 229 parking spaces
Warehouse 5	Directly south of Warehouse 4 and adjacent to the IMT facility	13.7 m height 40,000 m ² GFA, plus 1,000 m ² office GFA 194 parking spaces
Warehouse 6	In the south western corner of the operational area, directly west of Warehouse 5	13.7 m height 30,000 m ² GFA, plus 1,000 m ² office GFA 126 parking spaces
Freight village	Directly west of Warehouse 2 and east of the internal road	6m height 800 m ² GFA, 25 parking spaces

Source: Table 4.1, Appendix O, RtS

Landscaping

The Applicant proposes landscaping outside the main intermodal terminal and warehousing areas, including road side plantings and gardens between the warehouses and the main western internal road. Landscaped outdoor meal areas would be provided adjacent to warehouses for the use of staff.

The Applicant also notes that OSD basins would support some vegetation for bioretention and biofiltration purposes, and have included OSD basin areas in calculating ~22% coverage of the site with landscaping.

Indicative landscaping across the site is shown in **Figure 6**.

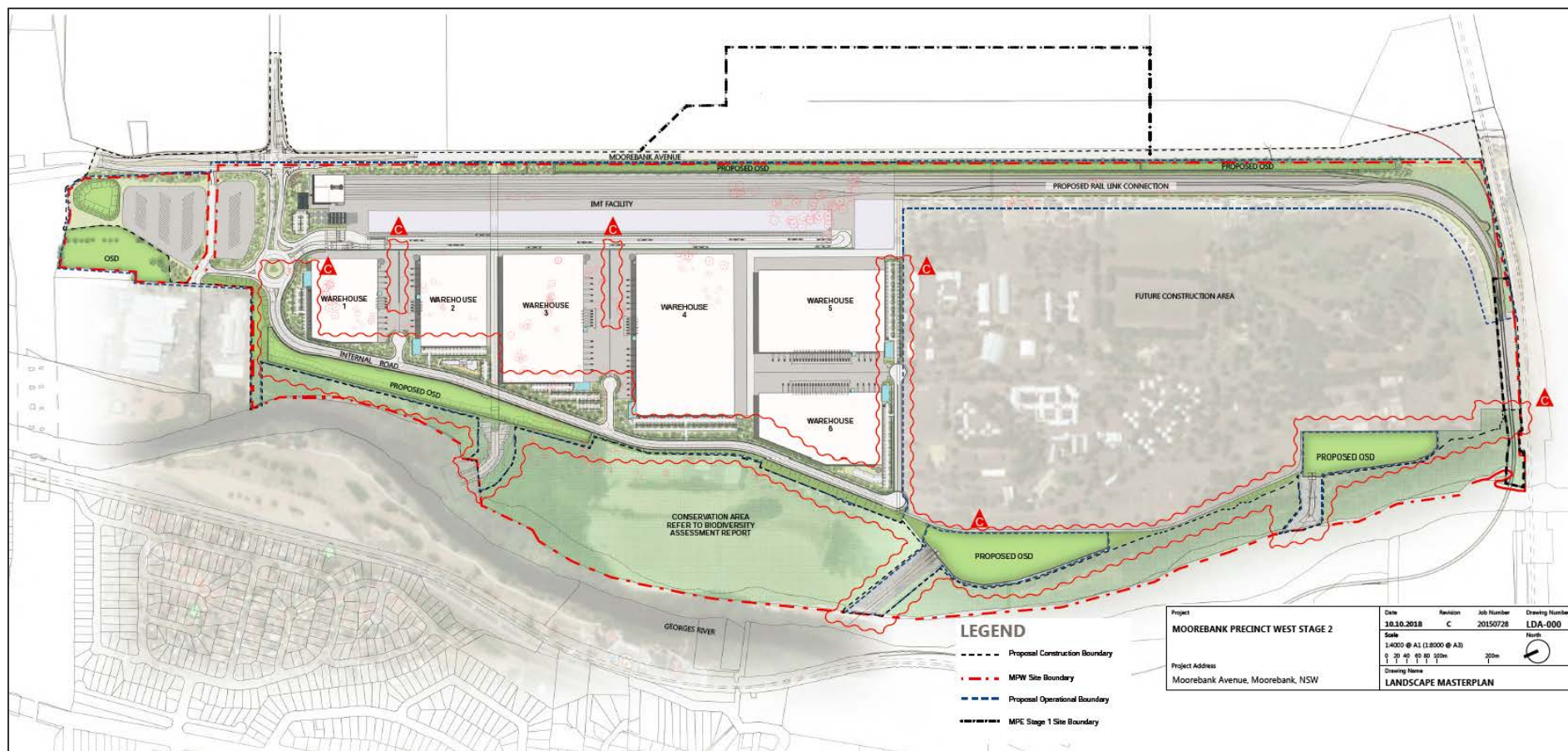


Figure 6 | Indicative site landscaping (Base Source: Attachment C of Attachment O, Consolidated Assessment Clarification Responses)

Note: Changes made to the proposed landscaping following RtS are shown in red bubble/marked ▲

2.3 Timing

Construction

The proposal would be constructed over approximately three years. The Proponent describes construction as comprising seven major works periods:

Works period A — Pre-construction fill placement and stockpiling

Works period B — Site preparation activities

Works period C — Bulk earthworks, drainage and utilities

Works period D — Moorebank Avenue intersection works and internal road network

Works period E — IMT facility and Rail link connection construction

Works period F — Construction and fit-out of warehousing and freight village

Works period G — Miscellaneous structural construction and finishing works.

These works periods would take place at different times depending on the delivery of the development. The Applicant envisages that, for example, warehousing may be delivered in two phases, and bulk earthworks for each phase may be undertaken at different times. The Applicant's most recent indicative staging and phasing schedule is provided below at **Table 3**.

Operation

As discussed above, the Applicant has indicated generally that operations may be phased to reflect the operational demand for warehousing. At the Department's request, indicative staging plans were submitted to indicate potential phases, based on operations of the intermodal and rail link, warehouses 1-4, warehouses 5-6 and parts of the future warehousing area, and the southern-most part of the site (see **Figure 7**).

Table 3 | Applicant’s indicative construction periods

		Year 1				Year 2				Year 3				Year 4
Aspect	Description	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Intermodal and Rail Link Phase (inc. Moorebank Avenue/Anzac Road intersection)														
Works period A	Pre-construction fill placement and stockpiling													
Works period B	Site preparation activities													
Works period C	Bulk earthworks, drainage and utilities													
Works period D	Moorebank Avenue intersection works and internal road network													
Works period E	IMT facility and Rail link connection construction													
Works period F	Construction and fit-out of warehousing and freight village													
Works period G -	Miscellaneous structural construction and finishing works													
Warehousing North Area phase														
Works period A	Pre-construction fill placement and stockpiling													
Works period B	Site preparation activities													
Works period C	Bulk earthworks, drainage and utilities													
Works period D	Moorebank Avenue intersection works and internal road network													
Works period E	IMT facility and Rail link connection construction													
Works period F	Construction and fit-out of warehousing and freight village													
Works period G -	Miscellaneous structural construction and finishing works													
Central Warehousing and Earthworks Phase														
Works period A	Pre-construction fill placement and stockpiling													
Works period B	Site preparation activities													
Works period C	Bulk earthworks, drainage and utilities													
Works period D	Moorebank Avenue intersection works and internal road network													
Works period E	IMT facility and Rail link connection construction													
Works period F	Construction and fit-out of warehousing and freight village													
Works period G -	Miscellaneous structural construction and finishing works													
Southern Earthworks and OSD Phase														
Works period A	Pre-construction fill placement and stockpiling													
Works period B	Site preparation activities													
Works period C	Bulk earthworks, drainage and utilities													
Works period D	Moorebank Avenue intersection works and internal road network													
Works period E	IMT facility and Rail link connection construction													
Works period F	Construction and fit-out of warehousing and freight village													
Works period G -	Miscellaneous structural construction and finishing works													

Source: Appendix J of the Attachment P of the Consolidated Assessment Clarification Responses).

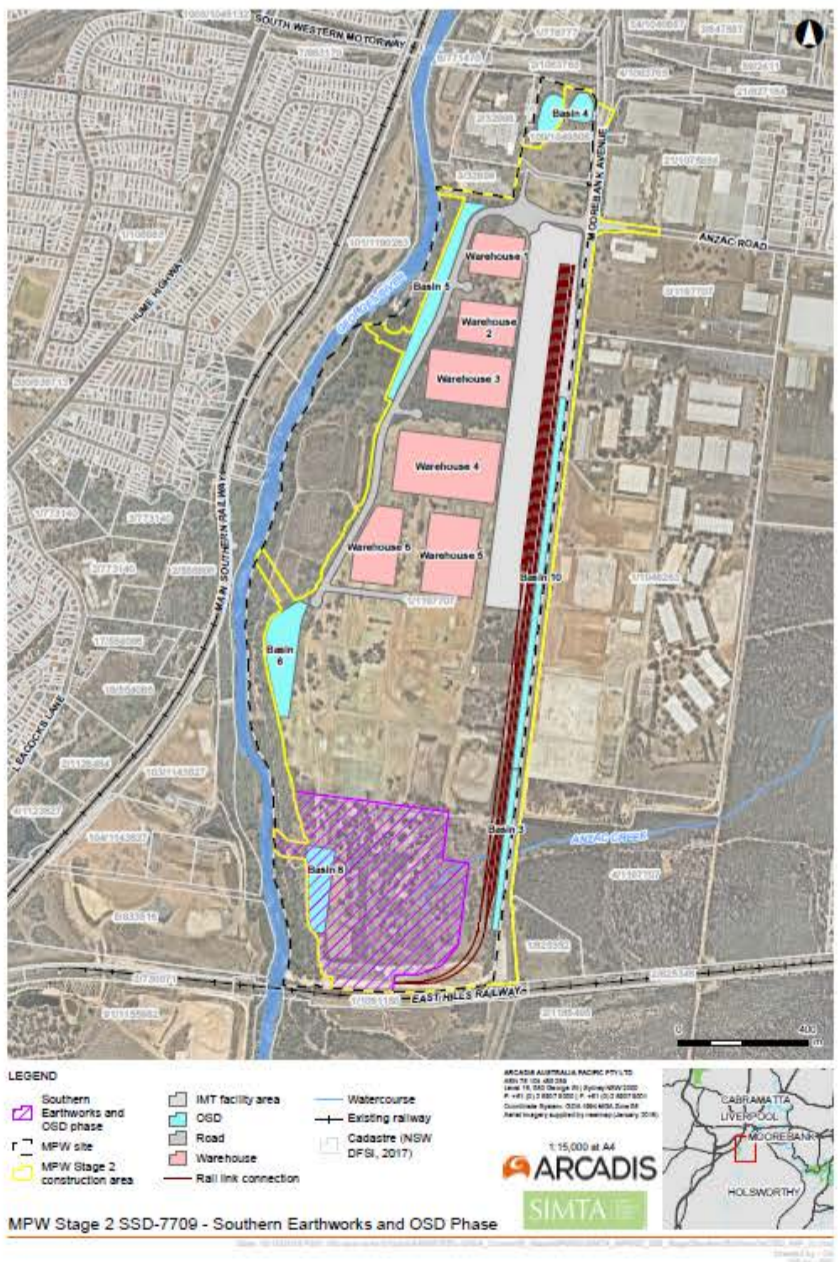
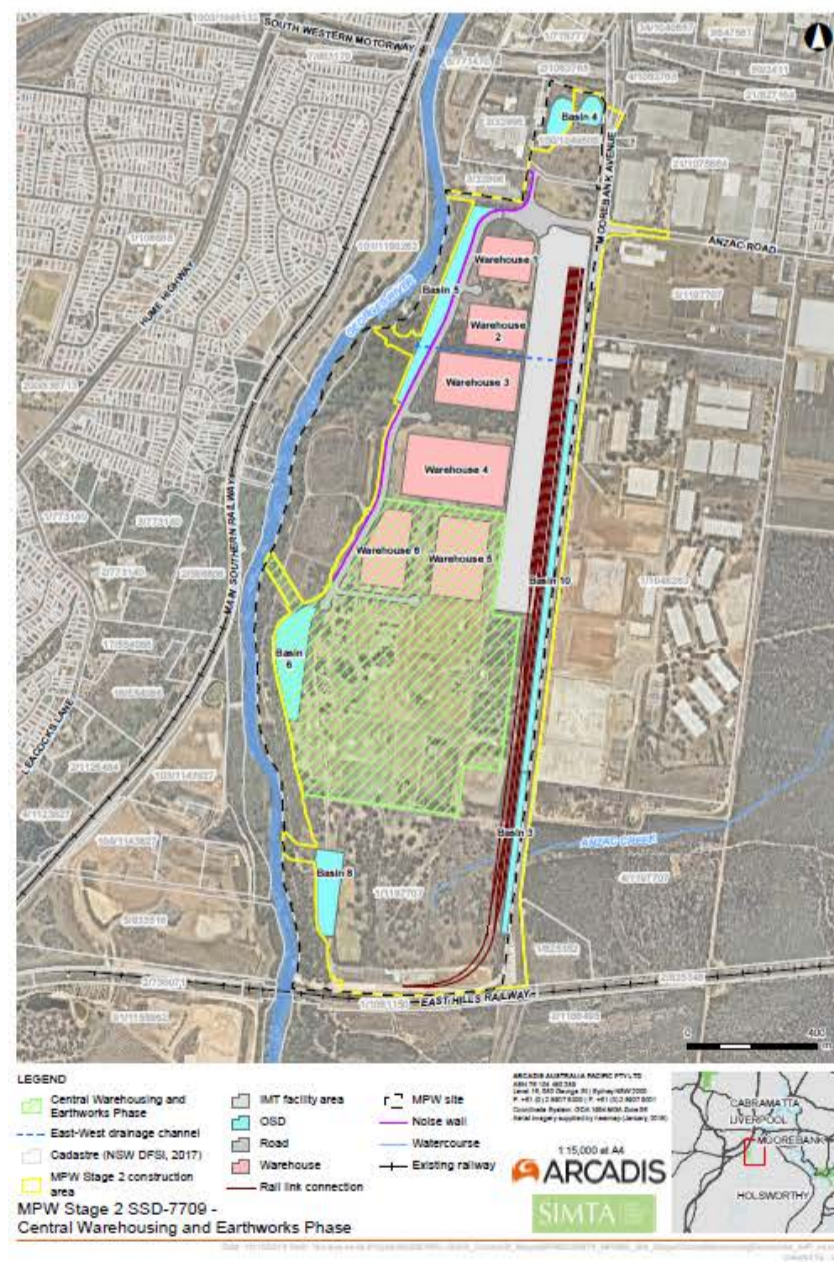
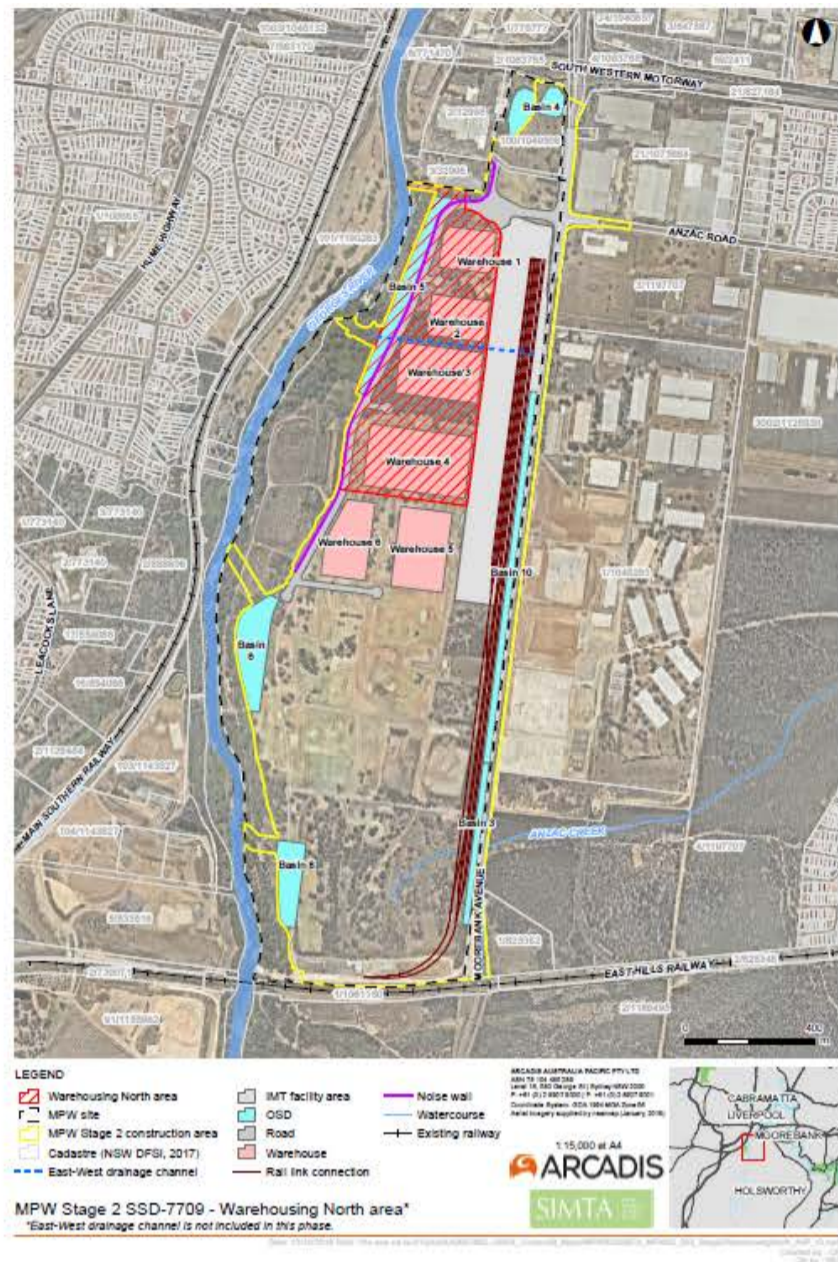
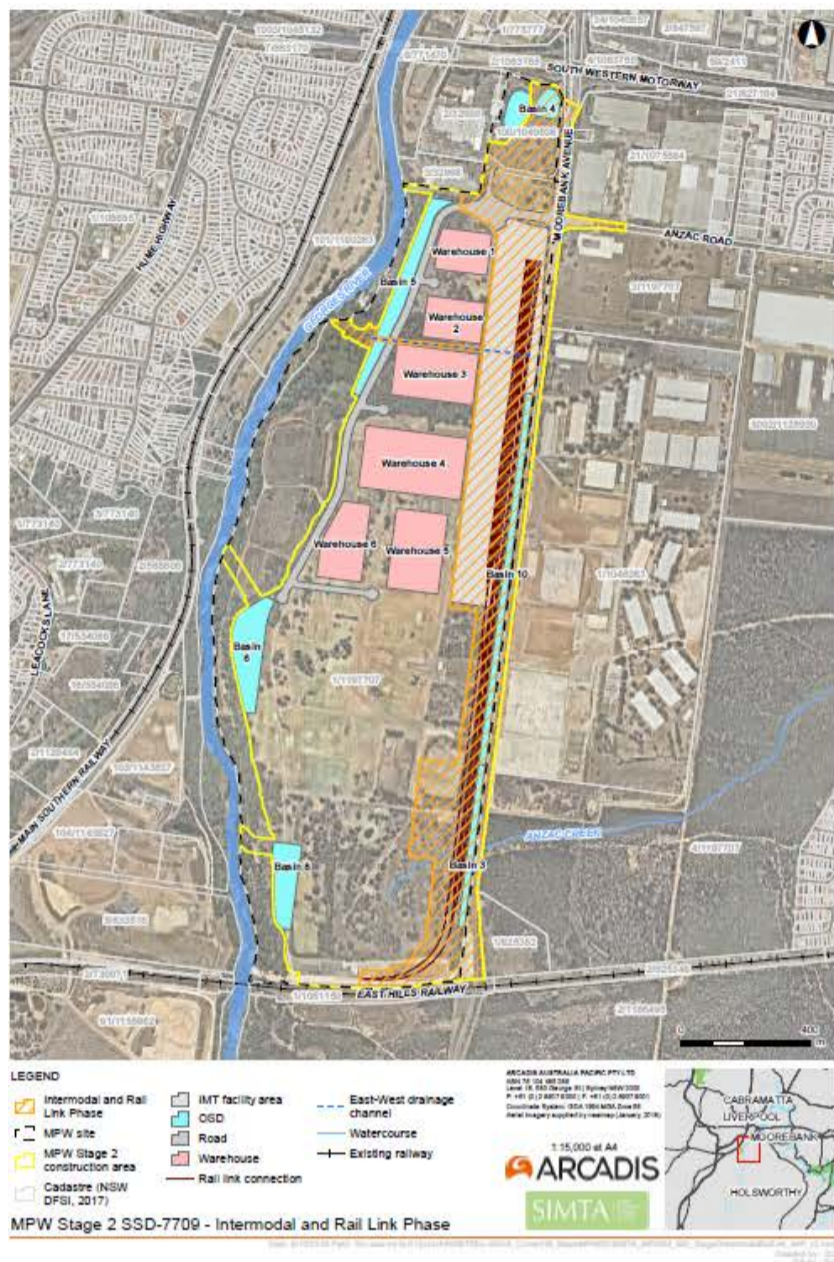


Figure 7 | Indicative operational phasing (Source: Attachment G of the Attachment O of the Consolidated Assessment Clarification Responses)



3. Strategic Context

The NSW Government is committed to increasing the share of containerised freight moved throughout Sydney by rail. The Moorebank Intermodal projects are acknowledged in strategic planning documents as part of achieving this strategic aim to increase the rail share of freight transport in NSW.

The Moorebank Intermodal is identified as an 'important freight and logistics precinct' in *Building Momentum: State Infrastructure Strategy 2018-2038* (INSW 2018). The Strategy indicates that the terminal is one of the 'highest priority investments necessary to achieve a target of carrying 40 per cent of containerised traffic on rail to and from Port Botany'. The Government supports the Strategy's recommendation that it pursue a strategy to alleviate existing congestion on the road network around the site.

The *Future Transport Strategy 2056* (Transport for NSW 2018) emphasises the need for safe, efficient and sustainable movement of freight, and sets a series of future directions for investigation. Importantly, one such direction is to expand intermodal rail capacity in Western Sydney. This is a theme investigated further in the subsequent *NSW Freight and Ports Plan* (Transport for NSW 2018), which concludes that intermodal terminals within Greater Sydney are 'critical for increasing the utilisation of the rail freight network, particularly containers to and from Port Botany', and commits to investment in rail and road upgrades to support the Moorebank Intermodal.

The Department considers that the proposal is consistent with Greater Sydney Commission's *A Metropolis of Three Cities – the Greater Sydney Regional Plan* (2018), which aims to facilitate a freight and logistics network that is competitive and efficient. The Plan notes that freight volumes are forecast to 'almost double in the next 40 years' and 'increasing importance [is being] placed on 24/7 supply chain operations to maintain Greater Sydney's global competitiveness.' The Plan notes that 'substantial future industrial land supply', including the Moorebank Intermodal, 'will support large-scale logistics growth'.

The Liverpool LGA is within Western Parkland City, which the Greater Sydney Commission notes has 'the largest supply of industrial lands in Greater Sydney'. The Commission's *Western City District Plan* acknowledges the Moorebank Intermodal projects as follows:

Investment in potential dedicated freight corridors will allow a more efficient freight and logistics network. Moorebank Intermodal Terminal is currently under construction in western Sydney, and will provide an integrated service including interstate terminals, warehousing, retail and service offerings, and rail connection to the Southern Sydney Freight Line, which also provides dedicated freight rail access all the way to Port Botany.



4. Statutory Context

4.1 State significant development

The proposal is SSD under section 4.36 (development declared SSD) of the *Environmental Planning and Assessment Act 1979* (EP&A Act) as the development:

- has a CIV in excess of \$30 million (\$533,000,000) and comprises railway freight terminals and associated railway infrastructure for the purposes of container packing, storage or examining, which is identified as SSD under clause 19 of Schedule 1 of State Environmental Planning Policy (State and Regional Development) 2011 (SRD SEPP).

In accordance with Clause 8A of the SRD SEPP and section 4.5 of the EP&A Act, the Independent Planning Commission (Commission) is the declared consent authority as:

- Liverpool City Council has made an objection
- there are more than 25 public submissions objecting to the proposal.

4.2 Permissibility

The site is located within the following zones (**Figure 9**) under Liverpool LEP:

- IN1 General Industrial zone: 'Freight and transport facility', 'Warehouse or distribution centres' and 'Flood Mitigation Works' are permissible with consent within the General Industrial zone
- E3 Environmental Management zone: 'Flood Mitigation Works' are permissible with consent within the Environmental Management zone
- SP1 Infrastructure zone: 'Roads' are included within the Infrastructure zone.

The Proposal is therefore permissible with consent under the LLEP 2008.

4.3 Other approvals

Under section 4.41 of the EP&A Act, a number of other approvals are integrated into the State significant development approval process, and consequently are not required to be separately obtained for the proposal.

Under section 4.42 of the EP&A Act, a number of further approvals are required. These must be substantially consistent with any development consent for the proposal (e.g. approvals for any works under the *Roads Act 1993*).

The Department has consulted with the relevant public authorities responsible for integrated and other approvals, considered their advice in its assessment of the project, and included suitable conditions in the recommended conditions of consent (see **Appendix D**).

4.4 Mandatory matters for consideration

4.4.1 Environmental planning instruments

Under section 4.15 of the EP&A Act, the consent authority is required to take into consideration any environmental planning instrument (EPI) that is of relevance to the development application. Therefore, the

assessment report must include a copy of, or reference to, the provisions of any EPIs that substantially govern the project and that have been taken into account in the assessment of the project.

The Department has undertaken a detailed assessment of these EPIs in **Appendix B** and is satisfied the application is consistent with the requirements of the EPIs.

4.4.2 Satisfactory arrangements

As discussed in Section 1.2, the Applicant must make satisfactory arrangements to contribute to the provision of relevant State public infrastructure for development applications on the MPW site, under the Liverpool LEP.

On 23 April 2019, the Acting Deputy Secretary, under delegation from the Planning Secretary, certified in writing to the consent authority that satisfactory arrangements have been made to contribute to the provision of relevant State public infrastructure in relation to the development on the site.

A copy of the certificate/determination is available in **Appendix E**.

4.4.3 Objects of the EP&A Act

The objects of the EP&A Act are the underpinning principles upon which the assessment is conducted. The statutory powers in the EP&A Act (such as the power to grant consent/ approval) are to be understood as powers to advance the objects of the legislation, and limits on those powers are set by reference to those objects. Therefore, in making an assessment, the objects should be considered to the extent they are relevant. A response to the objects of the EP&A Act is provided at **Table 4**.

