ARCADIS Design & Consultancy for natural and built assets

Moorebank Precinct West - Stage 2 Proposal

Response to Submissions

Appendix O: Consolidated Proposal Description

SIMTA

SYDNEY INTERMODAL TERMINAL ALLIANCE

Part 4, Division 4.1, State Significant Development

September 2017

Prelude

This section of the RtS has been prepared to provide a consolidated description for the works and uses for which approval is sought. This section combines both the Proposal (presented in the EIS) and the Amended Proposal (presented within this RtS) to clearly identify the components which relate to the MPW Stage 2 Proposal.

The Proposal description (Section 4 of the EIS) has been used as the basis for this section. All alterations to works, included in the Amended Proposal (Section 6 of this RtS), have been identified with words proposed to be deleted shown in ***~~bold italic strike through~~*** and words to be inserted are shown in ***underlined bold italics***.

This section replaces, and therefore supersedes, the Proposal description provided in Section 4 of the EIS, as amended by the Amended Proposal description in Section 7 of this RtS. For ease of reference, in this section only, the term 'Proposal' has been used below to describe the final consolidated proposal (Proposal and Amended Proposal).

4 PROPOSAL DESCRIPTION

SIMTA are seeking approval under Part 4, Division 4.1 of the EP&A Act for the construction and operation of an intermodal terminal (IMT) facility, a Rail link connection and associated warehousing, in accordance with the MPW Concept Approval (SSD 5066). This section of the Response to Submissions provides a detailed description of the works for which approval is sought (the Proposal).

Included within this section is a detailed description of the built form of the Proposal, the indicative construction methodology, and the operational procedures to be implemented for the Proposal. This section should be read in conjunction with the following design drawings, statements and plans:

- Architectural Drawings prepared by Reid Campbell (refer to Appendix D of the EIS) ***as amended in Appendix B of this RtS***
- Landscape Design Statement and Plans prepared by Ground Ink (refer to Appendix E of the EIS) ***as amended in Appendix B of this RtS***
- Rail Access Report and Rail Engineering Drawings prepared by AECOM (refer to Appendix F of the EIS)
- Utilities Strategy Report prepared by AECOM and Building Services Strategy Brief prepared by Arcadis (refer to Appendix H of the EIS)
- Preliminary Construction Environmental Management Plan prepared by Arcadis (refer to Appendix I of the EIS) ***and the Environmental Work Method Statement (refer to Appendix M of this RtS)***
- Preliminary Construction Works Drawings prepared by Arcadis (refer to Appendix J of the EIS)
- Stormwater and Flooding Impact Assessment and Drainage Design Drawings prepared by Arcadis (refer to Appendix R of the EIS) ***as amended in Appendix H of this RtS.***

The design of the Proposal has been prepared to progress and further refine the design identified in the MPW Concept Approval. The design for the Proposal has been altered and updated based on consultation undertaken for the Proposal with a view to maximising efficiency of the site operations, and reducing the overall impact of the Proposal on the environment (refer to Sections 6 to 20 of the EIS ***and Section 7 of this RtS*** for further information).

4.1 Proposal overview

The Proposal involves the construction and operation of an IMT facility, warehousing and a Rail link connection, comprising the following key components:

- IMT facility, including:
  - Infrastructure to support a container freight throughput volume of 500,000 twenty-foot equivalent units (TEUs) per annum
  - Installation of nine rail sidings and associated locomotive shifter
  - Truck processing, holding and loading areas
  - Container storage area serviced by manual handling equipment
  - ***Container wash-down facilities and de-gassing area***
  - Administration facility, engineer's workshop and associated car parking
- Rail link connection:
  - Construction of the Rail link connection, which links the sidings within the IMT facility to the Rail link (which would be constructed as part of the MPE Project (SSD 14-6766))
  - The operation of the Rail link connection and the Rail link (from the Rail link connection to the SSFL)
- Warehousing area – construction of 215,000 m^2 Gross Floor Area (GFA) of warehousing, with warehouses ranging in size from ~~***4,000***~~ ***21,000*** m^2 to ~~***71,000***~~ ***61,000*** m^2. Included within the warehousing area would be ancillary offices, truck and light vehicle parking, associated warehouse access roads.
- Freight village – construction and operation of approximately 800 m^2 of retail premises, with access from the internal road
- Upgraded intersection on Moorebank Avenue, which would provide site access and egress
- Ancillary works – including vegetation clearing, earth works (including the importation of 1,600,000 m^3 fill), utilities installation/connection, signage and landscaping.

The Proposal would operate 24 hours a day, seven days a week. The footprint and operational layout of the Proposal is shown on Figure 4-1.

The IMT facility and Rail link connection would operate 24 hours per day and seven days per week. The warehouses would ~~***generally***~~ be operational for ~~***18***~~ ***24*** hours a day, and ~~**five to**~~ seven days a week and the operational hours of the freight village would be 7am to 6pm, ~~**five to**~~ seven days per week.

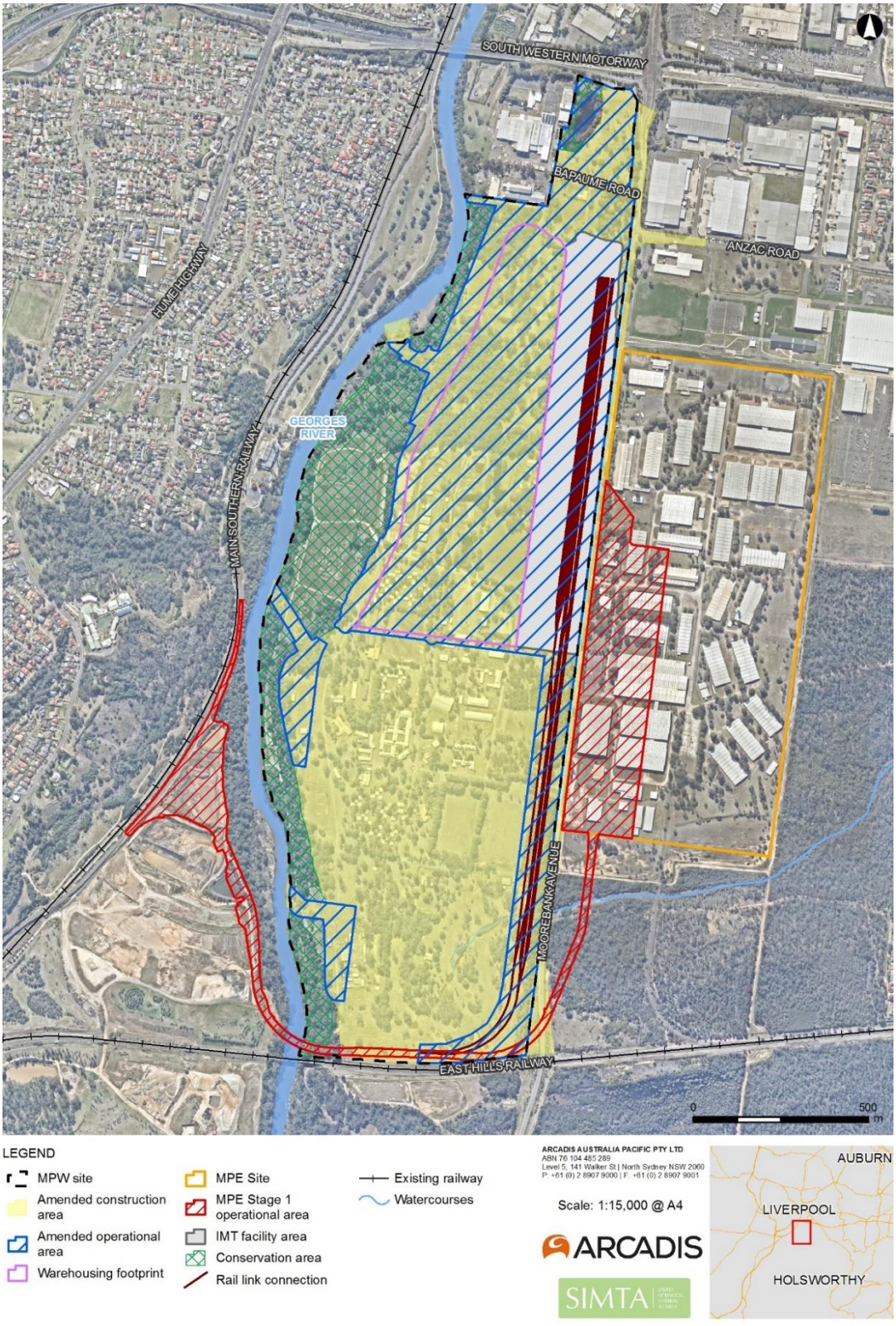

Figure 4-1: *Proposal overview*

Construction of the Proposal would occur over a period of approximately 36 months. Construction is considered to include all work in respect of the Proposal other than, pre-construction works, namely:

- ***survey; acquisitions; or building/ road dilapidation surveys; fencing; investigative drilling, excavation or salvage***

- ***minor clearing or translocation of native vegetation that does not comprise any EECs***
- ***establishment of site compounds and construction facilities***
- ***Installation of environmental mitigation measures***
- ***utilities adjustment and relocation that do not present a significant risk to the environment, as determined by the Environmental Representative***
- ***other activities determined by the Environmental Representative to have minimal environmental impact***
- ***All works as described in Works period A in section 4.3.2, namely:***
  - ***Establishment of temporary erosion and sediment controls***
  - ***Minor clearing and grubbing of temporary stockpiling area***
  - ***Establishment of a temporary stockpiling pad and associated temporary access roads***
  - ***Installation of temporary construction compound, including amenities and office for bulk earthworks, including (but not limited to):***
    - ***IMT facility (the IMT Compound) providing car parking, offices, amenities, laydown and storage***
    - ***Rail link connection (the Rail and IMT Compound) providing car parking, offices, amenities, laydown and storage***
    - ***Warehouses (Warehouse compounds) providing car parking, offices, amenities, laydown and storage.***
  - ***Importation and placement of approximately 400,000 cubic metres (m3) of clean fill.***

Key construction activities occurring during the construction period include, but are not limited to, the following:

- ***Establishment of a temporary batching plant (potential including concrete, cement and pre-mix and hot-mix works) and materials crushing (inc. grinding and separating)***
- ***Clearing of exotic and native vegetation (with the exception of minor clearing and grubbing to enable pre-construction works)***
- ***Bulk earthworks to level and raise the site, including the importation of 1,200,000 m^3 fill***
- ***Construction of the IMT facility and associated infrastructure***
- ***Construction of the Rail link connection from the IMT facility to the Rail link***
- ***Upgrade of the Moorebank Avenue/Anzac Road intersection and site access, and construction of the internal road network***
- ***Construction of the warehouses and warehouse access roads***
- ***Fit-out of warehousing***
- ***Landscaping and finishing works.***

Further detail regarding the construction methodology is provided in Section 4.3 of this document.

4.1.1 Property ownership and rights

The MPW site, which includes the Proposal site, is owned by the Commonwealth and leased by SIMTA.

The construction and operation of the Rail link connection (including associated utilities and infrastructure) would require works to be undertaken on the Rail link, which is an asset owned by the Commonwealth and operated by SIMTA.

Necessary property rights would be established for the construction and operation of the Proposal.

4.2 Built form

The key built form elements of the Proposal include the IMT facility, the Rail link connection and the warehousing area. In addition to these primary elements the Proposal includes a number of ancillary works, namely:

- Signage
- Lighting
- Landscaping
- Water management works
- Utilities
- Parking.

These elements are described in detail in the following sections. Reference should be made to the design drawings, statements and plans listed above.

4.2.1 Intermodal terminal facility

The layout of the IMT facility is shown on Figure 4-2. The operational areas of the IMT facility consist of primary and secondary container loading/unloading areas (rail and road related), container storage areas, engineer's workshop, loco shifter, truck access, processing and holding areas, rail sidings, associated infrastructure, an administration area, and ***ancillary components including container wash-down facilities and a de-gassing area***. The built form to be developed in these areas is described in further detail below.

