ARCADIS Design & Consultancy for natural and built assets

Moorebank Precinct East - Stage 2 Proposal

Bushfire Protection Assessment

SIMTA

SYDNEY INTERMODAL TERMINAL ALLIANCE

Part 4, Division 4.1, State Significant Development

December 2016

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BUSHFIRE PROTECTION ASSESSMENT

FOR THE

MOOREBANK PRECINCT EAST PROJECT [MPE PROJECT] STAGE 2

MOOREBANK AVENUE, MOOREBANK

Australian Bushfire Protection Planners Pty Limited

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BUSHFIRE PROTECTION ASSESSMENT

FOR THE

MOOREBANK PRECINCT EAST PROJECT [MPE PROJECT] STAGE 2

MOOREBANK AVENUE, MOOREBANK

Report Number	Document	Preparation Date	Issue Date	Directors Approval
B162855 - 1	Final	17.10.2016	04.11.2016	*G.L.Swain*

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EXECUTIVE SUMMARY

Australian Bushfire Protection Planners Pty Limited has been commissioned by *Arcadis* to prepare a report to provide advice on the bushfire protection measures required for the proposed construction and operation of Stage 2 of the Moorebank Precinct East Project [MPE Project], Moorebank Avenue, Moorebank (the Proposal).

Concept Plan Approval (MP 10_0193) for an intermodal terminal (IMT) facility at Moorebank, NSW (the Moorebank Precinct East Project (MPE Project) (formerly the SIMTA Project)) was received on 29 September 2014 from the NSW Department of Planning and Environment (DP&E). The Concept Plan for the MPE Project involves the development of an IMT, including a rail link to the Southern Sydney Freight Line (SSFL) within the Rail Corridor, warehouse and distribution facilities with ancillary offices, a freight village (ancillary site and operational services), stormwater, landscaping, servicing, associated works on the eastern side of Moorebank Avenue, Moorebank, and construction or operation of any part of the project, which is subject to separate approval(s) under the Environmental Planning and Assessment Act 1979 (EP&A Act).

EPBC Approval (No. 2011/6229) granted in March 2014 by the Minister for the Environment (Cwlth) for the impact of the MPE Project on listed threatened species and communities (sections 18 and 18A of the EPBC Act) and Commonwealth land (sections 26 and 27A of the EPBC Act). The Conditions of Approval for the EPBC Approval, and the Concept Plan Approval provide a detailed list of further investigations and information that should be undertaken to inform future approvals for the site, and ultimately construction and operation of the MPE Project, including the Proposal.

Approval for the first Development Application (DA) under the Concept Plan for the MPE Project (the Stage 1 Project) is currently being sought by the NSW Planning Assessment Commission (PAC) as delegate of the Minister for Planning and Environment. The Stage 1 Project seeks approval, under Part 4, Division 4.1 of the EP&A Act, for the construction and operation of an IMT, including the necessary infrastructure to support a container freight road volume of 250,000 twenty-foot equivalent units throughput per annum.

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 1.4 kilometres of Moorebank Avenue between the northern MPE site boundary and 120 metres south of the southern MPE site boundary.

The Liverpool City Council bushfire mapping identifies the land immediately east and south of the Proposal site as comprising Category 1 vegetation, which is defined as high-risk bushfire prone land. This category of vegetation has the highest combustibility and likelihood of forming fully developed fires, including heavy ember production. Category 1 vegetation typically consists of areas of forest, woodland, heaths (tall and short), forested wetlands and timber plantations. Bushfire mapping around Category 1 vegetation includes a 100 metre vegetation buffer. When applied to the Proposal, the 100 metre vegetation

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buffer around this Category 1 vegetation encroaches into the eastern and southern extents of the MPE Stage 2 Site.

Based on the above, Section 79BA of the *Environmental Planning & Assessment Act 1979* would ordinarily apply to any development which is to occur on the site.
Section 79BA of the *Environmental Planning and Assessment Act* requires that the proposed development comply with the requirements of *Planning for Bushfire Protection 2006* with respect to the protection of persons, property and the environment from the danger that may arise from a bushfire.

Planning for Bushfire Protection 2006 provides specific deemed-to-satisfy provisions on the bushfire protection measures necessary for rural & residential subdivisions, the construction of *"Special Fire Protection Purpose Developments"* and the construction of Class 1, 2 and 3 buildings in Bushfire Prone areas. The document does not specify deemed-to-satisfy protection measures for Class 5 to 8 and 10 buildings as defined by the Building Code of Australia.
The document does however provide the following advice for Class 5 to 8 and 10 buildings:

"The Building Code of Australia does not provide for any bushfire specific performance requirements and as such AS 3959 -1999 does not apply as a set of "deemed-to-satisfy" provisions. The general fire safety construction provisions (of the BCA) are taken as acceptable solutions, but the aim and objectives of Planning for Bushfire Protection 2006 apply in relation to other matters such as access, water and services, emergency planning and landscaping/vegetation management".