Table 4 | Response to the objects of section 1.3 of the EP&A Act

Objects of the EP&A Act	Consideration
(a) to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State’s natural and other resources	The proposal provides for an intermodal terminal, warehousing and associated infrastructure in a strategically important location within south-west Sydney. The project would facilitate a mode-shift of the transportation of freight from road to rail-based transport, would result in an overall reduction in greenhouse gas emissions and road congestion and provide for increased productivity and capacity of the freight network and relieve pressure on roads around Port Botany. Impacts on biodiversity, amenity and traffic arising from the proposal can be appropriately managed and mitigated.
(b) to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment,	The proposal includes measures to deliver ecologically sustainable development (ESD) (Section 3.7).
(c) to promote the orderly and economic use and development of land,	The site is identified as an intermodal terminal site of strategic importance in government policy and the proposal is therefore consistent with the strategic vision for the site. The MPW project would improve

	freight logistics within Sydney, NSW and interstate and would therefore have significant positive economic impacts.
(d) to promote the delivery and maintenance of affordable housing,	N/A
(e) to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats,	The proposal includes the clearing of existing native vegetation, including threatened ecological communities and other habitat for native species. The principle of the removal of vegetation within the main body of the MPW site was approved as part of the MPW Concept consent. To compensate for these actions, the proposal includes the creation of biodiversity conservation areas along the Georges River, which is established as a biodiversity offset under the MPW Concept consent.
(f) to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage),	Section 6 of this report considers the proposal's impacts on heritage items. It is noted that heritage salvage has occurred on the site under previous projects, including the MPW Early Works development consent.
(g) to promote good design and amenity of the built environment,	Section 6 of this report considers the proposal's design and amenity.
(h) to promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants,	Section 6 of this report considers the proposal's built form.
(i) to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State,	The Department publicly exhibited the proposal (Section 5.1), which included consultation with Council and other public authorities and consideration of their responses (Sections 5.1 and 6).
(j) to provide increased opportunity for community participation in environmental planning and assessment.	The Department publicly exhibited the proposal as outlined in Section 5.1 , which included notifying adjoining landowners, placing a notice in newspapers and displaying the proposal on the Department's website and at Council during the exhibition period.

4.4.4 Ecologically sustainable development

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

- the precautionary principle
- inter-generational equity
- conservation of biological diversity and ecological integrity
- improved valuation, pricing and incentive mechanisms.

The development proposes ESD initiatives and sustainability measures, including:

- water harvesting, including roof water collection on all warehouses
- re-use of waste water, e.g. for toilet flushing, landscape irrigation and wash-down areas
- energy efficiency design measures (such as lighting types and controls, general control systems, compressors, variable speed drives for fans/pumps etc)
- measures to minimise heating, ventilation and air-conditioning demand (such as use of natural cooling vents and doors to control air movement, insulation, routine maintenance, and economy cycles that exchange ambient air to help control indoor temperature)
- installation of energy efficient conveyors and automatic sorting systems
- use of warehouse management systems (enabling multi-tasking of mobile equipment, optimising storage locations, and allowing integration of energy management systems and other management systems)
- review of potential renewable energy sources, such as solar energy.

The Department has considered the project in relation to the ESD principles. The precautionary and inter-generational equity principles have been applied in the decision-making process by a thorough assessment of the environmental impacts of the project. Overall, for the reasons discussed in **Section 6** and with the recommended conditions proposed by the Department, the proposal is consistent with ESD principles and the Department is satisfied the proposed sustainability initiatives will encourage ESD, in accordance with the objects of the EP&A Act provided conditions are imposed to ensure the ESD commitments are delivered as part of the development. These conditions include requirement to register for an Infrastructure Sustainability ratings tool, and achieve a minimum 4 star Green Star certification by the Green Building Council of Australia for warehouse design, construction and operation.

4.4.5 Environmental Planning and Assessment Regulation 2000

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

4.4.6 Planning Secretary's Environmental Assessment Requirements

The EIS is compliant with the Planning Secretary's Environmental Assessment Requirements (SEARs) and, together with the RtS and Consolidated Assessment Clarification Responses, is sufficient to enable an adequate consideration and assessment of the proposal for determination purposes.

4.4.7 Section 4.15(1) matters for consideration

Table 5 identifies the matters for consideration under section 4.15 of the EP&A Act that apply to SSD in accordance with section 4.40 of the EP&A Act. The table represents a summary for which additional information and consideration is provided for in **Section 6** (Assessment), with the relevant appendices or other sections of this report and the EIS, referenced in the table.

Table 5 | Section 4.15(1) matters for consideration

Section 4.15(1) Evaluation	Consideration
(a)(i) any environmental planning instrument	The Department's consideration of the relevant EPIs is provided in Appendix B of this report.
(a)(ii) any proposed instrument	See Appendix B .
(a)(iii) any development control plan (DCP)	Under clause 11 of the SRD SEPP, DCPs do not apply to SSD.
(a)(iia) any planning agreement	See Section 1.2 .
(a)(iv) the regulations <i>Refer Division 8 of the EP&A Regulation</i>	The application satisfactorily meets the relevant requirements of the EP&A Regulation, including the procedures relating to applications (Part 6 of the EP&A Regulation), public participation procedures for SSD and Schedule 2 of the EP&A Regulation relating to EIS.
(a)(v) any coastal zone management plan	Not applicable.
(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	Appropriately mitigated or conditioned - refer to Section 6 of this report.
(c) the suitability of the site for the development	The site is suitable for the development as discussed in Sections 3, 4 and 6 of this report.
(d) any submissions	Consideration has been given to the submissions received during the exhibition period. See Sections 5 and 6 of this report.
(e) the public interest	Refer to Sections 6 and 7 of this report.
Biodiversity values impact assessment not required if:	Not applicable. The biodiversity impacts of this proposal have been considered (see Section 6 of this report).
(a) on biodiversity certified land	
(b) biobanking statement exists	



5. Engagement

5.1 Department's engagement

In accordance with then-section 89F of the EP&A Act, the Department publicly exhibited the application from 26 October 2016 until 25 November 2016 (31 days). The application was exhibited on the Department's website, and at the Department's Information Centre, the Liverpool City Council Customer Service Centre, Liverpool City Library, Campbelltown City Council Chamber, Glenquarie Branch Library, and at the Nature Conservation Council of NSW office.

The Department placed a public exhibition notice in the *Sydney Morning Herald*, *Daily Telegraph*, *Liverpool Leader*, and *Campbelltown Macarthur Advertiser* on 26 October 2016, and notified adjoining landholders and relevant State and local government authorities in writing.

The Department has considered the comments raised in the public authority and public submissions during the assessment of the application (**Section 6**) and/or by way of recommended conditions in the instrument of consent at **Appendix C**.

5.2 Summary of submissions

The Department received a total of 137 submissions, comprising 125 submissions from the members of the public, five from interest groups, and seven submissions from public authorities. All individual members of the public making submissions objected to the proposed modification as did two interest groups. A summary of the issues raised in the submissions and agency feedback is provided in **Sections 5.3 and 5.4**, and at **Table 6** and **Table 7**, and copies of the submissions may be viewed at **Appendix A**.

5.3 Public authority submissions

A summary of the issues raised in the public authority submissions is provided at **Table 6** below and copies of the submissions may be viewed at **Appendix A**.

Table 6 | Summary of public authority submissions to the EIS exhibition

Liverpool City Council (Council)

Council objects to the proposal on the following grounds:

- the concurrent MPW modification application (SSD 5066 MOD 1) should be determined before the determination of this EIS
- the proposal would have significant traffic impacts
- traffic investigation, infrastructure upgrades and funding commitments should be confirmed prior to approval
- construction and operational noise and air-quality impacts are likely to be underestimated due to traffic assumptions used
- biodiversity would be heavily impacted by the development
- the EPA, rather than Council, should be the appropriate regulatory authority should approval be granted.

Campbelltown City Council

Campbelltown City Council did not object to the proposal and provided the following comments:

- the proposal is not consistent with the Concept Proposal in terms of rail sidings, vehicular access and the amount and layout of warehousing
- adverse traffic impacts due to movements between MPW and MPE
- analysis is required of construction traffic impacts on Campbelltown intersections
- small vehicle movements commence earlier (4am) than the AM peak, which is too early
- the disposal of contaminated fill to Glenfield Waste Facility and associated traffic impacts is not appropriate
- the proposal would exceed the maximum TEU for the IMT by 500,000 units
- the Eastern Creek Industrial Area is not a 24-hour IMT and is therefore not representative of traffic patterns for the site
- traffic volumes on Cambridge Avenue in AM/PM peaks are 30% lower than Council's traffic surveys
- further assessment of traffic movements along the Georges River crossing is required
- consideration should be given to the connection to the M31 and M7 via Glenfield and opportunities for a joint bridge with the rail corridor
- there is an opportunity for a heavy vehicle underpass of the M5 to reduce congestion
- the assumption of 3% employee traffic generation is low
- further consideration is required of how the noise-wall interacts with flood flows
- it would be more appropriate for through traffic (along Moorebank Avenue) to be rerouted via the riparian corridor.

Office of Environment and Heritage (OEH)

OEH does not object to the modification application and provided the following comments:

- the proposal is acceptable in terms of floodplain risk management
- basins should be redesigned to minimise impacts on the conservation area
- outlets should be redesigned to minimise their widths and reduce fragmentation of the conservation area
- the width of the riparian corridor (35 m) does not satisfy condition E16 of the MPW Concept Approval
- the proposed amended OSD and channel design has not been discussed with OEH.

Department of Primary Industries (DPI)

DPI does not object to the application and provided the following comments:

- the width of drainage channel outlets should be reduced
- outlet structures should be constructed in accordance with DPI Water's Guidelines for outlet structures on waterfront land (2012)
- the proponent should relocate native plants from areas that are to be permanently cleared into the riparian and conservation area identified for rehabilitation
- the proponent should develop the Construction Environmental Management Plan (CEMP) and the Erosion and Sediment Control Plan (ESCP) in consultation with DPI Fisheries
- the minimum riparian buffer zone width for the project should be 40m in accordance with Condition E16 of the MPW Concept Approval
- all Georges River, water quality and aquatic biodiversity mitigation measures should be implemented
- only native fish shall be translocated from drained ponds/dams
- the recommendations of the Wetlands Assessment should be incorporated into mitigation measures
- rehabilitating the western bank of the Amiens Wetland should be considered
- further clarification of the impact of the discharge of Basin 4 into the wetlands is required

- further details of groundwater monitoring program are required
- the Geotechnical Interpretative Report should include bore hole logs, details of groundwater monitoring bores, a bore census for water monitoring bores and users, and a summary of groundwater measurement levels.

Environment Protection Authority (EPA)

EPA does not object to the application and provided the following comments:

- further justification is required for onsite crushing and the concrete batching plant
- further justification is required for out of hours construction works and the rating background noise levels
- best practice plant should be used to minimise noise levels, including electric automatic container handling equipment or equipment with equivalent sound power levels
- locomotive should incorporate best practice technologies and further detail is required on locomotive operational sound power levels
- clarification is required of the impact of curve gain (wheel-squeal) and flanging in accordance with condition E2 of MPW Concept Approval
- rail noise assessment is subjective and reliant on inadequate assumptions
- further detail is required on sleep disturbance impacts
- building and barrier layouts and operational efficiencies should be optimised during detailed design
- the combined maximum operational noise contribution (with MPE) should be provided
- there are inconsistencies within the air quality assessment of emissions
- air quality best practice management should be informed by the Protection of the Environment Operations (POEO) Act
- a commitment should be provided to upgrade locomotive standards to meet clean air standards
- quantitative modelling should not form the primary basis for not implementing reasonable and feasible mitigation measures.

Roads and Maritime Services (RMS)

RMS supports the application, subject to the Applicant finalising an agreement for State Road Network mitigation measures including total cumulative development modelling assessment. RMS also requested the following additional information:

- key assumptions for each stage, likely cumulative trip generation, daily peak hour movements
- details of companies that will operate the IMT and warehousing
- MPW and MPE traffic modelling is inconsistent and modelling should take account of M5 weave issues
- further justification is required of intersection performance including upgrades
- clarification of what 'signal improvements' are proposed
- details of proposed accesses during construction and operational stages, including swept path analysis
- clarification of potential pedestrian and vehicular conflicts between MPW and MPE, including mitigation measures to improve road safety
- details of service vehicle movements and access arrangements
- details of the proposed change in level of Moorebank Avenue (up to 2 m)
- staging plans for road construction and details of proposed realignment of Moorebank Avenue and its impact on site access.

RMS also proposed standard conditions should the application be recommended for approval.

TfNSW does not object to the application. However, it raised concern that the majority of SEARs and MPW Concept Approval conditions have not been adequately met/addressed.

5.4 Public submissions

A summary of the issues raised in the 125 public submissions is provided at **Table 7** below and copies of the submissions may also be viewed at **Appendix A**.

Table 7 | Summary of the public submissions to the proposal

Issue	Proportion of submissions
Traffic impacts	72%
Pollution	42%
Environment / ecological impacts	37%
Noise impacts	36%
Air quality impacts	31%
Health impacts	27%
Suitability of the site	15%
In-principle objection	11%
Insufficient information and lack of community consultation	8%
Impact from lighting	8%
Dangerous goods and chemicals	7%

% of Submissions

Issue	Proportion of Submissions (%)
Traffic impacts	72%
Pollution	42%
Environment / ecological impacts	37%
Noise impacts	36%
Air quality impacts	31%
Health impacts	27%
Suitability of the site	15%
In-principle objection	11%
Insufficient information and lack of community consultation	8%
Impact from lighting	8%
Dangerous goods and chemicals	7%

Figure 8 | Summary of submissions by category

On 9 March 2017, at Liverpool City Library, Department representatives met with local residents and representatives from the following stakeholder groups:

- Better Planning Network
- Liverpool Action Group
- Residents Against Intermodal Development (RAID)
- East Liverpool Progress Association
- Liverpool Community Independents Team.

The matters raised during the key stakeholder meeting on 9 March 2017 are summarised below. They do not specifically relate to the MPW Stage 2 application but provide an overview of community concerns regarding impacts of development on both the MPW and MPE sites.

Long term residents of surrounding suburbs

- applicability of baseline information for use in assessment of impacts of the raised site
- new landform and the effect on the riparian zone
- noise impacts - operational noise associated with the warehousing and the intermodal road, wheel squeal due to the rail entry line curve, need for containment of noise on the site/ noise walls
- visual impacts – need to screen stacked containers from view, need screening and vegetation buffers, and trees need to be planted now
- flooding from the Georges River
- traffic issues, health issues, indigenous issues, heritage issues.

Liverpool Action Group

- impact on local amenity (peace and quiet) – site in close proximity to thousands of recently built homes at Wattle Grove, Holsworthy and Moorebank and is overlooked by housing development at Casula
- main issues are flooding, remediation, noise, traffic, waste and pollution, environmental issues.

Residents Against Intermodal Development Moorebank (RAID)

- health impacts
- noise issues.

Liverpool Community Independents Team

- significant traffic issues, need for transport modelling to be reassessed, need for advice from RMS
- large number of truck movements for filling of the site compared to truck movements for building the facility
- key assumptions require closer scrutiny.

East Liverpool Progress Action Group

- no precinct wide assessment - two separate developments (MPW and MPE)
- traffic safety - existing dangerous merge/weave operation at the junction of Moorebank Avenue and the M5 Georges River Bridge
- impacts on neighbourhood amenity
- incompatible intrusion into the Georges River natural environment
- burial of a hundred years of military history.

Better Planning Network

- need to set emission standards for trains
- questioned benefits in terms of numbers of trucks that would be moved off the M5 by the proposed development and limited employment generation

- impact on M5 intersection
- capacity of the road and rail network to accommodate the project.

5.5 Response to Submissions

Following exhibition, all submissions were made available on the Department's website. The Department requested the Applicant provide a response to the issues raised in the submissions.

On 31 July 2017, the Applicant provided a Response to Submissions (RtS) (**Appendix A**), which includes the following amendments to the proposal:

- extension of the warehousing hours of operation from 18 hours a day, five to seven days a week, to 24 hours a day, seven days a week
- amendments to OSD basins, including:
 - provision of a new OSD basin in the 18 m setback between the IMT and Moorebank Avenue
 - reconfiguration of OSD basin 5
 - decrease in the size of OSD basin 6
 - increase in the size of OSD basin 8
- reduction in the width of the central and northern OSD outlet channels discharging to Georges River
- construction of additional piped outlet to Georges River in the Endeavour Energy easement
- amendments to the Moorebank Avenue/Anzac Road intersection design and capacity
- revised construction and operational footprint resulting from above OSD and intersection changes
- inclusion of container wash-down and de-gassing area at the northern end of the intermodal facility
- amendments to the layout and configuration of warehouses
- provision of back-lit corporate signs for each warehouse
- removal of subdivision from the application.

The RtS was made publicly available on the Department website and was referred to the relevant public authorities. An additional eight submissions were received from public authorities. A summary of the issues raised in the submissions is provided at **Table 8** and copies of the submissions may be viewed at **Appendix A**.

Table 8 | Summary of public authority submissions to the RtS

Liverpool City Council (Council)

Council reiterated concerns in relation to the adequacy of assessments undertaken to date for MPE and MPW projects. Council provided the following additional comments:

Traffic

- traffic assessment is deficient in the following areas:
 - lack of back of queue data for intersections
 - the risk imposed due to the increase in heavy vehicle traffic to the safety of road users and the maintenance implications for the surrounding road network.

Noise

- the noise and vibration assessment is deficient in the following areas:
 - failed to assess the implications of MPW Stage 2 in conjunction with the MPE proposal
 - failed to assess the impact the significant increase in freight movements would have on various sensitive receivers

- o lack of details concerning the quanta of construction equipment that will be operating onsite and the cumulative impact to surrounding sensitive receivers.

General

- it is considered unreasonable to amend the proposal so late in the planning process
- application should be placed on hold until a holistic masterplanning exercise has been completed for the whole precinct.

Council requested the following conditions of consent:

- noise and vibration monitoring of project impacts to sensitive receptors surrounding the site and along the SSFL during operation
- monitor noise and air quality at sensitive receivers throughout construction and operational stages to confirm no further mitigation measures are required
- noise and vibration assessment to be undertaken to assess the impact on the heritage items located at Glenfield Farm
- freight village to be constructed and operated to meet legislative requirements and Australian Standards as relevant
- independent review be undertaken to verify the infrastructure upgrade requirements within the study area, as compared to those required to address existing infrastructure conditions
- revised Biodiversity Assessment Report (BAR) to be peer reviewed prior to project approval
- further examination of the requirement for the development of a Biodiversity Offset Package.

Transport for NSW and Roads and Maritime Services

TfNSW did not object to the proposal and reiterated their earlier request for a deferred commencement, requesting that the applicant address the following matters:

- applicant to provide all traffic modelling
- applicant to provide a table detailing the key assumptions for each construction and operational stage, along with accumulative trip generation
- applicant is to provide additional information regarding trip generation and traffic distribution for the retail component at the freight village including cumulative assessment
- further details are requested in relation to the access via Moorebank Ave and Anzac Road and the Moorebank Ave/Bapaume Road for lane configurations, intersection upgrades, road alignment, traffic impact mitigation and signalisation.

Standard conditions were also provided should the application be recommended for approval in relation to roadworks and traffic lights associated with the required Works Authorisation Deed with RMS.

DPI

DPI advised that the RtS adequately addressed early comments.

Office of Environment and Heritage (OEH)

The OEH considered the RtS and noted that the indirect impacts on *Hibbertia fuman*a within the 'Boot land' have been considered. Notwithstanding OEH advised that an amended Biodiversity Assessment Report (BAR) would not be required assuming that the additional survey work was undertaken in accordance with accepted guidelines.

Environment Protection Authority (EPA)

EPA raised concerns about the assumptions used to predict the existing and increased rail noise levels.

EPA also requested:

- additional information on night time noise monitoring at three locations in Casula
- construction be limited to standard construction hours as per the *Interim Construction Noise Guideline*
- applicant consider feasible and reasonable mitigation measures to reduce noise from rail link at the measurement location 1 in Casula
- assessment of potential operational noise impacts including Lmax levels, for the wash-down facility and the rail link
- the applicant commit to assessing and implementing all feasible and reasonable mitigation measures to reduce the noise levels from the cumulative operation of the rail link, consistent with *Rail Infrastructure Noise Guideline* and the sleep disturbance criterion of background + 15dBA.

Department of Industry Resources and Energy (DOI)

DOI did not object to the proposal and confirmed it would not have any mineral resource impacts and there are no current mineral, coal or petroleum titles over the site.

Rural Fire Service (RFS)

The RFS considered the RtS and provided recommended conditions requiring the development to comply with *Planning for Bush Fire Protection 2006* and that the site be managed as an Inner Protection Area.

Health

The Department referred the proposal, including the RtS, to Health, which provided no comment.

5.6 Supplementary information

The Department made a series of requests for additional information to provide clarification and inform its assessment of the proposal following agency submissions on the RtS. On 20 December 2018, the Applicant provided this additional information in a single Supplementary Information compilation: the Consolidated Assessment Clarification Responses.

The Consolidated Assessment Clarification Responses include the Applicant's response to agency submissions and an updated BAR for the Stage 2 application; however the BAR was subsequently updated in March 2019.

The updated March 2019 BAR includes the results of additional vegetation and validation surveys requested by OEH, as well as revised assessment of site-wide impacts of works on the biodiversity values of MPW and updated Framework for Biodiversity Assessment (FBA) calculations. The Department notes the updated BAR has been submitted under the FBA and NSW Biodiversity Offsets Policy for Major Projects, as the project is a transitional project under Part 7 of the *Biodiversity Conservation (Savings and Transitional) Regulation 2016*. Further detail on the updated March 2019 BAR is provided in **Section 6.8**.



6. Assessment

The Department has considered the EIS, the issues raised in submissions and the Applicant's RtS and supplementary information in its assessment of the proposal. The Department considers the key issues associated with the proposal are:

- consistency with the Concept Plan Approval
- importation of fill
- land uses and built form
- soils and water
- traffic
- noise
- air quality
- biodiversity
- contamination.

Each of these issues is discussed in the following sections. Other issues were taken into consideration during the assessment of the application and are discussed at **Section 6.10**.

6.1 Consistency with the Concept Plan Approval

The Concept Plan approval (SSD 5066) for the site sets out a number of requirements and parameters for future development applications in developing the MPW site, including this application for MPW Stage 2.

As discussed in **Section 1.3**, the Department has concurrently assessed a modification request to the Concept approval (SSD 5066 MOD 1), with this SSD application. The modification application seeks approval to allow importation of 1,600,000 m³ of fill, expand the site boundary for Moorebank Avenue/Anzac Road intersection works, allow transfer of containers between MPE and MPW, rearrange the layout of the intermodal terminal, warehousing, freight village, truck parking, increase building heights and the number of onsite detention basins, remove one of two intermodal terminals onsite, reduce future development stages and allow future subdivision.

The Department has assessed the MPW Stage 2 application in accordance with the Department's final recommendations for the proposed Concept modification. The Department has considered this in detail at **Appendix D**. In summary, the Department considers the proposal is generally consistent with the recommended Concept conditions (as proposed to be modified).

6.2 Importation of fill

The Applicant seeks approval for the importation of 1,600,000 m³ of fill. The proposal seeks for the site to be raised on average between 2-3 m, up to a maximum of 3.6 m, including 1 m of engineered fill below finished pavement levels. A drawing showing indicative fill levels across the overall MPW site is provided in **Figure 9**.

The Department notes that, as part of its review of the MPW Concept modification, that the Department recommended that the concept for raising of the site should be permitted. However, the Concept requires the specific environmental impacts of those works to be assessed further as part of this proposal.

The Department has considered the impacts of imported fill as part of its holistic assessment of the construction impacts of the proposal.

Construction traffic associated with the proposal, of which a majority would be associated with fill importation, is assessed in **Section 6.5.1**. As part of this assessment, the Department has recommended conditions that limit importation of fill to 1,600,000 m³ of uncompacted fill, and place a daily (22,000 m³) limit on importation across the MPE and MPW sites, consistent with the MPE Stage 2 consent.

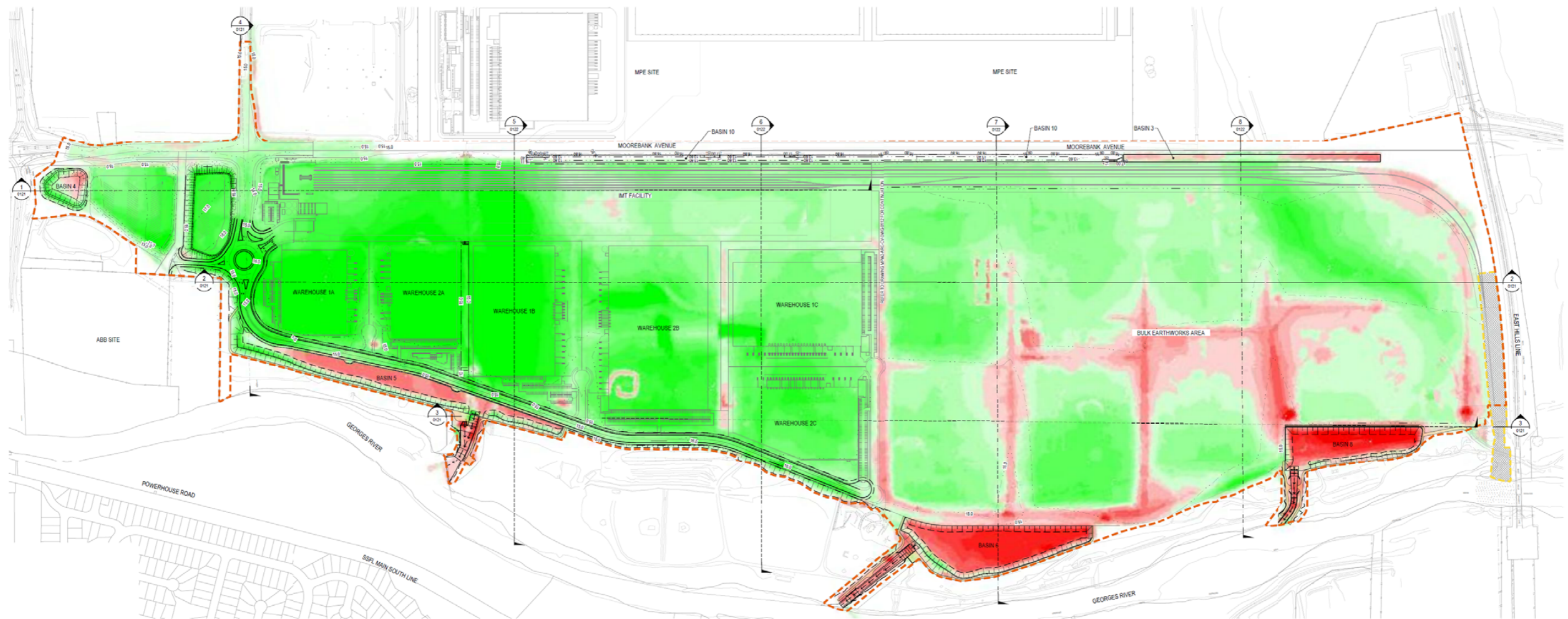
The impacts on soil and water, including requirements for fill importation protocols, stockpiling and placement, are detailed in **Section 6.4.2**. The Department supports the Applicant's commitment that all material would be clean general fill that would meet the definition of virgin excavated natural material (VENM) or excavated natural material (ENM). While the source of the fill has not been specified by the Applicant, geotechnical reports submitted as part of the EIS are based on bore-log data from spoil from WestConnex M4 East. Further, the Applicant has noted the potential availability of sandstone spoil material from tunnel excavation that may not require crushing onsite before placement. Notwithstanding, the Applicant does seek approval for rock crushing onsite during construction.