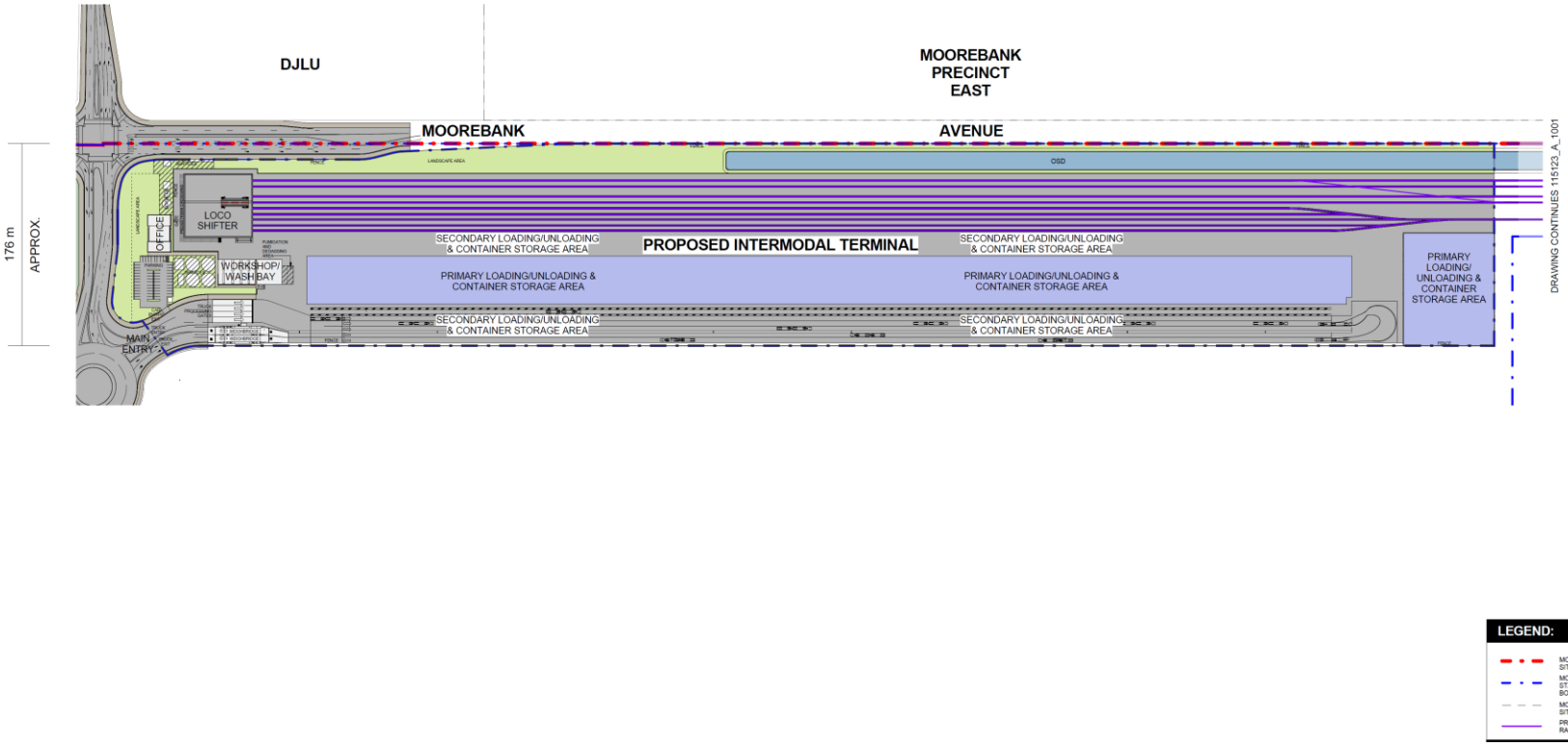

Figure 4-2: IMT facility layout

Container handling and storage

A designated primary loading, unloading and container storage area is located on the western side of the proposed rail sidings. Within the container storage areas, containers would be stacked up to five high, equalling a total height[1] of approximately 13 m. Containers would generally be arranged in stacks four containers wide by six deep, with space between the stacks to allow for manoeuvring of container handling equipment.

Truck access, processing and holding areas

Truck access to the Proposal site would be via the upgraded site entry at the intersection of Moorebank Avenue and Anzac Road. Trucks would turn into the site entry at the signalised intersection of Moorebank Avenue/Anzac Road, and proceed to the IMT facility processing gates via a proposed round-about, constructed within the Proposal site. Trucks arriving at their designated time would proceed immediately to the IMT facility.

There would be a four lane road entry into the IMT facility which would connect to the truck container loading area along the western portion of the facility. A turning area would be provided for vehicles at the southern end of the terminal to enable them to exit the facility via the two lane weighbridges and exit gates at the northern end.

A truck waiting area would be established to the north of the IMT facility to provide temporary parking for trucks arriving at the IMT facility prior to their designated arrival time. Trucks accessing the temporary waiting area would turn right at the site round-about and right into the parking area. An emergency truck storage area and driver facilities would be established to the north of the IMT facility and Bapaume Road. This area would be used in the event of a significant incident on the M5 Motorway or surrounding road network that results in trucks already within the IMT facility, or on route to the Proposal are unable to leave the IMT facility. Trucks accessing the emergency storage would also turn right from the site entry, passing Bapaume Road and the ABB site entry.

Rail sidings and associated infrastructure

Nine rail sidings would extend along the eastern length of the IMT facility from the Rail link connection. Five would be 1,800 m long entry sidings and the remaining four would be 900 m long container handling sidings, refer to Figure 4-3. These rail sidings provide an area for loading/unloading of trains accessing the IMT facility from the Rail link connection, which connects to the Rail link and ultimately the SSFL.

The four eastern-most rail sidings are 1,800 m in length and are referred to as the entry sidings. These sidings would be used to break down and shunt the trains as they enter the terminal and for rail maintenance. The five western-most rail sidings are 900 m in length and are referred to as the handling sidings. Trains over 900 m would be broken down on the entry sidings, using locomotives to shunt the wagons between the sidings, and into the handling sidings. Trains of 900 m in length would directly enter the handling sidings. Once in the handling sidings the trains would be unloaded and reloaded with container handling equipment.

[1] As measured from final site levels.

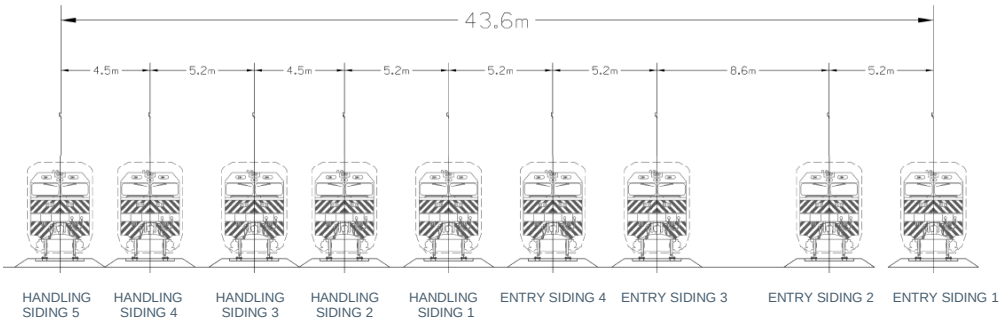

Figure 4-3: *Rail link connection access tracks*

A locomotive shifter and locomotive refuelling facilities would be located at the northern end of the rail sidings. An example of the type of locomotive shifter that would be installed is provided in Figure 4-4. The locomotive shifter would facilitate for locomotives to transfer between the nine rail sidings. Locomotives would enter the locomotive shifter and then the shifter would mechanically shift (via a support pad) the locomotive across to align with another rail siding. Once in position the locomotive would exit the locomotive shifter and transfer to one of the rail sidings.

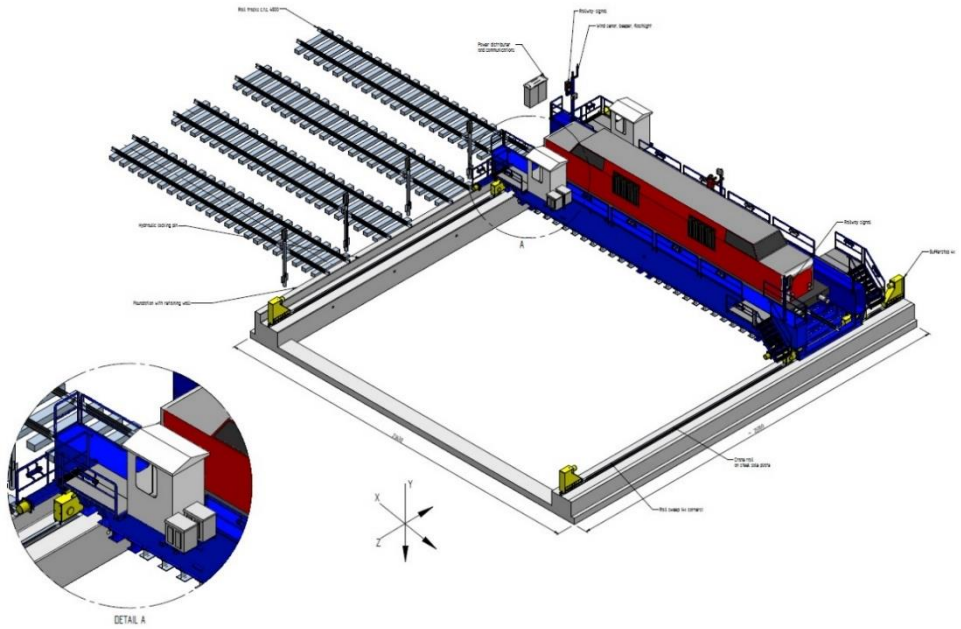

Figure 4-4: Example of locomotive shifter (indicative only – specification subject to further investigation)

A mobile refuelling station would be located within the IMT facility, and would be generally stored adjacent to the locomotive shifter. The refuelling station would consist of a self bunded container with a fuel tank inside. An example of the mobile refuelling tank is provided in Figure 4-5. The mobile refuelling tank would store diesel fuel (class C1 combustible liquid), with a maximum capacity of approximately 60,000 litres. When empty the container could be relocated around the IMT facility and, as required, transported off site by truck or train.

The mobile refuelling tank would be used for the purposes of refuelling locomotives when stationary on the locomotive shifter.

Figure 4-5: *Self bunded, mobile refuelling tank example (indicative only – specification subject to further investigation)*

Wagon inspection and maintenance would occur on the three eastern-most entry sidings, allowing minor repairs to be undertaken on site.

Administration area

Light vehicles would also use the proposed site access off Moorebank Avenue into the Proposal site to access the IMT facility, Rail link connection, warehousing and the administration area (located within the IMT facility).

The administration area would comprise an office area of approximately 590 $m^{2,}$ an engineer's workshop of approximately 785 m^2, and a light vehicle parking area. The office would accommodate IMT facility office staff, truck and train drivers and include a reception, meeting rooms, offices, amenities, lunch room and an outdoor area. The office would have a maximum height[2] of approximately 5.2 m. The workshop comprises an area for the maintenance of trucks associated with the IMT facility. The workshop would have a maximum height[3] of approximately 21 m.

Container wash-down facility and de-gassing area

The IMT facility would contain ancillary components, including a container wash-down facility and de-gassing area.

The container wash-down facilities would comprise of a sheltered wash-down bay located in the northern portion of the IMT facility. This would comprise of a sheltered structure with three walls (made up of three metres of solid structure at the base with an elevated open-air structure above), and a roof to provide weather protection. Container handling equipment, such as reach stackers, would transport a container into the wash-down bay where external washing of the container would be undertaken. The wash-down bay would be located on less porous pavement and would be surrounded by drains that convey water into a water holding tank for treatment and future discharge.

Containers with goods including food and wood are gassed with methyl bromide prior to departure in order to destroy vermin and pests, and these containers need to be de-gassed before the goods can be used. A designated area for de-gassing would be provided within the northern portion of the IMT facility, however this area can also be used for other operational activities. Upon receipt, a container requiring de-gassing would be stored in this designated area and an external degassing operator would attend the site. All gas captured during this process would be captured by the specialist operator and transferred off site in a contained and safe manner. Some equipment for the

[2] As measured from final site levels.

[3] As measured from final site levels.

purposes of degassing may be stored on-site however generally the specialist operator would bring all necessary equipment to site as the need for degassing arises.

The proposed de-gassing system would include fan forced ventilation for container residual gas extraction and collection. Where fumigation is required, a recapture system will be used to collect and treat residual gas emissions. The proposed de-gassing and recapture system for fumigation will use carbon filtration to control emissions of methyl bromide (refer to Section 7, Appendix E and Appendix F of this RtS). In summary, fugitive emissions from de-gassing and fumigation can be managed to ensure that there is no risk to surrounding land uses.

An example of a container washdown and de-gassing area is provided in Figure 4-6. The location of the wash-down bay and de-gassing area is shown in Figure 4-2 and details are provided in the Architectural Drawings (Appendix B of this RtS).

Figure 4-6: Example of a container wash-down facility and de-gassing area

4.2.2 Rail link connection

The Rail Access Report and Rail Engineering Drawings prepared by AECOM show the design of the Rail link, and have been included in Appendix F of the EIS.

A summary of the alignment for the Rail link connection and individual elements including crossings and access tracks is provided below.

Rail alignment

The Rail link connection would join the proposed IMT facility to the Rail link proposed as part of the MPE Stage 1 Proposal. From the IMT facility, the Rail link connection (initially comprising nine sidings) would travel in a southerly direction for the extent of the IMT facility reducing to five sidings, before reducing to two sidings at the southern end of the Proposal where it turns west near the East Hills Rail Corridor to join up with the Rail link.

Access tracks

Access tracks would be constructed to facilitate on-going maintenance of the Rail link connection and would be a mix of pedestrian and vehicular. Five pedestrian access tracks would be provided between the following rail sidings:

- Handling sidings 4 and 3
- Handling sidings 2 and 1
- Handling siding 1 and entry siding 4
- Entry sidings 4 and 3
- Entry sidings 2 and 1.

Two vehicle access roads would be provided, one along the eastern side adjacent to Moorebank Avenue, and one between entry sidings 2 and 3 and would extend for the length of the Rail link connection. The vehicular access roads would allow safe access for vehicles while locomotives are stationary on the sidings.

Access to the vehicle access roads would be via the main site access into the northern end of the IMT facility.

4.2.3 Warehousing

Warehouses within the warehousing area would range in size from ~~***4,000***~~ ***21,000*** m^2 to ~~***71,000***~~ ***61,000*** m^2, and the total area of all combined warehouses would be approximately 215,000 m^2. The warehousing area is shown in Figure 4-1 and the layout of the warehouses are shown in ***Appendix B of this RtS.***

The warehouses would have a maximum height[4] of up to 21 m and of varying size and design. The Proposal would also include some internal fitout of the warehouses, namely the installation of racking and associated services. The Proposal would seek approval for the construction of these warehouses and also the operation of these warehouses by future tenants.

Each individual warehouse would consist of the following:

- A container storage area
- Office and administration facilities
- Amenities
- Car parking
- Truck loading/unloading docks
- Internal parking for pick-up and delivery vehicles (PUD)
- Specialised sortation and conveyor equipment
- Racking for goods storage
- Hardstand areas that provide trailer parking spaces, external PUD parking spaces, vehicle manoeuvring areas and access to the main internal site road
- Signage for business identification purposes.

