

Moorebank Precinct East - Stage 2 Proposal

Response to Submissions

Appendix I: Consolidated Proposal
Description



SIMTA

SYDNEY INTERMODAL TERMINAL ALLIANCE

Part 4, Division 4.1, State Significant
Development

Prelude

This section of the RtS has been prepared to provide a consolidated description for the construction and operational activities for which approval is sought. This section combines both the Proposal (presented in the EIS) and the amendments to the Proposal (presented in Section 6 of this RtS) to clearly identify the components which relate to the MPE Stage 2 Proposal and provided a consolidated project description for the Amended Proposal.

The Proposal description (Section 4 of the EIS) has been used as the basis for this section. All amendments to the Proposal description have been identified, with words proposed to be deleted shown in ~~**bold italic strike through**~~ and words to be inserted 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 Proposal amendments in Section 6 of this RtS. For ease of reference, in this section only, the term 'Proposal' has been used below to describe the Amended Proposal (i.e. Proposal including proposed amendments to the 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 Stage 2 of the MPE Project (the Proposal), comprising warehousing and distribution facilities on the MPE site (the MPE Stage 2 site), and upgrades to approximately ~~4.4~~ **1.5** kilometres of Moorebank Avenue (the Moorebank Avenue upgrade). The Moorebank Avenue upgrade commences from approximately ~~95~~ **35** metres south of the northern boundary of the MPE site to approximately ~~120~~ **185** metres south of the southern MPE site boundary. The Moorebank avenue upgrade is located within the existing Moorebank Avenue road corridor and along the eastern boundary of the MPW site (refer to Section 4.1.1 of this document, for more information on property ownership).

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

- *Architectural Drawings* (Reid Campbell, 2016) provided at Appendix D of the EIS **and as amended in Appendix B of this RtS.**
- *Landscape Design Statement and Plans* (Ground Ink, 2016) provided at Appendix E of the EIS **and as amended in Appendix B of this RtS.**
- *Utilities Strategy Report* (Arcadis, 2016) provided at Appendix F
- *Preliminary Construction Environmental Management Plan* (Arcadis, 2016) provided at Appendix G **and the Environmental Work Method Statement (refer to Appendix I of the RtS)**
- *Preliminary Construction Works Drawings prepared by Arcadis and provided at Appendix H*
- *Stormwater and Flooding Impact Assessment* (Arcadis, 2016) and *Civil Works Drawings* (Arcadis, 2016) provided at Appendix P of the EIS **and as amended in Appendix F of this RtS.**

The design of the Proposal has been prepared to progress and further refine the design identified in the MPE Concept Plan Approval (MP 10_0193) (as modified). The design for the Proposal has been altered and updated to maximise the efficiency of the site operations, and reduce the overall impact of the Proposal on the environment, where possible (refer to Section 6 and Sections 7 to 20 of the EIS **and Section 7 of this RfS** for further information).

4.1 Proposal Overview

The Proposal involves the construction and operation of Stage 2 of the MPE Project, comprising warehousing and distribution facilities on the MPE site and upgrades to approximately ~~4.4~~ **1.5** kilometres of Moorebank Avenue from approximately ~~95~~ **35** metres south of the northern boundary of the MPE site to approximately ~~120~~ **185** metres south of the southern MPE site boundary.

Key components of the Proposal include:

- Warehousing comprising approximately 300,000m² GFA and additional ancillary offices
- A freight village, comprising 8,000m² GFA of retail, commercial and light industrial land uses
- Establishment of an internal road network, and connection of the Proposal to the surrounding public road network
- Ancillary supporting infrastructure within the Proposal site, including:
 - Stormwater, drainage and flooding infrastructure
 - Utilities relocation and installation
 - Vegetation clearing, remediation, earthworks, signage and landscaping
- Subdivision of the MPE Stage 2 site
- The Moorebank Avenue upgrade, which comprises the following key components:
 - Modifications to the existing lane configuration, including some widening
 - Earthworks, including construction of embankments and tie-ins to existing Moorebank Avenue road level at the Proposal's southern and northern extents
 - Raking of the existing pavement and installation of new road pavement
 - Establishment of temporary drainage infrastructure, including temporary basins and / or swales
 - Adjusting the vertical alignment by about two metres from the existing levels, including kerbs, gutters and a sealed shoulder
 - Signalling and intersection works
- Upgrading existing intersections along Moorebank Avenue, including:
 - Moorebank Avenue / MPE Stage 2 access
 - Moorebank Avenue / MPE Stage 1 northern access
 - Moorebank Avenue / MPE Stage 2 central access
 - MPW Northern Access / MPE Stage 2 southern emergency access.

The Proposal would interact with the MPE Stage 1 Proposal (SSD_6766) via the transfer of containers between the MPE Stage 1 IMT and the Proposal's warehousing and distribution facilities. This transfer of freight would be via a fleet of heavy vehicles capable of being loaded with containers and owned by SIMTA. The fleet of vehicles would be stored and used on the MPE Stage 2 site, but registered and suitable for on-road use. The Proposal is expected to operate 24 hours a day, seven days per week.

An overview of the Proposal is shown in Figure 4-1.

Construction of the Proposal would occur over a period of approximately 24-36 months. Construction is considered to include all work in respect of the Proposal other than, pre-construction works, namely:

- **works within Works period A (pre-construction activities), including:**
 - **Establishment of site access points**
 - **Importation, stockpiling and placement of clean general fill for site preparation activities**
 - **Installation of site fencing**
 - **Remediation, where required, including unexploded ordnance (UXO), exploded ordnance (EO) and exploded ordnance waste (EOW) management.**
- **survey; acquisitions; or building/ road dilapidation surveys; fencing; investigative drilling, excavation or salvage**
- **clearing any native vegetation within the Amended construction area, with the exception of the southern and eastern swales located outside of the MPE site**
- **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.**

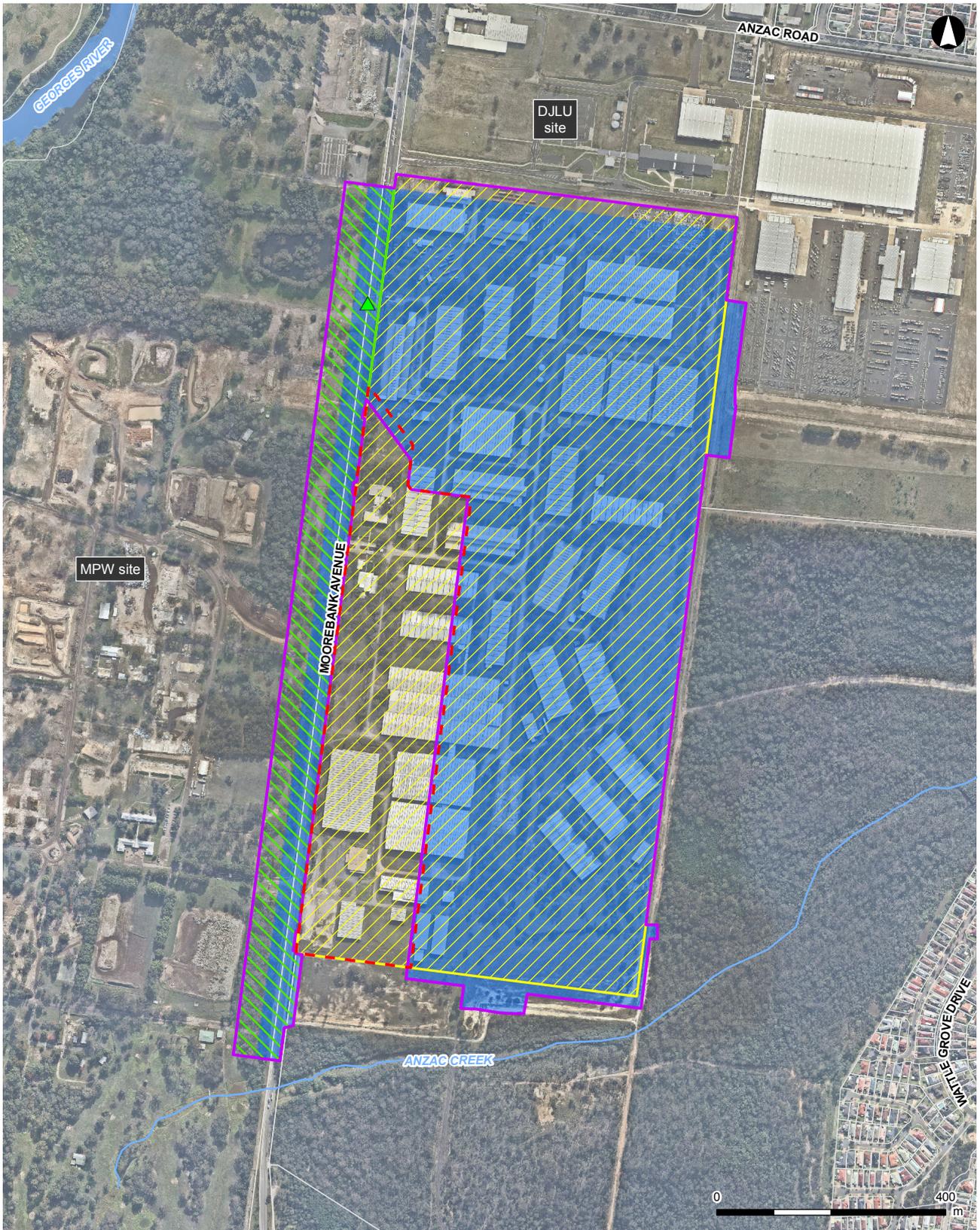
Key construction activities occurring during the construction period include, but are not limited to, the following:

- **Vegetation clearance within the southern and eastern swales**
- **Demolition of existing buildings and infrastructure on the Proposal site**
- **Earthworks (with the exception of importation, stockpiling and placement of clean general fill for site preparation activities undertaken during pre-construction)**
- **Drainage and utilities installation**
- **Establishment of hardstand across the Proposal site**
- **Establishment of a temporary batching plant (potential including concrete, cement and pre-mix and hot-mix works) and materials crushing (inc. grinding and separating) and testing**
- **Construction of a temporary diversion road to allow for traffic management along the Moorebank Avenue site during construction (including temporary signalised intersections adjacent to the existing intersections) (the Moorebank Avenue Diversion Road)**
- **Upgrade of Moorebank Avenue including:**

- **Adjustment of the formation level and levelling of Moorebank Avenue**
- **Road pavement and intersection works along Moorebank Avenue**
- **Establishment of a site vehicle entrance to the MPE Stage 2 site from Moorebank Avenue**
- **Construction of the warehouses and warehouse access roads**
- **Fit-out of warehousing**
- **Construction of warehouses and distribution facilities, ancillary offices and the ancillary freight village**
- **Construction works associated with signage, landscaping, stormwater and drainage works.**

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

MPE Stage 2 Response to Submissions



LEGEND

-  MPE site
-  MPE Stage 1 operational area
-  Amended operational area
-  Amended construction area
-  Moorebank Avenue Upgrade
-  Site access
-  Watercourse
-  Cadastre

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 Aerial imagery supplied by nearmap (May, 2017)

1:10,000 at A4





Figure 4-1: Overview of the Proposal

4.1.1 Property ownership and rights

The Proposal site is mostly located within Lot 1 DP1048263, owned by SIMTA and Lot 2 DP 1197707, owned by the Commonwealth of Australia. There are a number of additional lots which will be directly impacted or have the potential to be directly impacted by the Proposal. The land which would be directly impacted by the Proposal is subject to the refinement of the Proposal during detailed design.

A summary of potential lots affected by the Proposal is provided in Table 4-1. The ownership plan relating to these properties is provided in Section 2 of the EIS.

Table 4-1 Properties potentially affected by the Proposal

Lot	DP	Property address / description	Owner	Within MPE Stage 2 site footprint	Within Moorebank Avenue site
1	1048263	The MPE site	SIMTA (Qube Holdings).	✓	×
1	1197707	The MPW site	Commonwealth of Australia	×	✓
2	1197707	Moorebank Avenue (south of Anzac Road)	Commonwealth of Australia	×	✓
4	1197707	Boot Land	Commonwealth of Australia	✓	×
3002	1125930	DJLU	Commonwealth of Australia	✓	×

4.2 Built form

The key built form elements of the Proposal include warehouses, the freight village, internal site roads and Moorebank Avenue. In addition, a number of ancillary works will be undertaken, including:

- Water management works
- Landscaping
- Parking
- Utilities
- Lighting
- Signage
- Subdivision of the MPE Stage 2 site.

These elements are described in detail in the following sections (4.2.1 to 4.2.6). When considering the built form of the Proposal, reference should be made to the drawings, statements and plans listed at the beginning of this section of this RtS.

4.2.1 Warehousing

The Proposal would provide up to 300,000m² of warehousing across the MPE Stage 2 site, with ancillary offices attached. The Proposal would include eight warehouses, which would be up to 21 metres in height and would range in size from 20,350m² to ~~61,500m²~~ **57,800m²**. 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.

An indicative layout of warehousing on the MPE Stage 2 site is shown in Figure 4-2.

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
- 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, including backlit illuminated signage on each warehouse (refer to Architectural drawings at Appendix D)
- Internal fitout, comprising racking and storage.

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

The Proposal seeks approval for the provision of eight warehouses, located to the north and east of the MPE Stage 1 Proposal, within the MPE site. A summary of the warehousing to be provided within the MPE Stage 2 site as part of the Proposal is provided in Table 4-2 below.

The warehouses included in the Proposal would be of a high design quality. The warehouse materials and finishes would be compatible and blend with surrounding land uses. A schedule of the indicative colour palette for the proposed warehouses and other structures is provided in the *Architectural Drawings* (Appendix D of the EIS **and as amended in Appendix B of this RtS**) and summarised in Table 15-9 of the EIS.

Table 4-2 New warehouses seeking approval as part of the Proposal

Warehouse no.	General location on the MPE Stage 2 site	Size (m ²)	Ancillary office size (m ²)	Car parking spaces
1	In the north-western corner of the MPE Stage 2 site. Warehouse 1 is bounded by a car park and the ancillary freight village in the north, service road 1 in the east, internal road 1 in the south and the MPE Stage 2 site access and Moorebank Avenue in the west.	36,700 <u>35,700</u>	1,000	153 <u>150</u>
2	In the north-eastern corner of the Proposal site. Warehouse 2 is bounded by the northern OSD in the north and east , internal road 2 in the east, internal road 1 in the south and the central OSD to the west.	61,500 <u>57,800</u>	1,000	222 <u>215</u>
3	South of Warehouse 2 and is bounded by internal road 1 in the north, internal road 2 in the east, service road 2 in the south and an internal transfer road, central OSD and car parking in the west.	22,700	1,000	144 <u>101</u>
4	South of Warehouse 3. It is bounded by service road 2 in the north, internal road 2 in the east, warehouse 6 and an internal road in the south and an internal transfer road, and the central OSD and car parking in the west. Warehouse 4 is separated from Warehouse 6 via an inter-tenancy wall.	20,350	1,000	94 <u>106</u>
5	Warehouse 5 is located in the centre of the Proposal site and bounded by internal road 1 in the north, internal transfer road, central OSD and car parking in the east, Warehouse 8 in the south and the Stage 1 IMT facility in the west.	57,000	1,000	205 <u>215</u>
6	Immediately South of Warehouse 4, bounded by Warehouse 4 and an internal road in the north, internal road 2 in the east, service road 3 in the south and an internal transfer road, and the central OSD and car parking in the west.	20,350	1,000	84 <u>95</u>
7	In the south-east corner of the Proposal site and bounded by service road 3 in the north, internal road 2 in the east, the southern OSD in the south and an internal	24,400	1,000	144 <u>115</u>

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Warehouse no.	General location on the MPE Stage 2 site	Size (m ²)	Ancillary office size (m ²)	Car parking spaces
	transfer road, central OSD and car parking in the west.			
8	South of Warehouse 5 and bounded by an internal transfer road in the north, internal transfer road, central OSD and car-parking in the east, an internal transfer road and the southern OSD in the south and the Stage 1 IMT facility in the west	57,000	1,000	<u>205215</u>
Total		300,000 <u>295,300</u>	8,000	<u>12481,212</u>

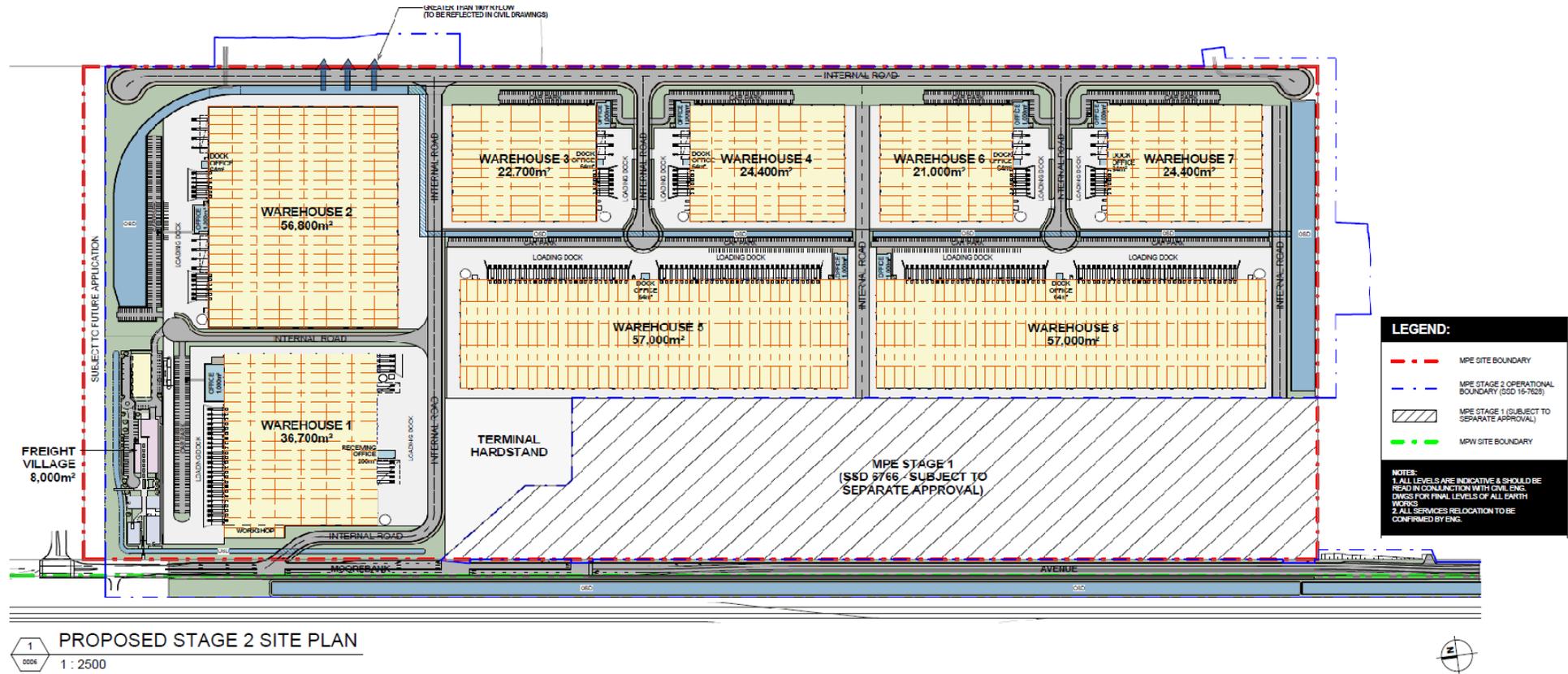


Figure 4-2 Indicative Proposal warehousing layout

4.2.2 Ancillary freight village

The Proposal would include the provision of a freight village on the MPE Stage 2 site. The freight village would be located in the north-western corner of the MPE site, directly north of Warehouse 1 and east of Moorebank Avenue.