The Department has considered the noise and air quality impacts of fill importation. Noise impacts are addressed in **Section 6.6.1**. Further, air quality impacts of dust and required controls are detailed on **Section 6.7.1**.

The Department has also closely considered the impacts of raising the site on operation of the site.

Similarly to MPE Stage 2, which involved importation of 600,000 m³ of fill, the Applicant suggests that the importation of fill and associated bulk earthworks for MPW Stage 2 'would result in a considerable improvement to drainage within the MPW site, and the surrounding area'. The Department has reviewed the stormwater and drainage system proposed for the site, and the Department's assessment is outlined in **Section 6.4.1**.

The Department has also considered the increased off-site impacts from raising the site, including increased visibility of buildings and lighting from viewpoints. The Department's assessment is outlined in **Section 6.3.4**.



LEGEND

- MPW STAGE 2 CONSTRUCTION AREA
- PROPOSED CONTOURS
- SUBJECT TO MPE STAGE 1 PROPOSAL (SSD 14 - 6766)

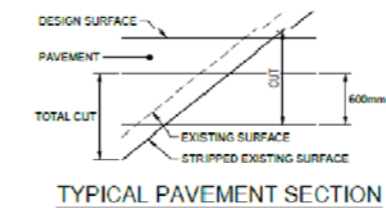
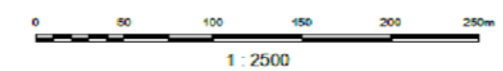
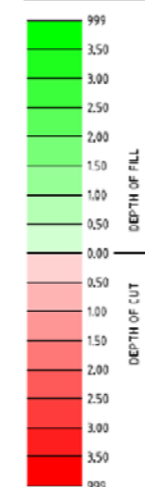
NOTES

STRIPPED EXISTING SURFACE CREATED BY STRIPPING OFF THE TOPSOIL FROM THE EXISTING SURFACE IN ACCORDANCE WITH GOLDERS TOPSOIL DEPTH CONTOURS.

ASSUMPTIONS AND NOTES

1. HATCHING SHOWN REPRESENTS THE DEPTH RANGE BETWEEN THE STRIPPED EXISTING SURFACE AND THE UNDERSIDE OF PAVEMENT (REFER TYPICAL PAVEMENT SECTION).
2. NO ALLOWANCE HAS BEEN MADE FOR:
 - BULKING OR COMPACTION FACTORS
 - TRENCHING FOR UTILITIES (INC. STORMWATER, WATER, SEWER, ELECTRICAL AND COMMUNICATIONS)
3. VOLUMES HAVE BEEN PREPARED BASED ON CONCEPT GRADING AND ARE SUBJECT TO ARCHITECT'S DRAWINGS FOR FINISHED LEVELS.
4. LEVELS SHOWN REPRESENT THE BULK EARTHWORKS SURFACE LEVELS (+/- 500mm).
5. THE CUT/FILL VOLUMES DO NOT INCLUDE THE ACTUAL PAVEMENT MATERIALS REQUIRED. THE FOLLOWING PAVEMENT MATERIAL THICKNESS HAVE BEEN ASSUMED AS:
 - ANZAC ROAD INTERSECTION:
 - ROAD PAVEMENT - 659mm
 - INTERNAL ROAD:
 - ROAD PAVEMENT - 659mm
 - IMT FACILITY:
 - ROAD/RAIL PAVEMENT - 659mm
 - NORTHERN WAREHOUSE AREA:
 - PAVEMENT - 525mm
 - SOUTHERN EARTHWORKS AREA:
 - PAVEMENT AREA - 150mm

DEPTH RANGE LEGEND



TYPICAL PAVEMENT SECTION

Figure 9 | Earthworks/fill diagram (Base Source: Appendix B of Attachment P, Consolidated Assessment Clarification Responses)

6.3 Land uses and built form

The MPW site was previously used for defence purposes, and the proposal would involve a significant intensification of built form on the site, as it seeks approval for an intermodal rail freight terminal, warehousing and extensive site estate infrastructure.

Concerns were raised in public submissions about the impact of development on the riparian corridor and the Georges River, importation of fill to the site and the potential visual impact resulting from the raised site levels and light spill during construction and operation of the warehouse estate.

The Department considers key issues associated with built form include:

- riparian corridor
- adequacy of landscaping and vegetation planting
- urban heat island effect
- visual impact from residential areas.

The Department considers that, based on the outcomes of this assessment and the recommendations for each of the matters discussed above, a revised Development Layout is required. The requirements for the revised layout are discussed in **Section 6.3.5**.

6.3.1 Riparian corridor

The MPW proposal includes the retention of a riparian corridor between the top of bank of the Georges River and the development site.

The requirement to protect a riparian corridor west of the site is established in the existing MPW Concept consent. The Concept conditions of consent include a future environmental assessment requirement for the Applicant to provide a riparian corridor with a minimum width of 40 m measured from top of bank.

Retaining an adequate riparian corridor is not only a matter for consistency in relation to the Concept consent, but is also critical for the acceptability of development along rivers, particularly major watercourses such as the Georges River. The *Guidelines for Controlled Activities on Waterfront Land: Riparian Corridors* (NRAR 2019) reiterate the Government's consistent policy position that 'protection, restoration or rehabilitation of vegetated riparian corridors is important for maintaining or improving the shape, stability (or geomorphic form) and ecological functions of a watercourse'. This is so, because 'riparian corridors perform a range of important environmental functions such as:

- o providing bed and bank stability and reducing bank and channel erosion
- o protecting water quality by trapping sediment, nutrients and other contaminants
- o providing diversity of habitat for terrestrial, riparian and aquatic plants (flora) and animals (fauna)
- o providing connectivity between wildlife habitats
- o conveying flood flows and controlling the direction of flood flows
- o providing an interface or buffer between developments and waterways
- o providing passive recreational uses.'

The Department's considers that the Applicant has not provided an adequate riparian corridor at all locations along the western edge of the site, and this has formed a key part of the Department's assessment of the development.

The Department reviewed the cross sections in the MPW Stage 2 flood assessment to provide an indication of the characteristics of the eastern bank of the Georges River located within the site. The cross sections show:

- in the north, a defined deep channel, steep bank and defined top of bank adjacent to the site
- in the vicinity of the 'dust bowl', a less defined deep channel with lower bank then a terrace extending over the 'dust bowl' to a higher bank
- at the proposed location of OSD Basin 6, a defined deep channel, steep bank and defined top of bank
- in the south downstream of the rail bridge, a defined deep channel, more gently sloping bank and, what could be interpreted as the top of bank, approximately 2 m below the highest point on shown on the cross section which extends some distance into the site.

As part of the assessment of the Stage 2 proposal, the Department sought additional information from the Applicant regarding how the riparian corridor had been measured. In view of the characteristics of the river bank in this location, and the overarching need to delineate a buffer that satisfies the riparian corridor Concept requirement, the Department sought to further review:

- the definition of 'top of bank'
- how the proposal complies with the requirement for a minimum 40 m buffer in accordance with the Concept approval requirements.

In December 2018, the Applicant provided a series of plans, prepared by a registered surveyor using surveyed points and aerial photography. The plans nominate a range of features including:

- 'mean water level – typical flow'
- 'top of river bank – typical flow' 4 m from the mean water level mark (taken by the Applicant to be the 'top of bank')
- 'top terrace of river channel through surrounding landform'
- 1% AEP flood extent.

The Department is concerned that limiting the riparian corridor to 40 m from the top of bank as the Applicant has proposed would not adequately protect the environmental functions and values that need to be protected within the riparian corridor.

The specific Concept consent requirement for a defined riparian corridor buffer was originally informed by detailed submissions, particularly those from the then-Department of Primary Industries – Water. During the assessment of the Concept, the width of the riparian corridor was increased following comments that emphasised the high value of retaining existing vegetation (including remnant alluvial woodland). In its submissions, DPI Water commented on the 'biodiversity value of the vegetated riparian zone, [and] the ecological value of the function of this zone in filtering stormwater, protecting riverbanks from erosion and providing aquatic habitats'.

The Concept approval set the requirement for a 40 m minimum riparian corridor width following:

- the recommendation of DPI Water that 'the issue of the minimum riparian width is resolved as part of [the Concept Approval]'
- guidance in the DPI Water submission on the 'ecological value of the corridor and the protection of existing riparian vegetation, particularly as the site forms part of an important wildlife corridor'
- the Applicant increasing the proposed riparian corridor width in the Concept RtS, 'extending east of the 1% flood line and therefore increasing the future Conservation and riparian corridor'
- the subsequent advice from DPI Water that, notwithstanding the widening of the corridor in the RtS for the Concept proposal, that:

the narrower sections along the Conservation Area/ riparian corridor [which the Department notes, based on the DPI Water comments on the Concept RtS, could include 'those along the northern section, adjacent the OSD in the middle of the site and south of this OSD basin'] ... may need to be widened.

The Department considers that any riparian corridor must encompass key constraints to development on riverfront, such as the 1% AEP flood extent. The Department does not accept that the Applicant has comprehensively demonstrated that its proposed riparian corridor protects key environmental constraints, noting:

- the riparian corridor included the 1% AEP flood extent in the Concept proposal
- the cross-sections presented in Appendix A to the MPW Stage 2 Stormwater and Flooding Environmental Assessment (Arcadis, 1 August 2016) appear to suggest that there is no overbank bank flooding in the 1% AEP flood, i.e. flows are contained within the highest banks of the river, with the eastern bank being located about 10 to 50 m inland from the 1% AEP flood extent
- the Applicant's December 2018 survey plans state, for example, that parts of Basin 5 are within the 1% AEP flood extent.

The Department also considers that existing habitat needs to be retained along the river, to the greatest extent possible. This is particularly so for groundwater dependent ecosystems present along the banks of the river, and key ecological communities onsite such as Forest Red Gum – Rough-barked Apple grassy woodland on alluvial flats aka Castlereagh Swamp Woodland EEC, and Sydney Blue Gum X Bangalay – Lilly Pilly moist forest in gullies and on sheltered slopes.

The riparian corridors of major watercourses are generally afforded significant consideration in key Government environmental policies. The Georges River is a 6th order or greater stream, and:

- for 4th order streams or greater, a 40 m riparian corridor is required under *Guidelines for Controlled Activities on Waterfront Land: Riparian Corridors*
- for 6th order streams or greater, a riparian buffer 50 m either side of the river is deemed to be a State significant biodiversity link

The purpose of the MPW riparian corridor is to protect key environmental values such as biodiversity, connectivity and soil and bank stability, along the banks of the Georges River. There would be unacceptable uncertainty in applying a flat 40 m buffer from the edge of the river bank given:

- the complexities in defining 'top of bank'
- it is unclear whether all environmental constraints are now encompassed in the proposed riparian corridor (as they were in the Concept RtS corridor), such as flood levels
- the need to protect key State significant biodiversity values.

As such, the Department considers that the best way to ensure that the riparian corridor meets the objectives above is to require the corridor to comprise both:

- a buffer zone to the most inland of:
 - 40 m from the top of bank, as surveyed by a registered surveyor, or
 - the 1% AEP flood extent, *plus*
- an additional 10 m extension to the buffer zone established above, where native vegetation is located on or within 10 m east of the buffer.

The Department recommends that the riparian corridor is set out in the Development Layout plans that must inform the final design of the proposal, and must be finalised prior to the commencement of construction to ensure no works occur in the corridor.

The Department acknowledges advice from DPI that the width of the outlets be reduced. The Department has considered the Applicant's proposals for the outlets, and notes that the design has been updated and improved during the assessment process to provide more naturalistic outlet designs. The Department considers that these revised designs would help achieve the overall outcome sought by DPI, in relation to enhancing use of and connectivity throughout the riparian corridor. Further consideration of this is provided in **Section 6.4.1**.

6.3.2 Adequacy of landscaping and vegetation planting

The adequacy of landscaping is a key issue in the Department's assessment of the proposal. The Department is concerned that there is insufficient landscaping identified across this 220 hectare site, and considers that improvements are required to increase the extent of open space areas available for site staff, visual amenity of the landscape setting to offsite receivers, and opportunities to incorporate water sensitive urban design and heat reduction outcomes for the site. Overall, the Department considers that it is important that additional opportunities are taken to increase vegetation cover for onsite and local amenity.

During assessment of the proposal, the Department requested the Applicant increase the area of landscaping across the site. Revised landscape drawings were provided in September 2017. In January 2018, the Department wrote to the Applicant, stating that the drainage and landscaping design of MPW Stage 2 should be revised and improved, to:

- better apply water sensitive urban design principles to provide opportunities for water evaporation and plant irrigation
- increase canopy tree planting and screen landscaping around buildings and roads in order to increase shading and evaporative processes.

In making this request, the Department requested that the Applicant provide revised landscape drawings that delivered on the criteria that were ultimately listed in the MPE Stage 2 conditions. The landscaping criteria adopted by the Commission for MPE Stage 2 are comprehensive, and included:

- a minimum landscaped width of 10m within the 18m setback from Moorebank Avenue
- provision for reduction of the footprint of the warehouses along the eastern boundary, so that the car parking area and warehousing can be setback a minimum of 5m from the internal road to provide visual screening of the building, and adequate landscape width to support canopy trees
- landscaping located around the car parking areas is to support sufficient canopy trees to provide visual screening to the warehouse buildings
- 15% of the site landscaped at ground level, 10% of which must include soft landscaping and not include land set aside for future access ways
- minimum rate of 1 canopy tree per 30m² of landscaped area
- a 2.5 m wide landscaped bay every 6-8 car spaces incorporating canopy trees for shade
- perimeter site screening using advanced shrubs and canopy trees
- perimeter and onsite detention and biofiltration/bioretenion basin fences higher than 1.2m must be transparent and dark in colour but not constructed of chain wire.

The criteria are intended to increase the amenity for workers, and improve visual amenity (both within the site and from off-site) and ecological and water quality outcomes onsite. A key driver for increasing landscaping extent

and canopy cover also relates to responding to the potential urban heat island effect, which is discussed further in **Section 6.3.3**.

The Applicant subsequently provided revised drawings in March and October 2018. In providing the plans, the Applicant sought clarifications and/or variations to a number of criteria including:

- seeking inclusion of the riparian corridor and OSDs in the calculation of landscape area
- seeking to replace the requirement for canopy tree planting every 6-8 car spaces with a commitment to consolidate planting at the perimeter of car parking areas, in an area at least equivalent to the area that would be provided by the landscaped bays.

Notwithstanding the notes above, the October 2018 plans submitted by the Applicant identify that 22% of the MPW Stage 2 site (excluding the future Stage 3 warehousing area) is landscaped, including 15% soft landscaping in areas including areas along access roads and the rail connection, and 7% of the site covered by OSDs (including the non-vegetated batters). The revised landscaping design is shown in **Figure 10**.

In reviewing the Applicant's revised design for the proposal, the Department sought advice from the Government Architect of NSW (GA NSW). GA NSW commissioned an independent reviewer, Garth Paterson, to assist in identifying key issues and key recommendations, and advice was provided in November 2018. The advice concluded that a number of key issues remained with the revised landscape design, relating to:

- lack of 'meaningful green landscaped areas'
- 'little or no high-quality public areas'
- lack of interface between built form and open space apart from break-out areas, including as a result of the proposed noise wall
- need for further information about revegetation
- lack of connections between the site and nearby bushland/conservation areas
- lack of provision for active transport, cycling and walking connections, within the site
- the 'engineer[ing] driven' drainage design, including OSDs, noting the design strategy 'does not offer any opportunities for a more natural integration of water detention and wetland systems prior to water entering the Georges River'.

GA NSW concluded:

in reviewing the proponent's response, the revised drawings, and considering Garth Paterson's advice, and taking into account the proponent's response, [GA NSW] consider that at this point the proposal is unacceptable and is not able to be supported until amendments to address the issues are undertaken.

The Department has reviewed the conclusions of GA NSW, and remains concerned that landscaping across the site does not fully support the use of outdoor areas and active (non-vehicle) transport connections within the site, and possible future connections such as to Casula Station, and between the MPW and MPE sites. The Department considers that it is important that the site allows for efficient movements of freight to, from and within the intermodal and warehousing areas, and unencumbered hardstand and road access is provided across the site. However, the Applicant has not provided a fully integrated landscape design. A revised design is required that enhances usable spaces for site staff, and fully explores all opportunities for landscape planting throughout the site, such as shade planting in parking areas and between warehouses, to improve amenity and reduce heat impacts due to the density of the development and large areas of paved surfaces.

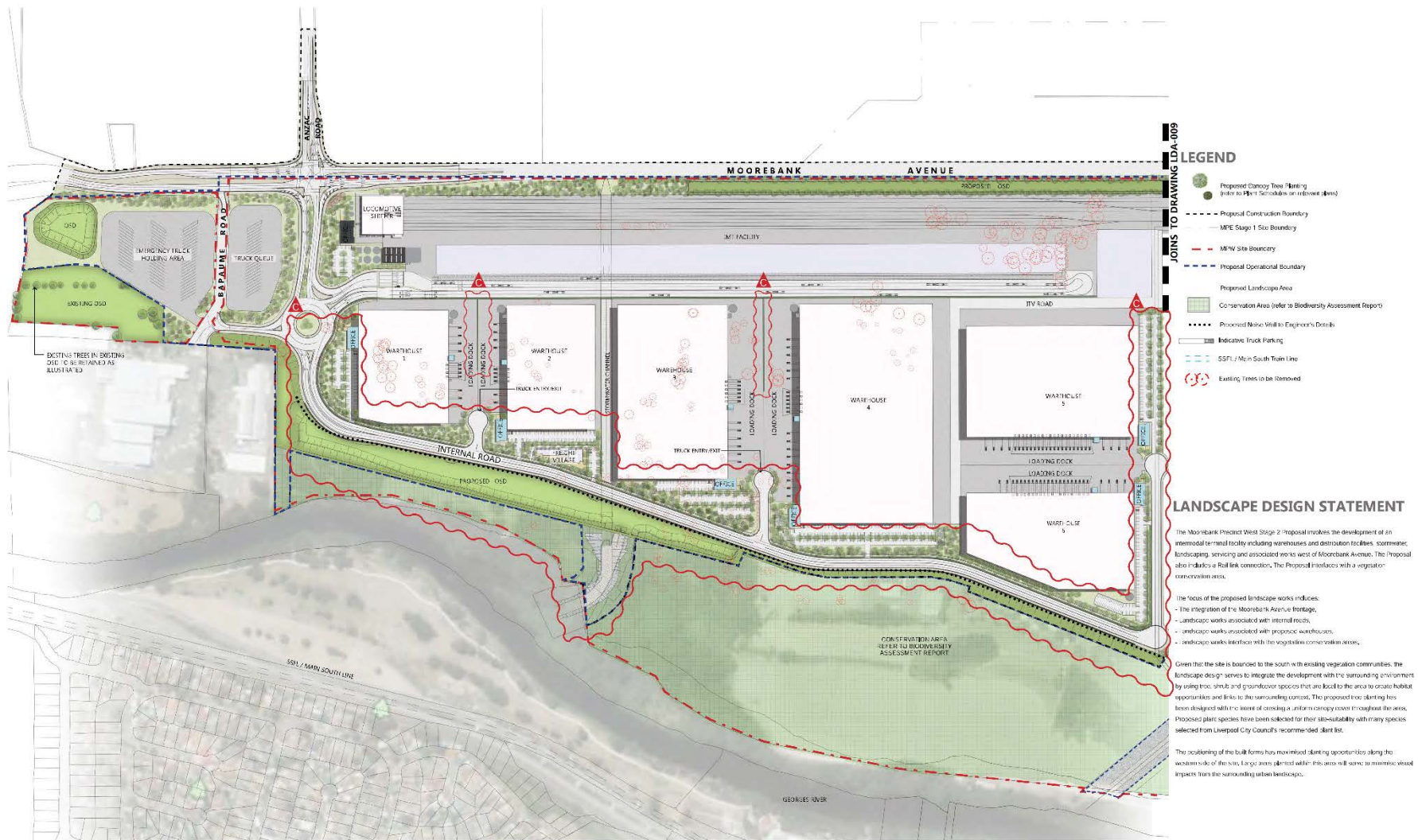


Figure 10 | Landscaping design (Source: Consolidated Assessment Clarification Responses)

Broadly, the Department considers that key objectives for a revised urban and landscape design of the site, supported by the analysis and issues identification by GA NSW, include:

- open space and bushland connectivity
- water sensitive urban design (refer to **Section 6.4**)
- promotion of good health and active living
- increased access to open space for employees
- creation of high quality public areas and places
- creation of a greener urban environment
- enhancement of green spaces
- the design of buildings and their interface with landscape and open space.

The Department considers that the recommendation for a revised drainage scheme is an appropriate trigger for the Applicant to also further refine the landscape design for the site. It is important that, as part of this process, a peer review is conducted by a landscape architect independent of the current design team, to verify that key objectives have been incorporated into an updated design.

Consequently, the Department has recommended a series of design criteria to inform a revised landscape layout to be submitted as part of a refined Urban Design Development Report. The criteria have been developed to address concerns raised during the assessment, including by GA NSW. The landscape criteria identify key opportunities for enhanced landscaping, acknowledging the Applicant's commitment to vegetation planting, while nominating key areas for improvement and increasing green buffers and reducing edge effects.

The recommended criteria are as follows:

Table 9 | Landscape criteria

Matter	Criteria
Landscape setbacks	<ul style="list-style-type: none"> • Minimum setbacks including: <ul style="list-style-type: none"> o 18 m from Moorebank Avenue with minimum soft landscaped width of 10 m o 5 m setback from the western internal road to warehouse carparks
Tree planting	<ul style="list-style-type: none"> • Landscaping within the warehouse area must include dense canopy tree planting, shrubs, sedges, herbs, ground covers and tufted native grasses primarily derived from OEH list of Cumberland Plain Woodland • The canopy tree mix must include some or all of the following species: <i>Eucalyptus crebra</i>, <i>Eucalyptus moluccana</i>, <i>Eucalyptus amplifolia</i>, <i>Eucalyptus bosistoana</i>, <i>Eucalyptus eugenioides</i>, <i>Eucalyptus tereticornis</i>, <i>Eucalyptus punctate</i>, <i>Eucalyptus baueriana</i>, <i>Corymbia maculata</i>, <i>Angophora floribunda</i> and <i>Angophora bakeri</i> • Canopy tree planting must be provided around the perimeter of the site, including the southern fill area where future warehousing is proposed
Edge effects	<ul style="list-style-type: none"> • Perimeter fill batters must be stabilised with vegetation • The design of fill batters must ensure stability, mitigate visual impacts, provided for maintenance activities, and not impact on adjacent lands, including biodiversity offset areas and the riparian corridor
OSD fencing	<ul style="list-style-type: none"> • Perimeter and onsite detention and biofiltration/ bioretention basin fences higher than 1.2m must be transparent and dark in colour but not constructed of chain wire
Perimeter fencing and planting	<ul style="list-style-type: none"> • Boundary fencing design must allow for fauna movement • Screen fencing and planting must be provided around waste bins or other outside storage areas

Matter	Criteria
	<ul style="list-style-type: none"> Screen planting must be provided on both sides of noise walls
Site corridors	<ul style="list-style-type: none"> Protection of corridors including a corridor through the site for possible future connection to Casula Station
Noise wall requirements	<ul style="list-style-type: none"> Noise barriers must minimise visual and amenity impacts and be designed in accordance with the <i>Noise wall design guideline – Design guideline to improve the appearance of noise walls in NSW</i> (RMS, March 2016).

It is important that the Applicant incorporates the criteria into an updated, revised landscape design as soon as possible prior to construction. In combination with the recommended drainage and stormwater design criteria, the required changes would require refinements to the site design.

6.3.3 Urban heat island effect

The Department considers that the urban heat island effect is a key consideration for this proposal. As discussed in the Department's assessment report for MPE Stage 2, the urban heat island effect is where the urban area is considerably warmer compared to surrounding rural and bushland areas. It is a localised warming due to an increase in absorbing surfaces (measured as change in albedo), such as hardstand and buildings, that retain heat, and the removal of vegetation and water, which causes a reduction in evaporative cooling and shading.

The proposal envisages the removal of all vegetation within the boundary of the intermodal, and up to 42.89 hectares of native vegetation, and construction of extensive hardstand surfaces for the intermodal terminal and internal road network.

State and local government are increasingly developing strategies to reduce the intensity and scale of the urban heat island effect, particularly in Western Sydney. Research conducted as part of *Cooling Western Sydney: A strategic study on the role of water in mitigating urban heat in Western Sydney* (Sydney Water, 2017) emphasises a number of key strategies to reduce the effect, including:

- water-based techniques, including natural waterbodies, and artificial features such as pools, ponds and fountains, evaporative wind towers, sprinklers and water curtains
- increasing the area of greenery
- using materials of high diffuse solar reflectivity and high emissivity value, known as cool materials.

In summary, enhancements proposed by the Applicant have included changes to landscaping, a commitment to install, where 'feasible and reasonable', solar panels on roofs of warehousing, and cool roofs using cool materials and reflective (light) colours.

As part of the MPE Stage 2 development consent, the Commission required the preparation of an urban heat island mitigation strategy. The focus of the strategy was to review architectural details, building layout, landscaping, and onsite stormwater detention, and develop a plan with a goal of achieving a 4°C decrease in temperature compared to neighbouring industrial development. Work on developing the strategy for MPE Stage 2 is ongoing, but has identified design improvements such as the use of cool materials and enhanced landscaping, including more canopy trees.

The Department considers that the requirement to achieve a 4°C decrease in temperature compared to neighbouring industrial development should be adopted for MPW Stage 2. The Department considers that this goal can be achieved by implementing the initiatives outlined in the recommended conditions, such as WSUD

elements such as wetlands, shade tree planting and vegetation ground cover, and the use of ‘cool’ building and pavement materials (i.e. those with high reflectivity in the infrared spectrum) as well as green roofs.

6.3.4 Visual impact

The Department has considered the off-site visual impacts of the proposal, particularly from impacted residential areas and recreational areas around the site. The proposal would result in visual impacts at off-site viewpoints, particularly to the west of the site.

The Applicant assessed views from eight vantage points in its EIS and RtS. Representative views from the west of the site are shown in **Figure 11** and **Figure 12**.