Associated with this key built form is a number of ancillary works which include signage, lighting, vegetation removal and landscaping, water management works and utilities.

The Proposal seeks approval for the provision of ~~***seven***~~ ***six*** warehouses, all located west of the IMT facility and east of the internal road. The following table outlines the key details relating to each proposed warehouses to be developed on the Proposal site.

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[4] As measured from final site levels.

Table 4-1: Warehouses seeking approval as part of the Proposal

Warehouse no.	General location	Size (m^2)	Office (m^2)	Car parking spaces
~~1A~~ 1	Northern-most warehouse, located directly ~~east~~ south of the proposed main site entry roundabout.	21,000	1,000	95
~~2A~~ 2	Directly south of Warehouse 1~~A~~, north of the open stormwater channel and adjacent to the IMT facility.	~~21,000~~ 23,000	1,000	~~95~~ 96
~~1B~~ 3	Directly south of the open stormwater channel and Warehouse 2~~A~~, and adjacent to the IMT facility	~~38,000~~ 40,000	1,000	~~152~~ 160
~~2B~~ 4	Directly south of Warehouse ~~1B~~ 3 and adjacent to the IMT facility.	~~30,000~~ 61,000	1,000	~~125~~ 229
~~3B 5~~	~~Directly west of Warehouse 2B.~~	~~30,000~~	~~1,000~~	~~125~~
~~1C~~ 5	Directly south of Warehouse ~~2B~~ 4 and adjacent to the IMT facility.	~~71,000~~ 40,000	~~2,000~~ 1,000	~~287~~ 194
~~2C~~ 6	In the south western corner of the operational area, directly west of Warehouse ~~1C~~ 5.	~~4,000~~ 30,000	~~300~~ 1,000	~~29~~ 126

4.2.4 Freight village (Precinct Amenities)

A freight village including amenities for the precinct would be located within the warehousing area, directly west of Warehouse 2~~A~~ and east of the internal road. This precinct amenities area would occupy approximately 800 m^2 of GFA and would generally comprise of the following:

- Café
- Food services
- Commercial premises
- Outdoor area with seating
- Landscaped area along the internal road boundary
- Amenities
- Loading dock
- Services area
- Services corridor
- Car parking (25 spaces).

The layout of the freight village area is show in Figure 4-7.

Buildings and structures within the freight village would have a maximum height[5] of up to six metres and of varying size and design, as detailed in Section 15.4. The Proposal would also include the internal fitout of these buildings, including utilities and

[5] As measured from final site levels.

services. The Proposal would seek approval for the construction of this freight village and also the operation of these premises by future tenants.

Associated with this key built form is a number of ancillary works, which include materials and finishes, signage, lighting, vegetation removal and landscaping, water management works and utilities, which have been discussed in Section 4.2.8 of the EIS.

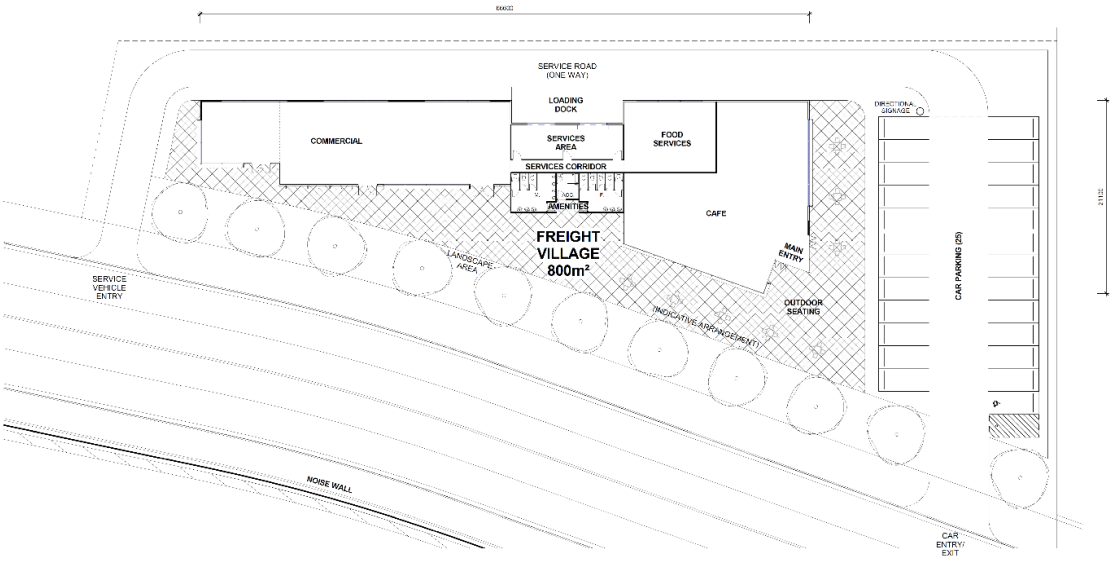

Figure 4-7: *Freight village*

4.2.5 Moorebank Avenue intersection

Modifications to the intersections of Moorebank Avenue/Anzac Road and Moorebank Avenue/Bapaume Road would be required to facilitate the upgrade of the site access to the Proposal site. There would be an overall increase to the footprint of Moorebank Ave as part of these intersection works

The final configuration of the Moorebank Avenue/Anzac Road signalised intersection, which would include the construction of a new access road into the Proposal site, would be as follows:

- New access road:
  - One left turning slip lane onto Moorebank Avenue (northbound)
  - ~~***One shared through/right lane onto Anzac Road (eastbound) or Moorebank Avenue (southbound)***~~
  - ***One through lane onto Anzac Road (eastbound)***
  - ***One right turning lane onto or Moorebank Avenue (southbound)***
- Moorebank Avenue (southbound):
  - One left turning slip lane onto Anzac Road (eastbound)
  - Two through lanes continuing on Moorebank Avenue (southbound)
  - Two right turning lanes onto the new access road (westbound)
- Anzac Road:
  - Two right turning lanes onto Moorebank Avenue (northbound)
  - One through lane onto the new access road (westbound)
  - One left turning slip lane onto Moorebank Avenue (southbound)
- Moorebank Avenue (northbound):

- Two right turning lanes onto Anzac Road (eastbound)
- Two through lanes continuing on Moorebank Avenue (northbound)
- One left turning slip lane onto the new access road (westbound).

Refer to ~~***Appendix G of the EIS***~~ ***Appendix B and H of this RtS*** for intersection layout details.

This intersection would have the capacity to accommodate A-Double vehicles, i.e. vehicles capable of moving two 40 foot containers. The final configuration of the Moorebank Avenue/Bapaume Road intersection would be as follows:

- Moorebank Avenue would be reconfigured for no right turn onto Bapaume Road from Moorebank Avenue
- Bapaume Road would be reconfigured for no right turn onto Moorebank Avenue from Bapaume Road
- The reconfigured Bapaume Road would allow the following movements:
  - Inbound traffic to the ABB site would be directed to the new Moorebank Avenue/Anzac Road intersection (main MPW site entrance)
  - Northbound traffic out of the ABB site would use Bapaume Road or the new Moorebank Avenue/Anzac Road intersection (main MPW site entrance)
  - Southbound traffic out of the ABB site would use the new Moorebank Avenue/Anzac Road intersection (main MPW site entrance).

The Stormwater Drainage and Design Drawings (refer to ***Appendix H of this RtS***) include details on the intersections included in the Proposal.

4.2.6 Vehicle access

The main access (entrance and exit) to the Proposal site for heavy and light vehicles would be via the proposed site access off Moorebank Avenue (refer Figure 4-1). From the Moorebank Avenue/Anzac Road intersection vehicles would access the site via a two-lane roundabout that has been designed to accommodate vehicles up to double road trains. The roundabout would provide access to the IMT facility, warehousing area, Rail link connection, and the ABB site from Moorebank Avenue. The main site exit would include two lanes which would facilitate trucks and light vehicles exiting the Proposal site and the ABB site onto Moorebank Avenue.

Trucks accessing the warehousing area of the Proposal site would continue from the roundabout to the internal road on the western perimeter of the site and onto the warehouse access roads to the warehousing free of processing. Light vehicles accessing the warehousing area would similarly use the roundabout and internal access road, however a separate entrance would be provided to the light vehicle and semi-rigid vehicle parking facilities for each warehouse. Vehicle movements would be managed to minimise reversing.

The main entrance to the IMT facility would be controlled through the use of truck processing gates. Truck processing gates would include gantry structures, which would be located over the extent of the IMT facility entrance and exit lanes. Trucks arriving prior to their designated time would proceed around the roundabout to the truck waiting area, to the north of the IMT facility. Once the designated arrival time is reached the truck would proceed from the waiting area, through the roundabout to the IMT facility gates for processing.

An emergency truck storage area and truck queuing area would be provided in the northern portion of the site, north of the IMT facility entrance. This area would be accessed by taking a right turn at the roundabout and proceeding past Bapaume Avenue.

4.2.7 Urban design

Urban design principles were developed for the MPW site as part of the concept master planning work undertaken by Parsons Brinckerhoff and Suters in 2012, and were summarised in the MPW Concept EIS as follows:

- Creating a high quality, efficient and attractive development which allows for easy way-finding opportunities while also addressing both its industrial and residential neighbours
- Promoting a safe working environment by separating different uses on the Project site and providing different entry points for public, staff vehicles, trucks and rail
- Encouraging environmentally sustainable design and where possible minimising impacts on both the environment and the public
- Allowing flexibility for future growth and staging of terminal operations and warehousing/commercial endeavours to maximise the Project site's potential.

The MPW Concept EIS also identified that the building design would be consistent with controls outlined in the Liverpool Development Control Plan 2008, Part 7 Development in Industrial Areas (LCC 2008). These controls include:

- Facade treatment - adopting a contemporary architectural appearance and use of architectural elements to articulate facades
- Materials - use of quality materials such as brick, glass and steel to construct the facades and masonry material for construction of factory units or similar
- Colours – choice of finishes and colours which limit the amount of contrast with the surrounding landscape with the preferred use of muted colours
- Building design, incorporating considerations such as location of administration buildings at the front
- Lighting to be provided in the car park and external entry paths, with consideration given to light spill impacts on the amenity of adjoining residents.

Additional planning controls identified in the MPW Concept EIS as relevant to the MPW site include those from the *Liverpool Local Environmental Plan 2008* (Liverpool LEP) related to height, floor space ratios and setbacks as follows:

- Building heights within the warehousing precinct, the IMT facility and the associated administration facilities would be restricted to a maximum of 21 m ***as measured from final site levels, or approximately 24 m in building height (as per the Liverpool LEP definition)***
- A floor space ratio of 1:1 would apply to the warehousing area
- The western area of the Proposal site would consist of the conservation area, which would be landscaped to provide a visual buffer along this boundary
- An approximately 18 m building setback would apply along the Moorebank Avenue (eastern) boundary and a 7 m building setback along the other site boundaries

These built form controls would be incorporated into the design for the Proposal.

The IMT facility, warehouses and structures included in the Proposal would be of a high design quality. The building colours and finishes would be compatible and blend with the surrounding land uses, including non-reflective colours. A variety of materials would be incorporated, including glass, colourbond and painted concrete. The intention is that all buildings, where possible, be provided a comprehensive landscape setting that integrates with the surrounding landscape.

A schedule of the indicative materials and colour palette for the proposed buildings and other structures is provided in the Architectural Drawings (refer to Appendix D of the EIS ***and Appendix B of this RtS***).

4.2.8 Ancillary works

Water management works

Stormwater Drainage Design Drawings have been prepared by Arcadis and are included in Appendix R of the EIS***, as amended by Appendix H of this RtS***. These plans show the layout of the surface water management systems that would be installed on site as part of the Proposal.

The key water management systems included in the Proposal comprise:

- Existing site run-off and water flowing through the site from surrounding properties
- Proposal site run-off.

A summary of these water management systems is provided below.

Existing site run-off

The Proposal site is generally flat to gently undulating, with vegetated banks on both sides of the Georges River. The eastern floodplain of the river (part of the Proposal site) has a terraced area at a relatively low elevation. The ground levels then rise steadily up towards the eastern site boundary.

A small portion of the south-eastern part of the Proposal site, where the Rail link connection would be located, drains to Anzac Creek, which is an ephemeral tributary of the Georges River with a catchment of 10.6 km^2. The creek flows in a north-easterly direction and ultimately drains to Lake Moore on the Georges River, some three kilometres downstream of the Proposal site. In the south-west corner of the Proposal site a number of linked ponds within the existing golf course form the headwaters of Anzac Creek.

Stormwater on the existing site is generally conveyed via pits, pipes and two open channels (one vegetated, one concrete-lined) in a north-westerly direction across the site and discharged into the Georges River. Only one of the existing stormwater pipe networks discharges into Anzac Creek.

Discharges within the south-eastern portion of the site, i.e. within the golf course, drain via open channels to road culverts underneath Moorebank Avenue, which subsequently discharge into Anzac Creek.

A number of areas surrounding the Proposal site also drain into the site through open channels, box culverts, natural drainage lines and overland flows during differing rainfall events. These areas include:

- DJLU site, east of the Proposal site
- MPE site, east of the Proposal site
- M5 Motorway, north of the Proposal site
- Moorebank Business Park, north-east of the Proposal site
- ABB site, north of the Proposal site.