The freight village would include five buildings which would provide for a mixture of retail, commercial and light industrial land uses, with a combined GFA of approximately 8,000m². An overview of buildings within the ancillary freight village is provided in Table 4-3. An indicative layout of the freight village is provided in Figure 4-3.

Table 4-3 Overview of buildings within the freight village

Building No.	No. of storeys*	Purpose	GFA (m ²)
A	1	Light industrial	1,080
B1	1	Retail	997
B2	1	Retail	223
C	4	Commercial	4,560
D	3	Commercial	1,143
Total GFA (m ²)			8,003

*Number of storeys in multi-level buildings includes the ground floor

The freight village would include the provision of:

- Food outlets
- Amenities
- Loading dock(s)
- A services area
- A services corridor
- Landscaping
- Car parking (230 spaces), including basement parking.

The indicative layout of the freight village is show on Figure 4-3.

Buildings and structures within the freight village would be up to 15 m in height and of varying size and design, as detailed in Section 15 (visual amenity, landscape and urban design). The Proposal would also include the internal fitout of these buildings, including utilities and services. The Proposal seeks approval for the construction of this freight village, and the operation of these premises by future tenants.

Associated with this built form are 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 throughout this section of the RtS.

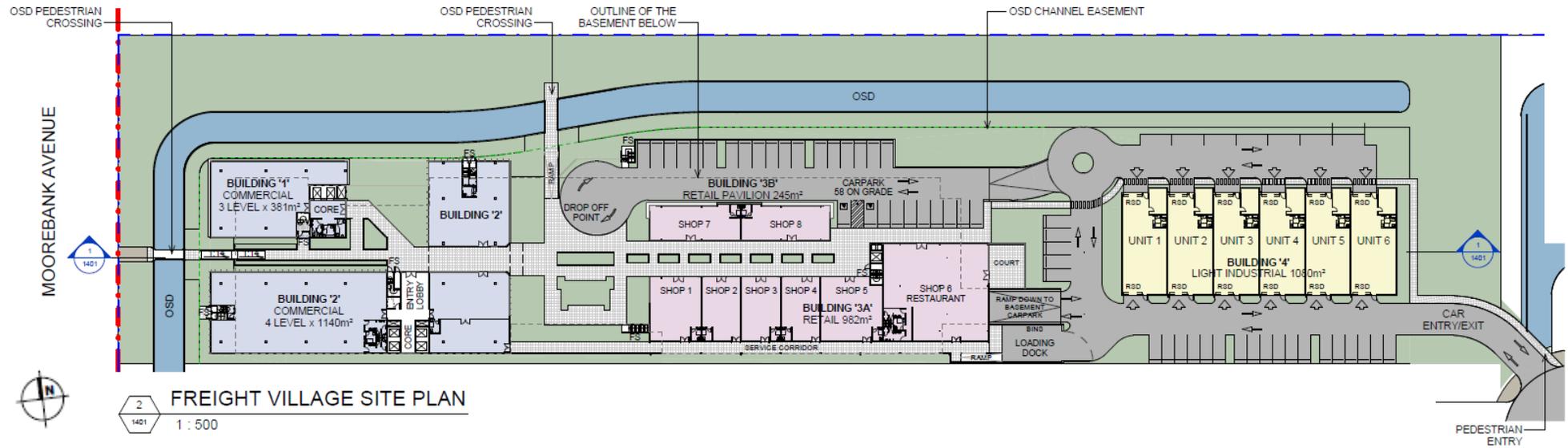


Figure 4-3 Indicative layout of the Freight Village

4.2.3 Vehicle Movement and Access – Internal roads

An internal road network would be provided within the MPE Stage 2 site as part of the Proposal which would:

- Enable the efficient movement of vehicles throughout the MPE Stage 2 site, and for the dispatch of freight from the warehouses
- Facilitate the transport of containers between the Stage 1 IMT facility and the warehouse and distribution facilities within the MPE Stage 2 site.

Traffic circulation throughout the MPE Stage 2 site would be through a combination of internal roads, service roads and internal transfer roads. The road network throughout the MPE Stage 2 site is shown on Figure 4-4.

MPE Stage 2 site access

Access to and from the MPE Stage 2 site would be via the existing Moorebank Avenue intersection with the northern DSNDC site access (at Ch.900 along Moorebank Avenue). The MPE Stage 2 site access is located to the north of the MPE Stage 1 Proposal (refer to Figure 4-1) and would allow for vehicular access to warehouse and distribution facilities to enable the direct delivery and dispatch of goods to the warehouses.

The MPE Stage 2 site access would be signalised, and configured as follows:

- Moorebank Avenue southbound:
 - One left-turning slip lane, providing entry into the MPE Stage 2 site and one through lane along Moorebank Avenue on the northern leg of the intersection
 - Two through lanes continuing along Moorebank Avenue on the southern side of the intersection
- Moorebank Avenue northbound:
 - Two through lanes along Moorebank Avenue on the southern leg of the intersection
 - Two through lanes, merging into one northbound lane along Moorebank Avenue on the northern side of the intersection
- MPE stage 2 site access road:
 - One entry lane, from Moorebank Avenue. Entry to the MPE Stage 2 access road would be provided from the southbound carriageway of Moorebank Avenue via a slip-lane. The MPE Stage 2 site access would be provided from the northbound carriageway of Moorebank Avenue via a right-turn signal provision at the intersection.
 - One exit lane onto Moorebank Avenue. The exit lane would provide for access to both the northbound and southbound carriageways of Moorebank Avenue.

The MPE Stage 2 site access point is shown on Figure 4-1.

Traffic circulation within the MPE Stage 2 site

During the interim stages of operation, the traffic circulation throughout the MPE Stage 2 site would be via a combination of the roads described below (i.e. the final configuration) and the use of modified existing roads. Interim vehicle movement and access throughout the MPE Stage 2 site would be included in the relevant environmental management plans for operation of the Proposal, including the Construction Traffic Management Plan and Operational Traffic Management Plan.

Internal roads

The MPE Stage 2 site includes two main internal roads, which provided the main east-west and north-south traffic movements throughout the MPE Stage 2 site. On entering the MPE Stage 2 site, light and heavy vehicles would travel along an east-west oriented internal road (internal road 1). Internal road 1 would connect at its easternmost point to a second north-south oriented internal road (internal road 2).

Internal roads 1 and 2 would connect to three service roads which would provide vehicle access to warehouses, loading docks and car parking.

Internal road 2 would provide for traffic movements along the entire eastern perimeter of the Proposal, and would have a cul-de-sac at both the northern and southern ends to allow vehicles to turn around. The internal roads would be two lanes wide (one lane in each direction) and would be wide enough to accommodate heavy vehicle turning movements, including B-doubles.

Service roads

Three service roads would connect to the internal roads within the MPE Stage 2 site. The service roads would provide access to loading docks at warehouses for heavy vehicles to park and be packed with materials which have been received and stored within the warehouses. Service roads would also enable access to light vehicle parking for users of the warehouses. Each service road would have a cul-de-sac for vehicles to turn around, which would be able to accommodate turning movements of B-doubles.

Service road 1 would connect to internal road 1 via a T-intersection, and would provide access to Warehouse 1, Warehouse 2 and the ancillary freight village. Two additional service roads would connect to internal road 2 via t-intersections; service road 2 would provide access for warehouses 3, 4 and 5, and service road 3 would provide access to warehouses 6, 7 and 8.

Transfer roads

There would be three Transfer roads within the MPE Stage 2 site. These roads would provide connections between the warehouses and the MPE Stage 1 IMT. It is intended that the transfer of freight between the Stage 1 IMT and warehouses would be via an internal fleet of vehicles which would remain on the MPE Stage 2 site and would not use the external road network.

Transfer road 1 would travel mostly along the same path as internal road 1 and provide access between the Stage 1 IMT facility and Warehouses 1, 2 and 3. Transfer road 2 would travel through the centre of the MPE Stage 2 site and would provide access between the Stage 1 IMT facility and Warehouses 4, 5, 6 and 8. Transfer road 3 would travel along the southern boundary of the MPE site, and provide access between the Stage 1 IMT facility and Warehouses 7 and 8.

With the exception of transfer road 1, which travels along the same path as internal road 1, the movement of internal fleet vehicles along transfer roads would be separated from light and heavy vehicles entering and exiting the MPE Stage 2 site to maintain efficiency and to provide for a safe internal road network.

4.2.4 Roadworks – Moorebank Avenue

As part of the Proposal, Moorebank Avenue would be upgraded for about ~~4.4~~ 1.5 kilometres. The Moorebank Avenue upgrade commences from approximately ~~95~~ 35 metres south of the northern boundary of the MPE site to approximately ~~120~~ 185 metres south of the southern MPE site boundary. The Moorebank avenue upgrade is located within the existing Moorebank Avenue road corridor and along the eastern boundary of the MPW site (refer to Figure 4-1 for extent of works).