Figure 11 | View looking east from Leacock Regional Park (Source: Appendix T Visual Impact Assessment and Light Spill Report, EIS)



Figure 12 | View looking east from Carroll Park (Source: Appendix T Visual Impact Assessment and Light Spill Report, EIS)

Given the raising of the site, warehousing and lighting infrastructure (the tallest fixtures onsite) are likely to be more visible. Warehouses and light poles would be visible above existing canopy trees, though it is accepted that this would have been the case if the proposal was built at grade.

As the Department concluded for MPE Stage 2, the industrial character of the MPW Stage 2 proposal, its substantial scale and extent, and the current lack of satisfactory onsite landscaping and amenity, would result in the development — in its current proposed form — creating large areas of hardstand area and a large expanse of warehouse roofs and walls. The Department has concluded that it is important that conditions of consent be imposed to deliver additional landscaping improvements throughout the site, as was the case for MPE Stage 2.

The Department's recommended conditions of consent prescribe the following layout and landscaping improvements to be incorporated into a revised development layout plan. The Department considers that, taken together, these design refinements would assist in reducing the bulk and scale of the site from off-site viewing points.

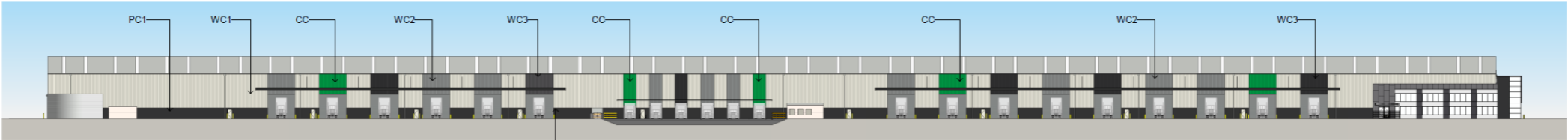
The visual impacts of the buildings would be most visible and significant to road users on Moorebank Avenue, for whom the proposal would be a more substantial change of character and current views. It is important that the Applicant pursue opportunities to break up the mass and scale of the large warehousing buildings through articulation and selection of finishes. The proposed design of the warehouse finishes is shown in **Figure 13**. The Department considers that the final designs can be further refined, and has recommended that these revised designs be submitted for approval prior to construction as part of a suite of final Architectural Designs that also incorporate the required landscape enhancements.

The Department considers that light spill impacts from 24/7 operations could, without appropriate controls, be significant. The Department considers that site lighting is critical for safety purposes, and accepts the Applicant's commitments to implementing appropriate flood lighting to minimise offsite light spill. The Department is, however, particularly cognisant of the impact of illuminated signage facing west, and the potential for light glow on properties in Casula.

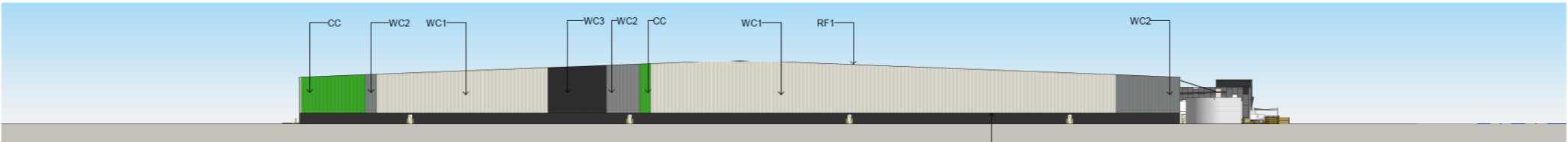
The Department recommends that no illuminated signage should be visible from residential areas. As a result, the Department has recommended criteria prohibiting west-facing illuminated building signage visible from residences, and prohibiting internally illuminated signs that are visible from residences. There are multiple ways for the Applicant to finalise the design of signage to comply with these criteria, including restricting the height of illuminated building identification signage or providing non-illuminated signage, and the Department considers that prescribing this outcome is appropriate and achievable.

WAREHOUSE 4 EXTERNAL FINISHES

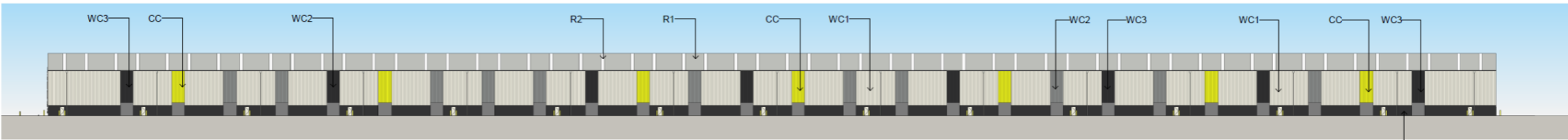
STATE SIGNIFICANT DEVELOPMENT



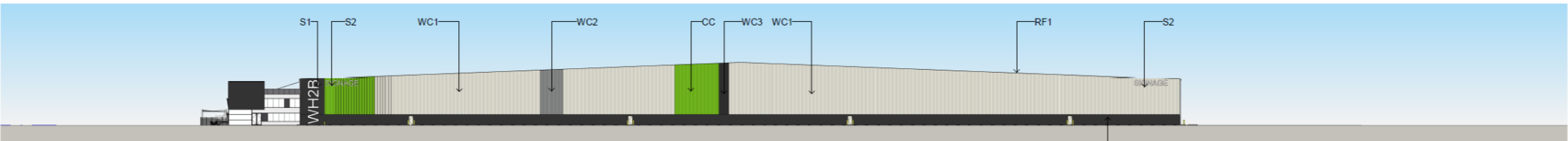
1 WAREHOUSE 4 - EXTERNAL FINISHES A
1 : 500



2 WAREHOUSE 4 - EXTERNAL FINISHES B
1 : 500



3 WAREHOUSE 4 - EXTERNAL FINISHES C
1 : 500



4 WAREHOUSE 4 - EXTERNAL FINISHES D
1 : 500



C1 DARK GREEN
C2 MID GREEN
C3 LIGHT GREEN
C4 YELLOW



VERTICAL METAL SHEETING
"SURFMIST"



VERTICAL METAL SHEETING
"WINDSPRAY"



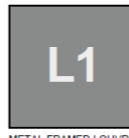
VERTICAL METAL SHEETING
"MONUMENT"



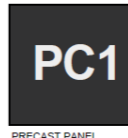
METAL PROFILED ROOF
SHEETING
"SHALE GREY"



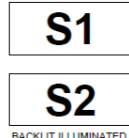
TRANSLUCENT SHEETING



METAL FRAMED LOUVRES



PRECAST PANEL
"MONUMENT"



WAREHOUSE ID
NUMBER
TENANT SIGNAGE

NOTES:
1. ALL LEVELS AND EXTENTS ARE
INDICATIVE & SHOULD BE READ IN
CONJUNCTION WITH CIVIL ENG. DWGS FOR
FINAL LEVELS OF ALL EARTH WORKS AND
EXCAVATION.
2. ALL SERVICES RELOCATION TO BE
CONFIRMED BY ENG.

This drawing and design is subject to Reid Campbell (NSW) Pty Ltd copyright and may not be reproduced without prior written consent. Contractor to verify all dimensions on site before commencing work. Report all discrepancies to project manager prior to construction. Figure dimensions to be taken in preference to scaled drawings. All work is to conform to relevant Australian Standards and other Codes as applicable, together with other Authorities' requirements and regulations.	Issue	Description	Date	By	App'd	Notes	Project	Owner / Developer	Project Manager	Architect	Drawing Title	Drawn	Checked	Print Date	Scale						
	1	PRELIMINARY ISSUE	28/02/2018									ALL DIMENSIONS ARE APPROXIMATE AND ARE TO BE VERIFIED BY A REGISTERED LAND SURVEYOR.	MOOREBANK PRECINCT WEST STAGE 2			REIDCAMPBELL Architecture, Interiors, Planning ACN 002 033 801 ABN 28 317 626 876 Level 15, 124 Walker Street North Sydney NSW 2060 Australia Tel: 61 02 9954 5011 Email: sydney@reidcampbell.com Fax: 61 02 9954 4946 Web: www.reidcampbell.com	WAREHOUSE 4 EXTERNAL FINISHES	MP	SK	08/03/17 5:23:00 PM	As indicated
	2	PRELIMINARY ISSUE	27/02/2018															Project Number	Issue		
	3	PRELIMINARY APPLICATION	18/03/2018															115123	E		
	4	PRELIMINARY ISSUE	28/02/2018															Drawing Number			
	5	RESPONSE TO SUBMISSIONS	28/02/2018															115123_A_SSD_2212			

Figure 13 | Proposed warehouse finishes— Warehouse 4 example (Source: Attachment B of Attachment O, Consolidated Assessment Clarification Responses)

6.3.5 Revised development layout plan

On the basis of the discussion above, the Department considers that key design refinements are required to ensure that the site design is finalised to meet appropriate standards and desired outcomes. To this end, the Department has recommended that, prior to construction, the Applicant prepare a revised Development Layout plan that shows key development elements including but not limited to:

- estate infrastructure (eg. bushfire infrastructure including fire hydrants, gross pollutant traps)
- internal roads
- warehouse and associated carpark footprints
- the freight village
- the intermodal terminal facility, including the truck waiting area and emergency truck storage area
- the rail link connection
- rail line maintenance vehicle access roads
- landscaping within the intermodal and warehousing areas.

A key aspect of the Development Layout plans is defining key site boundaries within which the final design must be accommodated. These plans would need to:

- define the key constraints on the proposal site (including the location of the 1% AEP flood extent, riparian corridor width, and biodiversity offset areas)
- provide appropriate setbacks from the site to neighbouring land, including:
 - 8 to 12 m along north, south and western perimeters of the development area, to provide for minimum fill batters of 1:4
 - 3 m wide maintenance access tracks/roads between the fill slopes and the riparian corridor, the ABB site and at the southern end of the development area
- facilitate future pedestrian connectivity, including by setting aside a corridor between Moorebank Avenue and the Georges River for a possible future pedestrian connection across the Georges River to Casula Railway Station
- set aside appropriate habitat corridors, including those identified as part of the Koala Management Plan (see **Section 6.8**)
- incorporate bushfire asset protection zones within the site — that is, the Applicant cannot provide those zones by additional clearing outside the development area, but must ensure that development patterns within the site accommodate the full extent of the protection zones.

Given the importance of finalising the development layout through these plans, the Department recommends that they must be reviewed by the Department, and that construction can only commence once those plans are approved. For the same reasons, it is recommended that the development layout plans cannot be staged — that is, only low impact works and required remediation activities would be allowed to commence before these plans are finalised.

6.4 Soils and water

The Applicant's proposed stormwater and drainage system design, and soils and water management during construction, are key issues in the assessment of the proposal. The Department has closely considered these matters, and considers that a series of improvements are required to the overall design of the stormwater and drainage system and the detailed construction program.

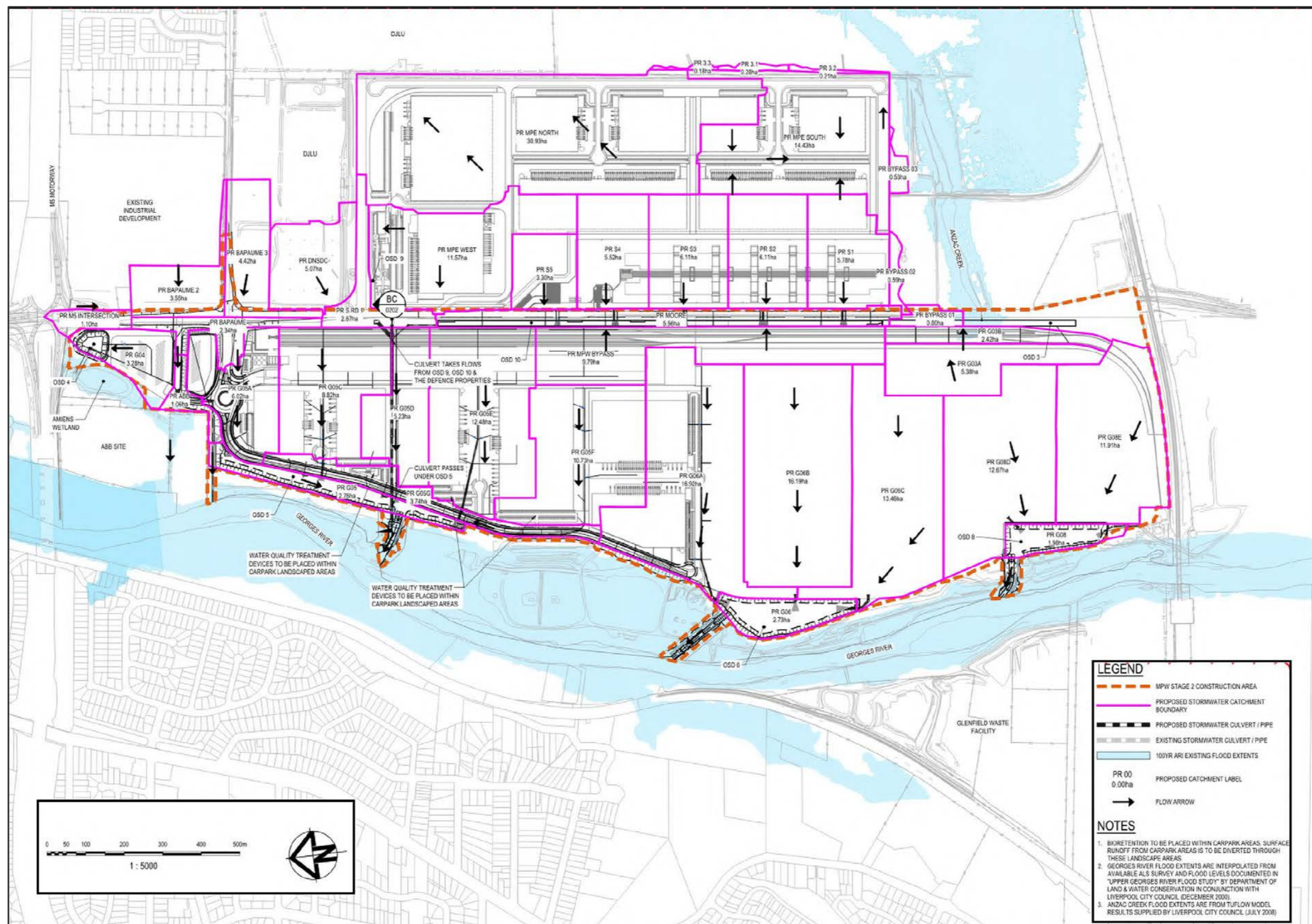
6.4.1 Stormwater and Drainage

The proposal envisages a large-scale change to the landform of the site, to provide a raised, level base for operation of the intermodal terminal, warehousing and associated infrastructure.

The proposed final form of the development would divide the site into a number of catchments for surface water overland flows and stormwater management. The catchments direct flows to one of five onsite detention basins, or bypass culverts or pipes, which ultimately discharge to the Georges River to the west of the site through four outlets. The OSD basins combine stormwater detention and stormwater treatment. The general stormwater management scheme proposed by the Applicant is shown in **Figure 14**.

The Department commissioned Alluvium to conduct an independent expert review of the Applicant's proposed permanent stormwater management systems, and management of stormwater during construction. In its review, Alluvium considered the whole of the precinct, inclusive of both the MPE Stage 2 and MPW Stage 2 applications, and provided an overarching report in November 2017. This independent review report raised a number of key issues with the proposed stormwater system for the overall MPE and MPW precinct including:

- that concrete lined drainage channels with high vertical sides are inconsistent with current practice and not appropriate
- requests for clarification regarding modelling of pre- and post-development flows
- issues with community safety and financial sustainability [i.e. substantial maintenance requirements and cost] of long-term operation and maintenance of the onsite detention basins [due to their proposed use for stormwater treatment].



The report highlights specific concerns with the ongoing effectiveness of the dual function OSD basins, noting a typical cross section as per **Figure 15**. The report concludes that:

It is not recommended, nor is it good practice, for stormwater treatment systems to be in the base of large OSD systems, due to:

- *potential for these systems to be scoured with all the flows from the upstream catchment, and unusually large volumes of sediment settling on top of the systems*
- *potential for these systems to be smothered with sediment*
- *the fact that these systems will be the lowest point of the OSD basin, as well as the lowest outlet for water means that they will receive greater flows than they can be designed for.*

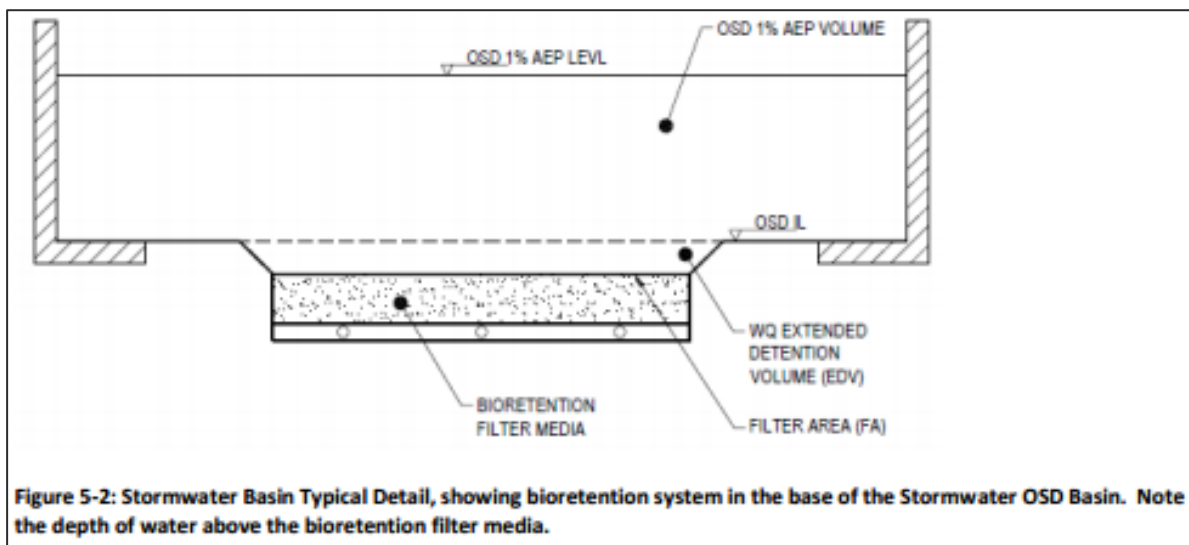


Figure 15 | Typical MPW Stage 2 EIS/RtS OSD cross section (Source: November 2017 independent review)

The Department considered the November 2017 independent review and concludes:

- the proposed design of onsite detention (OSD) basins and stormwater quality treatment systems is not consistent with Water Sensitive Urban Design (WSUD) Principles
- in key respects, the MPW Stage 2 drainage design does not represent current good practice.

The November 2017 independent review report formed part of the Department's recommendation to the Commission in November 2017 for MPE Stage 2. The Department recommended that the Commission consider a suite of soil and water management conditions specifying design, management and monitoring criteria and requirements, in relation to earthworks, flooding, existing stormwater infrastructure and stormwater system design. The Department and the reviewer briefed the Commission on 18 December 2017. Extensive conditions were adopted by the Commission in its January 2018 determination of MPE Stage 2.

In summary, the MPE Stage 2 conditions prescribe a series of environmental performance objectives and design criteria for the drainage system, to be incorporated into a revised drainage system to be approved prior to construction. The objectives and design criteria include:

- ensuring that adequate overland flow paths have been provided in the event of stormwater system blockages and flows in excess of the 1% ARI rainfall event

- providing onsite detention to attenuate peak flows from the development such that both the:
 - 1 in 1 year ARI event post development peak discharge rate is equivalent to the pre-development (un-developed catchment) 1 in 1 year ARI event
 - 1 in 100 year ARI event post development peak discharge rate is equivalent to the pre-development (un-developed catchment) 1 in 100 year ARI event
- providing onsite detention basins with maximum batter slopes of 1V:4H (i.e. 1 vertical rise (V) to 4 units horizontal run (H))
- providing maintenance access to each onsite detention basin
- constructing onsite detention basin outlets from natural materials, to facilitate natural geomorphic processes and to include vegetation as necessary (gabion baskets and gabion mattresses are not acceptable)
- providing a stormwater quality treatment train comprised of gross pollutant traps and biofiltration/ bioretention systems, designed to meet the following criteria compared to a base case if there were no treatment systems in place:
 - reducing the average annual load of total nitrogen by 45%;
 - reduce the average annual load of total phosphorus by 65%; and
 - reduce the average annual load of total suspended solids by 85%
- the area of biofiltration / bioretention systems is to be at least 1% of the catchment draining to the system, to ensure there is no short-circuiting of the system
- dividing bioretention systems which are greater than 1,000m² in area into cells with no individual cell greater than 1,000m²
- all filter media used in stormwater treatment measures must:
 - be loamy sand with an appropriately high permeability under compaction and must be free of rubbish, deleterious material, toxicants, declared plants and local weeds, and must not be hydrophobic;
 - have an hydraulic conductivity = 100-300 mm/hr, as measured using the ASTM F1815-06 method
 - have an organic matter content less than 5% (weight to weight)
 - be provided with adequate solar access, considering the design and orientation of OSD basins.

After making its recommendation to the Commission on MPE Stage 2, the Department wrote to the Applicant requesting preparation of revised and improved drainage designs for the MPW Stage 2 proposal that specifically address the performance criteria above.

Additional information was submitted by the Applicant in March 2018. In August 2018, the Department requested revised drawings to further address the specific requirements of the November 2017 independent review report and to demonstrate how the design would comply with the relevant design criteria adopted by the Commission for MPE Stage 2. Further revised drawings were provided on 11 October 2018.

In summary, the Applicant has revised the drainage design of the MPW Stage 2 project to provide batter slopes on most, but not all, of the OSD basin sides, and remove works in the Georges River associated with the discharge outlets. The outlet channels would be constructed using more naturalistic rock structures/boulders than the previously proposed gabion walls, and some additional upstream water treatment devices would be incorporated across the site. The revised plans also incorporate some additional provision for landscaping within the site.

The Department has reviewed the updated stormwater and drainage design in detail, and considers that — while design improvements have been made throughout the assessment period — the revised stormwater and drainage design does not yet fully achieve good design for the MPW site.

The Department's concerns with the Applicant's proposed stormwater design fundamentally relate to the need to better demonstrate water sensitive urban design (WSUD). RMS's *Water Sensitive Urban Design Guideline* (May 2017) notes that WSUD is a 'term given to the replication of natural processes into treatment of water in a constructed environment and is relevant to all built environments from highly urbanised to rural settings'. WSUD improves environmental performance by capturing pollutants and slowing flow rates before stormwater is discharged off site and contributes to the quality of the built environment. Further, WSUD principles include that '[s]tormwater management elements should be considered as part of a unified design of the project and contribute to a positive urban design outcome and should visually and physically integrate with the adjacent built and natural context.' The Department considers that further modifications to a number of the stormwater arrangement elements can, and should, be made to achieve better WSUD outcomes.

The concerns also continue to relate to the design and maintenance requirements of the OSD basins, which are large in size and are proposed to have a dual stormwater retention and stormwater treatment purpose. To serve both purposes, the Applicant proposes to plant 'filter media' (i.e. plants to remove nutrients in the surface water) in the OSD basins. In the Applicant's design, all flows filter through the OSD basins (except for basin 4) and there would be some resuspension of finer soil particles in these basins. The Department considers there to be a real prospect that increased maintenance (replacement of plants and bioretention filter media) would be associated with this design due to exposure to higher 'shock' loads of sediment that settle in the basin over one large event. This sediment could smother plants and may cover a high proportion of the surface of the biofilter media. The Department also raised concerns relating to solar access and the viability of plants in the narrow basins 3 and 10, as deep basins/high basin walls would likely reduce the sunlight able to reach the filter media.

As part of the updated design, the Applicant incorporated some additional upstream treatment, including raingardens in the landscaped areas along the western edge of the warehousing area, and confirmed commitment to maintenance. Regular ongoing and post-large rainfall inspections and maintenance of raingardens would be undertaken, and maintenance activities would include litter collection, minor replanting, repair of localised scouring, spot weeding, testing for contaminants and any other minor rectification works that are required.

However, it is considered that a number of key changes would ensure the final design is updated to achieve enhanced outcomes for the site.

The Department recommends that, prior to construction, the Applicant provides a revised stormwater system design — reviewed by a senior technical specialist in stormwater, flooding and water quality — that modifies details of the stormwater system to meet specified environmental performance and design criteria. The Department's recommended conditions nominate outcomes and objectives, and clear criteria for achieving those outcomes and objectives.

The Department considers that the ultimate outcomes for a revised stormwater and drainage system for the MPW Stage 2 project include:

- treating stormwater as a resource
- mimicking natural processes in the control of stormwater
- integrating drainage infrastructure and landscaping
- managing water in a sustainable manner through considering the complete water cycle
- considered design, construction and maintenance to minimise impacts on the natural water cycle.

In achieving those outcomes, the Department considers that a series of key criteria identified by Alluvium would ensure compliance with good WSUD design. The key design criteria remain in most respects as they were for MPW Stage 2, though the Department notes that the conditions have been revised to provide greater clarity and further emphasise the need for the design to be revised prior to construction starting. The criteria are outlined in **Table 10**.

Table 10 | Recommended stormwater system design criteria

Matter	Criteria
Stormwater system	<p>convey flows up to and including the 10% annual exceedance probability (AEP) event within the formal piped drainage system</p> <p>conveys flows from the 10% AEP to the 1% AEP event in controlled overland flow paths</p> <p>provides adequate overland flow paths in the event of stormwater system blockages and flows in excess of the 1% ARI rainfall event.</p>
OSD	<p>attenuates peak flows from the development, as follows:</p> <ul style="list-style-type: none"> 1 in 1 year ARI event post development peak discharge rate is equivalent to the pre-development (un-developed catchment) 1 in 1 year ARI event 1 in 100 year ARI event post development peak discharge rate is equivalent to the pre-development (un-developed catchment) 1 in 100 year ARI event.
OSD basin design	<p>be visually unobtrusive and sit within the final landform and landscaping</p> <p>ensure public safety by incorporation of 'safer by design' principles</p> <p>have all sides with a maximum batter slope of 1V:4H</p>
Stormwater treatment train	<p>comprise rainwater tanks, gross pollutant traps and biofiltration/ bioretention systems compared to a base case if there were no treatment systems in place:</p> <ul style="list-style-type: none"> reduce the average annual load of total nitrogen by 45% reduce the average annual load of total phosphorus by 65% reduce the average annual load of total suspended solids by 85%.
Stormwater quality elements	<p>installed upstream of OSD basins, unless it can be demonstrated that biofiltration/ bioretention systems within the OSD basins:</p> <ul style="list-style-type: none"> will not suffer damage from design flows; can be maintained to achieve the water quality criteria; and will have adequate solar access ensuring that all bioretention systems are exposed to sunlight at midday on the winter solstice. This assessment is to consider any landscape or built features around the OSD basins that may block solar access
Area of biofiltration/ bioretention systems	<p>at least 1% of the catchment draining to the system, to ensure there is no short-circuiting of the system</p> <p>bioretention systems which are greater than 1,000 m² in area are to be divided into cells with no individual cell greater than 1,000 m²</p>
Filter media in stormwater treatment measures	<p>be loamy sand with an appropriately high permeability under compaction and must be free of rubbish, deleterious material, toxicants, declared plants and local weeds, and must not be hydrophobic;</p> <p>have an hydraulic conductivity = 100-300 mm/hr, as measured using the ASTM F1815-06 method</p> <p>have an organic matter content less than 5% (w/w)</p> <p>be provided adequate solar access, considering the design and orientation of OSD basins</p>
Stormwater outlet structures	<p>must not cause scour/ erosion of the banks or bed, or pollution of the Georges River or Anzac Creek</p> <p>be constructed of natural materials to minimise erosion, facilitate natural geomorphic processes and include vegetation as necessary (gabion baskets and gabion mattresses are not acceptable).</p>

The Department considers that the Applicant should be required to submit updated stormwater design drawings prior to construction, incorporating these key criteria, and updated details of significant infrastructure such as maintenance access to the OSD basins. To ensure the drawings reflect the design, the drawings should be in the format prescribed in the recommended conditions, which specify plan dimensions and contents that would enable the specialist reviewer/s to verify that the final design complies with the criteria. The Department recommends that the drawings be accompanied by updated modelling, required to support both the final design details and the development of operational and maintenance plans for the site.