Proposal site run-off

The Proposal would include the installation of stormwater, drainage and flooding infrastructure across the Proposal site. Key features of this infrastructure would include:

- ***Inclusion of the OSDs (Basin 10 and 3) along the eastern boundary of the operational area, adjacent to the western verge of Moorebank Avenue***
- Three on-site detention (OSD) basins located along the western boundary of the construction footprint adjacent to the conservation area, the purpose of which are

to manage water volumes being discharged into the Georges River and to reduce sediment in the water. In addition, there is one existing OSD located in the northern portion of the site which would remain (refer to Figure 4-1)

- An open channel traversing the site from east to west
- ***An additional covered drain within the Endeavour Energy easement***
- Stormwater infrastructure (e.g. pits and pipes) to collect and transport stormwater runoff from the Proposal site and into nominated detention basins and discharge points
- Stormwater drain(s) to discharge stormwater runoff from the Proposal site to discharge points along the Georges River.

Refer to the Stormwater and Drainage impact assessment and design drawings (refer to Appendix R of the EIS, ***as amended by Appendix H of this RtS***) for additional details.

Vegetation removal and landscaping

All vegetation on the Proposal site would be removed prior to or during the site preparation phase of construction for the Proposal (as discussed in Section 4.3 of this EIS).

Following construction activities, any area not forming part of the operational footprint would be appropriately rehabilitated. Cut and fill batters associated with the construction would be stabilised to minimise the potential for ongoing erosion. The Rail link connection would remain cleared through on-going maintenance undertaken during the operation of the Proposal.

Landscaping would be undertaken on the site as part of the Proposal. The Landscape Design Statement and Plans (~~***Appendix E***~~ ***Appendix B of this RtS***) provide details on the key landscaping features that would be included as part of the Proposal site. Landscaping would be included on all boundaries of the Proposal site.

Landscaping along Moorebank Avenue would include ~~***extensive***~~ tree and shrub planting on road frontages, ***which when combined with the OSDs (Basins 10 and 3)***, would provide visual relief from the industrial appearance of the warehousing and IMT facility, with a layered approach along the streetscape. Landscaping would also be provided around the northern and southern boundaries of the Proposal site. This landscaping would include a mix of shrubs and turfed areas.

Tree plantings would be provided around the warehousing and within the carparking areas.

The landscape design for the Proposal aims to integrate the site into the broader environment with the following:

- Use of species that are local to the area, hardy and easy to maintain, including those recommended by the Liverpool City Council DCP.
- Use of trees within the site to provide a uniform canopy cover within vegetated areas
- Use of local species as understory planting to support and enhance local habitat values
- Use (where reasonable and feasible) of seeds collected within the local area for planting to reinforce the genetic integrity of the region.

Utilities

The Proposal site has historically been connected to nearby public utility networks through Commonwealth owned assets. These connections would be disconnected and redundant infrastructure would be decommissioned as part of the Early Works.

Utilities installation across the Proposal site and in the immediate surrounds would be completed as part of the Proposal. As identified in the Utilities Strategy Report and Building Service Strategy Brief (Appendix H of the EIS) the IMT facility, Rail link connection and warehouses would connect to a number of utilities as shown in Table 4-2. Consultation has been undertaken with all relevant service and infrastructure providers as discussed in Section 6 of the EIS ***and Section 2 of this RtS.***

Table 4-2: Proposed utility connections

Utility	Proposed connection point	Route to site
Water	Water main north of Anzac Road on Moorebank Avenue	Within the road reserve of Moorebank Avenue
Sewer	Moorebank Avenue sewer main near Bapaume Road	New sewer main along Moorebank Avenue to the existing connection near Bapaume Road.
Electricity	Anzac Village Substation	Two new 11 kV feeders along the road reserves of Anzac Road and Moorebank Avenue each capable of providing 7 MVA to meet demand and provide redundancy.
Communications	Existing assets along Moorebank Avenue and Anzac Road	Connection from site to Moorebank Avenue.
Natural gas	Existing assets along Moorebank Avenue	Connection from site to Moorebank Avenue.

The Utilities Strategy Report and Building Service Strategy Brief (Appendix H of the EIS) provide further discussions on the demand requirements, proposed supply network and the future works plan proposed for the majority of these utilities connections. It should be noted that no additional gas demand is expected from the Proposal.

The Proposal includes the installation of a private sewer main on the site connecting, via an underground sewer pipe, to the existing Sydney Water sewer connection adjacent to the intersection between Moorebank Avenue and Bapaume Road. The Proposal also includes the construction of private sewer pumping infrastructure. The specific location and sizing of this private pumping infrastructure would be subject to confirmation with Sydney Water during detailed design.

As discussed the Proposal would involve works on, and adjacent to, Moorebank Avenue for the purposes of site access, drainage and signalling and intersection upgrades. ***Works associated with utility disconnection, relocation, establishment or augmentation may require removal of surface vegetation for access.*** Further details on the works associated with these impacts is provided within the Utilities Strategy Report and Building Service Strategy Brief (refer to Appendix H of the EIS).

Lighting

Lighting would be provided throughout the entire operational footprint to allow for 24 hour operations. Lighting design is provided within the Light Spill Study Report prepared by Arcadis (Appendix T of the EIS ***and Appendix I of this RtS***). All lighting has been designed in accordance with *AS/NZS 1680.5:2012 Australian and New Zealand Interior and workplace, Part 5: Outdoor workplace lighting* and *AS 4282 - 1997 Control of the obtrusive effects of outdoor lighting*.

The main lighting for the Proposal would include pole lighting which would be a maximum height of approximately 21 m[6], varying subject to their location within the site. The lighting specification has yet to be finalised however it is envisaged that lighting would comprise of directional flood lighting tilted to focus on the operational areas included within the IMT facility and warehousing area. The lighting along the proposed internal road would consist of traditional road lighting fixtures with side throw to maximise the light distribution along the Proposal site and minimise backwards light spill.

Fencing and noise wall

A palisade security fence would be installed along the eastern boundary of the Proposal site, fronting Moorebank Avenue. An example of the fence is provided in Figure 4-8 (refer to the Architectural Drawings and Landscape Design Plans at ***Appendix D and E of the EIS respectively and Appendix B of this RtS*** for further details). This fence would be integrated into the landscaping proposed for the boundaries of the site.

Chain link security fencing would be installed on all four boundaries (north, east, south and west) to the Proposal site.

In addition, a noise wall approximately five metres high would be installed along part of the western boundary of the site, refer to Section 8 and Appendix N of the EIS for additional detail.

Figure 4-8: Palisade security fence example

Signage

A number of illuminated signs would be located at relevant access locations and within the Proposal site. These signs would be for the purposes of way-finding and access to/from the IMT facility, warehousing area and freight village. A Signage Strategy Plan has been prepared for site identification and directional signage and is included within the *Architectural Drawings* (refer to ***Appendix B of this RtS***). A

[6] ***As measured from final site levels.***

summary of the type of signs that would be included within the site is provided in Table 4-3.

Table 4-3: Signage details

Signage type	Maximum height[7] (m)	General locations
Type 1 - Street entry signage	6	Main site entrance off Moorebank Avenue
Type 2 - Tenant identification signage and IMT facility signage	5	IMT facility entrance and warehouse entrances along the internal road
Type 3 – Tenant directional signage	3	Within the warehousing area

In addition, backlit illuminated corporate signage (Type 5) would be provided on each warehouse (refer Appendix B of this RtS).

An illuminated variable message sign (VMS) would be located at the Proposal site entrance and would be used during operation. The size and exact location would be verified during detailed design.

Additional signage necessary for the operation of the IMT facility would also be included within the site. This may include way-finding, operational guidance or similar.

~~*Subdivision*~~

~~***The agreement undertaken between MIC and SIMTA for the development and operation of the Moorebank Precinct includes a requirement to subdivide the precinct into a number of parcels of land. The subdivision is required as a prerequisite to completion of each stage of the works to allow the land to be subleased for operations.***~~

~~***The creation of lots is a fundamental requirement of the Moorebank Precinct for the following reasons:***~~

- ~~***It provides legal boundaries to each lot for future subleasing to individual tenants***~~
- ~~***It allows the subleases to be register with a registered subdivision plan***~~
- ~~***It allows services to be provided to each lot, e.g. metered power and water.***~~

~~***Further detail regarding the subdivision of the Proposal site is provided in Table 4-4.***~~

~~*Table 4-4: Subdivision of the Proposal site*~~

~~*Existing*~~		~~*Proposed*~~		
~~*Lot No.*~~	~~*DP*~~	~~*Sub lot*~~	~~*General description*~~	~~*Area*~~
~~*100*~~	~~*1049508*~~	~~*5*~~	~~*Precinct western entry and warehousing lot 5*~~	~~*24.45 ha*~~
~~*1*~~	~~*1197707*~~	~~*2*~~	~~*Intermodal terminal lot 2*~~	~~*20.48ha*~~

[7] ***As measured from final site levels.***

~~Existing~~		~~Proposed~~		
		~~6~~	~~Warehousing lot 6~~	~~22.92 ha~~
		~~7~~	~~Warehousing lot 7~~	~~16.18 ha~~
		~~8~~	~~Warehousing lot 8~~	~~16.14 ha~~
		~~9~~	~~Warehousing lot 9~~	~~14.73 ha~~
		~~10~~	~~Warehousing lot 10~~	~~17.42 ha~~

~~***A number of private easements are proposed over these lots for the benefit of each lot to maintain access and provide for electrical, water, sewer and telecommunication services. In addition, services corridors within the road verge standard allocation are proposed to remain unutilised to provide access for services authorities in the event each lot should be required to be individually serviced by the authorities in the future. Refer to the Subdivision Plan in Appendix D of this EIS.***~~

Sustainability initiatives

A broad range of technologies exist that could be employed as part of the Proposal to enhance its sustainability performance. As a new facility, the Proposal would strive for a high level of efficiency, and potential measures to further enhance efficiency and implement the principles of Ecological Sustainable Development would be considered at detailed design. ESD and energy efficiency measures and management strategies would also be reviewed and updated as appropriate for incorporation into the Construction Environmental Management Plan (CEMP) and Operational Environmental Management Plan (OEMP), as required. ESD measures that may be considered during detailed design could include:

- Use of alternate fuels in operational machinery (such as LPG or biofuels)
- Use of natural light and ventilation for office spaces
- The procurement of energy efficient equipment for construction and operation
- Water harvesting, including roof water collection on all warehouses
- Re-use of wastewater, e.g. for toilet flushing, landscape irrigation and wash-down areas
- Energy efficiency design measures (such as for lighting types and controls, control systems, compressors, variable speed drives for fans/pumps etc)
- Measures to minimise HVAC 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 sortation systems
- Use of a 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, prioritised in accordance with the prioritising the Carbon Management Principles for Emissions Reduction (such that offsetting is considered as a last priority).

4.3 Construction

The section details the construction methodology for the Proposal. The description for the Proposal incorporates the proposed construction activities required for the MPW Concept Modification, ie. the Amended Modification Proposal, (detailed in Section 1.4 of the EIS).

4.3.1 Construction methodology overview

Construction of the Proposal would occur over a period of approximately 36 months and would be generally managed in the following areas, being:

- The IMT facility
- The Rail link connection
- Warehousing
- Southern bulk earthworks area.

The construction footprint for the Proposal is shown in Figure 4-9.

Key construction activities occurring over this time would include:

- Establishment of a temporary batching plant (potential including concrete, cement and pre-mix and hot-mix works) and materials crushing (inc. grinding and separating)
- Clearing of exotic and native vegetation (with the exception of minor clearing and grubbing to enable pre-construction works)
- Bulk earthworks to level and raise the site, including the importation of 1,200,000 m^3 fill
- Construction of the IMT facility and associated infrastructure
- Construction of the Rail link connection from the IMT facility to the Rail link
- Upgrade of the Moorebank Avenue/Anzac Road intersection and site access, and construction of the internal road network
- Construction of the warehouses and warehouse access roads
- Fit-out of warehousing
- Landscaping and finishing works.

Further detail regarding the construction methodology is provided in the following sections.