The Moorebank Avenue upgrade would be comprised of the following key components:

- Modifications to the existing lane configuration, including some widening
- Signalling and intersection works.
- Adjusting the vertical alignment by about two metres from the existing levels, including kerbs, gutters and a sealed shoulder

An assessment of the traffic and transport-related impacts associated with the Moorebank Avenue upgrade is provided in Section 7 (Traffic and transport) and Appendix K of the EIS, **and Section 7 and Appendix C of this RfS.**

Lane configuration

The Moorebank Avenue upgrade would provide for the integration of the Proposal with the wider Moorebank Precinct works and to tie-in to Moorebank Avenue north of the **Proposal Anzac Road/Moorebank Avenue intersection.**

The arrangement of lanes along Moorebank Avenue as part of the Proposal would include:

- Four lanes from the northern extent of the Moorebank Avenue upgrade to the MPE Stage 1 central access.
- Two lanes between the MPE Stage 1 central access to approximately ~~120~~ 185 metres south of the MPE site.

The lanes would generally be 3.5 metres wide central travel lanes, with 4.2 metres wide kerbside travel lanes with a 4.5 metre verge along both the northbound and southbound carriageways to allow for the relocation and installation of utilities and services.

An indicative cross section of the four-lane section of Moorebank Avenue is shown in Figure 4-5, and an indicative cross section of Moorebank Avenue within the two-lane section is shown in Figure 4-6.

Intersection upgrades

The Proposal includes upgrades to four intersections along Moorebank Avenue:

- The Moorebank Avenue / MPE Stage 2
- Moorebank Avenue / MPE Stage 1 northern access
- Moorebank Avenue / MPE Stage 1 central access
- Moorebank Avenue / MPE Stage 1 southern emergency access.

The Moorebank Avenue / MPE Stage 2 site access intersection would be upgraded to provide additional lanes, and the intersection would be signalised (refer to Section 4.2.3 for more information relating to the upgraded configuration of this intersection).

The upgrades to the following intersections would involve the provision of a wider road pavement, the establishment of kerb and guttering and tie-in works to the revised vertical alignment of Moorebank Avenue:

- Moorebank Avenue / MPE Stage 1 northern access (tie-in works only)
- Moorebank Avenue / MPE Stage 1 central access
- Moorebank Avenue / MPE Stage 1 southern emergency access.

Road alignment

The horizontal alignment of Moorebank Avenue is not expected to change significantly as a result of the Proposal, with the upgraded road remaining primarily within the existing Lot 2 of DP1197707.

As part of the Proposal, the vertical alignment of Moorebank Avenue within the operational footprint of the Moorebank Avenue upgrade (refer to Figure 4-1) would be adjusted by approximately two metres. At the northern and southern extents of this work, the vertical alignment would be graded to tie-in to the remainder of Moorebank Avenue.

Pedestrian and cyclist access

To accommodate pedestrian and cyclist access through the Proposal site, a shared path would be provided on the western side of Moorebank Avenue. Pedestrian and cyclist crossing facilities would be provided at intersections along the Moorebank Avenue upgrade.

Pedestrian and cycling provisions within the MPE Stage 2 site would also be provided for employees. The proposed connectivity between the Proposal site and the surrounding pedestrian and cycling network is described further in Section 7 and Appendix K of the EIS.

Public transport

To improve bus transport access to the Proposal, additional bus stops are proposed near the Moorebank Avenue / MPE Stage 2 site access intersection and on the internal roads in order to provide a reasonable walking distance to all proposed warehouses and offices within the MPE Stage 2 site. The final location of bus stops along Moorebank Avenue would be determined in consultation with Transport for NSW. Additional information regarding public transport provisions is provided in Section 7 and Appendix K of the EIS.

MPE Stage 2 Response to Submissions



LEGEND

- MPE site
- MPE Stage 1 operational area
- Amended operational area
- Road
- Warehousing
- Watercourse

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 Date issued: July 6, 2017
 Aerial imagery supplied by nearmap (May, 2017)

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Figure 4-4: Vehicle movement and access within the Proposal site

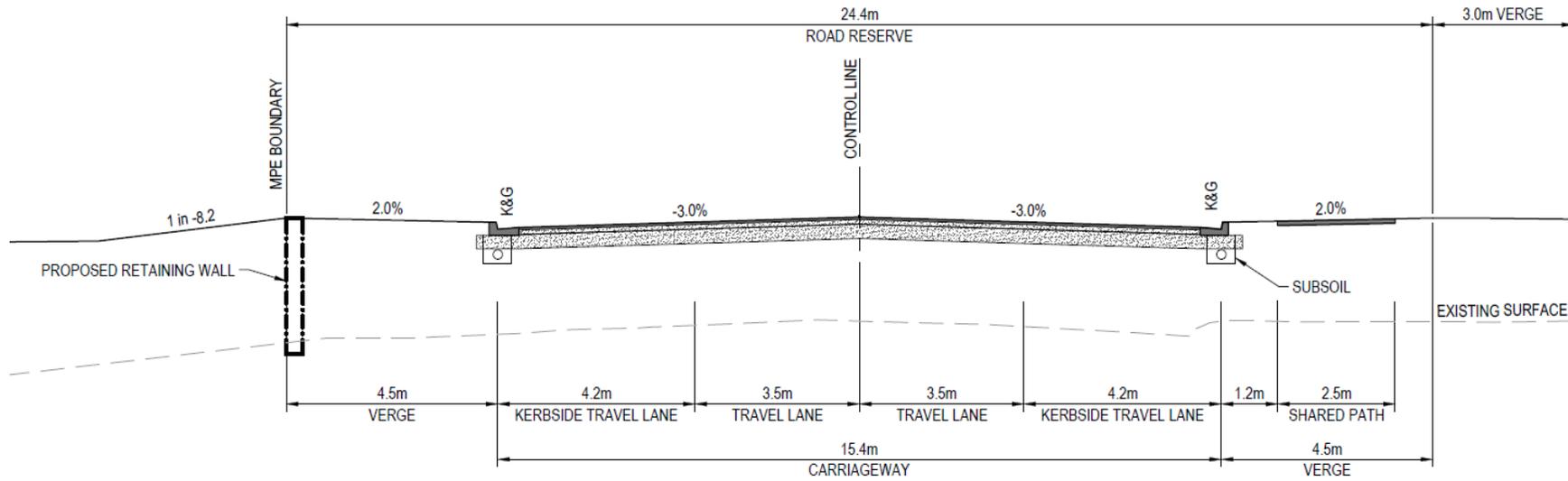


Figure 4-5 Indicative cross section – Moorebank Avenue 4 lane configuration

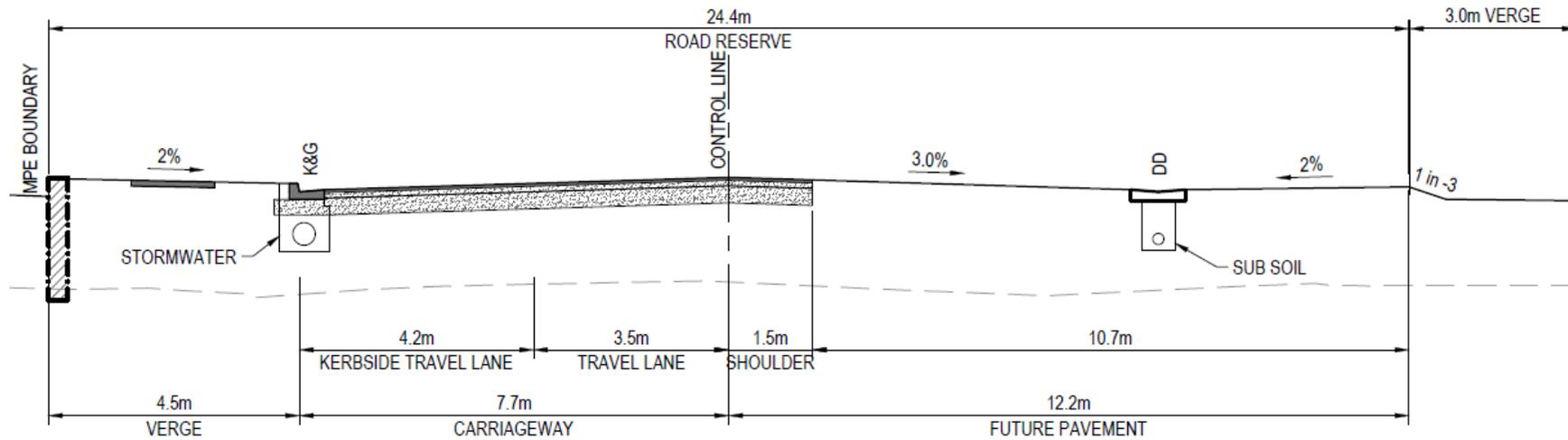


Figure 4-6 Indicative cross section – Moorebank Avenue 2 lane configuration

4.2.5 Ancillary works

Water management works

The Proposal would include the installation of stormwater, drainage and flooding infrastructure throughout and surrounding the Proposal, comprising stormwater infrastructure within the MPE Stage 2 site and along road corridor subject to the Moorebank Avenue upgrade, and the provision of on-site detention basins (OSDs).

The *Stormwater Drainage Design Drawings* provided at Appendix P of the EIS (**as amended in Appendix F of this RtS**) show the layout of the surface water catchment, treatment and drainage systems to be installed across the Proposal site. A summary of the drainage for the Proposal site is shown in Figure 4-2.

Existing MPE Stage 2 site runoff

Currently, stormwater generated on the MPE Stage 2 site is carried through formal open grass lined channels to three discharge points. Flows on the eastern portion of the Proposal site move in an eastward direction to pipes and headwalls under Greenhills Road, discharging to Anzac Creek through two points (Outlet A and B).