It is critical that the final updated designs of the project incorporate the drainage and WSUD, landscaping and urban design improvements that are prescribed in the recommended conditions. As discussed in **Section 6.3**, these stormwater design drawings would be prepared in conjunction with the revised layouts set out in the Development Layout plan for endorsement prior to construction.

The Department considers that the proper functioning of the stormwater system would require ongoing adaptive management throughout the operational life of the project. To provide a framework for this, the Department has recommended conditions that would require the Applicant to prepare and implement a Stormwater Infrastructure Operation and Maintenance Plan. The Plan, similar to that required for MPE Stage 2 upon operation, would stipulate regular inspections (including after major rainfall events), water quality monitoring, and quarterly reporting to the Department on maintenance and inspections, and annual independent auditing of the performance of the system.

To further support the operation of the system, the Department has also recommended development of a Stormwater Quality Monitoring Program. This program would require collation of baseline data, and would set sampling locations, monitoring requirements and assessment criteria for water quality at the OSD basins, and outlets to the Georges River. The program would form part of the OEMP, and would require approval from the Department prior to operations.

6.4.2 Construction soil and water management

The development of such a large site on the bank of the Georges River, with the importation and placement of 1.6 million m³ of fill material, would require effective construction environmental controls. The Department has reviewed the proposed management procedures specified by the Applicant, in the context of ongoing development of the entire precinct. In this regard, it is noted that works have already taken place onsite as part of the MPW Stage 1 Early Works, and continue adjacent to the site as part of the construction of the rail link and the MPE intermodal terminal (MPE Stage 1) and warehousing precincts (MPE Stage 2).

The Applicant's proposal envisages earthworks across the entire MPW site, to enable construction of the intermodal terminal, the warehousing, freight village and estate works, as well as to establish a raised, level base for the future development of the southern end of the site (as part of a future Stage 3 development).

Parts of the site are proposed to be used for stockpiling of fill material during and beyond the construction of MPW Stage 2, with the Applicant seeking approval for long term stockpiling of material that could be used for MPW Stage 3.

The Department is concerned at the potential that major earthworks could continue throughout the southern part of the site, and stockpiling continue indefinitely, without any clear timing for MPW Stage 3. While the concurrent Concept modification envisages an additional 85,000 m² of warehousing in that southern area, a development application has not been made for construction or operation of the area.

The Department considers that earthworks should be conducted in phases that are proportionate to what is needed to support the construction proposed for MPW Stage 2. As outlined in *Managing Urban Stormwater: Soils and Construction* (Landcom 2004) (the Blue Book), it is an important principle of soil and water

management that the 'area of soil disturbed and exposed to erosion' is minimised, and the 'phasing of works' should be scheduled in a way that means 'land disturbance is confined to minimum areas of workable size, consistent with the scale and economics of the development'.

The Department recommends that the Applicant be required to undertake land disturbance and filling in a phased manner, impacting a maximum contiguous area of 65 hectares at any one time, being equal to around one-third of the site area. No disturbance of other areas on site should be permitted until defined triggers for stabilisation of the previous area of disturbance have been met.

The Department considers that imported fill material should either be used quickly after importation to site, or placed in a stockpile that is stabilised as soon as possible. To achieve this, the Department has recommended conditions that would require stockpiles to:

- not exceed 10 m in height;
- be benched over 4 m in height;
- have maximum of 1V:3H slopes; and
- be stabilised if not worked on for more than 10 days.

To prevent the indefinite stockpiling of material for a future application, the Department recommends that stockpiling of imported fill is not permitted for longer than 6 months before placement.

Appropriate management of a large site near a riparian corridor is important to minimise soil erosion, maximise sediment retention onsite, and support improvements in urban water quality. As such, the Department has recommended that the Applicant prepare and implement a soil and water management plan that is certified by a Certified Professional in Erosion and Sediment Control, with the plan including hazard assessments, erosion and sediment control plans and operating procedures, monthly monitoring and reporting.

6.5 Traffic

6.5.1 Construction traffic

The Applicant's traffic assessment and modelling is based on a three year construction period. The modelling also included assumptions that the construction period would overlap with MPE Stage 1 construction activities (MPE Stage 2 does not form part of the Applicant's cumulative traffic assessment). A cumulative assessment of the level of service (LoS) of key intersections is shown in **Table 11**.

The construction assessment indicates up to approximately 350 light vehicle movements per day depending on the construction activities being undertaken. The construction of the intermodal facility and rail link is predicted to generate the largest amount of light vehicle movements (350) per day. This component of the proposal is anticipated to take approximately one year to build. However, it is noted that the various construction activities may overlap and generate higher overall light vehicle movements per day.

Similarly, heavy vehicle movements are estimated to reach up to 740 movements per day, depending the activities being undertaken. The traffic assessment indicates the majority of movements would be associated with bulk earthworks and fill importation (approximately 740 heavy vehicles per day) which would occur throughout the entire construction program.

Table 11 | | LoS key intersection during construction activities (cumulative MPW Stage 2 and MPE Stage 1*)

Intersection	Peak period	Existing LoS	Cumulative LoS*
Anzac Road / Moorebank Avenue	8 – 9am	B	C
	5 – 6pm	B	B
M5 Motorway / Moorebank Avenue	8 – 9am	B	C
	5 – 6pm	C	C
Chatham Avenue / Moorebank Avenue	8 – 9am	n/a	B
	5 – 6pm	n/a	B

Note (*): MPE Stage 2 scenario did not form part of this cumulative assessment.

Spoil haulage and fill importation

The majority of heavy vehicle movements (during construction) are associated with the importation of approximately 1,600,000 m³ of fill to deliver the site levels envisaged in the development plans. Due to the large volume of heavy vehicle movements, the Applicant committed to only receiving 22,000 m³ of fill per day across a cumulative scenario (this sum also includes fill importation for MPE Stage 2). To ensure compliance with this commitment, a condition has been recommended to ensure heavy vehicle movements are managed in accordance with the 22,000 m³ importation limit.

Overall, the Applicant's modelling indicates that the predicted traffic volumes can be catered for within the existing capacity of the road network, as shown in **Table 11**. The Department accepts this assumption and considers construction traffic can be managed through the above restriction on importing fill and the implementation of a construction traffic management plan which would include details of access and parking arrangements and heavy vehicle routes. In addition, the Application would require RMS approval to install temporary traffic controls, including detours and signage, and the use of Cambridge Avenue would be prohibited for heavy vehicles. The Department considers that through the implementation of these recommended conditions, and other conditions relating to stockpile management and disturbance of land (see **Section 6.4.2**), heavy vehicles movements can be managed appropriately.

Site access

Submissions from both Campbelltown and Liverpool City Councils, and from members of the community, raised concerns regarding heavy vehicles movements to and from the site and the potential use of Cambridge Avenue. Similar concerns were raised for the previous MPW Stage 1 and MPE projects. To ensure consistency with previous approvals, the Department has recommended a condition prohibiting heavy vehicles from using Cambridge Avenue during both the construction and operation. The Department considers this condition addresses both the council and community concerns.

In relation to construction access the Applicant proposes two access points along Moorebank Avenue. One at Moorebank Avenue / Chatham Avenue intersection (currently signalised) would be utilised until the Moorebank Avenue / Anzac Road intersection is upgraded. Once the upgrade works are completed, this would become the only access to the site during construction and operation. Vehicles would then use the internal road network to travel south and north within the site.

The Department's independent traffic consultant has reviewed the proposed access arrangements and has recommended that a road safety audit be undertaken, including proposed corrective actions for the identified safety issues and appropriate traffic management measures. The Department concurs with this recommendation and has subsequently drafted a condition to this effect.

As part of the Moorebank Avenue / Anzac Road intersection upgrade, access to the ABB site (adjoining the northern project boundary) via Bapaume Road would be altered. The Applicant proposes that Bapaume Road be a left-out arrangement, and become connected the MPW internal road network with the Moorebank Avenue / Anzac Road intersection as the main access point. An indicative configuration of the Bapaume Road and Moorebank Avenue / Anzac Road intersection is shown in **Figure 16**. To ensure that access to the ABB site is not restricted, the Department has recommended a condition requiring the Applicant to maintain access to the ABB site throughout construction period as well as operation.

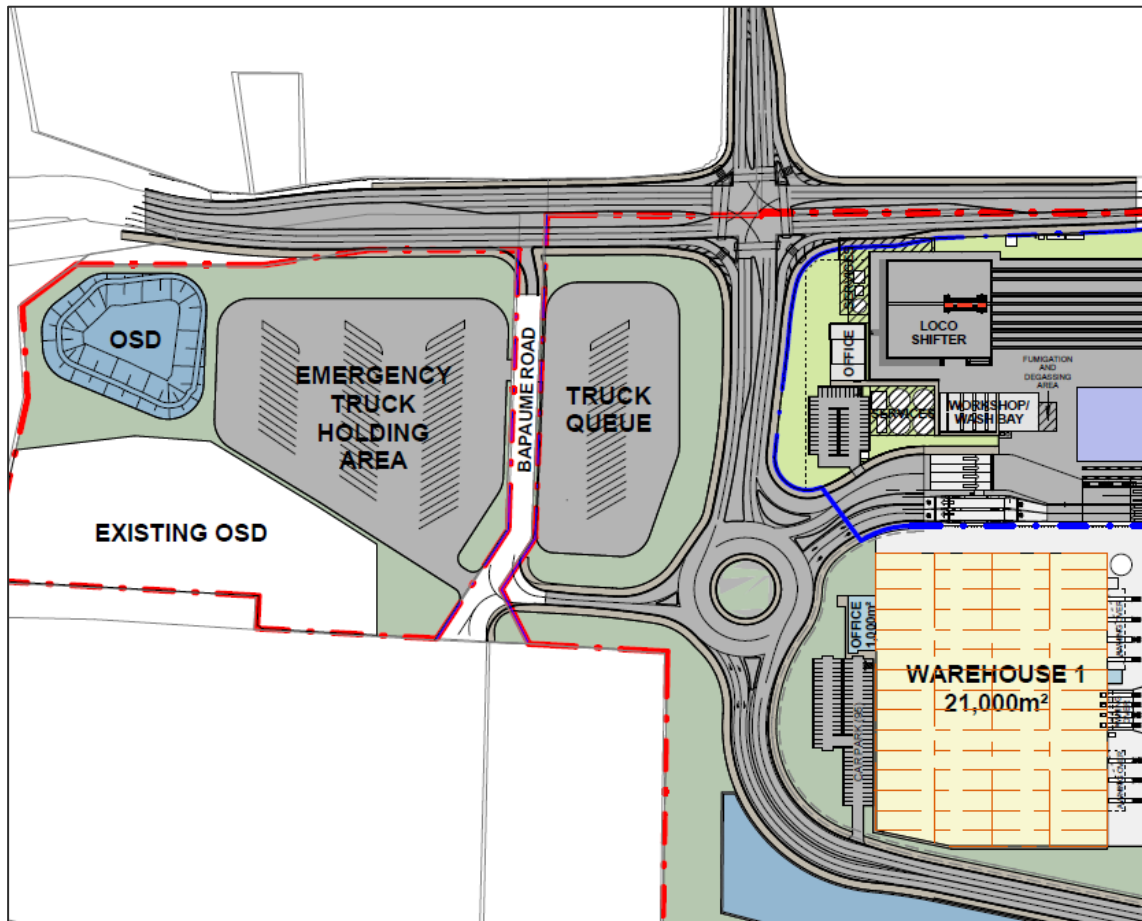


Figure 16 | Indicative configuration of Bapaume Road and Moorebank Avenue / Anzac Road intersection (Source: Appendix B, RtS)

6.5.2 Operational traffic

The Applicant conducted modelling of operational traffic impacts along Moorebank Avenue and at key intersections across the local and regional road network (i.e Cambridge Avenue, M5 interchange, Heathcote Road, and Newbridge Road) to determine the level of impact resulting from the proposal. The study area that was modelled is shown in **Figure 17**. The modelling is based on the following inputs: full operation of the facility at 2019 and 2029 (key points in time); cumulative traffic scenario (operation of MPE Stage 1); existing traffic volumes and traffic growth without the proposal.

Once fully operational, the MPW Stage 2 proposal is projected to handle an annual container freight volume of 500,000 TEU which would generate approximately 1,458 heavy vehicles trips (2-way) and 2,670 car trips (2-way) per day.

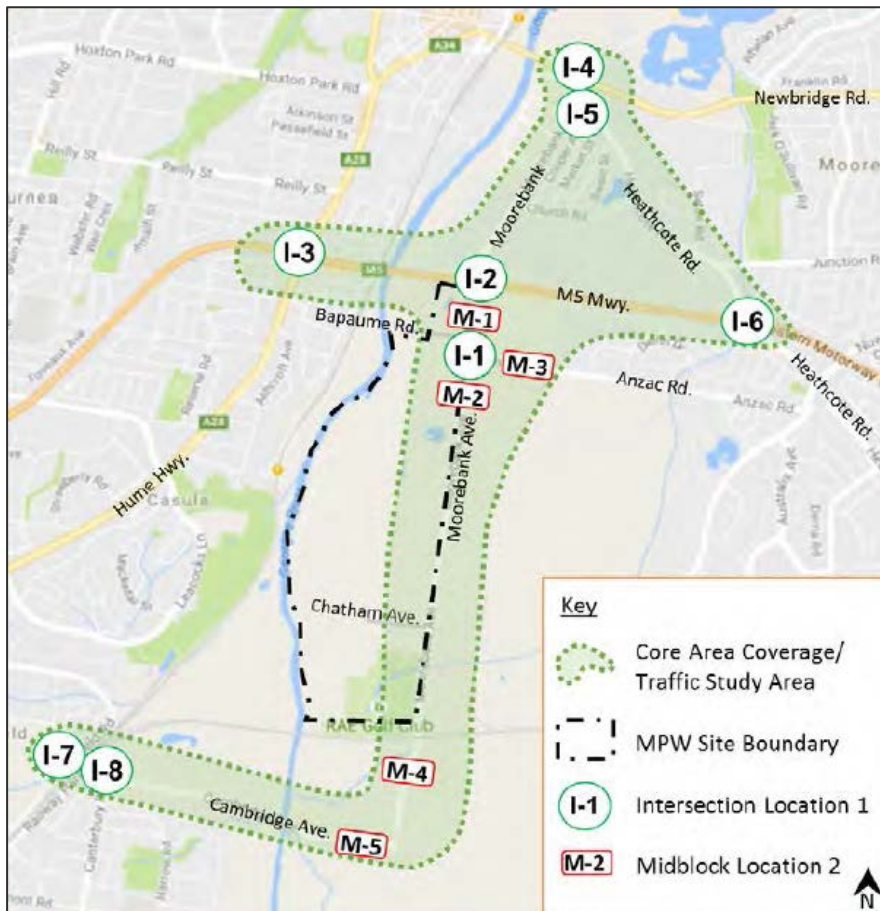


Figure 17 | Key intersections and road links in study area (Source: EIS)

Noting the above operational traffic volumes, the Department acknowledges Campbelltown City Council's and community concerns regarding the use of Cambridge Avenue by heavy vehicles and has recommended a condition prohibiting general operational heavy vehicles from using Cambridge Avenue. This approach is consistent with previous MPE approvals. In addition, the Department has requested the Applicant install CCTV monitoring systems at the main gate to identify any heavy vehicles that do not comply.

Road network upgrades

The Department notes this proposal identified similar road network upgrades per the MPW Stage 1 and subsequent MPE developments. The key intersections upgrades identified to cater for the cumulative traffic generated at the MPW and MPE sites are the following:

1. Moorebank Avenue / Anzac Road: signalised intersection;
2. M5 Motorway / Moorebank Avenue: additional capacity for on and off ramps, widen Moorebank Avenue and increase storage lengths (north bound – right turn movements);
3. M5 Motorway / Hume Highway: improve traffic signal operations during peak times;
4. Moorebank Avenue / Newbridge Road: additional right turn lane from Moorebank Avenue and improve traffic signal operations;
5. Moorebank Avenue / Heathcote Road: extend right turn lane from Moorebank Avenue south approach and change the signal to vehicle actuation in the PM peak to improve traffic signal operations; and
6. M5 Motorway / Heathcote Road: improve traffic signal operations.

During the EIS exhibition, concerns were raised by both Councils, and members of the community, that the proposal would increase traffic congestion along the existing road network. Liverpool City Council also

considered that network upgrades identified as part of the cumulative MPE and MPW traffic impacts need to be committed to prior to any future developments occurring (i.e. the current proposal). Subsequently the MPE Stage 2 approval included requirements to undertake the majority of network upgrades identified by December 2022.

However, as part of this proposal the Applicant and RMS have been in discussions separately to determine the preferred method to deliver the remaining road network upgrades. To ensure the remaining upgrades are delivered, a Voluntary Planning Agreement (VPA) was executed on 25 March 2019 which stipulates the Applicant will provide a monetary contribution of \$48 million to RMS for regional road upgrades. Timing for these upgrades would be a matter for RMS.

The Department acknowledges that submissions on the draft VPA as exhibited, including from Liverpool City Council, questioned the adequacy of the Applicant's contribution. However, the Department accepts advice from Roads and Maritime Services that the VPA would ensure that the Applicant makes appropriate contributions towards the provision of relevant State public infrastructure for the proposed development.

The Department understands the monetary contribution will assist in funding identified upgrade works, while the Applicant would be responsible for upgrade or future realignment of Moorebank Avenue. Though the VPA includes a potential relocation of Moorebank Avenue, this component does not form part of this proposal and would be subject to separate assessment and approval under the EP&A Act. Should the relocation of Moorebank Avenue not proceed, the VPA requires the Applicant to undertake upgrade works (Moorebank Avenue south of the Anzac Road intersection) under the MPE Stage 2 approval.

Due to the VPA, the only work subject to this proposal is the upgrade of Moorebank Avenue / Anzac Road intersection and widening of Moorebank Avenue between the M5 and Anzac Road. As part of this upgrade work, the Applicant also proposes to reconfigure Bapaume Road (left out only) (see **Figure 16**). Bapaume Road would provide an access to an emergency truck storage area and truck queuing area in the northern portion of the site, north of the IMT facility entrance.

The Department's independent traffic consultant raised concerns regarding future capacity, constraints of the upgraded intersection and the management of the road network during construction. Though these concerns are acknowledged, RMS's requested conditions require RMS approval for various activities including final intersection plans, temporary signage, temporary portable traffic signals and traffic management. The Department notes the independent reviewer supports these conditions, and the Department has recommended setting these requirements to ensure RMS has oversight over all road upgrades.

The Department considers this approach would address concerns and provide for additional checks and balances to ensure sufficient capacity is provided for future intensification of MPW and MPE activities, including managing construction impacts, and aligning the timing for major road works to key operational milestones with generally proportionate traffic generation (such as the recommendation that the Moorebank Avenue/Anzac Road intersection upgrade be completed prior to issue of Occupation Certificate for warehousing in excess of 100,000 m² of gross floor area).

Parking and cyclist facilities

The Applicant proposes 983 car parking spaces, which were generated by the parking provision required under the *Guide to Traffic Generating Development* (RTA, 2002) which specify:

- 1 car space per 300 m² GFA for warehouses; and
- 1 car space per 40 m² GFA for offices.

Council's concerns regarding the high number of parking spaces has been noted. To ensure that staff pursue alternative arrangements, the preparation of a Workplace Travel Plan has been recommended. This plan would promote public transport, active transport and carpooling.

In addition, the Applicant has committed to undertaking further consultation with relevant bus provider(s) regarding the potential to extend the 901 bus service (or equivalent) and provision of additional bus stops near or within the MPW site. In its submission TfNSW indicated support for additional bus stops, and the internal road design accommodate bus services. The Department considers this matter can be addressed as part of the development of a Workplace Travel Plan (similar to what is required under the MPE approvals). The preparation of a Workplace Travel Plan would codify the Applicant's own commitments which include provision of cycling bays and end of trip facilities.

6.6 Noise

The proposal involves the following noise generating activities during construction and operation:

- construction works, including:
 - importation of fill and earthworks
 - concrete batching
 - materials crushing
 - construction of the warehousing and intermodal infrastructure, and site estate infrastructure
- operation of the intermodal rail terminal and warehousing 24 hours a day/7 days a week
- use of the surrounding road network and MPE Stage 1 rail link for access to and from the site.

As part of its assessment of the proposal, the Applicant conducted background monitoring at locations in Casula, Glenfield and Wattle Grove, as indicated in **Figure 18**.

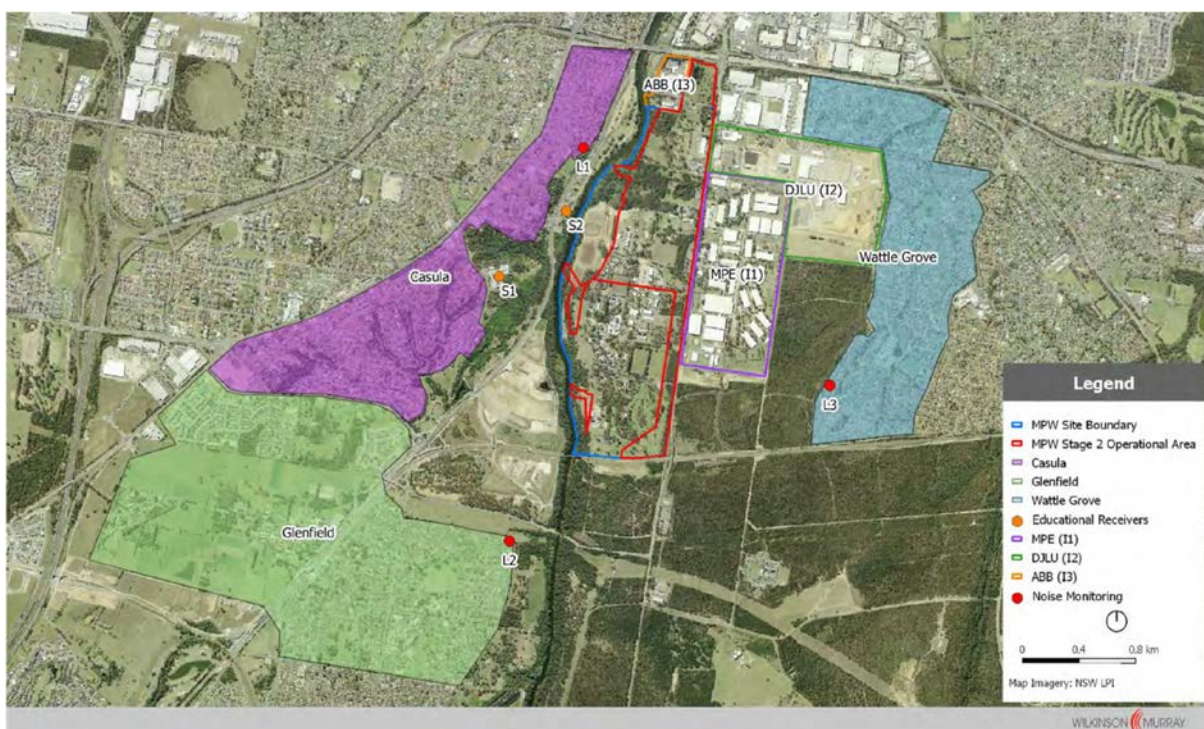


Figure 18 | Noise Catchment Areas and monitoring locations (Source: Figure-5-1 EIS Appendix N Noise and Vibration Impact Assessment)

Noise impacts were a key issue raised in community submissions, and in feedback provided by Liverpool City Council and agencies, including EPA. Key noise related issues raised by members of the public included:

- construction noise, including noise from forklifts, trucks and container movement on site
- road traffic noise, including pneumatic braking
- rail noise, including rail squeal
- 24/7 operations
- cumulative noise impacts across the precinct
- inadequacy of mitigation measures
- generally, an increase in noise from existing levels.

The Department commissioned EMM Consulting to conduct an independent review of the Applicant's noise impact assessment. The review considered the Applicant's construction methodology and operational activities, and the matters raised in submissions.

6.6.1 Construction noise and vibration

The Applicant's assessment generally characterises construction works across the indicative construction periods shown in **Table 3**. The assessment identifies key plant and equipment for each works period, and predicted noise levels were calculated based on indicative sound power levels for each type of machinery to be used and an asserted worst case scenario including the location of machinery on the site. Key noisy work included rock crushing, assumed to take place on site, but which may not be extensive depending on the source and type of imported fill, and concrete batching. The predictions were compared to noise management levels derived in accordance with the *Interim Construction Noise Guideline* (DECC 2009), and are presented in **Table 12**.

Table 12 | Predicted construction noise levels and noise management levels

Receiver	Works period							Noise management level
	A	B	C	D	E	F	G	
Casula	39	46	50	44	47	46	41	49
Glenfield	25	32	36	30	33	32	27	45
Wattle Grove	26	33	37	31	34	33	28	45
S1	38	45	49	43	46	45	40	55
S2	37	44	48	42	45	44	39	55
I1	40	47	51	45	48	47	42	75
I2	33	40	44	38	41	40	35	75
I3	42	49	53	47	50	49	44	75

Source: Table 10-3 EIS Appendix N Noise and Vibration Impact Assessment

Note: Exceedances of noise management level in **bold**. Receivers are as shown in **Figure 18**

In finalising its review, the Department's noise specialist prepared a gap analysis, seeking the Applicant's confirmation of noise sources and modelling inputs and assumptions, including the location of construction plant and equipment on the site.

The Department notes the independent review concluded: '[a]llowing for some enhancement due to adverse weather during standard hours, impacts are not expected to be significant at most locations. The 1 dB exceedance shown for the residences of Casula however will be exacerbated during adverse weather. Hence, feasible and reasonable mitigation and management measures should be adopted during the noisiest activities (eg. bulk earthworks, drainage and utilities).'