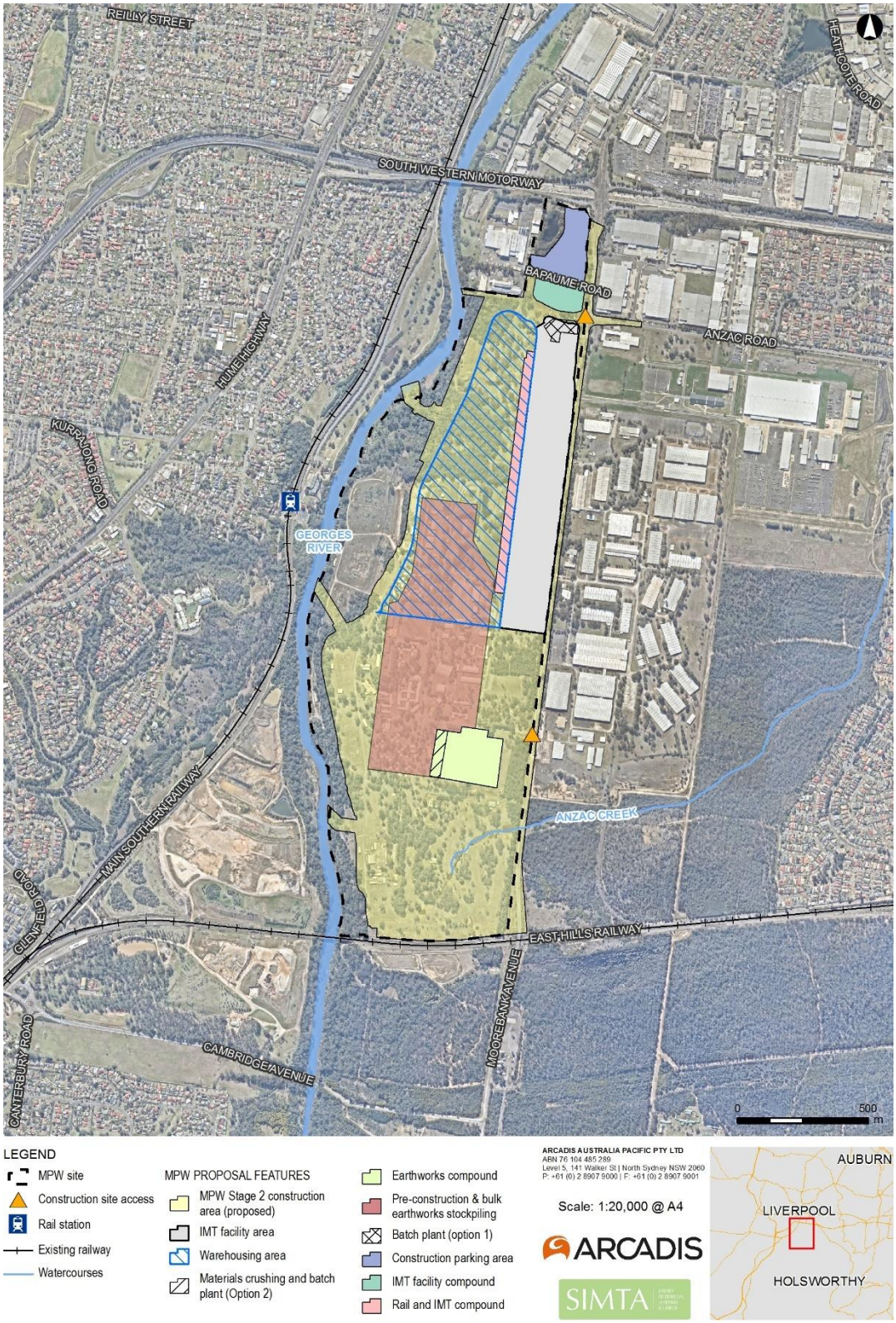

Figure 4-9: *Construction layout*

4.3.2 Construction program and activities

Subject to planning approval, construction of the Proposal is planned to commence in the third quarter of 2017. The total period of construction works for the Proposal is anticipated to be approximately 36 months. The indicative construction program is shown in Table 4-5. The construction works have been divided into seven 'works periods' which are interrelated and also may potentially overlap. Subject to confirmation of construction staging, the order of these construction works periods may shift slightly.

It should be noted that works period A would occur prior to the construction phase of the Proposal, therefore prior to the development of the CEMP.

Table 4-5: ***Indicative construction program – as amended***

Construction Phase	2018				2019				2020				2021		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Works period A – Pre-construction 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***															

Construction Phase	2018				2019				2020				2021		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Works period G – Miscellaneous structural construction and finishing works															

A summary of the indicative activities included in each of these works periods, which is relevant to the construction of the IMT facility, the Rail link connection and the warehouses, is provided in Table 4-6.

Table 4-6: Works periods and activities

Works period	Activities
Works period A – Pre-construction fill placement and stockpiling	▪ Establishment of temporary erosion and sediment controls ▪ Minor clearing and grubbing of temporary stockpiling area ▪ Establishment of a temporary stockpiling pad and associated temporary access roads ▪ Installation of temporary construction compound, including amenities and office for bulk earthworks ▪ Importation and placement of approximately 400,000 cubic metres (m^3) of clean fill
Works period B - Site preparation activities	▪ Establishment of construction compound fencing and hoardings ▪ Installation of temporary sediment and erosion control measures ▪ Vegetation clearance ▪ Installation of temporary site offices and amenities ▪ Construction of hardstands for staff parking and laydown areas ▪ Establishment of temporary batch plant sites and installation of batch plant ▪ Construction of access roads, site entry and exit points and security (N.B. preference is to use existing access where practicable) ▪ Set up of construction monitoring equipment
Works period C - Bulk earthworks, drainage and utilities	▪ Importation, stockpiling and placement of approximately 1,200,000 m^3 of imported clean fill (Bulk Earthworks) and raising of the Proposal site to final level ▪ Installation of OSDs ▪ Drainage and utilities installation ▪ Establishment of a concrete batching plant

Works period	Activities
Works period D – Moorebank Avenue intersection works and internal road network	▪ Relocation, adjustment and/or protection of all affected utilities, services and signage, as required ▪ Establishment of traffic management devices ▪ Installation of erosion and sediment controls ▪ Stripping and stockpiling of topsoil by excavators and trucks ▪ Drainage works ▪ Progressive stabilisation of exposed areas ▪ Compaction of widening areas ▪ Preparation of new lane surfaces ▪ Forming of new kerbs, gutters, medians and other structures ▪ Construction of asphalt and concrete pavement ▪ Landscaping of exposed earthworks areas ▪ New line marking, lighting and sign posting ▪ Removal of construction traffic management and progressive opening of new works to traffic
Works period E - IMT facility and Rail link connection construction	▪ Importation, placement and compaction of engineering fill ▪ Compaction of engineering fill ▪ Importation and placement of ballast material ▪ Establish formwork and reinforcement for sidings and bridge infrastructure ▪ Placement of concrete, curing and sealing ▪ Installation of permanent ways and rail systems ▪ Installation of permanent access gates, security gatehouse and permanent fencing ▪ Installation of the connection between the Rail link and the IMT facility sidings ▪ Erection of IMT facility administration building – excavation foundation and floor slab construction, structural wall and roof framework, and roofing ▪ Internal fit-out of building with control room, office, workshops, loco-shifter and staff amenities
Works period F - Construction and fit-out of warehousing ***and freight village***	▪ Establishment of construction compound, temporary fencing/ hoardings and temporary sediment and erosion control ▪ Installation of temporary site offices and amenities ▪ Excavation, foundation and floor slab installation ▪ Erection of framework and structural walls ▪ Installation of roof ▪ Internal fit out ▪ Landscaping and surrounds ▪ Preparation of warehouse access road subgrade ▪ Forming of new kerbs, gutters, medians and other structures ▪ Construction of asphalt and concrete pavement ▪ New line marking, lighting and sign posting

Works period	Activities
	▪ Removal of construction traffic management and progressive opening of the internal road and warehouse access roads to traffic
Works period G - Miscellaneous structural construction and finishing works	▪ Decommissioning/demobilisation of the construction area ▪ Commissioning of operational facilities ▪ Landscaping ▪ Rehabilitation of affected areas ▪ Post-construction condition surveys ▪ Removal of construction environmental controls ▪ Removal of construction ancillary facility related traffic signage

4.3.3 Construction methods

It should be noted that all building demolition, hardstand removal, utilities termination and relocation, crushing and remediation of known contamination 'hot-spots', and salvage of identified heritage items on the Proposal site would be undertaken as part of the Early Works for the MPW Concept Approval and therefore have not been considered in the EIS. Please refer to Section 1 of the EIS for further detail on works undertaken and approved to be undertaken to date.

Pre-construction stockpiling

Prior to construction commencing, stockpiling would be undertaken on site during the following hours:

- 6am to 10pm Monday to Friday
- 7am to 6pm Saturdays.

This pre-construction stockpiling would comprise up to 400,000 m^3 of imported fill to be stockpiled in the area shown on Figure 4-9.

Prior to commencement of stockpiling, minor clearing and grubbing would be undertaken and a level earthworks pad for the purposes of stockpiling would be established. A level area would also be established for office and amenities facilities to support the preconstruction stockpiling. Prior to commencement of works on-site, existing security fencing would be repaired as required around the stockpiling and compound site.

Access to the stockpiling site and the stockpiling compound would be via the signalised intersection at Chatham Avenue and Moorebank Avenue. It is estimated that a total of 30 employees would be on site during the pre-construction stockpiling works. Parking for employees would be provided within the compound area.

Stockpiles would not exceed ten metres in height from the final site levels, with battered walls at gradients of 1:3. A temporary sedimentation basin would be established to manage potential water quality impacts resulting from this pre-construction stockpiling. Appropriate erosion and sediment controls and dust suppression measures would be established prior to the commencement of stockpiling on the site.

During this period, all trucks would enter and exit the site via the existing access off Moorebank Avenue onto Chatham Avenue. Ingress and egress to the stockpiling pad would be arranged to minimise reversing of trucks on the stockpiling site.

Site preparation

Prior to the commencement of clearing of the remainder of the construction footprint, erosion and sediment controls would be established. During construction, water and soil management works would involve the early establishment of operational water management swales and the construction of ~~***three***~~ ***five*** permanent OSDs, which would require earthworks (refer Figure 4-1). The swales would flow in a westerly direction to the OSDs, which would subsequently discharge into the Georges River. These basins would capture and store surface water prior to being discharged. Sediment fences would be placed around the perimeter of the Proposal site to guide run-off and limit sediment transportation off-site. In addition, the waterbodies within the Proposal site, including the ponds in the southern portion of the site within the golf course that are linked to Anzac Creek and the ponds in the central portion of the site, would be dewatered, dredged and then reclaimed as part of the site preparation works period.

Section 4.2.8 provides a detailed description of the water management works included within the Proposal. Sedimentation and Erosion Control Plans are provided with Stormwater and Drainage Design Drawings (refer Appendix R of the EIS ***and Appendix H of this RtS***).

As discussed in Section 1, vegetation removal required for remediation purposes would be undertaken as part of the Early Works for the MPW Concept Approval. All remaining vegetation would be removed as part of the site preparation activities, once appropriate erosion and sediment controls have been established. Weed-free vegetation would be mulched and stockpiled on site for reuse in landscaping on completion of construction.

It is estimated that approximately 50 workers would be on site during this works period. The preconstruction stockpiling compound would be adjusted at this time to accommodate the additional worker numbers. The IMT Compound and the Rail ***and IMT*** Compound would also be established at this stage. These areas would be levelled and hardstand established to accommodate site sheds, storage areas and parking for staff. The proposed location of the compound is shown in Figure 4-9.

A temporary batch plant for construction of the IMT facility, would be established during this works period. Two locations for the temporary batch plant have been identified, one at the northern extent of the IMT facility and the other at the southern extent. The sites for the temporary batch plant would be cleared and levelled and hardstand established. The silos for the temporary batch plant would be up to 25 metres in height from final site levels and it is estimated that the plant would be operational on site for a period of approximately 18 months.

Bulk earthworks

The entire Proposal site would be levelled and raised in preparation for the construction of the IMT facility, the Rail link connection, the warehouses and internal roads. Where possible and subject to its suitability, excavated soil would be reused on-site for foundation preparation, levelling works or maintenance access roads.

Excavated soil, which is not considered suitable for re-use on site, would be temporarily stockpiled within the most appropriate construction compound and then transferred off site. All soil to be transferred off site would be tested and deposited at a suitable collection facility based on its determined category.

In total, 1,600,000 m^3 of clean fill would be imported to the site in trucks. This would comprise:

- 400,000 m^3 of fill imported during the pre-construction stockpiling phase
- 1,200,000 m^3 of fill imported during the Bulk earthworks phase

Clean fill would be imported to the site during the following hours:

- 6am to 10pm Monday to Friday
- 7am to 6pm Saturdays.

The fill would be stockpiled across the site, adjacent to areas of placement works to minimise material handling. Stockpiles would not exceed ten metres in height from the final site levels, with battered walls at gradients of 1:3. There is the potential for some oversized boulders to be contained within the imported fill that would require segregation and crushing to make the materials suitable as an engineered fill. Demolition waste stockpiled after the Early Works would also be crushed at the Earthworks Compound during the Bulk earthworks period for potential reuse on the Proposal site. Further detail regarding materials crushing is provided in Section 4.3.7 of this EIS.

The cut to fill operation, comprising excavation, transporting, crushing, screening and spreading of excavated material on site, would be carried out concurrently with the placement of imported fill.

Earthworks plant would be used to spread and compact the material on site. Appropriate erosion and sediment controls, and dust suppression measures would be implemented to manage potential air quality, erosion and sedimentation impacts during the earthworks period.

A summary of the earthworks volumes for the Proposal is provided in Table 4-7.

Table 4-7: Preliminary earthworks volumes

Type	Preliminary volume (m^3)
Volume of top soil strip	***294,200***
Total cut	***350,000***
Total fill	***1,950,000***
Imported fill	***1,600,000***

Depending upon final classification of cut material from site during excavations there may be the opportunity to utilise more of this material classified as suitable for use and provide a reduction in total imported fill requirements.

It is estimated that a total of 50 workers would be present on-site during this works period. Staff parking would be provided at the site compounds.

Moorebank Avenue and internal road works

Modifications to the intersections of Moorebank Avenue/Anzac Road and Moorebank Avenue/Bapaume Road would be required to facilitate the upgrade of the site access to the Proposal site. These intersection works would allow for turning movements of an A-Double vehicle (i.e. two semitrailers linked by a converter dolly between the two trailers). Details of the proposed intersection configurations are provided in Section 4.2.4 of the EIS.

The construction methodology for upgrades to existing roads and intersections would generally comprise:

- Establish traffic controls
- Strip/demolish existing ground and pavements***, including clearance of existing vegetation***
- Relocation of services and stormwater (including traffic signals)
- Earthworks/subgrade preparation

- Placement of select and pavement layers
- Kerb and gutter
- Final pavement layers
- Line marking and signage
- Reconfiguration of traffic signals
- Commissioning of signals
- Removal of traffic controls.

The works on Moorebank Avenue would be staged in order to maintain existing traffic flows. This may also require some temporary diversions and works to be undertaken out of hours to minimise disruption. It is proposed that upgrades to the Moorebank Avenue/Anzac Road intersection would be undertaken early in the construction programme and would be complete prior to the closure of the Chatham Avenue/Moorebank Avenue site access.

The internal road network would be constructed during this works period, comprising the main arterial road to the warehousing on the western side of the site and roads to the warehousing. The location of these internal roads is shown on Figure 4-1. Works for the establishment of the internal road network would generally comprise:

- Earthworks/subgrade preparation
- Placement of select and pavement layers
- Kerb and gutter
- Final pavement layers
- Line marking and signage.