Stormwater flows on the western portion of the site (from both the eastern and western side of Moorebank Avenue) are collected in a formal concrete lined channel which runs within the site parallel to Moorebank Avenue. These channel flows discharge via a culvert under Moorebank Avenue (Outlet C) into a channel which leads to Georges River.

Stormwater infrastructure

A pit and pipe system would be installed across the Proposal site to collect and transport stormwater runoff into stormwater drains and culverts. Water would then flow to one of four OSDs prior to being discharged into local waterways via three existing discharge points:

- At the north-eastern boundary of the MPE Stage 2 site, which discharges runoff into Anzac Creek
- At the south-eastern boundary of the MPE Stage 2 site, which discharges runoff into Anzac Creek
- At the north-western boundary of the MPE Stage 2 site, which discharges runoff into the Georges River via a drainage channel that flows through the MPW Site.

Stormwater runoff along the section of Moorebank Avenue being upgraded as part of the Proposal would be conveyed through a pit and pipe system to the western OSD, located to the west of Moorebank Avenue. Water from the OSD would then discharge to a culvert that flows westwards through the MPW site and discharges to the Georges River.

On-site detention

The Proposal would include the use of four OSDs. The four basins are summarised and described in more detail in Section 12 of the EIS.

Table 4-4 Summary of on-site detention to be provided across the Proposal site

OSD No.	Location	Catchment Area (ha ^{m2})	Volume (m ³)
1	OSD 1 is located along the northern <i>boundary and eastern boundaries</i> of the MPE Stage 2 site, immediately north <i>and east</i> of Warehouse 2. <i>OSD 1 also travels through the centre of the MPE Stage 2 site to transfer road 2.</i>	<i>28.9931.61</i>	<i>27,40022,750</i>
2	OSD 2 is located along the southern boundary of the MPE Stage 2 site, immediately south of Warehouse 7 and 8. OSD 2 also travels through the centre of the MPE Stage 2 site to transfer road 2.	16.17	16,600
9	OSD 9 is located along the northern boundary of the MPE Stage 2 site, immediately north of the freight village, and along the western boundary of the MPE Stage 2 site, immediately adjacent to the freight village and warehouse 1	11.91	8,000
10	OSD 10 is located within the Moorebank Avenue site and within the MPW site. The OSD is located immediately west of Moorebank Avenue.	42.20	24,000

Vegetation removal and landscaping

It is anticipated that all necessary vegetation would be removed from the construction footprint (refer to Figure 4-8 for construction footprint). The majority of vegetation clearance would be undertaken at the commencement of construction and then periodically throughout the construction of the Proposal.

Landscaping would be undertaken on the site as part of the Proposal. The Landscape Design Statement and Plans (Appendix E of the EIS ***and as amended in 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. Specific urban design principles have been developed for the Proposal as part of the MPE Concept Plan Approval. These would be implemented through the landscape design for the Proposal. Further details regarding landscaping is provided in Section 15 (Visual amenity, urban design and landscape).

As the Proposal is located adjacent to areas of established vegetation to the east, the landscape design of the Proposal aims to integrate the Proposal site into the broader environment through the use of species local to the area.

Landscaping along Moorebank Avenue would include extensive tree and shrub planting on road frontages that would provide visual relief from the industrial appearance of the proposal, with a layered approach along the streetscape. This landscaping would include a mix of trees, shrubs and turfed areas.

Tree plantings would be provided around the warehousing and within the car parking 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.

Signage

Signs would be located at a number of locations across the MPE Stage 2 site. These signs would be for the purposes of way finding and access to and from the Warehouses. Each warehouse would also include branded signage which would be backlit illuminated. A Signage Plan has been prepared for primary site identification signage (only) and is included within the *Architectural Drawings* at Appendix D of the EIS **and as amended in Appendix B of this RtS**.

A summary of the type of signs that are to be included within the MPE Stage 2 site is provided in Table 4-5 and in the *Architectural Drawings* (Appendix D of the EIS **and as amended in Appendix B of this RtS**).

Table 4-5 Proposal signage within the MPE Stage 2 site

Signage type	Dimensions	General locations
Type 1 – Street entry signage	Maximum 6 m height	Main site entrance off Moorebank Avenue
Type 2 – Tenant identification signage	Maximum 5 m height	Warehouse entrances along the internal road
Type 3 – Tenant directional signage	Maximum 3 m height	Within the warehousing area
<u>Type 4 – Corporate signage</u>	:	<u>Affixed to warehousing</u>

Traffic, locational and directional signage would be provided along Moorebank Avenue within the Proposal footprint, where required. All directional signage would be installed in accordance with the Austroads and Roads and Maritime standards, with a focus on providing clear and unambiguous direction to road users.

Lighting

Lighting would be provided around the warehouse entry and exit points, ancillary offices and along the perimeter road and internal transfer roads to allow for 24 hour operations. Lighting design is provided within the Light Spill Assessment (Appendix R). 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 21m. The lighting specifications are yet to be finalised; however, it is envisaged that lighting would comprise directional flood lighting with horizontal front glass tilted to focus on operational areas within the MPE Stage 2 site to minimise light spill.

Street lighting would be provided along the Moorebank Avenue upgrade, in accordance with *Australian Standard AS / NZS 1158: Lighting for roads and public spaces*.

Fencing

A palisade security fence would be installed along the western boundary of the MPE Stage 2 site, fronting Moorebank Avenue. An example of the fence is provided in Figure 4-7 (refer to the Architectural Drawings at Appendix D and Landscape Design Plans at Appendix E of the EIS 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 other boundaries of the Proposal site.



Figure 4-7 Palisade security fence example

Utilities relocation and installation

The MPE 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 Proposal. Utilities relocation and installation across the Proposal site would be completed in a staged manner. The existing utility supply to the Proposal site would be maintained until the proposed permanent utilities can be provided.

All external utilities required for the Proposal would be provided through the MPE Stage 1 site. No direct connections from the Proposal to any authority mains would be required. Additional information regarding utility connections, and the further discussion of the demand requirements is provided in Section 19.3 and the Utilities and Services Strategy included at Appendix F of the 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 (ESD) 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 waste water, 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 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).

4.2.6 Subdivision

It is intended that the MPE Stage 2 site would be subdivided as part of this application. The MPE Stage 2 site would be subdivided into a number of lots for the purpose of segregating the IMT and warehouse and distribution facilities, and also for the tenancing of individual warehouses within the MPE Site. A Draft Plan of Subdivision provided in Appendix I of the EIS and further detail is provided in Table 4-6.

Table 4-6 Subdivision of SIMTA site as part of the Proposal

Lot No.	DP	Size (ha)	General description
1	1048263	11.38	North-western corner of the Proposal Site
2	1048263	18.84	North-eastern corner of the Proposal Site
3	1048263	20.78	Central portion of the Proposal site, excluding land within the Stage 1 IMT facility
4	1048263	10.85	Southern portion of the Proposal site, excluding land within the Stage 1 IMT facility

In addition to this, a 7.5 metre wide water supply easement would traverse the site, through Lot 2 and Lot 3 of DP 1048263.

4.3 Construction

4.3.1 Construction methodology overview

The construction period for the Proposal is anticipated to be approximately 24-36 months and would commence towards the final stages of construction of the MPE Stage 1 Proposal. An overview of the construction layout for the Proposal is shown in Figure 4-8 and is detailed further in the *Preliminary Construction Works Drawings* (refer to Appendix H of the EIS).

Construction works would generally involve the following activities:

- Vegetation clearance within the southern and eastern swales
- Demolition of existing buildings and infrastructure on the Proposal site
- Earthworks (with the exception of importation, stockpiling and placement of clean general fill for site preparation activities undertaken during pre-construction)
- Drainage and utilities installation
- Establishment of hardstand across the Proposal site
- Establishment of a temporary batching plant (potential including concrete, cement and pre-mix and hot-mix works) and materials crushing (inc. grinding and separating) and testing
- Construction of a temporary diversion road to allow for traffic management along the Moorebank Avenue site during construction (including temporary signalised intersections adjacent to the existing intersections) (the Moorebank Avenue Diversion Road)
- Upgrade of Moorebank Avenue including:
 - Adjustment of the formation level and levelling of Moorebank Avenue
 - Road pavement and intersection works along Moorebank Avenue
- Establishment of a site vehicle entrance to the MPE Stage 2 site from Moorebank Avenue
- Construction of the warehouses and warehouse access roads
- Fit-out of warehousing
- Construction of warehouses and distribution facilities, ancillary offices and the ancillary freight village
- Construction works associated with signage, landscaping, stormwater and drainage works.