Further, the Department notes that changes to works at the Moorebank Avenue/Anzac Road intersection would increase construction noise impacts at receivers in Wattle Grove, but that the predicted noise level would remain within the noise management levels.

The Department considers that, in accordance with the *Interim Construction Noise Guideline*, and consistent with the approach to major infrastructure projects, the Applicant should prepare and implement a Construction Noise and Vibration Management Plan throughout construction. This should include verification of expected noise impacts and detailed examination of work practices, monitoring and review of works on site.

The Department acknowledges that some uncertainty persists regarding the assessment of noise impacts based on undefined machinery placement. However, this uncertainty can be resolved in development of the Construction Noise and Vibration Management Plan. To resolve this prior to construction, the Department has recommended that the Construction Noise and Vibration Management Plan identify work area, site compounds, internal access routes, and the type and number of plant and equipment on site, and reconfirm construction activities predicted to exceed noise management levels.

The Department considers that it is important to set clear limits on construction hours during construction. While the Applicant has requested extended construction hours for fill importation, the Department accepts the recommendations of the independent reviewer and the EPA, that construction take place within standard construction hours, as further justification is needed for extended hours. The Department recommends limiting construction hours to 7am to 6pm Monday to Friday, and 8am to 1pm on Saturdays, with highly noise intensive works to be completed in maximum three hour blocks between 8am to 5pm Monday to Friday, and 8am to 1pm on Saturdays. Consistent with other major projects, the Department considers that approval could be given to out-of-hour works in accordance with a protocol approved as part of the construction noise and vibration management plan, if further justification was developed at a later time.

6.6.2 Operational noise and vibration

The Applicant's modelling predicted operational noise levels against amenity and intrusiveness criteria derived from the *Industrial Noise Policy*. The modelling assumes the presence of a 5m high noise wall along the western boundary of the site, west of the warehousing area. The predictions are summarised below in **Table 13** and

Table 14.

Table 13 | Amenity criteria and predicted noise levels

Receiver	Predicted L _{Aeq} , period Noise Level (dBA)				Criteria			Exceedance
	Day ¹	Evening ¹	Night ¹		Day ¹	Evening ¹	Night ¹	
			Calm ²	Adverse ³				
Casula	33	33	32	36	54	45	40	0
Glenfield	<20	<20	<20	<20	54	45	40	0
Wattle Grove	29	29	28	33	54	45	40	0
S1	<20	<20	<20	22	45 (External, when in use)			0
S2	24	24	23	27	45 (External, when in use)			0
I1	60	60	60	60	70 (External, when in use)			0
I2	56	56	56	57	70 (External, when in use)			0
I3	51	48	48	48	70 (External, when in use)			0

Source: Table 7-3, EIS Appendix N Noise and Vibration Impact Assessment

Note: No predicted exceedances of amenity criteria

¹ Daytime = 7.00am-6.00pm; Evening = 6.00pm-10.00pm; Night = 10.00pm-7.00am

² CONCAWE Category 4

³ CONCAWE Category 6

Table 14 | Intrusiveness criteria and predicted noise levels

Receiver	Predicted L _{Aeq} , period Noise Level (dBA)				Criteria			Exceedance
	Day ¹	Evening ¹	Night ¹		Day ¹	Evening ¹	Night ¹	
			Calm ²	Adverse ³				
Casula	36	36	35	39	44	44	38	Up to 1dB
Glenfield	<20	<20	<20	<20	40	40	38	0
Wattle Grove	28	28	28	33	40	40	37	0

Source: Table 7-4, EIS Appendix N Noise and Vibration Impact Assessment

Note: Exceedances of intrusiveness criteria in **bold**

¹ Daytime = 7.00am-6.00pm; Evening = 6.00pm-10.00pm; Night = 10.00pm-7.00am

² CONCAWE Category 4

³ CONCAWE Category 6

The Applicant also calculated effects of an increase in road traffic. The road traffic assessment concludes that predicted increased road noise impacts on routes to and from the site would be limited to 0.3 dBA (day and night), at Moorebank Avenue, north of M5 Motorway. In accordance with the *NSW Road Noise Policy*, increases in impacts of less than 2 dBA are considered to represent 'a minor impact that is considered barely perceptible to the average person'. 2 dBA has been accordingly set as the limit for increase in the total traffic noise level at existing residences and other sensitive land uses affected by additional traffic on existing roads generated by land use developments. The Department accepts that the impacts should be considered negligible.

A response to the independent reviewer's gap analysis for operational noise impacts was provided by the Applicant in July 2017, including clarifications of noise sources, modelling inputs and assumptions. The reviewer concluded that:

- the assessment of impacts for Glenfield and Wattle Grove residential areas indicate impacts are unlikely and well within the NSW EPA's noise policy criteria
- however, a reported 1dB exceedance is shown for residences of Casula at night time during assessable adverse weather conditions
- the exceedance at Casula is notwithstanding the proposed 5m high noise barrier, which was included in the model, and appears to be the only mitigation measure considered and adopted for the project
- consideration of all feasible and reasonable mitigation must be demonstrated if marginal exceedance of the *Industrial Noise Policy* is to be allowed
- in the absence of further information, project specific noise levels should be adopted.

The Department has recommended conditions to manage noise impacts during operation. The recommended conditions are achievable, based on the proposed activities, and include:

- setting compliance-based operational noise limits, based on predicted noise levels as measured at sensitive receivers
- requiring construction of a 5 m noise wall along the length of the western internal road (see **Section 6.6.1** below).

6.6.3 Noise wall

Following receipt of the RtS, the Applicant advised the Department that it seeks flexibility in delivering (or not delivering) the proposed noise wall.

The Department considers that it is important that the Applicant's commitment to a noise wall as exhibited as part of the EIS is confirmed as a condition of any consent. In forming this view, the Department considered the following:

- the EIS included a commitment that 'a noise wall approximately five metres high would be installed along part of the western boundary of the site'
- the review of pre-exhibition feedback presented in the EIS notes that at-receiver treatment was not considered suitable, and that mitigation measures included the 'installation of a noise wall on the western boundary of the MPW site'
- the EIS further noted that 'the need for a noise wall along the western site boundary has been identified... and used in modelling assumptions.... The location of the noise wall (refer to Figure 8-4, replicated below in **Figure 19**) is consistent with best practice as it is located close to significant noise sources and will attenuate noise levels in both calm and adverse meteorological conditions'
- the location of the noise wall was shown in Figure 8-4 of the EIS
- the Noise Impact Assessment notes that:

The need for a noise wall along the western site boundary was identified as a potential measure in the MPW Concept Plan Approval and has been confirmed in the Noise and Vibration Impact Assessment (NVIA) for the Proposal. The location of the noise wall along the access road is consistent with best practice as it is located close to significant noise sources and will attenuate noise levels in both calm and adverse meteorological conditions

- the Noise Impact Assessment includes a diagram titled 'Noise Wall and Buildings included in Noise Model', consistent with **Figure 19**
- while the Noise Impact Assessment notes that 'the actual height and extent of the noise wall, and any other required noise walls, would be confirmed during detailed design' and that '[i]t should be noted that the height and/or extent of the noise wall could differ from that presented in this assessment', no further assessment for a revised height or extent has been presented
- the Consolidated Proposal Description provided in Appendix O of the RtS subsequently noted that 'a noise wall approximately five metres high would be installed along part of the western boundary of the site'.

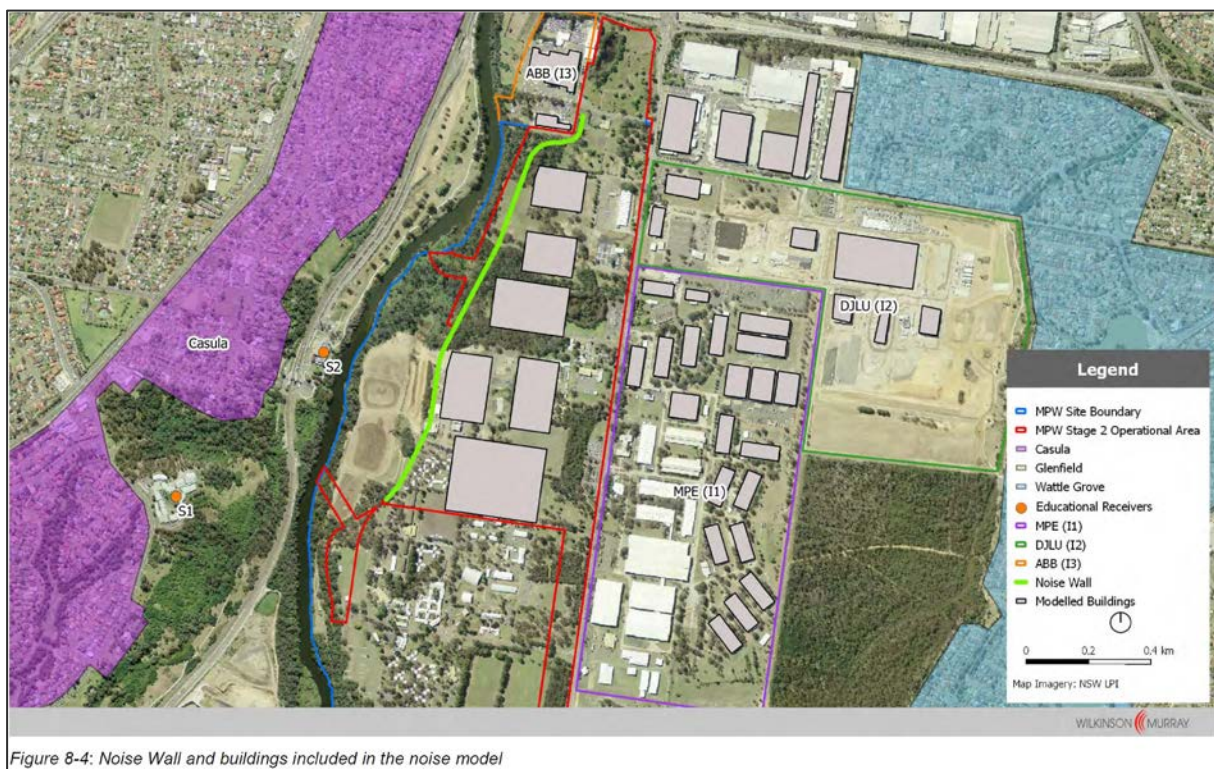


Figure 19 | Noise wall location (Source: EIS)

In summary, the Department considers that:

- the noise wall was clearly included in the project as exhibited
- the noise wall was modelled and relied upon by the Applicant as a key noise mitigation measure
- notwithstanding this, minor exceedences were predicted at Casula
- it is important that this key element of the project design is retained in order to uphold a commitment identified in the proposal as exhibited in the EIS
- the Applicant's request for 24/7 operations on the MPW site further warrants upholding this commitment.

Accordingly, the Department has recommended a condition requiring construction of the noise wall.

6.6.4 Rail noise

As part of the review of operational noise, the Department has considered the impacts of rail noise associated with increased use of the rail link. As previously discussed in **Section 1.4**, the rail link between the SSFL and the MPE intermodal terminal is being built under the MPE Stage 1 development consent. The MPW project would connect to the rail link and, in response to the Department's independent reviewer's operational gap analysis, the Applicant has advised:

[d]uring normal site operations it is anticipated that two trains would be on site at any one time, with eight locomotives present on site at any one time. Operations at the IMT facility would accommodate up to 12 train movements per day (6 in each direction).

Operation on the rail link would result in rail noise, with the potential for wheel squeal and brake squeal. Wheel squeal, for instance, is defined in the *Rail Infrastructure Noise Guideline* (EPA 2013) as '[m]id- to high-frequency tonal squeal noise produced by the stick-slip action between the wheels and rails'. Wheel and brake squeal is considered a high priority for mitigation under that guideline.

As operation on the rail link is approved under the MPE Stage 1 development consent, that consent includes a comprehensive suite of conditions relating to rail operations and noise. These controls include:

- a pre-operation brake squeal report identifying the extent of issues with the existing fleet, causes and possible mitigation, and monitoring of rail squeal
- requirements for port shuttle (IMEX) locomotives and wagons to use available best practice noise and emission technologies, based on a review of best practice that has been approved by the Secretary
- maintenance of a rail noise monitoring system, with monitors at locations approved by the Secretary and with noise results for each train available online within 24 hours, together with annual reporting of results
- monitoring of 'wayside angle of attack', a measure of how the wheels of locomotives and wagons meet the rail, a cause of rail noise (and potentially wheel squeal).

The Department considers that these controls form a strong basis for regulating the increased use of the rail link by this proposal. Accordingly, the Department has recommended a series of controls along the same lines as those adopted in the MPE Stage 1 development consent.

Ultimately, the Department considers that any controls requiring performance standards to apply to locomotives and wagons can relate only to trains on the IMEX route, rather than trains accessing the terminal to convey regional/interstate goods. This is because the Applicant has greater control over dedicated set of trains on the IMEX path. Ultimately, the terminal is intended to operate as an open access terminal, and the Department accepts that the Applicant's control of all trains entering the site from regional and interstate destinations may be limited. As discussed in the Department's independent reviewer's report, 'the broader issue of network rail line noise is the jurisdiction of the Australian Rail Track Corporation (ARTC) and should be addressed by that organisation.'

Notwithstanding the difficulties in applying performance standards to non-IMEX trains themselves, the Department has recommended conditions controlling noise generated by trains and requiring monitoring of all trains entering the site, and considers that the implementation of these requirements would satisfactorily address rail noise associated with operation of MPW Stage 2.

6.7 Air quality

Air quality has been a key community concern for the Moorebank Intermodal Precinct. In completing its assessment of the proposal, the Department sought advice from Todoroski Air Sciences on construction and operational air quality impacts in relation to particulate matter.

6.7.1 Construction air quality

The key construction air quality impacts are associated with the importation of fill. Dust or particulate matter may be generated during site clearing, importation of fill, and activities such as rock breaking, stockpiling and fill placement.

The specialist report reviewed in detail how dust impacts from the disturbance of the site had been assessed. The Applicant's air quality impact assessment had assumed:

- 36 hectares of freshly disturbed land, being land disturbed in the preceding 3 months or since the last heavy rainfall
- fill covering the site surface that releases wind-blown visible dust.

To reduce the prospect of offsite dust impacts, the specialist report recommends that the total area of disturbed area of land at any time should be kept below 36 ha, and that the total area of exposed land (i.e. cleared, non-vegetated land, that is not treated to prevent wind erosion) should be kept below 100 ha. The Department has recommended conditions setting a clearing limit of 65 hectares within which the Applicant would need to manage and stabilise disturbed land.

As discussed in the Department's assessment report for the MPE Stage 2 application, the EPA stated that no more than 22,000 m³ of fill should be received at the site per day. The Department considers that this should be applied as a cumulative cap across both MPE and MPW sites to minimise impacts.

The Department has recommended conditions requiring the Applicant to comply with relevant EPA assessment criteria, which limits construction impacts at private property from the development to:

- 2 g/m²/month maximum increase in deposited dust levels
- 4 g/m²/month maximum deposited dust levels.

To achieve this outcome, the Department has recommended the Applicant prepare a Construction Air Quality Management Plan. This plan would need to include important management process and controls, such as using water carts to control dust emissions and maintaining moisture in material being placed over the site. To assist in adjusting practices in response to weather conditions, the Department has recommended the that Applicant ensures there is a suitable meteorological station on or within the vicinity of the site.

6.7.2 Operational air quality

During operation, air quality emissions would be associated with plant and equipment on site, and increased use of the rail link and trains entering the intermodal terminal.

The Department has recommended a standard condition that requires all plant and equipment used on site, or to monitor the performance of the development, to be maintained in a proper and efficient condition and operated in a proper and efficient manner. Management and mitigation measures would be outlined in an Operational Air Quality Management Plan, that would need to be prepared to the satisfaction of the Department prior to operations commencing.

The Department has considered the air quality impacts of train operations in the context of the existing requirements for use of the rail link under MPE Stage 1. As part of the MPE Stage 1 development consent,

locomotives accessing the MPE Stage 1 IMEX terminal are required to incorporate available best practice noise and emission technologies. In preparation for use of the rail link, the Applicant prepared and received approval for performance standards as part of a Best Practice Review of available technologies available to locomotives that would access the site (*Moorebank Precinct East – Stage 1 Project: Best Practice Review (SSD 12_6766)*, prepared by Arcadis dated 19 September 2017).

The Department recommends that IMEX port shuttle locomotives accessing the MPW site comply with the performance standards approved as part of the MPE Stage 1 Best Practice Review, which are as follows:

Table 15 Port shuttle noise requirements

Locomotive type	Standard*	Periodic Improvements	Ultimate Outcome
Existing locomotives	Operate with diesel particulate emissions less than 0.30 grams per kilowatt hour	Any overhauls of existing locomotives after the commencement of operations of the IMEX terminal (anticipated to be 1 January 2019) would need to comply	All existing locomotives to comply within 7 years of operation of the IMEX terminal
New locomotives	Operated with diesel particulate emissions less than 0.27 and NO _x emissions of less than 7.37 grams per kilowatt hour	Any new locomotives ordered after the commencement of operations of the IMEX terminal (anticipated to be 1 January 2019) would need to comply	N/A
New locomotives	Operated with diesel particulate emissions less than 0.13 and NO _x emissions of less than 7.37 grams per kilowatt hour.	Any new locomotives ordered after 5 years of the commencement of operations of the IMEX terminal (anticipated to be 1 January 2024) would need to comply	N/A

Note (*): The Best Practice Review includes a commitment that: '[t]he above measures would be adopted until such time as an industry standard or guideline has been established, at which time the relevant standard or guideline including associated timeframes would apply.'

6.8 Biodiversity

The proposal will require the removal of all vegetation within the intermodal site boundary, including threatened ecological communities listed under the *Threatened Species Conservation Act 1995* (TSC Act) (now the *Biodiversity Conservation Act 2015*) and *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Since the exhibition of the EIS, additional threatened species were discovered on the site that were not recorded or identified as part of the EIS. These species include the *Hibbertia puberula subsp. Puberula*, and Koala (*Phascolarctos cinereus*). Due to the recent discoveries the Applicant has prepared a revised Biodiversity Assessment Report (BAR) (March 2019) which includes an updated assessment of biodiversity impacts and offset requirements.

Table 16 below provides a summary of the impacts to vegetation located within the proposal area.

Table 16 | Vegetation clearing (Source: updated Biodiversity Assessment Report 2018)

Plant community type (PTC)	Equivalent threatened ecological community (TEC)	Conservation status	Area of direct impact (area to be cleared)		Total area of impact
			MPW Stage 2 site	Moorebank Avenue site	
Hard-leaved Scribbly Gum – Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin (PCT ME003)	Castlereagh Scribbly Gum Woodland in the Sydney Basin bioregion	Vulnerable (TSC Act) Endangered (EPBC Act)	9.81 ha	3.73 ha	13.54 ha
Parramatta Red Gum woodland on moist alluvium of the Cumberland Plain, Sydney Basin Bioregion (PCT ME005)	Castlereagh Swamp Woodland	Endangered (TSC Act)	0.46 ha	0.22 ha	0.68 ha
Forest Red Gum - Rough-barked apple grassy woodland on alluvial flats of the Cumberland Plain Sydney Basin (PCT ME018)	River-flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and Southeast Corner bioregions	Endangered (TSC Act)	27.88 ha	0.59 ha	28.47 ha
Total					42.69 ha

The proposal will also have direct impacts to three threatened flora species and one fauna species listed under the TSC Act and EPBC Act. A summary of the impacts is shown in **Table 17**.

Table 17 | Impacts to threatened flora species (Source: updated Biodiversity Assessment Report 2018)

Threatened flora species	Conservation status	Direct impact (number/area to be cleared)		Total number to be cleared
		MPW Stage 2 Site	Moorebank Avenue site	
<i>Persoonia nutans</i>	Endangered (EPBC Act) Endangered (TSC Act)	8 plants	8 plants	16 plants
<i>Grevillea parviflora</i> subsp. <i>parviflora</i>	Vulnerable (EPBC Act) Vulnerable (TSC Act)	254 stems	79 stems	333 stems
<i>Hibbertia puberula</i> subsp. <i>puberula</i>	Critically Endangered (TSC Act)	0.94 ha	1.06 ha	2 ha
Koala <i>Phascolarctos cinereus</i>	Vulnerable (EPBC Act) Vulnerable (TSC Act)	38.22 ha	4.54 ha	42.76 ha

Biodiversity assessment methodology

The proposal has been assessed under the *NSW Biodiversity Offsets Policy for Major Projects* (OEH, 2014) and *Framework for Biodiversity Assessment* (OEH, 2014) (FBA) as it is captured under the transitional arrangements under the BC Act and the Biodiversity Offsets Scheme. The section below provides further commentary on FBA's biodiversity offset requirements.

Both the Department and OEH are satisfied that proposal's biodiversity impacts have been assessed in accordance with the FBA. This also includes the consideration of recently discovered threatened species i.e. *Hibbertia puberula* subsp. *puberula*, and Koala. Both these species were found on the site post EIS exhibition and the Applicant's BAR has been updated accordingly to reflect the detection of these species including determining the credits required to offset the clearing of habitat.

In addition to providing offsets (which is discussed in the section below), the Applicant will be required to prepare a Koala management plan. This plan will address the residual impacts during construction and operation of the proposal. The plan will require the identification of connectivity measures, removal of barriers to adjacent vegetated corridors and the rehabilitation / restoration of vegetation. Though the requirement is to enhance Koala habitat connectivity, this measure can also provide suitable connectivity for other fauna species.

The Department notes that a shell of a Cumberland Plain Land Snail was found adjacent to the MPE. Additional surveys were undertaken which found no snails or shells, even though some parts of the site were identified as only marginal habitat. Further, it is understood that the Cumberland Plain Land Snail is a relatively immobile species which is unlikely to cross barriers between the Bootlands and the proposal area such as MPE (which is currently under construction), the East Hills Rail corridor or Moorebank Avenue. The Department accepts this conclusion and considers the snail is unlikely to occur within the proposal and accepts the findings of the updated BAR.

Biodiversity Offsets

Under the FBA a total of 1,842 ecosystem credits and 7,087 species credits are required to offset the impacts of the proposal. **Table 18** provides a summary of the proposed offset credits required for direct impacts.

Table 18 | Biobanking Offset Credit Requirements (Source: updated Biodiversity Assessment Report 2019)

Plant community type/species	Credits required
Ecosystem credits	
Hard-leaved Scribbly Gum – Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin (PCT ME003)	511
Parramatta Red Gum woodland on moist alluvium of the Cumberland Plain, Sydney Basin Bioregion (PCT ME005)	22
Forest Red Gum - Rough-barked apple grassy woodland on alluvial flats of the Cumberland Plain Sydney Basin (PCT ME018)	1,309
Total ecosystem credits required for offsetting	1,842
Species Credits	
<i>Persoonia nutans</i>	1,232
<i>Grevillea parviflora subsp. parviflora</i>	4,662
<i>Hibbertia puberula subsp. puberula</i>	80*
Koala <i>Phascolarctos cinereus</i>	1,112
Total species credits required for offsetting	7,087

Note (*): Only whole numbers can be entered into the credit calculator. It is known that the calculator applies an offset requirement of 40 credits per hectare therefore this rate has been used to calculate the requirement for decimals of a hectare.

The Applicant intends to offset the impacts through the establishment of biobank sites as shown in **Figure 20**, which includes the Wattle Grove Offset Area (the Boot land); Moorebank Offset Area (Georges River riparian zone); and Casula Offset Area (the hourglass land), though there is also the prospect that some required credits may need to be obtained from the market. The biobanking agreement establishing the sites has been finalised and the Department is awaiting advice from the Applicant on the credits being retired under MPE Stage 1 and 2 and with respect to the EPBC Act Biodiversity Offset Strategy for MPW. The Department supports the intent to use the

proposed biobanking sites to offset impacts from MPE and MPW as this will provide an optimised approach to manage offset sites long term within a localised area.

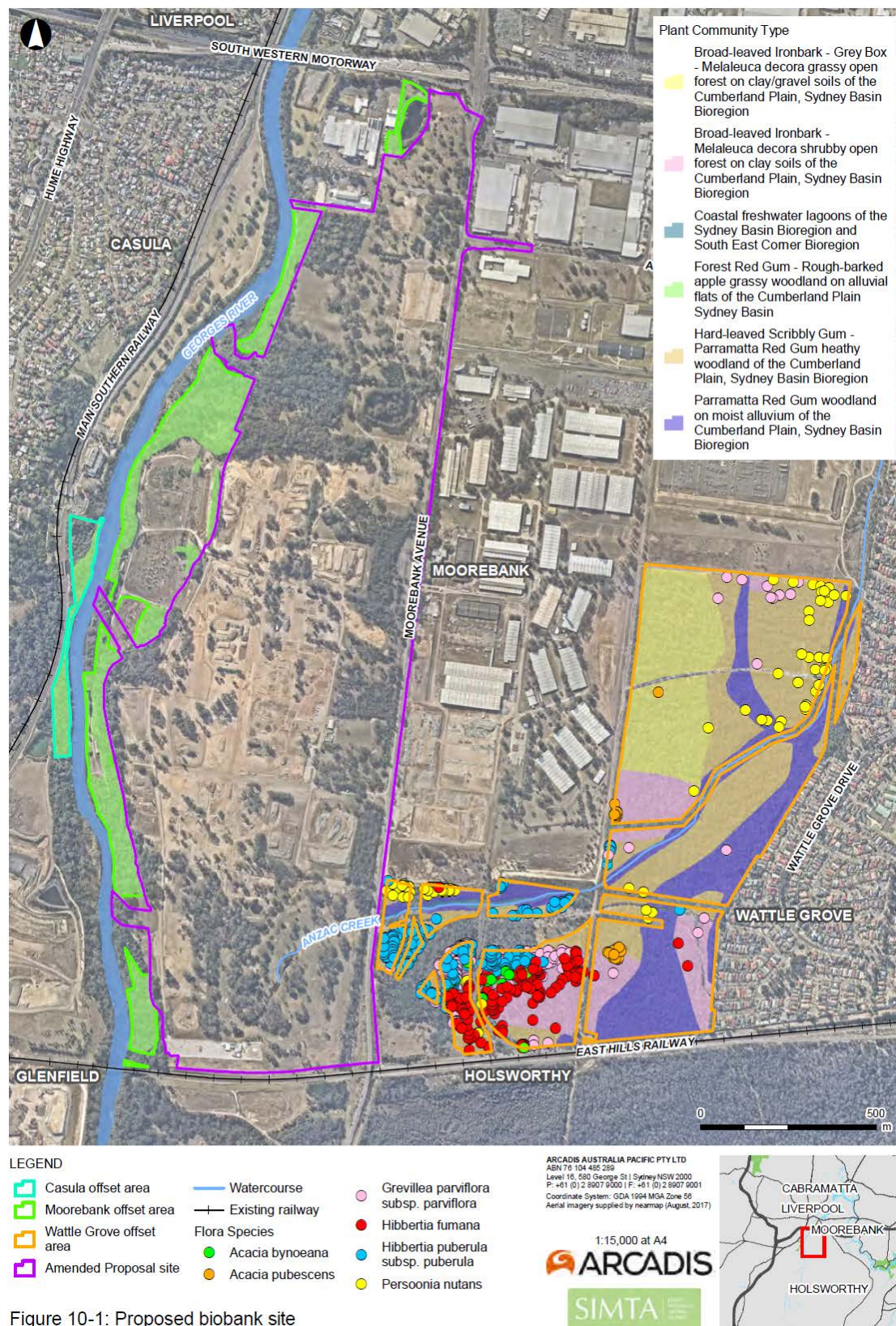


Figure 10-1: Proposed biobank site

Figure 20 | Proposed biobanking offset sites (source: updated Biodiversity Assessment Report 2019) (Source: Figure 10-1, Applicant's updated Biodiversity Assessment Report 2019)

The updated BAR indicates that the proposed biobanking sites would generate sufficient ecosystem credits to offset the biodiversity impacts of the proposal for some PCTs, but there is a deficit in the ecosystem credits required for offsets for *Hard-leaved Scribbly Gum - Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin*, and *Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin*. Although there may be a shortfall for some credits, the *NSW Biodiversity Offsets Policy for Major Projects* (OEH, 2014) allows for credits to be sourced from the market as available. The Department considers this process will aid in offsetting all impacts associated with this proposal. To ensure that offsetting impacts is achieved within a timely manner, the Department recommends that the Applicant retire all biodiversity credits before any PCTs or threatened species are impacted. The retirement of credits must be in accordance with the *NSW Biodiversity Offsets Policy for Major Projects*.