It is estimated that approximately 50 workers would be required for these work activities. Parking would be provided within the Proposal site for workers. Access to site parking would be via the Anzac Road/Moorebank Avenue site access.

IMT facility and Rail link connection

The IMT facility and Rail link connection would be constructed along the eastern boundary of the site, refer to Figure 4-1. The IMT facility would consist of an office, engineering workshop, staff amenities, loco-shifter, container storage area, heavy vehicle road, fuel storage area and parking. The Rail link connection would connect the IMT facility to the MPE Stage 1 Rail link.

The construction methodology for the IMT facility and Rail link connection would comprise:

- Importation and placement of engineering fill
- Compaction of engineering fill
- Importation and placement of ballast material
- Establish formwork and reinforcement for sidings and bridge infrastructure
- Placement of concrete, curing and sealing
- Installation of permanent ways and rail systems
- Installation of the connection between the Rail link and the IMT facility sidings.

The tie in of the Rail link connection to the MPE Stage 1 Rail link may have to occur outside of standard hours. Consultation with the operator of the Rail link would be undertaken prior to these construction works commencing.

The construction methodology for the IMT facility building would generally comprise:

- Excavation of foundations
- Construction of the floor slab
- Erection of structural wall and roof framework

- Installation of roofing and walls
- Fit-out of building and finishing works
- Landscaping and surrounds.

It is estimated that approximately 350 workers would be on site during this works period. Parking for workers would be provided on the Proposal site within the construction compound and designated parking areas.

Warehousing ***and freight village***

The freight village and warehouses of varying sizes would be constructed within the area shown on Figure 4-1. All of the warehouses would consist of a container storage area, office and administration facilities, amenities and car parking. The total area of all combined warehouses would be 215,000m^2. ***The freight village would comprise of a café, commercial premises, outdoor area with seating, services area, amenities and car parking and would occupy approximately 800 m^2 of GFA***

The construction method for the warehouses ***and the freight village*** would comprise:

- Earthworks, importation and placement of fill
- Installation of stormwater drainage and utilities
- Construction of foundations
- Establishment of floor slabs
- Erection of framework and structural walls
- Installation of roof
- Internal fit out
- Landscaping and surrounds.

It is estimated that up to 120 workers would be on site during this works period (based on the concurrent construction of two warehouses).

4.3.4 Construction workforce and hours

It is anticipated that approximately 570 construction personnel would be required during the peak construction period of the Proposal. This would be during the overlap in works periods C, D, E and F (refer to Table 4-8).

Table 4-8: Construction workforce

Works period	Estimation of personnel
A - Preconstruction stockpiling	30
B - Site preparation	50
C - Bulk earthworks	50
D - Moorebank Avenue and internal road network	50
E - IMT facility and Rail link connection	350
F – Warehousing ***and freight village***	120 (construction of two warehouses concurrently, ie 50/warehouse plus 10/warehouse supporting construction)
G - Miscellaneous finishing and commissioning works	100

Construction works would generally be undertaken during the standard daytime construction working hours, being:

- 7 am to 6 pm Monday to Friday
- 8 am to 1 pm Saturday
- No works on Sunday or Public Holidays.

As discussed above, it is proposed to undertake the importation of clean fill to the site over additional hours as follows:

- 6 am to 10 pm Monday to Friday
- 7 am to 6 pm Saturdays.

Any other construction works undertaken outside of these hours would be undertaken in consultation with relevant authorities. The other works that may be required to be undertaken outside of standard construction hours would include:

- Works associated with the upgrade of the Moorebank Avenue/Anzac Road intersection to minimise impacts on through traffic
- Works associated with the tie-in of the Rail link connection to the Rail link to minimise disruption to services on the Rail link.
- Any works which do not cause noise emissions to be audible at any nearby sensitive receptors or comply with the 'Outside Standard Construction Hours' (refer to Section 8 and Appendix N of the EIS)
- The delivery of materials which is required outside of these hours as requested by Police or other authorities for safety reasons
- Emergency work to avoid the loss of lives, property and/or to prevent environmental harm
- Works required to be undertaken during rail corridor possessions
- Any other work as approved through the Construction Noise and Vibration Management Plan, or otherwise approved by the Secretary of the DPE in accordance with the existing consent conditions.

4.3.5 Plant and equipment

A range of plant and equipment would be required for the construction of the Proposal. A summary of the indicative plant and equipment likely to be utilised is provided in Table 4-9.

Table 4-9: Indicative construction plant and equipment

Equipment	Construction Works period						
	Pre-construction stockpiling	Site preparation	Bulk earthworks, drainage and utilities	Moorebank Avenue and internal roads	IMT facility and Rail link connection	Warehouse *and freight village* construction and fit out	Buildings and finishing works
Loaders	✓	✓	✓	✓	✓	✓	✓
Static and vibratory rollers, and high	✓	✓	✓	✓	✓	✓	✓

Equipment	Construction Works period						
	Pre-construction stockpiling	Site preparation	Bulk earthworks, drainage and utilities	Moorebank Avenue and internal roads	IMT facility and Rail link connection	Warehouse *and freight village* construction and fit out	Buildings and finishing works
energy impact compaction							
Mobile cranes		✓			✓	✓	
Excavators	✓	✓	✓	✓	✓	✓	
Excavators with hammers			✓				
Backhoes		✓	✓	✓	✓	✓	✓
Crushing plant		✓	✓				
Concrete batch plant				✓	✓	✓	
Concrete agitators (or similar)				✓	✓	✓	✓
Concrete pumps				✓	✓	✓	✓
Concrete saws				✓	✓	✓	✓
Air compressors			✓	✓	✓	✓	✓
Jackhammers				✓	✓	✓	✓
Dozers		✓	✓	✓			
Mulchers		✓	✓				
20-40 tonne articulated tipper trucks	✓	✓	✓	✓	✓		
Scrapers	✓	✓	✓	✓			
Graders	✓	✓	✓	✓	✓	✓	
Water trucks	✓	✓	✓	✓	✓	✓	✓
Piling rigs					✓	✓	
Forklifts					✓	✓	✓
Small earthmoving equipment				✓	✓	✓	✓
Rail tamper					✓		
Welder					✓	✓	✓

4.3.6 Construction traffic movements

Access to and from the Proposal site would be via Moorebank Avenue. The access points proposed for construction are shown on Figure 4-9. ***Details of the proposed haulage routes are provided in the Construction Traffic Impact Assessment (CTIA), refer to Appendix C of this RtS.***

The estimated material truck movements (includes ingress and egress from the site, i.e. includes both trips) for each of the works periods are presented in Table 4-10. This estimate is the total number of truck movements proposed throughout the 36 month construction period.

Table 4-10: Estimated truck movements by construction phase

Construction periods	Estimated total number of truck movements (round-trip)
Works period A – Pre-construction stockpiling	33,000
Works period B – Site preparation activities	650
Works period C – Bulk earthworks, drainage and utilities	100,000
Works period D – Moorebank Avenue and internal road construction	3,300 (1,800 (Moorebank Ave) + 1,500 for internal roads)
Works period E – IMT facility and rail link connection construction	11,000
Works period F –Warehouse ***and freight village*** construction and fit out	3,120 per warehouse
Works period G – Miscellaneous structural construction and finishing works	500

The number of construction vehicle movements (round trip), both heavy (truck) and light (car) to and from the site each weekday for each works period is shown in Table 4-11. As shown in Table 4-11 the number of construction truck movements would range between 6 and 740 movements per day and staff car movements would range between 30 and 350 movements per day. The highest construction related traffic movements would occur in Works periods C (i.e. approximately 740 truck movements and 50 car movements).

Table 4-11: Estimates of daily construction vehicle movements

Construction Period	Daily Vehicle Movements (round-trip)	
	Truck movements	Car movements
Works period A – Pre-construction stockpiling	370	30
Works period B – Site preparation activities	26	50
Works period C – Bulk earthworks, drainage and utilities	740	50
Works period D – Moorebank Avenue and internal road construction	19	50

Construction Period	Daily Vehicle Movements (round-trip)	
	Truck movements	Car movements
Works period E – IMT facility and Rail link connection construction	31	350
Works period F – Warehouse ***and freight village*** construction and fit out	20	120
Works period G – Miscellaneous structural construction and finishing works	6	100

Works within the MPE Rail link corridor, which would have the potential to impact on existing rail services, would generally be undertaken during planned possession periods or in safe work zones in order to minimise any potential impacts to rail services.

Formal pedestrian facilities are currently provided on the western side of Moorebank Avenue only.

4.3.7 Construction ancillary facilities

Temporary construction compounds, a batching plant and communal parking areas would be required to support construction works for the Proposal. The locations of these compounds and facilities are indicative and subject to confirmation by the construction contractor.

At this stage construction compounds identified for the Proposal include:

- Earthworks Compound
- IMT Compound
- Rail ***and IMT*** Compound.

An area would be made available in the northern portion of the Proposal site to provide worker parking, once the Moorebank Avenue/Anzac Road intersection upgrade is complete. In addition, compounds would be established for the construction of each warehouse.

The indicative location of these compounds is shown in Figure 4-9. Table 4-12 outlines the proposed construction facilities and their uses during the construction of the Proposal. Details of each of these facilities are provided in the following sections.

Table 4-12: Proposed construction ancillary facilities and activities

Ancillary facility	Activity and use				
	Site office	Staff amenities	Car parking	Storage and laydown	Materials testing
Earthworks Compound	✓	✓	✓	✓	✓
IMT Compound	✓	✓	✓	✓	✓
Rail ***and IMT*** Compound	✓	✓	✓	✓	✓
Construction parking area			✓		
Warehouse Compounds	✓	✓		✓	✓

Compound and stockpile sites would be temporary in nature and removed/decommissioned at the completion of construction. Where not within the footprint of the Operational area, these areas would be rehabilitated upon completion of the works and the sites left in a stable condition.

Earthworks Compound

The Earthworks Compound would be located to the west of Moorebank Avenue, near the site access off Chatham Avenue, as shown in Figure 4-9. This compound would be in close proximity to the proposed Pre-construction and Bulk earthworks stockpiling site. The compound would have an area of approximately 41,000 m^2 and would generally include, but not be limited to, offices, car parking, equipment storage and laydown areas and materials screening, crushing and washing facilities.

After the pre-construction stockpiling works period, this compound would continue to be used during the Bulk earthworks period. The layout of this compound would remain the same as during the pre-construction phase.

Access to the compound would be from Chatham Avenue and the signalised intersection with Moorebank Avenue.

IMT Compound

Two location options for compounds to support the development of the IMT facility and Rail link connection have been identified and are shown in Figure 4-9.

The southern compound site option (Option 1) would be located in the southern portion of the site near the site entrance off Moorebank Avenue onto Chatham Avenue. This site would initially have been used as the Earthworks Compound and would be the primary compound to support construction of the IMT facility and the new access off Moorebank Avenue. This compound would provide offices, administration, worker amenities and an engineer's workshop. The IMT Compound (Option 1) would be accessed and egressed directly to and from Moorebank Avenue via Chatham Avenue. This compound would be the primary compound until works are complete on the Moorebank Avenue/Anzac Road intersection.

After the Moorebank Avenue intersection and new site access works are complete, the IMT Compound may be relocated to the northern compound site option (Option 2), if required. Alternatively, both compound site options may be used concurrently. This site would be located in the northern portion of the site directly south of Bapaume Road and north of the proposed IMT facility. The northern site compound would provide the same facilities as the southern site compound and would have an area of approximately 18,000 m^2. Access to the IMT Compound (Option 2) would be via the new site access off Moorebank Avenue.

Rail ***and IMT*** Compound

There are two location options for the Rail ***and IMT*** Compound, as shown in Figure 4-9.

Option 1 would be the same as the Option 1 site for the IMT Compound, which would be located in the southern portion of the site near the site entrance off Moorebank Avenue onto Chatham Avenue. Either combined compound facilities would be utilised on this site (i.e. for both the IMT facility and Rail link connection works) or separate compounds would be located adjacent to each other. The Option 1 site would initially have been used as the Earthworks Compound.

The Rail ***and IMT*** compound would have an area of approximately 41,000 m^2 and would be the primary compound to support construction of the Rail link connection ***and IMT facility***. This compound would provide offices, administration, worker

amenities and an engineer's workshop. The Rail ***and IMT*** Compound (Option 1) would be accessed and egressed directly to and from Moorebank Avenue via Chatham Avenue and internal haul roads.

As construction on the Rail link connection progresses in a northerly direction and after the new site access off Moorebank Avenue is constructed, the Rail ***and IMT*** Compound may be relocated to the Option 2 site if required. This site would be located within the footprint of the proposed IMT facility site. Alternatively, both compound site options may be used concurrently. The Option 2 compound would have an area of approximately 33,000 m^2 and would provide the same facilities as the Option 1 compound. Access to the Rail ***and IMT*** Compound (northern site) would be via the new site access off Moorebank Avenue (refer Figure 4-9.)

Warehouse compounds

Multiple compounds would be located within the warehousing site (one compound per warehouse). Each compound would support the construction of one warehouse and would provide offices, worker amenities, and general storage and laydown.

The warehouse compounds would be accessed and egressed via the new site access off Moorebank Avenue and the internal roads.

The location of the warehouse compounds would take into consideration the following criteria:

- Relatively level land
- Greater than 40 m to a watercourse
- Greater than 20 m from threatened species and endangered ecological communities
- No requirement to remove any native vegetation beyond that otherwise being undertaken for the Proposal
- No requirement to undertake any significant ground disturbing works
- Not unreasonably affect the land use of adjacent properties.

Consideration of all of the above factors would be undertaken prior to the establishment of the warehouse compounds.

Batching plant

There are two location options for the batching plant, as shown in Figure 4-9.