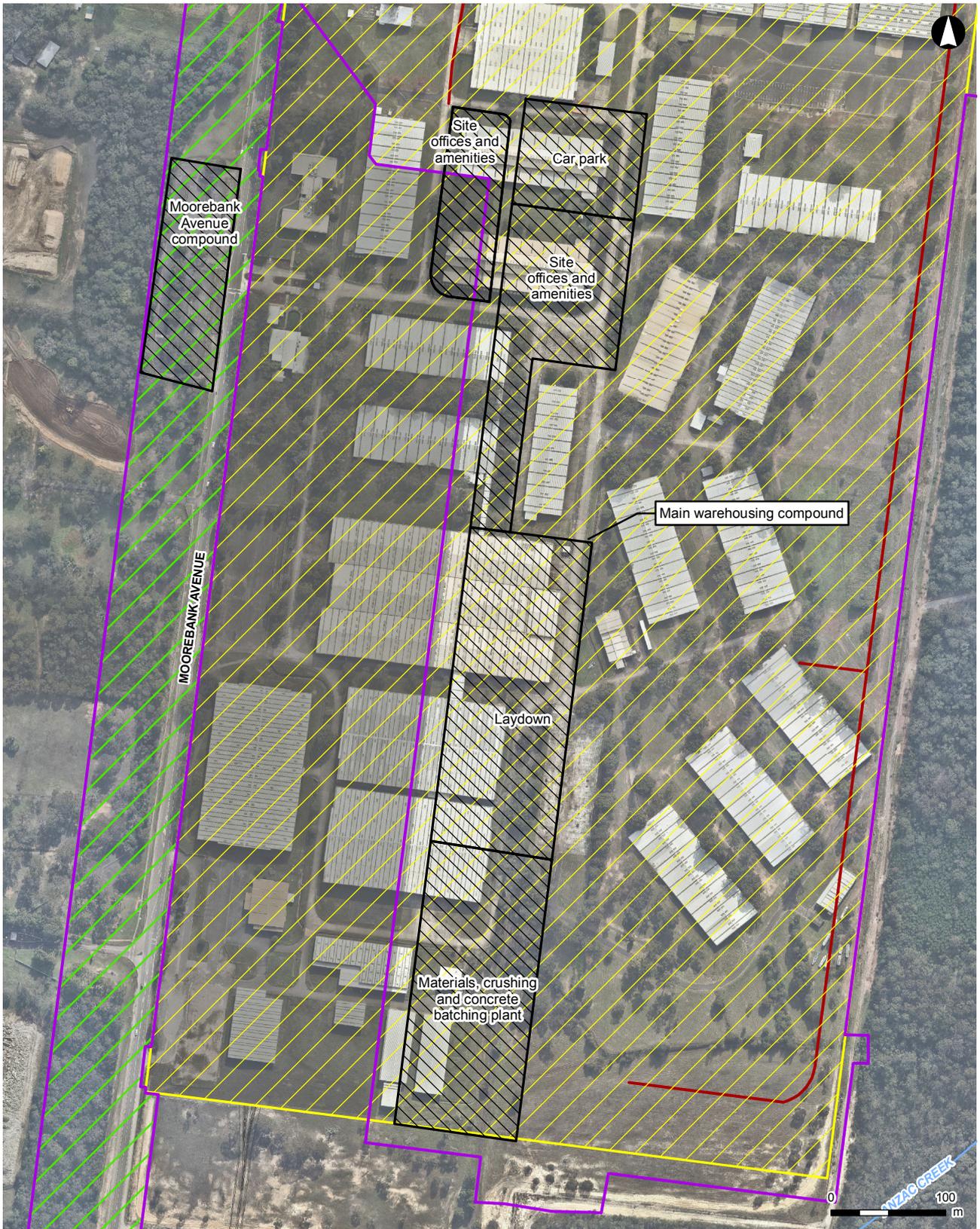
The construction footprint of the Proposal is shown on Figure 4-8. Further detail regarding the construction methodology is provided in Section 4.3.2 to Section 4.3.10. The construction methodology may be refined during the detailed design phase of the Proposal and / or in response to submissions received during the exhibition of the EIS to minimise environmental impacts.

Detailed construction planning would be carried out prior to the commencement of construction and would be detailed in a Construction Environmental Management Plan (CEMP) for the Proposal. Construction of the Proposal is expected to be undertaken in seven broad construction works periods:

- Works period A: Pre-construction activities
- Works period B: Site preparation activities
- Works period C: Construction of the Moorebank Avenue diversion road
- Works period D: Pavement and intersection works along Moorebank Avenue
- Works period E: Bulk earthworks, drainage and utilities
- Works period F: Construction and internal fit-out of warehousing
- Works period G: Miscellaneous construction and finishing works.

Additional detail regarding the construction program and construction activities for these works periods is provided in Section 4.3.2.

MPE Stage 2 Response to Submissions



LEGEND

- MPE site
- Amended construction area
- MPE Stage 2 construction compound
- Moorebank Avenue Upgrade
- MPE Stage 1 operational area
- Internal haul road
- Rail link (Stage 1 Proposal)
- Watercourse

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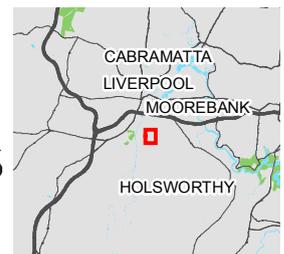


Figure 4-8: Overview of the construction layout for the Proposal

4.3.2 Construction Program and activities

Construction of the Proposal is proposed to take between 24 and 36 months, commencing in the final quarter of 2017, with completion of construction in the third quarter of 2019 (should construction take 24 months). The final construction program will depend on the market demand for warehouses to be constructed on the MPE Stage 2 site.

Construction program

Construction of the Proposal is proposed to take between 24 and 36 months, commencing in the **final-first** quarter of ~~2017~~**2018**, with the completion of construction in the **third-fourth** quarter of 2019 (should construction take 24 months). The final construction program will depend on the market demand for warehouses to be constructed on the MPE Stage 2 site.

The indicative construction program is shown in Table 4-7 (based on a 24-month construction period). The construction works have been divided into seven 'works periods' which are interrelated and would potentially overlap. Subject to confirmation from the construction contractor, the order and staging of these construction works periods may change.

Table 4-7 Indicative construction program – **as amended** (based on a 24 month construction period)

Construction works period	2017				2018				2019			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Works period A – Pre-construction activities												
Works period B - Site Preparation activities												
Works Period C - Construction of the Moorebank Avenue diversion road												
Works period D - Bulk earthworks, drainage and utilities												
Works period E – Pavement and intersection works along Moorebank Avenue												
Works period F - Construction and internal fit-out of warehousing												
Works period G – Miscellaneous construction and finishing works												

Construction activities

A summary of the typical indicative construction works periods and their associated activities is provided in Table 4-8.

Table 4-8 Typical construction activities to be undertaken within each construction works period

Construction works period	Activity
Works period A – Pre-construction activities	<ul style="list-style-type: none"> • Establishment of site access points • Importation, <u>stockpiling and placement</u> of clean general fill for site preparation activities • Installation of site fencing • Remediation, where required, <u>including unexploded ordnance (UXO), exploded ordnance (EO) and exploded ordnance waste (EOW) management.</u>
Works period B – Site preparation activities	<ul style="list-style-type: none"> • Demolition of existing structures • Clearing of vegetation • Adjusting the building formation of the site (to final operational levels) within which the Main Warehousing Compound would be located • Temporary works, including installation of construction environmental management measures (e.g. erosion and sedimentation controls) • Establishment of construction compound fencing and hoardings • Installation of site offices and amenities • Construction of hardstands for staff parking and laydown areas • Establishment of temporary batch plant and materials crushing plant • Construction of access roads, site entry and exit points and security • Establishment of site haulage roads. • Establishment of construction compound(s)
Works period C – Construction of the Moorebank Avenue diversion road	<ul style="list-style-type: none"> • Stripping of topsoil within footprint of temporary diversion road • Installation of temporary drainage • Placement of fill and temporary road pavement (e.g. gravel) • Construction of interface between temporary diversion road and existing Moorebank Avenue • Installation of temporary road signage, street lighting and signalling • Transfer of traffic onto temporary diversion road from Moorebank Avenue.

Construction works period	Activity
Works period D – Bulk earthworks, drainage and utilities	<ul style="list-style-type: none"> • Removal of existing pavement and stripping of topsoil within Moorebank Avenue • Importation, stockpiling and placement of approximately 600,000 m³ of imported clean general fill for bulk earthworks • Installation of on-site detention (OSD) and drainage infrastructure within the MPE Stage 2 site • Construction of retaining walls • Creation of a road formation by general earthworks (by constructing fill embankments) • Bulk earthworks and adjusting the building formation of the Proposal site to final level, including the terminal hardstand • Utilities relocation and installation • Establishment of hardstand areas.
Works period E – Pavement works along Moorebank Avenue	<ul style="list-style-type: none"> • Stockpiling and placement of select layer of earthworks material on top of the road formation • Placing and compacting the pavement later (concrete, or concrete and asphalt) over the select layer (consisting of a sub-base and base) and potential sealing with bitumen • Traffic switching from diversion road onto final, upgraded Moorebank Avenue • Removal of construction traffic management and progressive opening of the internal road and warehouse access roads to traffic • Removal of road surface, road signage, street lighting and signalling from temporary diversion road • Commissioning of Moorebank Avenue.
Works period F – Warehouse construction and internal fit-out	<ul style="list-style-type: none"> • Foundation and floor slab installation • Erection of framework and structural walls • Installation of roof • Internal fit-out of warehouses (racking and associated services).

Construction works period	Activity
Works period G – Miscellaneous construction and finishing works	<ul style="list-style-type: none"> • Pavement construction (internal transfer roads and perimeter road), including forming of new kerbs, gutters, medians (where required) and other structures • Line marking, lighting and sign posting • Installation of road furniture, including traffic signs and pavement markers. • Miscellaneous structural construction • Finishing works, including landscaping and general site rehabilitation, where required. • Commissioning of the Proposal • Decommissioning/Demobilisation of the Proposal site, including removal of construction compound(s) and temporary construction environmental controls.

4.3.3 Remediation

A Phase 1 Environmental Site Assessment (ESA) was prepared for the MPE Site as part of the MPE Concept Plan Approval. The Phase 1 ESA noted that a number of areas of potential contamination concern were identified as part of previous investigations across the MPE site; however, these areas of concern would not preclude the continued use of the site for commercial/industrial purposes, if remediated for that use.

Since the preparation of the Phase 1 ESA, additional contamination investigations have been carried out across the Proposal site (refer to Section 13 (Geology, soils and contamination) and Appendix Q (Contamination summary report) of the EIS.