The Department understands that remediation required under MPW Stage 1 has not been completed, as that project did not have approval to clear endangered communities and threatened species (including habitat). The Applicant has advised that the full sweep of remediation cannot occur until vegetation is cleared on site (see **Section 6.9** for further consideration of contamination and remediation). Though this is noted, the Department still considers that all biodiversity credits must be retired before any PCTs or threatened species are impacted.

Riparian corridor impacts

As part of MPW Stage 1 approval, the Applicant is required to maintain a minimum 40 metre riparian corridor along the western bank of the Georges River. The Department understands that parts of the riparian corridor would be impacted due to the placement and location of OSD basins and outlets (see **Section 6.3.1** for further details regarding the riparian corridor). The Department acknowledges that the riparian corridor provides a key fauna connectively element and the 40 metre buffer was intended to maintain biodiversity values. Due the importance of the riparian corridor, the Department has required the Applicant to reconfirm the proposed western site boundary with reference to a clearly defined riparian corridor, and design the outlet channels associated with the detention basin to maintain fauna connectivity. Further assessment of the riparian corridor is provided in **Section 6.3.1**.

Conclusion

The assessment of biodiversity impacts of the proposal has been carried out in accordance with the OEH's FBA. The Department acknowledges the proposal will directly impact threatened species identified under the TSC Act (now BC Act) and EPBC Act. The impacts would be offset in accordance with the FBA and *NSW Biodiversity Offsets Policy for Major Projects* (OEH, 2014).

Impacts to the riparian corridor are noted due to the locations of operational detention basins and discharge channels into the Georges River. To ensure the biodiversity values of the riparian corridor are maintained, the Applicant will be required to ensure that fauna connectivity is maintained during construction and operation of the development.

In addition, the Applicant will be required to prepare a Koala Management Plan, an unaccepted fauna and flora finds procedure, a Construction Flora and Fauna Management Plan, pre-clearing surveys and operational monitoring and maintenance for Koala habitat corridors. These measures will ensure that any fauna or flora found on site can be appropriately managed and or relocated including enhancing existing habitat and connectivity.

6.9 Contamination

Contamination is a key issue for the MPW site, based on past development of the site and defence training activities. Remediation of the site was approved, and has already substantially progressed, as part of the MPW

Stage 1 Early Works approval. However, no clearing of EECs was permitted as part of Early Works, and some vegetated areas require remediation, as discussed below.

The MPW Stage 2 application seeks approval for clearing to enable remediation of those areas, following on from ongoing remediation allowed for under the MPW Stage 1 Early Works.

6.9.1 Remediation

A summary of the extent of contamination, based on past reports, and a summary of required remediation is provided in the Applicant's *Site Contamination Summary Report* (GHD, 2016), which formed part of Appendix S of the EIS. It is understood that remediation is required at:

- former stockpiling site and fill area near a former sewage treatment plant on the west of the site, including asbestos pipe and Asbestos sheeting and fragments
- former stockpiling site on a vegetated part of the former Royal Engineers Golf course which forms the southern part of the sites, with potential asbestos containing material.

The location of the affected areas is shown in **Figure 21**.

Demolition wastes, including asbestos containing materials, in these areas require remediation prior to construction of the intermodal terminal and warehousing. A Remediation Action Plan was prepared as part of the MPW Early Works, and would be updated if required to incorporate additional information.

At the Department's request, the Applicant provided supplementary information in March 2018 about the progress of remediation and additional information that become available during that process. The summary indicated that:

- remediation had substantially progressed, and the Applicant was reviewing opportunities for internment of asbestos-containing material that was removed and being stockpiled on site
- assessments were required to verify that groundwater within the site does not present an unacceptable risk to future site users (noting, for instance, presence of light non-aqueous phase liquid)
- a site wide long term environmental management plan was being prepared, to include unexpected finds procedures and a groundwater monitoring plan where residual impacts are identified
- investigations regarding per- and poly-fluoroalkyl substances (PFAS) were ongoing, and may result in ongoing monitoring as part of the long term environmental management plan.

The Department subsequently sought further information, including whether asbestos would be capped on site, and whether additional information was available about PFAS contamination. The Applicant advised that:

- the eventual site 'audit statement will not include permanent containment cells or contamination infrastructure for asbestos [or] other contaminated materials', and 'at this stage no temporary or permanent remediation infrastructure is proposed on the MPW Stage 2 site'
- '[g]round water would be monitored to assist with the identification of potential ground contamination (particularly PFAS)'
- 'the specific form of treatment for PFAS is anticipated to be confirmed post determination of the MPW Stage 2 Proposal, through further investigations (including monitoring). Should treatment or remediation be required, the method (and associated works) would be undertaken in continued consultation with the site auditor.'

The Department considers that completion of remediation prior to construction is a key outcome of the project schedule, which is consistent with the views of the Applicant, and recommends the following remediation requirements:

Table 19 | Remediation requirements

Development phase	Recommended requirement
Prior to any works	<ul style="list-style-type: none"> engage a Site Auditor
Prior to vegetation clearing	<ul style="list-style-type: none"> provide the EPA with a copy of all reports to date relating to the assessment of per- and poly-fluoroalkyl substances (PFAS) undertaken for the development and in relation to contamination from the development review impact of specific clearing works on contaminated land prepare a Contamination Management Plan in consultation with the Site Auditor detailing the location and nature of the contamination and the proposed remediation and/ or management measures that will be undertaken to address the onsite and potential offsite impacts update CEMP if required
Prior to remediation	<ul style="list-style-type: none"> should the Applicant identify a potential risk to off-site receptors due to PFAS contamination, the Applicant must contact the EPA as soon as practicable to discuss requirements for community consultation
Prior to construction (other than the vegetation clearing above)	<ul style="list-style-type: none"> complete remediation of the site complete a validation report prepare a Site Audit Report and a Site Audit Statement A for the whole site, which demonstrates the site is suitable for its intended land uses under Stage 2 SSD 7709 prepare a long term environmental management plan, if remediation outcomes for the site require long term environmental management

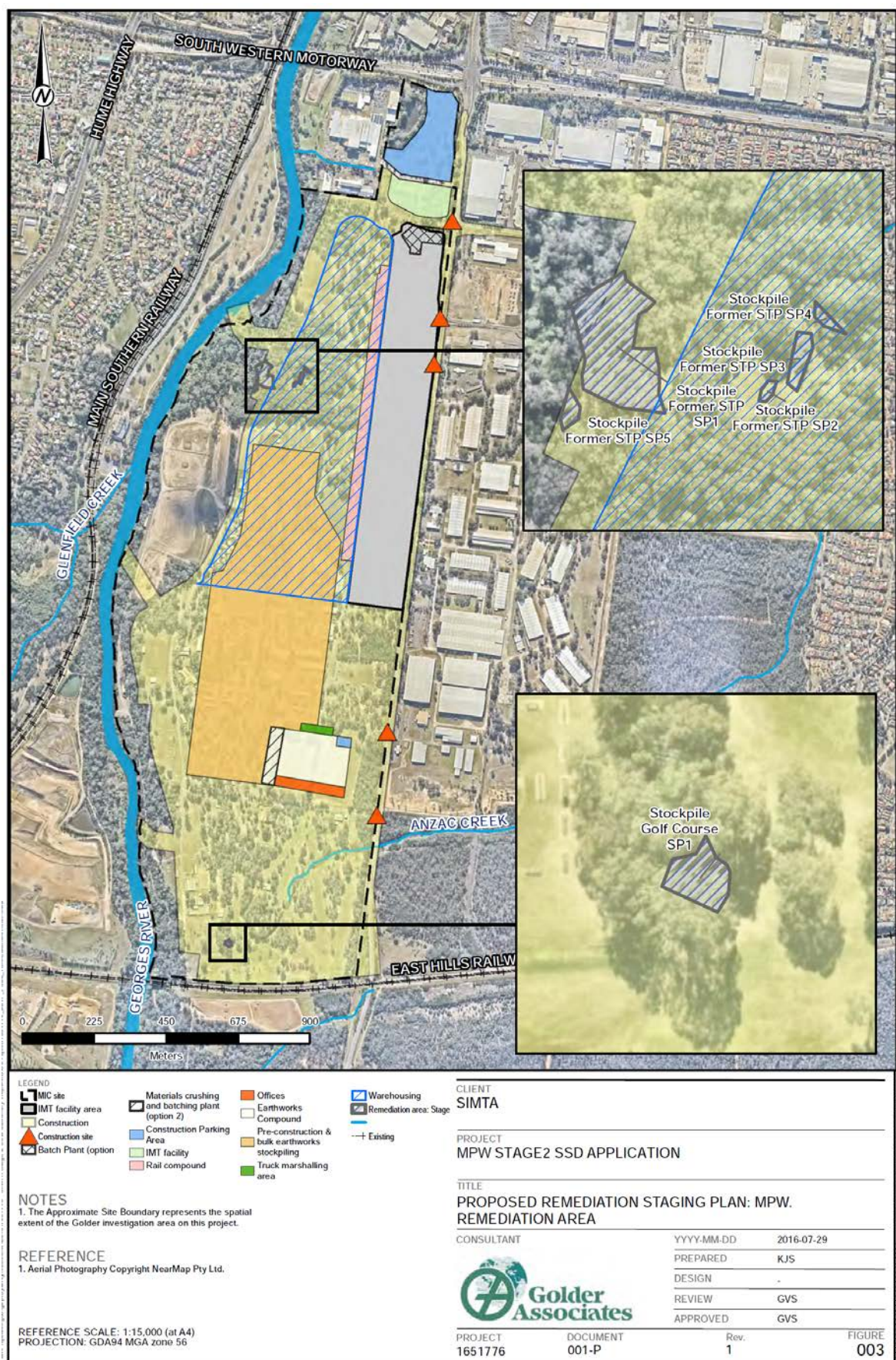


Figure 21 | Areas of contamination requiring prior vegetation clearing under MPW Stage 2 (Source: Appendix A of Appendix S, EIS)

6.9.2 Unexpected finds

The potential for unexpected finds relating to contamination is a risk on all sites. The Applicant's Contamination Summary Report identifies, for example, the potential for further asbestos related finds. The Department also acknowledges the identified risk of unexploded ordnance across the site, a risk on many former Defence lands.

The Contamination Summary Report concludes that unexploded ordnance (UXO), exploded ordnance (EO), or explosive ordnance waste (EOW) would be anticipated to be mostly blank revolver cartridges and smoke grenade canisters. The key means of reducing exposure is to cap potentially affected areas with clean fill material, which would be done as part of the general raising of the site. However, procedures would be required to limit potential for harm during excavation and construction.

In this respect, the Department recommends that a comprehensive unexpected finds protocol be prepared for construction, that includes procedures for unexpected contamination. However, in recognition of the specialised nature of UXO impacts and need for prior investigations, the Department has recommended a standalone condition requiring that protocols for the management of UXO, EO and EOW be prepared by an UXO contractor listed on the Defence Panel of suitably qualified UXO consultants and contractors.

6.10 Other Issues

The Department's consideration of other issues is provided at **Table 20**.

Table 20 | Department's assessment of other issues

Issue	Findings	Recommended Condition
Aboriginal heritage	<ul style="list-style-type: none"> A total of 17 Aboriginal sites and objects are located within and around the proposal (which includes 3 scar trees) Eight sites (MA1, MA2, MA3, MA4, MA7, MA11, MA12 and MAPAD2) are deemed to be of low archaeological significance MA10 (also called MRSA1 and PAD1) have been assessed as having low-moderate archaeological significance The MPW Stage 2 Terrace PAD and the Tertiary Terrace (between MA10 and MA14) are deemed to be of moderate archaeological potential Four sites (MA5, MA8, MA9 and MA14) have been assessed as having moderate - high archaeological significance One site and one area (MA6 and PAD2 respectively) have been assessed as having high archaeological significance Direct impacts would be incurred to MA6, MA7, MA10, MA14, MPW Stage 2 Terrace PAD and the Tertiary Terrace as part of the Proposal Direct impacts to sites MA1, MA2, MA3, MA4, MA5 and MA9 would be incurred during Early Works and 	<ul style="list-style-type: none"> The Department acknowledges that impacts to Aboriginal objects and items are not avoided due to the requirement to import fill, remediate the site from contamination and install drainage infrastructure The proposed works will not impact on MA8 (scar tree), while the 2 remaining scar trees (MA6 and MA7) will be removed. The Applicant has committed to relocating these trees to Tharawal Local Aboriginal Land Council (TLALC) property. This approach is supported, and a condition has been recommended to ensure salvage is undertaken appropriately In addition, it is recommended that a salvage strategy be developed in consultation with OEH and with relevant Registered Aboriginal Parties (RAPs) prior to any impacts to Aboriginal objects and sites Impacts to MPW Stage 2 Terrace PAD and the Tertiary Terrace (between MA10 and MA14) would need to be salvaged

	<p>managed as part of the MPW Concept Approval</p> <ul style="list-style-type: none"> • Management of PAD2 would be undertaken as part of the MPE Stage 1 Proposal. 	<ul style="list-style-type: none"> • A Cultural Heritage Salvage Report will be required which includes details of any archival recording, further archaeological research either undertaken or to be carried out, and archaeological excavations (with artefact analysis and identification of a final repository for finds), must be prepared in accordance with any guidelines and standards required by OEH.
Non-indigenous heritage	<ul style="list-style-type: none"> • The current proposal has no additional impacts to non-indigenous heritage items. All heritage items on site previously have been removed as part of the concept plan Stage 1 works. • However, the Proposal would result in further disturbance to Moorebank Cultural Landscape and historical associations with the area. 	<ul style="list-style-type: none"> • The Department has recommended implementation of an unexpected finds procedure to outline procedures for managing site works in the event of finds.
Hazards	<ul style="list-style-type: none"> • The current proposal includes refueling of locomotives on site, and the potential for transport of dangerous goods to site for warehouse operations • All locomotives would be re-fuelled using diesel fuel only • However, the Applicant has also variously committed to not storing LPG on site and alternatively to storing LPG on site within the storage requirements of the thresholds in the Department's <i>Applying SEPP 33</i> guideline 	<ul style="list-style-type: none"> • The Department has recommended conditions requiring limit the total storage of DG within the development to quantities below the thresholds in the Department's <i>Applying SEPP 33</i> guideline, and requiring stage of chemicals, fuels and oils in accordance with Australian standards and EPA guidance, to ensure that the proposal would not become potentially hazardous post-approval



7. Evaluation

The Department has reviewed the EIS, RtS, Consolidated Assessment Clarification Responses, and assessed the merits of the proposal, taking into consideration advice from the public authorities, including Council. Issues raised in public submissions have been considered and all environmental issues associated with the proposal have been thoroughly addressed.

Overall, the Department considers that the proposal has considerable strategic merit as an important element of future freight distribution in Western Sydney and the State broadly. As set out in the NSW Freight and Ports Plan, intermodal terminals within Greater Sydney are 'critical for increasing the utilisation of the rail freight network, particularly containers to and from Port Botany'. Moorebank Intermodal is identified as an 'important freight and logistics precinct' in *Building Momentum: State Infrastructure Strategy 2018-2038*, and the Moorebank Intermodal projects are acknowledged in strategic planning as part of achieving the NSW Government's strategic aim to increase the rail share of freight transport in NSW.

The Department has carefully considered the proposed land use and built form of the proposal, and considers that key design refinements are required to part so the development layout and landscape design. The Department has recommended conditions that modify some details of the development, including setback distances to surrounding land uses, and identified outcomes and objectives for landscaping enhancements and clear criteria for finalising the layout and landscape design.

The Department also considers that the proposed stormwater and drainage design for the site must be enhanced in line with water sensitive urban design objectives. The Department has recommended a series of criteria for the final design of OSD basins, water detention and treatment, for assessment of the achievement of those objectives.

The Department is satisfied that improvements to the road network, including the upgrade of the Anzac Road/Moorebank Avenue intersection upgrade, combined with road upgrades funded by the planning agreement with RMS, and improvements required under the MPE Stage 2 development consent, would ensure operation traffic impacts are managed acceptably. Construction traffic impacts would be managed in accordance with a Construction Traffic and Access Management Plan, and an overall cap on fill importation.

The Department considers that noise impacts would be effectively managed through construction noise and vibration management plan, and operational impacts would be managed to meet recommended, enforceable noise limits, with installation of a western noise wall ensuring modelled impacts are complied with. The Department is satisfied that performance requirements for IMEX locomotives enforced for MPE Stage 1 could be applied to similar locomotives accessing MPW Stage 2, and noise monitoring required for all trains.

In addition, the Department considers that air quality (fuel/engine use) performance requirements for IMEX locomotives for MPE Stage 1 would also apply to similar trains on MPW Stage 2. Air quality impacts from construction works would be managed under recommended conditions governing phased earthworks.

Biodiversity impacts would be managed through appropriate offsetting, and development of a Koala Management Plan for the site, to be prepared by a relevant specialist.

The Department also considers that the site would be suitable for use subject to a final Site Audit Statement, endorsed by a Site Auditor prior to construction. Any long term environmental management obligations attached to that Site Audit Statement would be set out in a management plan that would apply to the site.

The Department has also recommended conditions relating to management of heritage impacts and hazards management, in addition to standard reporting and auditing requirements common to major State significant proposals.


The Department considers that the recommended conditions would facilitate required development layout, landscaping and stormwater and drainage improvements by establishing clear objectives and criteria, and requiring updated plans to be endorsed by the Secretary prior to construction. Impacts on amenity and the surrounding environment would be managed in accordance with performance-based criteria, and comprehensive requirements for detailed management plans and protocols that would ensure the proposal can be constructed and operated in accordance with the requirements of Government policy and guidance, and residual impacts would be effectively managed.

The proposal is considered to provide public benefits as it would provide additional freight distribution capacity in Western Sydney and the State broadly, provide opportunities for increase transport of freight by rail between Port Botany and employment generating lands and communities in Western Sydney, and generate approximately 750 operational jobs and 1,100 construction jobs.

The Department considers that the recommended conditions of consent provide a comprehensive, strict and precautionary approach to ensuring the proposal can be constructed and operated in accordance with the requirements of Government policy and guidance, and residual impacts would be effectively managed.

The Department considers the proposal is approvable, subject to the conditions of consent outlined within this report. This assessment report is hereby presented to the Commission for determination.

Recommended by:



Dominic Crinnion

Team Leader

Ports and Water Assessments

Recommended by:



David Gainsford

Executive Director

Priority Projects Assessments



Appendices

Appendix A - List of Documents

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

1. Environmental Impact Statement
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=7709
2. Submissions
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=7709
3. Applicant's Response to Submissions
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=7709
4. Applicant's Consolidated Assessment Clarification Responses
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=7709
5. Applicant's Revised Biodiversity Assessment Report (March 2019)
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=7709
6. Department's Specialist Reports:
 - Water Sensitive Urban Design
 - Traffic
 - Noise
 - Air Qualityhttp://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=7709

Appendix B - Statutory Considerations

ENVIRONMENTAL PLANNING INSTRUMENTS (EPIs)

To satisfy the requirements of section 4.15(a)(i) of the EP&A Act, this report includes references to the provisions of the EPIs that govern the carrying out of the project and have been taken into consideration in the Department's environmental assessment.

Controls considered as part of the assessment of the proposal are:

- State Environmental Planning Policy (State & Regional Development) 2011 (SRD SEPP)
- State Environmental Planning Policy (Infrastructure) 2007 (Infrastructure SEPP)
- State Environmental Planning Policy No. 44 – Koala Habitat Protection
- State Environmental Planning Policy No. 55 – Remediation of Land (SEPP 55)
- State Environmental Planning Policy No. 64 – Advertising Structures and Signage (SEPP 64)
- Draft State Environmental Planning Policy (Remediation of Land) (Draft Remediation SEPP)
- Draft State Environmental Planning Policy (Environment) (Draft Environment SEPP)
- Liverpool Local Environmental Plan (LEP) 2008.

COMPLIANCE WITH CONTROLS

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

Table B1 | SRD SEPP compliance table

Relevant Sections	Consideration and Comments	Complies
3 Aims of Policy The aims of this Policy are as follows: (a) to identify development that is State significant development	The proposed development is identified as SSD.	Yes
8 Declaration of State significant development: section 4.36 (1) Development is declared to be State significant development for the purposes of the Act if: (a) the development on the land concerned is, by the operation of an environmental planning instrument, not permissible without development consent under Part 4 of the Act, and (b) the development is specified in Schedule 1 or 2.	The proposed development is permissible with development consent. The development is of a type specified in Schedule 1.	Yes
Schedule 1 State significant development —general (Clause 19) (1) Development that has a capital investment value of more than \$30 million for any of the following purposes: ...	The proposed development comprises development of the purpose of railway freight terminals, sidings and inter-modal facilities , and development associated with	Yes

- (b) railway freight terminals, sidings and inter-modal facilities
- (2) Development within a rail corridor or associated with railway infrastructure that has a capital investment value of more than \$30 million for any of the following purposes: ...
- (b) container packing, storage or examination facilities

railway infrastructure for the purpose of container packing, storage or examination facilities, and has a CIV in excess of \$30 million

State Environmental Planning Policy (Infrastructure) 2007

The Infrastructure SEPP aims to facilitate the effective delivery of infrastructure across the State by improving regulatory certainty and efficiency, identifying matters to be considered in the assessment of development adjacent to particular types of infrastructure development, and providing for consultation with relevant public authorities about certain development during the assessment process.

The development constitutes traffic generating development in accordance with clause 104 of the Infrastructure SEPP as it comprises a freight transport facility and warehouse and distribution centre. The Infrastructure SEPP requires traffic generating development to be referred to RMS for comment.

The application was referred to RMS in accordance with the Infrastructure SEPP. Comments raised by RMS are outlined in Section 5. Due to the nature and scale of the development, the Applicant is required to make satisfactory arrangements to contribute to the provision of relevant State public infrastructure for development application. During the assessment period, the Applicant entered into a voluntary planning agreement with RMS to make a cash contribution of \$48 million to regional road upgrades, and upgrade Moorebank Avenue south of the entrance to MPE freight terminal or relocate Moorebank Avenue to the east of the MPE site (subject to a future planning application).

The development is located within the vicinity of an electricity transmission or distribution network and in accordance with clause 45 of the Infrastructure SEPP, the development must be referred to the relevant electricity supply authority for comment.

The application was referred to Endeavour Energy in accordance with the Infrastructure SEPP. No submissions were received. As part of its assessment, the Department sought confirmation that the Applicant had consulted with Endeavour Energy. Appendix E of Attachment P of the Consolidated Assessment Clarification Responses outlines consultation, regarding finalising designs for works in the Endeavour Energy easement.

The proposal is therefore consistent with the Infrastructure SEPP given the consultation and consideration of the comments from the relevant public authorities. The Department has included suitable conditions in the recommended conditions of consent (see **Appendix C**).

State Environmental Planning Policy No. 44 – Koala Habitat Protection

SEPP 44 aims to encourage the proper conservation and management of areas of natural vegetation that provide habitat for koalas to ensure a permanent free-living population over their present range and reverse the current trend of koala population decline.

The Department has considered impacts to Koala habitat in its review of the updated March 2019 BAR. The Department has recommended conditions requiring the Applicant to prepare a Koala Management Plan prior to construction, that includes:

- habitat corridors, of adequate dimensions to provide an adequate Koala habitat corridor as supported by a Koala specialist, to provide connectivity both within the Intermodal Precinct area and with other core koala habitat areas (i.e. to the south and to the west along Georges River)
- commitment to retain Koala use trees on site in line with phased earthworks
- details of structures to eliminate barriers to movement (presented by fences, roads, drainage culverts or pits, rail lines and the like) for koalas and other native fauna likely to use the site or habitat corridor
- details on koala habitat rehabilitation/ restoration within the identified habitat corridors
- other measures to minimise the risk of harm to koalas

Subject to these conditions, the Department considers that the proposal would be consistent with the objectives of SEPP 44.

State Environmental Planning Policy No. 55 - Remediation of Land

SEPP 55 aims to provide a state-wide approach to the remediation of contaminated land. In particular, SEPP 55 aims to promote the remediation of contaminated land to reduce the risk of harm to human health and the environment by specifying under what circumstances consent is required, specifying certain considerations for consent to carry out remediation work and requiring that remediation works undertaken meet certain standards.

A full assessment of contamination issues associated with the proposal is provided in **Section 6.9** of this report. The Department has included detailed specific conditions for finalising remediation and a Site Audit Statement. The Department is satisfied that, subject to the implementation of the recommended conditions, the site can be made suitable for its proposed industrial/commercial land use.

State Environmental Planning Policy No. 64 – Advertising and Signage

SEPP 64 applies to all signage that under an EPI can be displayed with or without development consent and is visible from any public place or public reserve.

The development proposes signage as discussed at **Section 6.3.4**. Under clause 8 of SEPP 64, consent must not be granted for any signage application unless the proposal is consistent with the objectives of the SEPP and with the assessment criteria which are contained in Schedule 1 of the SEPP.

As discussed at **Section 6.3.4**, the Department has recommended conditions requiring backlight and illuminated signage not to be visible from residential receivers. Signage generally would be outlined in the revised architectural plans for the site, to be submitted for approval prior to construction.

Subject to these conditions, the Department considers that the proposal would be consistent with the objectives and assessment criteria outlined in the SEPP.

Draft State Environmental Planning Policy (Remediation of Land)

The Draft Remediation SEPP will retain the overarching objective of SEPP 55 promoting the remediation of contaminated land to reduce the risk of potential harm to human health or the environment.