"Where the aim and objectives of PfPFP (Section 1.1) are not met, then the construction requirements for bushfire protection will need to be considered on a case-by-case basis".

"In many cases, these types of developments will require on-site parking and loading areas. In such cases, it is prudent to place these facilities in the most appropriate location in order to establish defendable space for firefighting purposes".

The objectives of *Planning for Bushfire Protection 2006* are:

(i) Afford occupants of any building adequate protection from exposure to a bushfire;
(ii) Provide for a defendable space to be located around buildings;
(iii) Provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent direct flame contact and material ignition;
(iv) Ensure that safe operational access and egress for emergency service personnel and residents is available;
(v) Provide for ongoing management and maintenance of bushfire protection measures, including fuel loads in the asset protection zones; and
(vi) Ensure that utility services are adequate to meet the needs of firefighters and others assisting in bushfire fighting.

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The Rural Fire Service have previously considered matters necessary to provide protection from the potential impacts that may arise from a bushfire occurrence within the bushfire prone vegetation nominated on the Liverpool Bushfire Prone Land Map (Liverpool City Council, 2014).

The Secretaries Environmental Assessment Requirements issued for the MPE Stage 2 SSD application and MPE Concept Plan Conditions of Approval require an assessment against the Planning for Bushfire 2006 (NSW Rural Fire Service). Matters considered necessary by the Rural Fire Service include:

1. The provision of a "defendable space" (Asset Protection Zone) to widths necessary to provide a safe working environment for firefighters and the protection of the building;
2. Fuel management of the vegetation within the defendable space;
3. Access provisions for emergency services;
4. Construction standards to the building;
5. Water supplies for firefighting operations; and
6. Evacuation provisions.

This report therefore examines these requirements and has found that the characteristics of the Proposal and the separation to bushfire prone vegetation provide that the site is suitable in terms of its intended use.

I also certify that the Proposal complies with the aim and objectives of *Planning for Bushfire Protection 2006.*

Graham Swain
Managing Director,
Australian Bushfire Protection Planners Pty Limited.
04.11.2016

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1 - INTRODUCTION

1.1 Purpose of this report.

This report has been prepared to support the Environmental Impact Statement (EIS) for Stage 2 of the MPE Project (herein referred to as the Proposal). This report has been prepared to support a State Significant Development (SSD) Application for which approval is sought under Part 4, Division 4.1 of the EP&A Act. A summary of the works included in the Proposal is provided in Section 1.2 of this report.

This report has been prepared in accordance with the Secretary's Environmental Assessment Requirements (SEARs) (ref: SSD 14-6766 and dated December 2014). Table 1 provides a summary of the relevant SEARs and the section where they have been addressed in this report. Table 2 provides a summary of the relevant Concept Plan conditions of approval and statement of commitments, and where these have been addressed in this report.

Table 1 SEARs (SSD 14-6766) compliance table

Section / number	SEARS	Where addressed
15	**Bushfire Management** – including but not limited to: An assessment against the *Planning for Bushfire 2006* (NSW Rural Fire Service).	This report

Table 2 Concept Plan conditions of approval and Statement of Commitments relevant to this study

Section	Environmental Assessment Requirement	Where addressed
Concept Plan Conditions of Approval		
Bushfire management	Any future Development Application shall be accompanied by an assessment against the *Planning for Bushfire 2006* (NSW Rural Fire Service)	This report
Concept Plan Statement of Commitments		
Bushfire management	The Proponent commits to incorporating the key objectives identified by the Rural Fire Service (RFS) into relevant future design stages, in accordance with the following principles: • Afford occupants of any building adequate protection from exposure to a bushfire. • Ensure safe operational access and egress for emergency service personnel and residents	Section 4 and Section 6 of this Report

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Section	Environmental Assessment Requirement	Where addressed
	• Provide for ongoing management and maintenance of bushfire protection measures, including fuel loads in asset protection zones (APZs) • Ensure that utility services are adequate to meet the needs of fire fighters	
	The Proponent commits to the development of a Bushfire Management Plan for both the construction and operational phases of the SIMTA proposal that aligns with the requirements of the local RFS Bushfire Management Committee operational plans of management	Section 5 of this report

The aim of this Bushfire Protection Assessment is to address the provisions of Section 79BA of the *Environmental Planning & Assessment Act* and in doing so:

- Determine the formation of the vegetation on and surrounding the site in accordance with the vegetation classification system contained in Planning for Bushfire Protection 2006;
- Undertake an assessment to determine the effective slope of the land on and surrounding the development site;
- Undertake a Bushfire Protection Assessment to determine bushfire protection strategies for the proposed development that address the following matters:

(i) The provision of building setbacks (Defendable Space) from vegetated areas and the siting of buildings to minimize the impact of radiant heat and direct flame contact;
(ii) Fire fighting water supplies;
(iii) Access requirements for customers/staff and emergency service vehicles;
(iv) Construction standards to be used for the future building within the proposed development to minimize the vulnerability of the building to ignition from radiation and ember attack;
(v) Land management responsibilities; and
(vi) Evacuation management.