Option 1 would be located in the northern portion of the site, directly south of the new site access off Moorebank Avenue. The batching plant would have an area of approximately 8,000 m^2 and would support the construction works on the Proposal site. The batching plant (Option 1) would be accessed and egressed via the new site access off Moorebank Avenue. Following construction, this site would provide parking for the IMT facility.

Option 2 is located in the southern portion of the site, near the site entrance off Moorebank Avenue onto Chatham Avenue. This option would be adjacent to the proposed Rail ***and IMT*** Compound (Option 1) and IMT Compound (Option 1). The batching plant (Option 2) would have an area of approximately 8,000 m^2 and would be accessed and egressed via the existing site access off Moorebank Avenue onto Chatham Avenue.

The Option 1 and Option 2 locations would not undertake processing concurrently, i.e. would operate at separate times and are likely to be operating within separate Works periods of the construction phase.

Materials crushing

As mentioned above, there is the likelihood for some oversized boulders to be contained within the imported fill that would require crushing to make the materials suitable for use as an engineered fill. This oversized material would either be identified on entry to the Proposal site or at the unloading point. Once identified the oversized materials would be directed to the materials crushing area within the Earthworks Compound (refer Figure 4-9).

Demolition waste stockpiled after the Early Works would also be crushed at the Earthworks Compound during the Bulk earthworks period for potential reuse on the Proposal site.

The following process would be followed for screening and crushing of materials:

1. Trucks carrying loads with oversized materials would unload onto the primary screen, which would separate larger materials from the smaller materials.
2. Earth moving equipment would then be used to manoeuvre the screened material into the crushing system.
3. The primary crusher would crush the raw material to a manageable size, which would then be transferred by a conveyor to the secondary crusher.
4. The secondary crusher would crush the material into smaller pieces which would then be put back through the primary screening facility to separate the material into required product sizes and separate stockpiles.
5. Material which is not crushed to product size would be transported back to the crusher for another round of processing.

The product from the crushing and screening operation would be loaded into trucks using a front-end loader, and either directly placed to form the final site levels or placed into a stockpile.

The stockpiles of final product would be located at the opposite end of the crushing area to the originating raw material. Controls would be implemented to ensure erosion and dust generation are minimised on the stockpiles and maximum stockpile heights are not exceeded.

Parking

At the commencement of construction, parking would be provided in the southern portion of the site (refer Figure 4-9). This parking site would have an area of approximately 1,700 m^2 and would be accessed and egressed via the existing site access off Moorebank Avenue onto Chatham Avenue.

Following the construction of the new site access of Moorebank Avenue, communal parking for all light vehicles on the Proposal site would be located in the northern portion of the site as shown in Figure 4-9. This parking site would have an area of approximately 3.7 ha and would be accessed and egressed via the new site access. If required, additional parking would be provided directly south of Bapaume Road. No access to the parking area would be provided from Bapaume Road and all vehicles accessing the parking area would be required to use the new site access and internal roads.

4.3.8 ***Environmental Works Method Statement***

An Environmental Works Method Statement (EWMS) has been prepared by Arcadis (Appendix M of this RtS). The purpose of this EWMS is to provide environmental management controls to facilitate for, and guide, the works to be undertaken as part of pre-construction (Works period A) for the Proposal. This EWMS would be implemented prior to pre-construction works being undertaken for the Proposal.

4.3.9 Construction Environmental Management Plan

A Preliminary Construction Environmental Management Plan (PCEMP) has been prepared by Arcadis (Appendix I of the EIS). The purpose of this PCEMP is to provide the preliminary overarching framework for the management of all potential environmental impacts resulting from construction activities.

A number of other preliminary construction related management plans have also been prepared for the Proposal, including:

- Preliminary Construction Traffic Management Plan (Appendix M of the EIS)
- Air Quality Management Plan (Appendix O of the EIS)
- Preliminary Erosion and Sediment Control Plans (Appendix I of the EIS)
- Preliminary Construction Works Drawings (Appendix J of the EIS)

This PCEMP and these management plans would form the basis of the Construction Environmental Management Plan (CEMP) and associated plans to be prepared for the Proposal, prior to construction. It should be noted that the pre-construction stockpiling phase (Works period A) would occur pre-construction (i.e. pre-CEMP subject to the EWMS as mentioned above).

4.4 Operation

The Proposal would involve the operation of the IMT facility, rail link connection and warehousing. Section 4.2 of the EIS provides a summary of the built form which would be in operation for the Proposal. This section provides discussion on the operation of the Proposal.

4.4.1 Intermodal terminal facility

Intermodal process

Once operational, the IMT facility would facilitate a container freight throughput of 500,000 TEU per annum, via both rail and road, comprising of the interstate/intrastate and IMEX port-shuttle throughput.

The IMT facility would have capacity to accept trains ranging in length from 600 m to 1800 m. It would comprise nine rail sidings, five of which would be 1800 m long entry sidings and the remaining four would be 900 m long container handling sidings. The site arrangement allows for up to three 1,800 m trains and two 900 m trains to be processed at the terminal at one time.

Eight of the rail sidings would be ordinarily used for operations and one would provide a locomotive escape route. It is anticipated that each train would be on the site for approximately two and half hours to undertake a full unloading and loading operation. During 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. Further details of rail operations are provided below.

The IMT facility would also have capacity to accept heavy vehicles, up to ‘double road train’ in size. There would be a four lane entry into the IMT facility which would connect to the truck container loading area along the western portion of the IMT facility. A turning area would be provided for vehicles at the southern end of the IMT to enable them to exit the facility via the weighbridges and exit gates at the northern end.

Container loading/unloading and storage areas would be located in the central portion of the IMT facility, to the west of the rail roads and east of the truck loading areas, and would be a maximum of five containers high.

Rail freight

The Proposal would provide an IMT facility to support the transport of freight by rail between Victoria, Queensland and regional NSW and port shuttle movements. Trains would enter the IMT facility using either the northern or southern Rail link connections, and the Rail link. They would then be unloaded, with freight distributed through one of the following container flows:

- Temporarily stored in the IMT facility
- Transferred directly by truck to warehousing within the Proposal site
- Transferred directly by truck to the MPE site
- Loaded directly onto heavy vehicles for distribution to markets via the nearby major road network.

The empty trains would then be re-loaded with freight containers from the following locations:

- Warehouses within the MPW site (transported to the IMT facility via truck)
- Directly brought to the IMT facility by truck
- Containers brought to site by rail.

Full trains would then be sent interstate, intrastate or via port shuttle to a Sydney-based port (e.g. Port Botany) by means of the Rail link and the SSFL.

Empty containers would be managed through an empty container park (ECP) located within the Moorebank Precinct.

During standard operations it is anticipated that the Proposal would receive the following train movements per day:

- Two trains of up to 1,800 m length – each train comprising four locomotives and 74 wagons
- Two trains of up to 1,500 m length – each train comprising four locomotives and 62 wagons
- Two trains of up to 900 m – each train comprising one locomotive and 38 wagons.

No ramp up has been considered for the operation of the Rail link connection. Instead, the above train movements are considered to be a worst-case scenario regarding rail operations (i.e. operating at full capacity from opening day), which is considered to be a conservative approach.

As noted above, a locomotive-shifter would be located at the northern end of the rail sidings to transfer locomotives between the storage sidings. Once the train is in position on the siding, the locomotive would be decoupled from the remainder of the train and driven onto the locomotive-shifter. The locomotive-shifter would shunt the locomotive across onto another rail siding in order for the locomotive to be transferred to the other end of the train to enable travel in the opposite direction.

The 60,000 L, self-bundled mobile refuelling tank would supply the trains with diesel fuel while they are being unloaded and loaded. Mobile fuel tankers would refill the tank as required.

Road freight

The IMT facility would support the transfer of freight between road and rail within NSW. The circulation of trucks through the IMT facility would be as follows:

- Trucks would enter the IMT facility at the northern end via the main entrance off Moorebank Avenue or via the internal road if coming from the warehousing area within the MPW site
- Trucks entering the IMT facility would be processed at the truck processing gates. Only authorised/cleared trucks would be permitted to proceed into the facility. Non

authorised trucks would be instructed to turn around and exit via the main access or to wait at the truck waiting area until their allotted time

- Authorised trucks would be held within the truck holding area and/or progress to the loading areas
- Once in location these trucks would be loaded/unloaded using manual container handling equipment. Unloaded freight would be distributed through one of the following container flows:
  - Temporarily stored in the IMT facility
  - Transferred directly by truck to warehousing within the Proposal site
  - Transferred directly by truck to the MPE site
  - Loaded directly onto trains for distribution to markets (including interstate, intrastate and port shuttle movements) via the Rail link
  - Loaded directly onto heavy vehicles for distribution to markets via the road network.
- Once loaded/unloaded, trucks would exit the IMT facility via weighbridges (as necessary). Subject to being determined to be at the approved weight, trucks would proceed via the truck processing gates onto Moorebank Avenue, or onto the internal road to access the warehousing area within the MPW site.

Inter-precinct freight transfer

A portion of freight would be transferred from the IMT facility to the warehousing area within the Proposal site or to the IMEX terminal on the MPE site without accessing the broader road network. These containers would be transferred using designated site transfer trucks. These trucks would also be processed at the IMT facility gates and weighbridges.

Inter-precinct freight transfers would generally be as follows:

- Site transfer trucks moving between the Proposal and the MPE site would turn right on Moorebank Avenue, and use the signalised MPE site access to enter/exit the MPE site
- Site transfer trucks moving freight to the warehouse area would exit the IMT facility via the weighbridges, before proceeding south-west along the internal access road.

Container flows

A summary of the container flows for the IMT facility is shown in Table 4-13.

Table 4-13: Container flows

Source	Mode	Destination	TEU	%
Inbound				
Port Botany, Interstate and Regional NSW	Rail	IMT facility	110,000	22
Warehouses, (MPW or MPE) or MPE IMEX	Internal transfer	IMT facility	110,000	22
External warehouses/ distribution centres	Road	IMT facility	30,000	6
INBOUND TOTAL			**250,000**	**50**
Outbound				

Source	Mode	Destination	TEU	%
IMT facility	Rail	Port Botany, Interstate and Regional NSW	110,000	22
IMT facility	Internal transfer	Warehouses, (MPW or MPE) or MPE IMEX	110,000	22
IMT facility	Road	External warehouses/ distribution centres	30,000	6
OUTBOUND TOTAL			**250,000**	**50**
TOTAL			**500,000**	**100**

The following diagram shows the container flow movements for the Proposal.

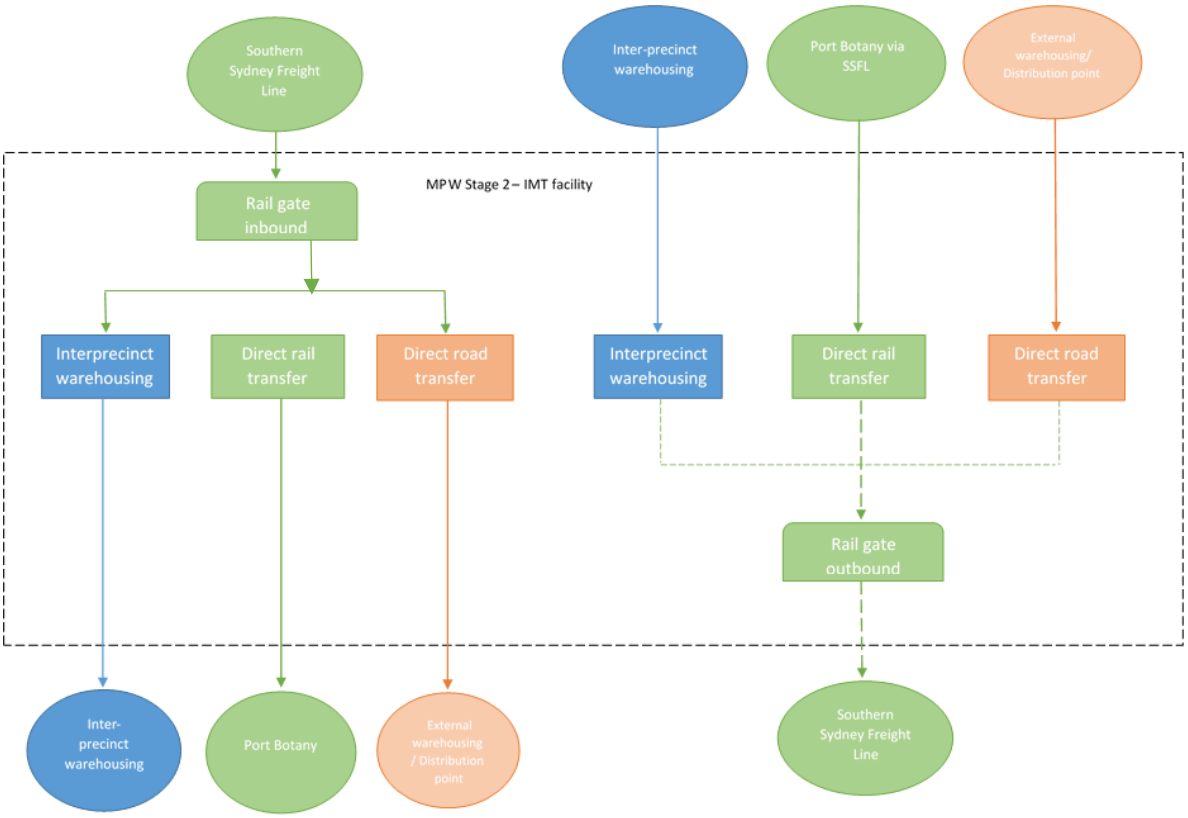

Figure 4-10: Container flow movements

Ancillary Facilities

The operation of the Proposal also involves a number of ancillary facilities within the IMT facility including an administration area, an engineer's workshop, a locomotive shifter, train refuelling facilities ***and a container wash-down facility and de-gassing area***.