The contamination summary report noted that there are no specific areas within the Proposal site that require direct remediation. The Proposal site is considered to be suitable for the desired commercial / industrial land use and there are no specific areas requiring direct remediation prior to operation of the Proposal.

4.3.4 Earthworks

Earthworks to facilitate construction of the Proposal would include the delivery of imported clean general fill material by truck-and-dog and / or semi-trailer from multiple sources within the Greater Sydney Metropolitan Area.

Where possible, fill material would be sourced from nearby available off-site sources and transported to the site. During peak construction, it is estimated that approximately 22,000m³ of clean general fill would be imported to the Proposal site per day. Potential construction traffic, noise and air quality related impacts associated with earthworks activities are described and assessed in Section 7, Section 8 and Section 9 of the EIS respectively.

Where possible and subject to its geotechnical suitability, soil excavated during construction of the Proposal would be reused for foundation preparation, levelling works and / or maintenance of construction haulage routes.

Excavated soil which is not considered suitable for re-use on the Proposal site would be temporarily stockpiled within the most appropriate construction compound. All excavated soil not suitable for re-use would be tested prior to being transferred off-site for disposal at an appropriately licensed facility.

As part of construction works period D (Bulk earthworks, drainage and utilities), the building formation of the Proposal site would be adjusted to facilitate drainage and flooding infrastructure (refer to Section 12 for more information regarding stormwater and flooding). The earthworks to be undertaken would also include engineering fill to the terminal hardstand area.

The approximate volumes of clean general fill to be imported to facilitate the adjustment to the building formation of the Proposal site, and for the Moorebank Avenue upgrades, is included in Table 4-9. This fill would be placed across the Proposal site and the Moorebank Avenue site to depths ranging from 1.5 metres to 3 metres depending on the topography of the specific area the fill is placed. Preliminary Bulk Earthworks Plans are included in the Stormwater Drainage Design Drawings (refer to Appendix P of the EIS).

Graders and/or bulldozers (or similar equipment) would be used to move the fill across the Proposal site and the fill would be compacted to achieve the required geotechnical requirements for construction. A water cart would be used at points where fill is unloaded to minimise dust generation, as and when required.

This delivery, compaction and conditioning of the imported clean general fill for construction, would continue until the surface level for laying road pavement or hardstand is achieved. On completion of each layer, a soil technician would test for compliance with the geotechnical (including compaction) requirements.

Table 4-9 Preliminary earthworks volumes

Type	Preliminary volume (m ³) (total)	
	MPE Stage 2 site	Moorebank Avenue site
Imported clean general fill material	631,900	63,200
Volume of topsoil strip	53,450	7,000
Cut	220,000	44,700
Fill	882,000	58,500

4.3.5 Soil Management and water diversion

Erosion and sediment control

Sedimentation and Erosion Control Plans for the Proposal are provided within the Stormwater Drainage Design Drawings (refer to Appendix P of the EIS **and Appendix F of this RtS**).

MPE Stage 2 site/ MPW site

Temporary construction sediment basins would be constructed within the location of the proposed permanent operational OSDs to capture and store construction surface water prior to being discharged. Sediment fences would be placed around the perimeter of the MPE Stage 2 site and part of the MPW site to guide run-off and limit sediment transportation off-site.

Where possible, operational water capture and treatment infrastructure, including swales, open concrete lined drainage channels and OSDs would be established early during construction. During construction, water captured in swales and/ or drainage channels would flow to the temporary construction sediment basins prior to discharge from the Proposal site.

Construction surface water runoff would be discharged from the Proposal site from three existing drainage outlet points; one which flows westwards through the MPW site from the north-western corner and into the Georges River, or from two outlets which flow eastwards into Anzac Creek (one in the north-eastern corner and one in the south-east).

Moorebank Avenue site

Temporary construction erosion and sediment control measures to be implemented during construction of the Moorebank Avenue upgrade would typically include sediment fences along the western perimeter of Moorebank Avenue, sedimentation ponds and hay bales around existing stormwater pit inlets.

At the end of each day, or if rain is expected, the surface of the direct placement area would be sealed using a smooth drum roller and the surface trimmed using a grader to direct rain run off toward sediment and erosion control infrastructure.

4.3.6 Construction Workforce and hours

Construction workforce

It is anticipated that construction of the Proposal would require approximately 600 construction personnel across the duration of the construction program (refer to Section 4.3.2). The total construction workforce includes tradesman and construction personnel, subcontractor construction personnel and engineering, functional and administrative staff. During peak construction, the Proposal would require around 200 construction personnel on-site per day (Approximately 150 for construction of the Proposal on the MPE Stage 2 site/MPW site, and 50 for the construction of the Moorebank Avenue upgrade).

Construction hours

Construction works would generally be undertaken during 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.

Bulk earthworks activities and construction works to facilitate the Moorebank Avenue upgrade during peak construction periods may be undertaken outside of standard construction hours, but not during the night-time (i.e. 10pm to 7am).

The proposed construction hours for activities associated with bulk earthworks and construction of the Moorebank Avenue upgrade are summarised in Table 4-10.

Table 4-10 Construction hours for activities associated with bulk earthworks and the Moorebank Avenue upgrade

Construction activity	Construction hours	
	Weekdays	Saturdays
Material Delivery	6am-10pm	7am-6pm
Direct placement	7am-10pm	8am -6pm
Stockpiling	7am-6pm	7am-6pm
Crushing	7am-6pm	8am-1pm
Moorebank Avenue upgrade	6am – 10pm	7am – 6pm

Some additional construction works would be undertaken outside of standard daytime construction working hours, subject to consultation with the relevant authorities and in accordance with the *Interim Construction Noise Guidelines* (DECC, 2009), including:

- Any works which would not result in audible noise emissions at any nearby sensitive receptors.
- The delivery of oversized plant and/or structures that police or other authorities determine require special arrangements to transport along public roads
- Emergency work to avoid the loss of lives, property and/or to prevent environmental harm
- Maintenance and repair of public infrastructure where disruption to essential services and/or consideration of worker safety do not allow work within standard construction hours.
- Public infrastructure works that shorten the length of the project and are supported by noise-sensitive receivers.
- Construction works where it can be demonstrated and justified that these works are required to be undertaken outside of standard construction hours.
- Any other work as approved through the Construction Noise and Vibration Management Plan.

4.3.7 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 4-11.

Table 4-11 Indicative construction plant and equipment for the Proposal

Equipment	Construction works period						
	Works period A – Pre-construction activities	Works period B – Site Preparation activities	Works period C – Construction of the Moorebank Avenue diversion road	Works period E – Road and intersection works to facilitate the Moorebank Avenue Upgr.	Works period D – Bulk earthworks, drainage and utilities	Works period F – Construction and internal fit-out of warehousing	Works period G – Miscellaneous construction and finishing works
Loaders		✓			✓	✓	✓
Static and vibratory rollers, and high energy impact compaction	✓	✓	✓	✓	✓	✓	
Mobile cranes	✓	✓			✓	✓	
Excavators	✓	✓	✓	✓	✓	✓	
Excavators with hammers		✓			✓		
Backhoes		✓			✓	✓	✓
825 Compactor			✓	✓			
Crushing plant		✓			✓		
Batch plant					✓	✓	
Concrete agitators (or similar)		✓			✓	✓	✓
Concrete pumps		✓			✓	✓	✓
Concrete saws					✓	✓	✓
Air compressors					✓	✓	✓
Jackhammers						✓	✓
Dozers		✓	✓	✓	✓		

Equipment	Construction works period						
	Works period A – Pre-construction activities	Works period B – Site Preparation activities	Works period C – Construction of the Moorebank Avenue diversion road	Works period E – Road and intersection works to facilitate the Moorebank Avenue Upgr.	Works period D – Bulk earthworks, drainage and utilities	Works period F – Construction and internal fit-out of warehousing	Works period G – Miscellaneous construction and finishing works
Mulchers		✓					
20-40 tonne articulated tipper trucks	✓	✓			✓		
Scrapers		✓			✓		
Graders	✓	✓	✓	✓	✓	✓	
Water trucks	✓	✓	✓	✓	✓	✓	✓
Piling rigs					✓	✓	
Forklifts					✓	✓	✓
Small earthmoving equipment	✓				✓	✓	✓
Welder					✓	✓	✓
Road profiler			✓	✓			
Rubber Roller			✓	✓			

4.3.8 Traffic movement and site access

MPE Stage 2 site

Access to and egress from the MPE Stage 2 site during construction would be via the existing DSNDC northern access, to the north of the MPE Stage 1 Proposal. At the completion of construction, this access point would transition to the main operational entry point for vehicles accessing and egressing the MPE Stage 2 site's warehouse and distribution facilities (refer to Section 4.3 for more information about the operation of the project, including the built form).

Construction traffic would generally use the future internal road network within the MPE Stage 2 site as construction haulage routes (refer to Section 4.2.3 for more information) (i.e. internal roads, service roads and internal transfer roads). Once entering the MPE Stage 2 site, heavy vehicles would generally travel along internal road 1, internal road 2 and service roads 2 and 3 for access to the Main Warehousing compound.

During construction, these roads would be comprised of a compacted gravel base, hardstand or similar material and would be two lanes wide (one lane in each direction). The estimated construction traffic movements (includes ingress and egress from the site, i.e. includes both trips) associated with construction works within the MPE Stage 2 site are presented in Section 7 and Appendix K of the EIS.

Moorebank Avenue

Construction works to facilitate the Moorebank Avenue upgrade would not commence until the Moorebank Avenue diversion road is operational.