Additionally, the provisions of the Draft Remediation SEPP will require all remediation work that is to be carried out without development consent, to be reviewed and certified by a certified contaminated land consultant, categorise remediation work based on the scale, risk and complexity of the work and require environmental management plans relating to post-remediation management of sites or ongoing operation, maintenance and management of onsite remediation measures (such as a containment cell) to be provided to council.

The Department is satisfied that the proposal will be consistent with the objectives of the Draft Remediation SEPP.

Draft State Environmental Planning Policy (Environment)

The Draft Environment SEPP is a consolidated SEPP which proposes to simplify the planning rules for a number of water catchments, waterways, urban bushland, and Willandra Lakes World Heritage Property. Once adopted, the Draft Environment SEPP will replace seven existing SEPPs. The proposed SEPP will provide a consistent level of environmental protection to that which is currently delivered under the existing SEPPs. Where existing provisions are outdated, no longer relevant or duplicated by other parts of the planning system, they will be repealed.

Given that the proposal is consistent with the provisions of the existing SEPPs that are applicable, the Department concludes that the proposed development will generally be consistent with the provisions of the Draft Environment SEPP.

Liverpool Local Environmental Plan 2008

The Liverpool LEP aims to encourage the development of housing, employment, infrastructure and community services to meet the needs of the existing and future residents of the Liverpool LGA. The Liverpool LEP also aims to conserve and protect natural resources and foster economic, environmental and social well-being.

The Department has consulted with Council throughout the assessment process and has considered all relevant provisions of the Liverpool LEP and those matters raised by Council in its assessment of the development (refer to **Section 5**). The Department concludes the development is consistent with the relevant provisions of the Liverpool LEP. Consideration of the relevant clauses of the LEP is provided in **Table B2**.

Table B2 | Consideration of the Liverpool LEP

Clause	Department Comment/Assessment
Clause 4.3 Building height	The proposed workshop exceeds the maximum building height for the site. However, the Department notes it considers these increased heights are acceptable at a concept level, and has recommended the Commission approves a clause 4.6 variation of the height controls for the site, as outlined in the Department’s recommendation report for the MPW Concept MOD 1 development application.
Clause 4.4 Floor Space Ratio	The development complies with the floor space ratio of 1:1 for the site.
Clause 7.36 Arrangements for infrastructure arising out of development of intermodal terminal at Casula and Moorebank	The Applicant has made satisfactory arrangements to contribute to the provision of relevant State public infrastructure in relation to the development on this site – see Sections 1.2 and 4.4.2 .

Other policies

In accordance with Clause 11 of the SRD SEPP, Development Control Plans do not apply to State significant development.

Appendix C – Consistency with the recommended concept approval (as recommended in the MPW concept MOD 1 recommendation report)

Assessment Criteria	Consideration	Compliance
Terms of Concept Approval		
Limits of Approval		
6. Projects carried out under this staged development consent are to be assessed with the objective of not exceeding the capacity of the transport network, including the local, regional and State road network.	The Department is satisfied that the proposal has assessed with the objective of not exceeding the capacity of the transport network, including the local, regional and State road network. The Department's recommendation acknowledges that the Applicant has entered into a VPA with RMS to contribute to the provision of relevant State public infrastructure in relation to the development on the site/ The Department has also required the Applicant conduct key road network improvements, including for MPW Stage 2 the upgrade of the Anzac Road/Moorebank Avenue intersection. See Section 6.5 for the details of the Department's assessment of traffic impacts and mitigation.	Yes
7. Concept approval is granted for a container freight throughput of up to 500,000 TEU p.a. (excluding IMEX freight) if the combined movement of container freight on the Subject Site does not exceed 1.05 million TEU p.a. The consent authority must also be satisfied that the Traffic Impact Assessment demonstrates that the container throughput would not exceed the capacity of the transport network with or without mitigation measures/upgrades.	The Department is satisfied the MPW Stage 2 approval complies with the requirement. It is noted the application seeks approval for 500,000 TEU overall. See Section 2 for further details.	Yes
8. For IMEX freight, concept approval is granted for a container throughput: <ul style="list-style-type: none"> a) initially, 250,000 TEU p.a. if the consent authority is satisfied that the Traffic Impact Assessment demonstrates the proposal would not exceed the capacity of the transport network with or without mitigation measures/upgrades; b) after the facility has been in operation, an increase of up to an additional 300,000 TEU p.a. if the consent authority is satisfied that monitoring and modelling of the operation of the intermodal terminal facility demonstrates that traffic movements resulting from the proposed increase in TEU will achieve the objective of not exceeding the capacity of the transport network. The combined movement of container freight on the Subject Site must not exceed 1.05 million TEU p.a. 	The Department is satisfied the MPW Stage 2 approval complies with the requirement. It is noted the application seeks approval for 500,000 TEU overall. See Section 2 for further details.	Yes
9. Concept approval is granted for an intermodal terminal facility incorporating either: <ul style="list-style-type: none"> a) the rail link; or b) if a rail link is under construction or has been constructed associated with the SIMTA development as identified in development 	The application includes the second option: a short connection to the rail link, from the intermodal terminal facility to the SIMTA rail connection on the eastern side of the Georges River. The rail link is being built in accordance under the MPE Stage 1 development consent.	Yes

<p>application MP10_0193, then only a short connection from the intermodal terminal facility to the SIMTA rail connection on the eastern side of the Georges River.</p>	
<p>10. Port shuttle operations must use:</p> <ul style="list-style-type: none"> a) Locomotives that incorporate available best practice noise and emission technologies. Prior to construction of the rail link connecting to the site, the Applicant is to submit a report to the Secretary for consideration and approval that has been prepared in consultation with TfNSW and the EPA that justifies the technologies proposed and how it meets the objective of best practice noise and emission technologies; and b) Wagons that incorporate available best practice noise technologies including as a minimum, permanently coupled 'multi-pack' steering wagons using Electronically Controlled Pneumatic (ECP) braking with a wire based distributed power system (or better practice technology). Prior to the commencement of operation, the Applicant is to submit a report to the Secretary for consideration and approval that has been prepared in consultation with TfNSW and EPA that justifies the technology proposed and how it meets the objective of best practice noise technologies. 	<p>The Department has recommended conditions giving effect to this condition (see Sections 6.6.4 and 6.7.2)</p> <p>Yes</p>
<p>11. The Applicant shall install and maintain a rail noise monitoring system on the rail link at the commencement of operation to continuously monitor the noise from rail operations. The system shall capture the noise from each individual train passby noise generation event, and include information to identify:</p> <ul style="list-style-type: none"> a) Time and date of freight train passbys; b) Imagery or video to enable identification of the rolling stock during day and night; c) LAeq(15hour) and LAeq(9hour) from rail operations; and d) LAF(max) and SEL of individual train passbys, measured in accordance with ISO3095; or e) Other alternative information as agreed with, or required by, the Secretary. <p>The results from the noise monitoring system shall be publicly accessible from a website maintained by the Applicant. The noise results from each train shall be available on the website within 24 hours of it passing the monitor, unless unforeseen circumstances (ie a system malfunction) have occurred. The LAeq(15hour) and LAeq(9hr) results from each day shall be available on the website within 24 hours of the period ending.</p> <p>Prior to the commencement of operation, the Applicant shall submit for the approval of the Secretary, justification supporting the appropriateness of the location for rail noise monitoring, including details of any alternative options considered and reasons for these being dismissed. The rail noise monitoring system shall not operate until the Secretary has approved the proposed monitoring location.</p>	<p>The Department has recommended conditions giving effect to this condition (see Sections 6.6.4)</p> <p>Yes</p>

12. Prior to submitting any Development Application for the intermodal terminal facility, the Applicant shall convene a meeting with regard to proposed traffic assumptions and mitigation measures. The Applicant must: <ul style="list-style-type: none"> a) Invite SIMTA, TfNSW, RMS, Liverpool City Council and Campbelltown City Council. Each Council may also invite a maximum of two community representatives to attend. b) At the meeting, present the scope and assumptions of the mesoscopic/microsimulation traffic modelling, the draft Traffic Impact Assessment and any proposed mitigation measures including timing on the delivery of any proposed measures; c) Publish the meeting minutes and a schedule of action items arising from the meeting, including responsibilities and timeframes on its website; d) Prepare a written report responding to the action items and consult with RMS on the action items and final mitigation measures; and e) Provide details of the undertaking and outcomes of this condition in the EIS. 	The Department acknowledges that the meeting was held prior to lodgement (see section 6.4 of the EIS)	Yes
13. Containers must be transferred from Port Botany to the site and from the site to Port Botany by rail, unless there is planned track maintenance or where unforeseen circumstances have occurred (eg an incident, breakdown, derailment or emergency maintenance on the rail line). The Secretary may at any time request the Applicant to demonstrate that the transport of containers between the site and Port Botany container terminals is by rail. This is to be demonstrated upon request by the Secretary for the prior 12 month period.	The Department has recommended conditions giving effect to this condition.	Yes
14. Operations on the subject site cannot commence until a rail connection to the SSFL is operational.	The Department considers that the application complies with this condition.	Yes
15. The warehousing and distribution facilities must only be used for activities associated with freight using the MPW rail intermodal terminal unless otherwise approved in a subsequent Development Application.	The Department has recommended conditions giving effect to this condition.	Yes
16. Building heights must not exceed 21 metres above finished surface levels which must be in accordance with Condition 19B and other structures are to be generally consistent with Appendix D Landscape and Visual Impact of the Response to Submissions dated May 2015.	The Department considers that building onsite comply with this requirement (see eg. Section 2.1 (description of the development, which notes that warehouses are 13.7 m in height, and the workshop is 21 m in height, above finished surface levels following the importation of fill) and Section 6.3.4 (visual impact))	Yes
17. Building setbacks are to be generally consistent with Appendix D Landscape and Visual Impact of the Response to Submissions dated May 2015 and allow for stabilised fill batters.	The Department has recommended conditions giving effect to this condition (see Section 6.3).	Yes
17A. The maximum GFAs for the following uses apply: <ul style="list-style-type: none"> (a) 300,000m² for the warehousing and distribution facilities; and (b) 800m² for the freight village. 	The Department considers that the application complies with this condition (see Section 2.1).	Yes
18. The layout of the site shall not prevent a possible future pedestrian connection to Casula Railway Station across the Georges River.	The Department has recommended conditions giving effect to this condition (see Section 6.3).	Yes

18A. The layout of the site must not prevent the provision of vegetated wildlife corridors linking the Georges River riparian corridor and Moorebank offset area with the Wattle Grove offset area as shown in the Appendix.	The Department has recommended conditions giving effect to this condition (see Sections 6.3 and 6.8).	Yes
19. The layout of the site shall be designed to ensure heavy vehicles associated with the operation of the intermodal terminal facility can be accommodated on site in the event of an incident blocking access to the M5 Motorway/Moorebank Avenue to avoid queuing on public roads.	The Department considers that the application complies with this condition (see eg. Section 2.1).	Yes
19A. Only VENM, ENM, or other material approved in writing by EPA is to be brought onto the site.	The Department considers that the application complies with this condition (see Section 6.2).	Yes
19B. The total volume of uncompacted fill to be imported must not exceed 1,600,000 m ³ unless it can be demonstrated in a future Development Application that the proposed finished surface level of any filled section of the site does not exceed 16.6 m AHD.	The Department considers that the application complies with this condition (see Section 6.2).	Yes
19C. Clearing native vegetation and earthworks including fill importation and placement for a future Development Application must be undertaken in a phased manner to minimise dust and native fauna impacts, with no long term stockpiling of imported fill and no stockpiling of imported material for use as part of a subsequent future Development Application.	The Department has recommended conditions giving effect to this condition (see Sections 6.4.2, 6.7.1 and 6.86.3).	Yes
Future Assessment Requirements		
<i>Operational Noise and Vibration</i>		
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 the intermodal terminal facility, including electronic automated container handling equipment or equipment with equivalent sound power levels; b) The use of automatic rail lubrication equipment 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) 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 f) 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 Applicant considered these measures, as described in section 8.2.3 and 8.5.2 of the EIS. The Applicant has committed to implementing best practice, including for IMEX port shuttle locomotives and wagons. The Department has assessed these impacts and proposed mitigation response, and recommended appropriate conditions as outlined in Sections 6.6.2-6.6.4 of this report.	Yes
E2. Development Applications for the intermodal terminal facility shall include a report to identify: a) The extent of brake 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	Impacts of use of the rail link for this proposal are assessed in section 8 of the EIS and the Applicant's Noise and Vibration Assessment. The Department has assessed these impacts and recommended appropriate conditions as outlined in Section 6.6.4 .	Yes

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.		
Locomotives			
E3.	Development Applications for the intermodal terminal facility shall detail how the expected port shuttle locomotives incorporate available best practice technologies.	Impacts of use of the rail link for this proposal are assessed in section 8 of the EIS and the Applicant's Noise and Vibration Assessment. The Department has assessed these impacts and recommended appropriate conditions as outlined in Section 6.6.4 .	Yes
E4.	Development Applications for the intermodal terminal facility shall consider the effect of headlight glare on surrounding sensitive receivers.	Impacts of light impacts from locomotives were assessed in section 15 of the EIS and the Applicant's Rail Access Report. Impacts relating to glare would generally be limited to Moorebank Avenue, and mitigation would be provided through screen planting and dimmable headlamps. The Department considers that these impacts can be reduced through the recommendation that the Applicant revises its landscaping and development layout plans, as discussed in Section 6.3.2 and 6.3.5 .	Yes
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.	This requirement was addressed by the Applicant where relevant to the rail link connection from the terminal to the rail link constructed under MPE Stage 1 (see Appendix F of the EIS). The Department is satisfied this condition has been satisfactorily addressed.	Yes
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.	This requirement is relevant to MPE Stage 1.	N/A
E7.	Any Development Application comprising the rail link shall consider fauna movement in the bridge design.	This requirement is relevant to MPE Stage 1.	N/A
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.	This requirement is relevant to MPE Stage 1.	N/A
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:	This requirement is relevant to MPE Stage 1.	N/A
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;		

<ul style="list-style-type: none"> 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. 	
<i>Traffic</i>	
E10. Development Applications for the intermodal terminal facility shall include documentation demonstrating how Condition 14 of this approval has been satisfied.	The Department considers that this requirement has been addressed. Yes
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).	The Department is satisfied that the traffic assessment considered these growth forecasts, particularly in development of the VPA with RMS. Yes
E11A. All future Development Applications must assess traffic impacts associated with fill importation and identify management measures.	The Department considers that this requirement has been addressed, and has recommended conditions limiting daily fill importation (see Section 6.5). Yes
E12. All future Development Applications must include adequate measures to prevent heavy vehicles associated with the construction or operation of the facility from using Cambridge Avenue.	The Department considers that this requirement has been addressed, and has recommended conditions confirming this restriction (see Section 6.5). Yes
<p>E13. All future Development Application shall include:</p> <ul style="list-style-type: none"> 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 Department considers that this requirement has been addressed, and has recommended conditions confirming development contributions requirements and monitoring obligations (see eg. Sections 1.2, 4.4.2 and 6.5). Yes

<i>Public transport</i>		
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 Applicant has considered public transport requirements in its assessment. The Department's consideration is provided in Section 6.5 .	Yes
<i>Biodiversity</i>		
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').	The Department considers that the application complies with this condition which relates to offset area on the western side of the Georges River (see Section 6.8).	Yes
E16. All future Development Applications shall include the following vegetated riparian corridor widths (measured landward from the top of bank) and provide detailed drawings demonstrating compliance with this requirement: a) a minimum of 50 metres wide associated with the rail corridor; and b) a minimum of 40 metres wide along the terminal site.	The Applicant has provided detailed drawings describing the corridor. The Department has closely considered the proposed riparian corridor, and has recommended detailed requirements for the finalisation of the riparian corridor buffer as part of revised development layout plans. See Section 6.3.1 for detailed discussion.	Yes
E16A. All future Development Applications must demonstrate that onsite detention basins are located outside the riparian corridor and the outlets have been designed to minimise impacts on the riparian corridor.	The Applicant has provided detailed drawings describing the corridor. The Department has closely considered the proposed riparian corridor, and has recommended detailed requirements for the finalisation of the riparian corridor buffer as part of revised development layout plans. See Section 6.3.1 for detailed discussion. The Department acknowledges that the Applicant has improved the design of outlet channels and has recommended conditions confirming this commitment (see Section 6.4.1).	Yes
E16B. All future Development Applications must include an assessment of the impact of the development on core Koala habitat and provide a detailed assessment of options to manage and minimise impacts.	This requirement was recommended in relation to additional Koala survey conducted in 2018. The Department considers that the revised BAR satisfies this requirement, and has recommended conditions of consent requiring a Koala Management Plan that further evaluates Koala management measures and opportunities for habitat connectivity. The Department's assessment of impacts on the Koala is provided in Section 6.8 .	Yes
<i>Visual Amenity, Urban Design and Landscaping</i>		
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.	The Applicant has provided detailed landscaping plans as part of the EIS, RtS and in the Consolidated Assessment Clarification Responses. The Department considers that these submissions satisfy this requirement, but considers that revised plans are required to meet recommended objective, outcomes and criteria. Further discussion is provided in Section 6.3.2 .	Yes
E17A. All future Development Applications must include: a) an assessment of the visual impact of the raised landform, built form (materials and finishes) and urban design (height, bulk and scale) including lighting and signage when viewed from residential areas; and b) details of measures to mitigate impacts.	The Applicant provided visual impact assessment in the EIS (see Appendix T) and a revised analysis in the RtS (Appendix I) based on changes to the development layout and proposed landscaping. The Department considers that this assessment, and the accompanying details of mitigation measures, is consistent with this requirement. The Department assessment of visual impacts is provided in Section 6.3.4 .	Yes
E17B. All future Development Applications must present designs that incorporate the principles of:	The proposal has presented designs that broadly incorporate these principles, in satisfaction of this requirement; however, the Department considers that — overall and in key aspects (such as for OSD basin design) — the stormwater quality treatment system is	Yes

<p>a) Water Sensitive Urban Design (WSUD) and Urban Heat Island Mitigation (UHIM); and</p> <p>b) NSW Government Architect's "Greener Places" policy.</p>	<p>not consistent with WSUD principles and in key respects, the MPW Stage 2 drainage design does not represent current good practice. The Department has recommended comprehensive and stringent requirements for revised stormwater and drainage system, inclusive of clear and achievable objectives and outcomes related to these principles, and criteria for achieving these. See Section 6.4.1 of this report for further detail.</p>	
<p>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.</p>	<p>The Applicant has provided plans in compliance with this condition; however, the Department has recommended that these plans be updated as discussed in Section 6.3.2.</p>	<p>Yes</p>
<p><i>Heritage</i></p>		
<p>E19. All future Development Applications relevant to MA6 and MA7 (Scarred Trees) shall include a consideration of Aboriginal cultural value of the trees and options for avoiding impacts and ongoing conservation measures, including evidence of consultation with Aboriginal community representatives.</p>	<p>The Applicant has assessed impacts to MA6 and MA7, which would be impacted by construction and would be removed. The scar portions of MA6 & MA7 would be removed by a qualified arborist and relocated to the TLALC property at Thirlmere, or a suitable area identified in consultation with Registered Aboriginal Parties (RAPs). The Department's assessment of this matter is described at Section 6.10.</p>	<p>Yes</p>
<p>E20. All future Development Application shall assess heritage impacts of the proposal. The assessment shall:</p> <p>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);</p> <p>b) consider impacts to historic heritage. For any identified impacts, the assessment shall:</p> <p>(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;</p> <p>(ii) be undertaken by a suitably qualified heritage consultant(s); and</p> <p>(iii) include a statement of heritage impact.</p>	<p>The Applicant has assessed impacts on Aboriginal and non-Aboriginal heritage in the EIS. The Department's consideration of heritage impacts is provided at Section 6.10.</p>	<p>Yes</p>
<p>E21. All future Development Application shall include an assessment of soil and water impacts. The assessment shall (where relevant):</p> <p>a) assess impacts on surface and groundwater flows, quality and quantity, with particular reference to any likely impacts on Georges River and Anzac Creek;</p> <p>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:</p> <p>(i) hydraulic modelling for a range of flood events;</p> <p>(ii) description, justification and assessment of design objectives (including bridge, culvert and embankment design);</p>	<p>The Applicant has assessed impacts on soils and water (surface and groundwater flows, quality and quantity, flooding and soils) and contamination. The Department's assessment of these matters is provided at Section 6.4 (soils and water) and Section 6.9 (contamination).</p>	<p>Yes</p>

<ul style="list-style-type: none"> (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 <i>Contaminated Land Management Act 1997</i> and in consultation with the EPA for the subject site including the Glenfield Waste Facility. 		
<p>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).</p>	<p>The Applicant provided a report titled 'Amiens Wetland Assessment' as part of the BAR in the EIS. The report concluded that the Amiens Wetland is one of the 'last remaining examples of natural freshwater floodplain wetland in the study area and as such has significance for biodiversity and habitat conservation. The Applicant committed to not directly impacting the wetland area, and implementing controls to ensure flow regimes servicing the wetland area and water quality parameters are maintained.</p>	<p>Yes</p>
<p>E22A. All future Development Applications must demonstrate that the proposed development, including the importation and placement of fill, will not adversely impact on or be adversely impacted by long term management or monitoring of remediation required under the Stage 1 Early Works in relation to contaminated land management.</p>	<p>The Department considers that the importation and placement of fill, would not necessarily adversely impact on or be adversely impacted by long term management or monitoring of remediation required under the Stage 1 Early Works in relation to contaminated land management. To support this, the Department has recommended a series of conditions relating to the finalisation of remediation prior to construction — see Section 6.9.</p>	<p>Yes</p>
<p><i>Hazards and Risks</i></p>		
<p>E23. All future Development Application shall be accompanied by a preliminary risk screening completed in accordance with <i>State Environmental Planning Policy No. 33 – Hazardous and Offensive Development and Applying SEPP 33</i> (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 <i>Hazardous Industry Planning Advisory Paper No. 6 – Guidelines for Hazard Analysis</i> (DoP 2011) and <i>Multi-Level Risk Assessment</i> (DoP 2011). The PHA should:</p> <ul style="list-style-type: none"> 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 <i>Hazardous Industry Planning Advisory Paper No. 4 – Risk Criteria for Land Use Safety Planning</i>. 	<p>The Department is satisfied that these requirements have been addressed, and recommends conditions requiring limit the total storage of DG within the development to quantities below the thresholds in the Department's Applying SEPP 33 guideline, and requiring stage of chemicals, fuels and oils in accordance with Australian standards and EPA guidance, to ensure that the proposal would not become potentially hazardous post-approval.</p>	<p>Yes</p>
<p><i>Bushfire Management</i></p>		
<p>E24. All future Development Application shall be accompanied by an assessment against the Planning for Bushfire 2006 (NSW Rural Fire Service).</p>	<p>The Department considers that this requirement has been addressed (see section 20.3 of the EIS).</p>	<p>Yes</p>
<p>E24A. All future Development Applications must demonstrate that bushfire asset protection zones do not impact on biodiversity offset areas and the Georges River riparian corridor.</p>	<p>The Department considers that this requirement has been addressed; notwithstanding, the Department has recommended a condition reiterating this requirement (see Section 6.3.5).</p>	<p>Yes</p>

<i>Building Code of Australia</i>		
E25. All future Development Applications shall demonstrate compliance with the Building Code of Australia, as relevant.	The Department considers that this requirement has been addressed; notwithstanding, the Department has recommended a condition reiterating this requirement.	Yes
<i>Subdivision</i>		
E26. Any future Development Application for subdivision must: a) demonstrate compliance with the minimum lot size specified in the Liverpool Local Environmental Plan; b) demonstrate compliance with Condition 15 of this consent; c) include a subdivision plan showing completed estate works including but not limited to site services, internal roads, maintenance access roads, pedestrian paths, landscaping, lighting of common areas, provision for emergency services including for firefighting, on-site detention basins and stormwater treatment systems; d) include a detailed management and maintenance program for estate infrastructure; and e) nominate a single entity responsible for implementation of the management and maintenance program.	The Applicant no longer seeks approval for subdivision as part of the MPW Stage 2 application. This will be addressed in a future development application.	N/A
<i>Staging of construction</i>		
E27. Any future Development Applications that propose staging of construction must provide details of staging which: a) describes how the development will relate to other future development stages including those on the MPE site; b) describes how estate infrastructure will be delivered in conjunction with warehouse construction; c) includes an indicative construction program for both MPW and MPE; d) documents how compliance with the requirements of conditions in this Schedule (Schedule 4) will be achieved; and e) demonstrates that estate infrastructure will be delivered prior to operation of the intermodal terminal facility, warehousing delivered in each stage, and the freight village.	The Applicant has provided revised staging information in its Consolidated Assessment Clarification Responses. The Department considers that the requirements of this condition have been generally addressed, but the Department has recommended conditions amending construction staging, for example to: <ul style="list-style-type: none"> requiring delivery of development layout plans, prior to construction require phasing of construction clearing and earthworks. Further details are provided in Section 6 .	Yes
<i>Cumulative Impacts</i>		
E28. All future Development Applications must provide the timing for construction and operation on both the MPW and MPE sites and provide cumulative assessments for construction and operation on the MPW and MPE sites including, but not limited to: a) traffic and access impacts; b) noise and vibration impacts; c) air quality impacts; d) stormwater drainage impacts; and e) ecological impacts.	Cumulative impacts have been assessed as part of the assessments for each of these key impacts. The Department has considered cumulative impacts closely. The Departments assessment of these matters are provided in: <ul style="list-style-type: none"> traffic impacts — Section 6.5 noise impacts — Section 6.6 air quality impacts — Section 6.7 stormwater drainage impacts — Section 6.4 ecological impacts — Section 6.8 	Yes

- E29. Any future Development Application that proposes the use of infrastructure on the MPE site or integration of operations across the MPW and MPE sites must:
- a) demonstrate that there will be no overall increase in cumulative construction and operational environmental impacts;
 - b) describe the relationship between similar facilities on each site such as the intermodal terminal facilities and freight villages;
 - c) provide a mechanism to record the TEUs supplied and received at each of the MPW and MPE intermodal terminal facilities to demonstrate compliance with conditions 7 and 8 of this consent and conditions 1.6 and 1.7 of the MPE Concept Plan (MP 10_0193) approval;
 - d) provide an overall Precinct (MPW + MPE) layout and design drawings, including for:
 - (i) access to the Precinct,
 - (ii) internal access and connections for pedestrians and vehicles including for the transfer of containers between intermodal terminal facilities and warehouses,
 - (iii) public access including vehicle access between Anzac Road and Cambridge Avenue, public transport and pedestrian/cyclist connections,
 - (iv) stormwater infrastructure including stormwater treatment and detention, and
 - (v) landscaping and directional signage; and
 - e) outline management and maintenance arrangements for the use of infrastructure on the other site.

The Department is satisfied that the Applicant has addressed this condition, but has required that these plans be revised and updated — see **Section 6.3.5**.

Yes

Appendix D - Recommended Instrument of Consent

Appendix E – Satisfactory Arrangements Certificate