The administration area would provide a small office and staff car parking area. This area would be accessed via the new site access off Moorebank Avenue and would provide:

- Office facilities for site management
- Amenities and kitchen facilities for site staff, truck drivers and train drivers
- Engineer's workshop.

4.4.2 Rail link connection

The Rail link connection would join the existing Rail link to the IMT facility. The approved Rail link branches near the SSFL, enabling freight trains to travel to and from either the north or the south. Trains would have the capability to wait at an area (which includes facing and trailing crossovers) to the east of the Georges River, prior to entering the SSFL. This would also provide an area for trains to wait, providing a clear path for trains exiting the SSFL. The Rail link has been designed to allow trains using the northern connection to exit the SSFL at 60 kilometres per hour (kmph) and for trains using the southern connection to exit at speeds of 35 kmph. The usual operating speed of trains on the Rail link and Rail link connection would be 35 kmph.

The Rail link connection has two rail roads, one which feeds the entry sidings and the other feeds the handling sidings in the IMT facility. The two roads are connected to allow the shunting of trains.

As discussed above, the Rail link and Rail link connection would accommodate trains ranging in size between 600 m and 1,800 m in length. Trains up to 900 m in length would generally be made up of a single locomotive with up to 38 wagons. Trains of 1,800 m length would generally be made of up to four locomotives, with up to 74 wagons.

The construction of the Rail link would be undertaken as part of the MPE Stage 1 Proposal and therefore approval is not sought for this. However, approval is sought for the operational use of the Rail link, for Proposal related trains, between the SSFL and the Rail link connection.

4.4.3 Warehousing

Heavy and light vehicles would access the warehouses via the main site access off Moorebank Avenue, as detailed in Section 4.2.5 of the EIS. Light vehicles would park in the allocated parking area adjacent to each warehouse, and heavy vehicles would progress to the truck loading/unloading areas alongside each warehouse. Once in location these trucks would be loaded/unloaded via manual handling equipment. Once loaded the trucks would then be distributed to markets via the nearby major road network, transported to the adjacent IMEX terminal on the MPE site, or transported directly to the IMT facility for dispatch via rail interstate, intrastate or via port shuttle to a Sydney-based port (e.g. Port Botany).

It is noted that dangerous goods would not be accepted by the Proposal and would, therefore, also be excluded from the warehouses.

Use

Approval is sought for the use of individual warehouses by future tenants. Detailed information relating to use of the warehouses is provided throughout this EIS, namely:

- Internal layout – refer to Section 4.2.3 of the EIS
- Operational workforce – refer to Section 4.4.5 of the EIS
- Hours of operation - refer to Section 4.4.5 of the EIS
- Access and car parking – refer to Sections 4.2.3 and 4.4.6 of the EIS
- Signage – refer to Section 4.2.8 of the EIS.

Individual tenants would be confirmed post-approval, however, their operation would be consistent with the details provided in this EIS (refer to comments above) and the Operational Environmental Management Plan (OEMP) for the Proposal.

4.4.4 Freight village (Precinct Amenities)

Vehicles would access the precinct amenities area via the main site access off Moorebank Avenue and the internal road. Light vehicles would access and egress the area directly via the allocated parking area adjacent to the precinct amenities area. Whereas service vehicles would enter the area via the one-way service road, which loops around the rear of the precinct amenities area and exits via the car park.

Use

Approval is sought for the use of the precinct amenities area by future tenants. Detailed information relating to use of the precinct amenities area is provided throughout this EIS, namely:

- Internal layout – refer to Section 4.2.4 of the EIS
- Operational workforce – refer to Section 4.4.5 of the EIS
- Hours of operation - refer to Section 4.4.5 of the EIS
- Access and car parking – refer to Sections 4.2.4 and 4.4.4 of the EIS
- Signage – refer to Section 4.2.8 of the EIS.

Individual tenants would be confirmed post-approval, however their operation would be consistent with the details provided in this EIS and the Operational Environmental Management Plan (OEMP) for the Proposal.

Any food premises located within the freight village would be constructed and operated to meet the Australian Standards (as relevant), including:

- AS 4674-2004: Construction and fit out of food premises
- AS 4322-1995: Quality and performance of commercial electrical appliances - Hot food storage and display equipment
- AS ISO 22000—2005: Food safety management systems—Requirements for any organisation in the food chain.

In addition, operations for food premises within the freight village would comply with the Australia New Zealand Food Standards Code.

4.4.5 Operational workforce and hours

The operational workforce for the IMT facility would comprise of approximately 40 staff whom would generally work in shifts throughout the operational hours of the IMT facility. The operational workforce of the warehousing area would comprise approximately 1,200 full time equivalent staff, who would work in two shifts, increasing to three shifts in the future.

The IMT facility and Rail link connection, would operate 24 hours per day and seven days per week. This would allow the possibility for an increased number of freight related movements to occur outside of peak traffic periods. This is consistent with government strategic planning documents to increase the movement of freight outside of peak periods.

The warehouses on the Proposal site would ~~***generally***~~ be operational for ~~***18***~~ ***24*** hours a day, and ~~**five to**~~ seven days a week. ~~***Hours of operation would generally be 7 am to 1 am.***~~

The operational hours of the freight village would be 7am to 6pm, ~~**five to**~~ seven days per week, and there would be a total of 25 staff members during operation.

4.4.6 Traffic movements, access and parking

Road traffic

As described above, trucks would access the Proposal site via the new site access off Moorebank Avenue. Operational trucks can also leave the site via Bapaume Avenue (left out only). Summaries of the movements of operational trucks through the IMT facility and warehousing area are provided in Section 4.4.1 and 4.4.3 of the EIS respectively.

Cars would also access the site via the main access off Moorebank Avenue. Car parking spaces would be available on-site for the operational workforce and visitors at the IMT facility. In addition, internal roads within the site would enable heavy and light vehicle movements around the warehousing area. Car parking would also be provided for each warehouse at a ratio of 1:300 per GFA of warehousing and 1:40 per GFA for offices, as detailed in Section 4.2.3 of the EIS.

Car parking spaces would be calculated based on projected staffing numbers for both the IMT and warehousing, and would take into account overlap for change of shift.

A summary of the truck and car numbers for the operation of the Proposal are provided in Table 4-14.

Table 4-14:Operational truck and car movements

Trip type		Vehicle movements per day (2-way round trip)
Truck movements	External truck trips via external road network	1,458
Car movements	IMT facility	292
	Warehouses/freight village	2,378
	Total Daily Employee Car Trip Generation (IMT facility and warehouses)	2,670

As discussed in Section 4.2.2 of the EIS, access to the Rail link connection would also be available via the new access off Moorebank Avenue. Access would be provided and retained for Sydney Trains, ARTC and operators of the Rail link connection.

Rail traffic

During usual operations the IMT facility would accommodate up to 12 train movements per day (6 in each direction).

The on-site rail operation for the Proposal is as follows:

- A train arrives to the IMT facility via the Rail link connection and enters one of the available rail roads
- The locomotive is detached and shifted to an empty rail road using the locomotive shifter
- The locomotive is shunted back to the entry road (southern part of the IMT facility) and is attached to a set of wagons that is ready to depart

- The locomotive attaches to the set of wagons and departs the proposed IMT facility when a path is available.

It is anticipated that, subject to unloading, trains would be processed within two and a half hours of entering the IMT facility. Access to train paths has been developed in consultation with ARTC, who have confirmed sufficient paths are available to service the Proposal.

Interprecinct movements

In addition to the above rail and road movements, movements would also occur between the MPW and MPE sites. These movements would primarily include the transfer of heavy vehicles from the proposed MPW Stage 2 entrance to the MPE site.

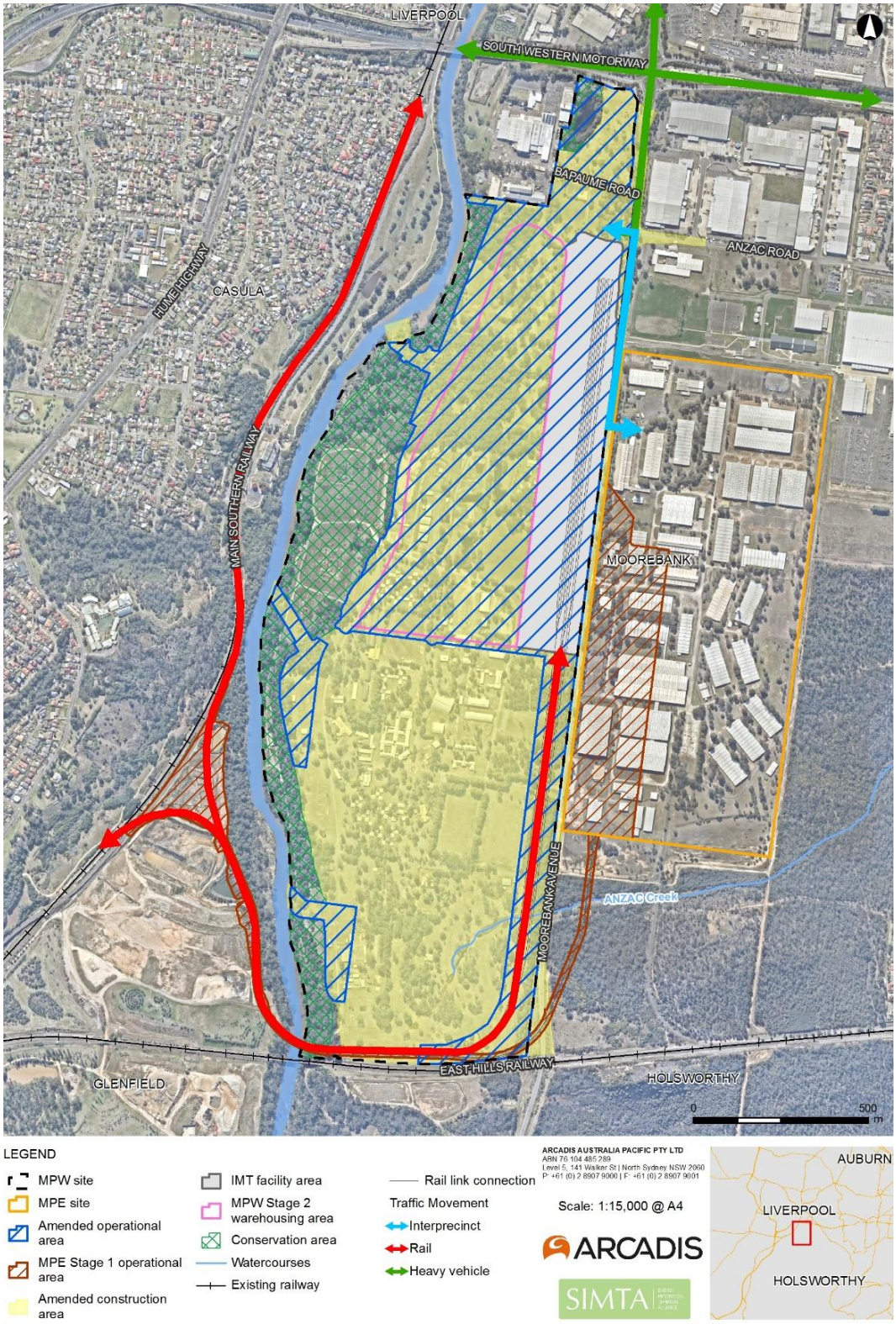

Figure 4-11: Operational traffic movements

4.4.7 Site security

The Proposal includes a number of on-site security measures to ensure the protection and safety of the Proposal site, its employees and authorised visitors. Security at the Proposal site would include:

- Fencing around the perimeter of the Proposal site, and potentially the Rail link connection, which is envisaged to include palisade fencing and chain-link fencing along the Moorebank Avenue boundary and chain-link at other locations (refer to Section 4.2.7 of the EIS)
- A controlled site access system including electronic truck processing
- A controlled circuit television (CCTV) security system at key locations including site entrances and along boundaries
- An integrated telecommunications system which involves connection to all main buildings and structures.

4.4.8 Operational Environmental Management Plan

An Operational Environmental Management Plan (OEMP) would be prepared to provide the overarching framework for the management of all potential environmental impacts resulting from the operation of the Proposal.

A number of operational related management plans have been prepared for the Proposal, including:

- Preliminary Operational Traffic Management Plan prepared by Arcadis (refer to Appendix M of the EIS)
- Air Quality Management Plan (refer to Appendix O of the EIS)
- Stormwater and Drainage Design Drawings (refer to Appendix R of the EIS).

These management plans, along with others, would form the basis of the OEMP to be prepared for the Proposal, prior to operation.

This Proposal also seeks approval for ongoing maintenance which would be undertaken periodically throughout operations. Maintenance would include, but not be limited to:

- Pavements: Ongoing surface and joint repair depending on the pavement type, with subgrade repair where necessary
- Stormwater: Regular sediment and pollutant clean out and repairs to drainage infrastructure, including six monthly maintenance of gross pollutant traps (GPTs)
- ***Ongoing vegetation management and weed control***
- Electrical and Communications equipment: Ongoing maintenance and replacement where necessary. Equipment includes light poles, distribution boards, CCTV, boom gates, card readers etc.
- Line marking and other ancillary road furniture: Line marks would be re-lined and road furniture repaired or replaced as necessary
- Fencing and gates: Ongoing fence and gate repair
- Terminal and warehouse: Ongoing infrastructure and plant/equipment repair and replacement as necessary
- Rail: Regular signal testing and replacements, rail inspections, rail tamping, stabilising and grinding, turnout and sleeper replacements and repair as required.

Relevant activities and management measures would be detailed in the OEMP.