Construction vehicles (including general light and heavy construction vehicles, and heavy vehicles importing clean general fill material) would typically access the Moorebank Avenue site from the north, via a gated access point off Moorebank Avenue. During construction hours, a 'gateman' or construction traffic controller, would direct construction vehicles from the access gate to either the Moorebank Avenue Compound (MPW site) or to the road formation for the direct placement of fill material.

Vehicles would exit the Moorebank Avenue site via a second gated egress point at the southernmost extent of the Moorebank Avenue upgrade, or be directed to make a u-turn within the construction area and exit the site via the northern gate. Construction vehicles would then travel northwards along the Moorebank Avenue diversion road and Moorebank Avenue towards the M5 Motorway.

Construction vehicle movements within the Moorebank Avenue site would follow the procedures outlined in the Construction Traffic Management Plan (CTMP) (refer to Appendix K of the EIS). The estimated construction traffic movements (includes ingress and egress from the site, i.e. includes both trips) associated with the Moorebank Avenue are presented in Section 7 and Appendix K of the EIS.

Traffic movements along Moorebank Avenue diversion road during construction

To facilitate the Moorebank Avenue upgrade, the Moorebank Avenue diversion road would be constructed within the MPW site (refer to Figure 4-1) to maintain traffic movements along Moorebank Avenue. It is envisaged that construction within the Moorebank Avenue site would comprise five key stages:

- Construction of the Moorebank Avenue diversion road, temporary intersections and traffic management infrastructure
- Switching of traffic from the existing Moorebank Avenue to the Moorebank Avenue diversion road
- Construction of the Moorebank Avenue upgrade
- Switching of traffic from the Moorebank Avenue diversion road to the upgraded Moorebank Avenue
- Decommissioning and rehabilitation (where required) of the Moorebank Avenue diversion road.

Throughout construction of the Moorebank Avenue upgrade, the temporary intersections to be constructed would provide the same turning movements and accessibility to the MPE and MPW sites as the existing intersections along Moorebank Avenue.

There is the potential that the Moorebank Avenue upgrade may be completed in a number of stages, which would also result in a series of staged traffic switches. Staged construction of the Moorebank Avenue upgrade would be investigated further during the detailed design stage of the Proposal.

During construction, a construction zone speed limit of 40 kilometres per hour would apply along the Moorebank Avenue diversion road. Impacts of the Proposal on road network performance are described further in Section 7 (Traffic and transport) and Appendix K of the EIS **and Section 7 and Appendix C of this RtS.**

4.3.9 Construction compounds

Temporary construction compounds would be required to support construction of the Proposal. The locations of these compounds are indicative and subject to confirmation by the construction contractor, once appointed.

It is envisaged that construction of the Proposal would require the use of two main construction compounds:

- The Warehousing Compound, within the MPE Stage 2 site
- The Moorebank Avenue Compound, within the MPW site and immediately west of Moorebank Avenue.

The location and indicative layout of the construction compounds are shown in Figure 4-8.

Construction compound and stockpile sites would be temporary in nature and removed / decommissioned at the completion of construction. Residual land where the construction compounds are not situated within the footprint of the operational area would be rehabilitated upon completion of the works to the pre-construction standard or as otherwise agreed with the relevant landowner.

In the event that other compounds are required, the following site selection criteria would be applied to their location:

- Access to the local road network.
- Relatively level land.
- Greater than 40 m from a watercourse.
- Greater than 20 m from threatened species and endangered ecological communities.
- Greater than 100 m from a residential dwelling.
- No requirement to remove any native vegetation beyond that otherwise being undertaken for the proposal.
- No requirement to undertake any significant ground disturbing works.
- No direct impact on any heritage items (Indigenous or non-Indigenous).
- Not unreasonably affect the land use of adjacent properties.

Consideration to each of the above factors would be undertaken prior to the establishment of any additional construction compound or stockpiles for the purpose of the Proposal.

Warehousing Compound

The main construction compound for the Proposal (herein referred to as the Warehousing Compound) would be located within land proposed to be used as the Stage 1 Proposal's main IMT compound on the MPE Stage 2 site (refer to Figure 4-8).

It is expected that some additional satellite compounds would be required during the construction of each individual warehouse on the Proposal site; however, the Warehousing Compound would be used for the majority of construction works.

The Warehousing Compound would include:

- A site office(s)
- Staff amenities
- Car parking
- Storage and laydown areas
- Materials testing facilities
- Material crushing facilities
- A concrete batching plant.

The indicative layout of the Warehousing Compound is shown on Figure 4-8.

Concrete batching plant

A concrete batching plant would be located within the Warehousing Compound during construction. For the purposes of this environmental assessment, the concrete batching plant has been assumed to be located within the southernmost extent of the Warehousing Compound (refer to Figure 4-8), however this is subject to confirmation from the construction contractor.

Materials crushing

Materials crushing facilities would also be located within the Warehousing Compound during construction. Similar to the concrete batching plant, for the purposes of this environmental assessment, the materials crushing equipment required for construction of the proposal has been assumed to be located immediately north of the concrete batching plant at the southernmost extent of the Warehousing Compound (refer to Figure 4-8); however, this is subject to confirmation from the construction contractor.

Car parking

At the commencement of construction, car parking for construction personnel would be provided within the Warehousing Compound (refer Figure 4-8). Car parking facilities would be accessed and egressed via the MPE site access and a construction compound access road and gate.

Moorebank Avenue Compound

The Moorebank Avenue Compound would be located on the western side of Moorebank Avenue, in an existing area of hardstand within the MPW site. This area was previously used as a staff car park and as such, is characterised by large areas of level paved / hardstand surfaces and narrow garden beds that support a small number of trees.

The Moorebank Avenue Compound would include, site offices, car parking, and equipment storage and laydown areas, with some materials such as pre-cast culverts being temporarily stored within the compound area on occasion. The entrance to this compound would be generally at the location of the existing intersection off Moorebank Avenue, from within the Moorebank Avenue site.

The indicative location of the Moorebank Avenue Compound is shown on Figure 4-8.

4.3.10 Environmental Works Method Statement

An Environmental Works Method Statement (EWMS) has been prepared by Arcadis (Appendix I 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.

4.3.11 Construction Environmental Management Plan

A Preliminary Construction Environmental Management Plan (PCEMP) has been prepared for the Proposal (refer to Appendix G 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 K of the EIS)
- Air Quality Management Plan (Appendix M of the EIS)
- Preliminary Erosion and Sediment Control Plan (Appendix P of the EIS)
- Bulk Earthworks Plan (Appendix P 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.

4.4 Operation

4.4.1 Warehousing

Heavy and light vehicles would access the warehouses via the main site access off Moorebank Avenue, as detailed in Section 4.2.3 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 or transported directly to the IMT facility for dispatch via port shuttles to a Sydney-based port (e.g. Port Botany).

The extent of dangerous goods to be handled in warehouses, and the associated hazard and risk assessment is discussed in the Section 14 of the EIS.

Use

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

- Internal layout – refer to Section 4.2.1 of the EIS
- Operational workforce – refer to Section 4.4.3 of the EIS
- Hours of operation - refer to Section 4.4.3 of the EIS
- Access and car parking – refer to Sections 4.2.3 of the EIS
- Signage – refer to Section 4.2.5 of the EIS.

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

4.4.2 Freight village

Vehicles would access the freight village via the main site access off Moorebank Avenue and the internal road network. Light vehicles would access and egress the area directly via the allocated parking area within the freight village.

Use

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

- Internal layout – refer to Section 4.2.2 of the EIS
- Operational workforce – refer to Section 4.4.3 of the EIS
- Hours of operation - refer to Section 4.4.3 of the EIS
- Access and car parking – refer to Sections 4.2.3 of the EIS
- Signage – refer to Section 4.2.5 of the EIS.

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

Any food premises located within the freight village would be constructed and operated to meet 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.

4.4.3 Operational workforce and hours

The operational workforce for the Proposal would comprise of approximately 1,408 full time equivalent staff, who would work in three shifts. The Proposal would operate 24 hours per day and seven days per week, which would allow for an increased number of freight related movements to occur outside of peak traffic periods.

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. Traffic movements, access and parking

Road traffic

As described in Section 4.2.3, heavy vehicles would access and egress the MPE Stage 2 site via the new site access off Moorebank Avenue. Cars would also access the MPE Stage 2 site via the main access off Moorebank Avenue. Car parking spaces would be available on-site for the operational workforce and visitors.

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. Car parking spaces would be calculated based on projected staffing numbers for warehouses, 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 4-12. The potential traffic and transport impacts associated with the operational truck and car movements are detailed further in Section 7 and Appendix K of the EIS **and as amended in Section 7 and Appendix C of this RtS.**

Table 4-12 Operational truck and car movements

Trip type		Vehicle movements per day (2-way round trip)		
		External (i.e. using the external road network)	Internal (i.e. movement within the MPE Stage 2 site only)	Total
Truck movements	External truck trips via external road network	564	582	1,146
Car movements	Warehouses/freight village	3,872	N/A 3,992*	3,872

The following daily traffic volumes (2-way round trip) have been forecast in 2019 (i.e. year of opening) at the following locations along internal road 1:

- **Next to warehouse 1 (this location would service both external and internal movements): 3,992.**
- **Next to warehouse 3: 2,685.**
- **Next to warehouse 6: 1,354.**

4.5 Site security

The Proposal includes a number of on-site security measures to provide for 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, 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 4.2.5 of this RtS)
- A closed-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.

4.6 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 K of the EIS)
- Air Quality Management Plan (refer to Appendix M of the EIS)
- Stormwater and Drainage Design Drawings (refer to Appendix P of the EIS **and Appendix F of this RtS**).

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)
- **Vegetation: 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
- Warehouses: Ongoing infrastructure and plant/equipment repair and replacement as necessary

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