1.2 Overview of the Proposal

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 1.4 kilometres of Moorebank Avenue between the northern MPE site boundary and 120 metres south of the southern MPE site boundary.

Key components of the Proposal include:

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- Warehousing comprising approximately 300,000m^2 GFA, additional ancillary offices and the ancillary freight village
- 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 would be comprised of 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
    - Raising 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 Project (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 on Figure 1. More information relating to the construction and operation of the Proposal is provided in Section 4 of the MPE Stage 2 EIS.

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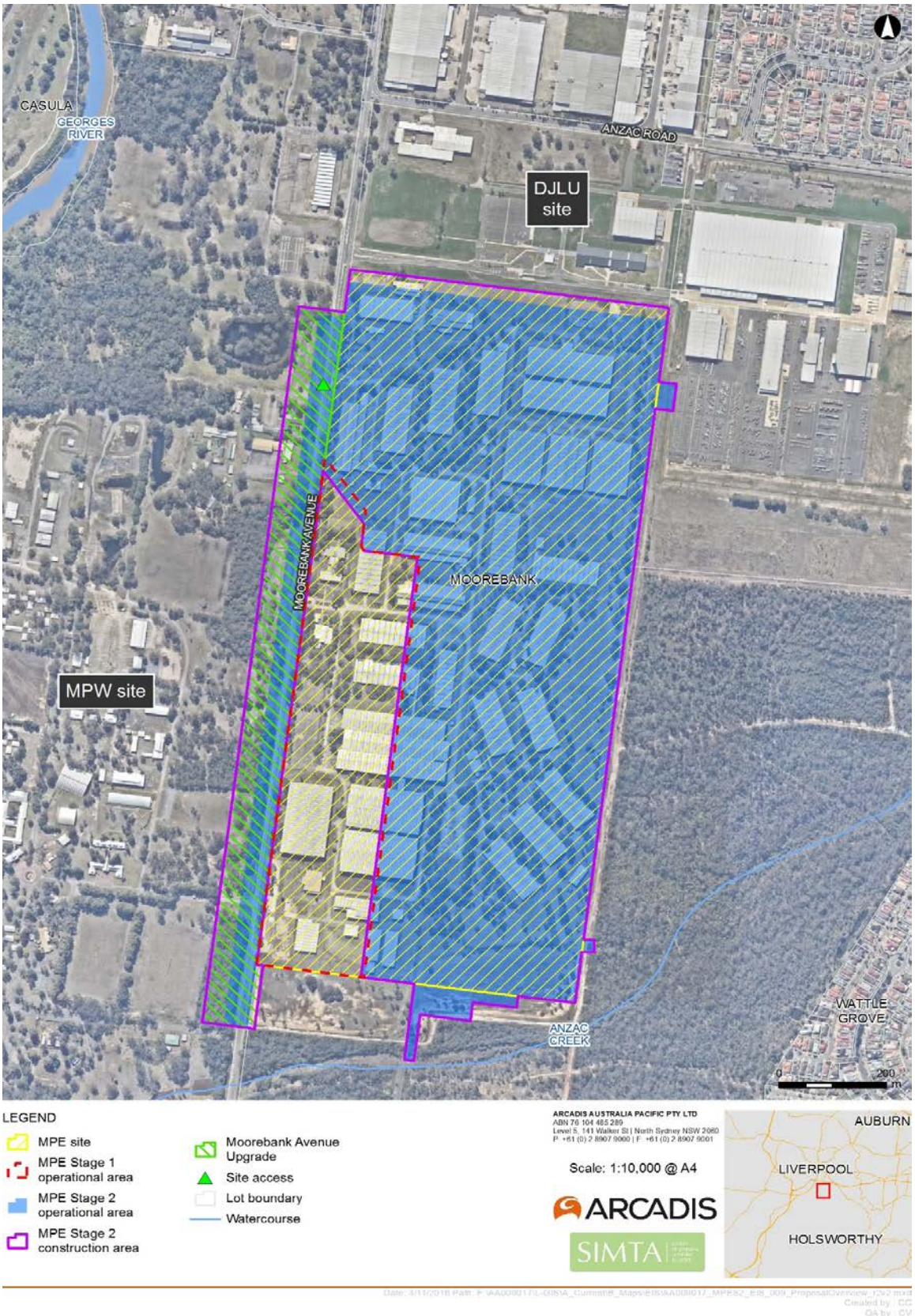

Figure 1 – Overview of the Proposal

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1.2.1 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 construction compounds:

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

Main 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. 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.

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.

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The entrance to this compound would be generally at the location of the existing intersection off Moorebank Avenue.

No stockpiles are proposed to be located within the Moorebank Avenue Compound. Some materials such as pre-cast culverts may be temporarily stored within the compound area on occasion.

The location and indicative layout of the construction compounds are shown in Figure 2.

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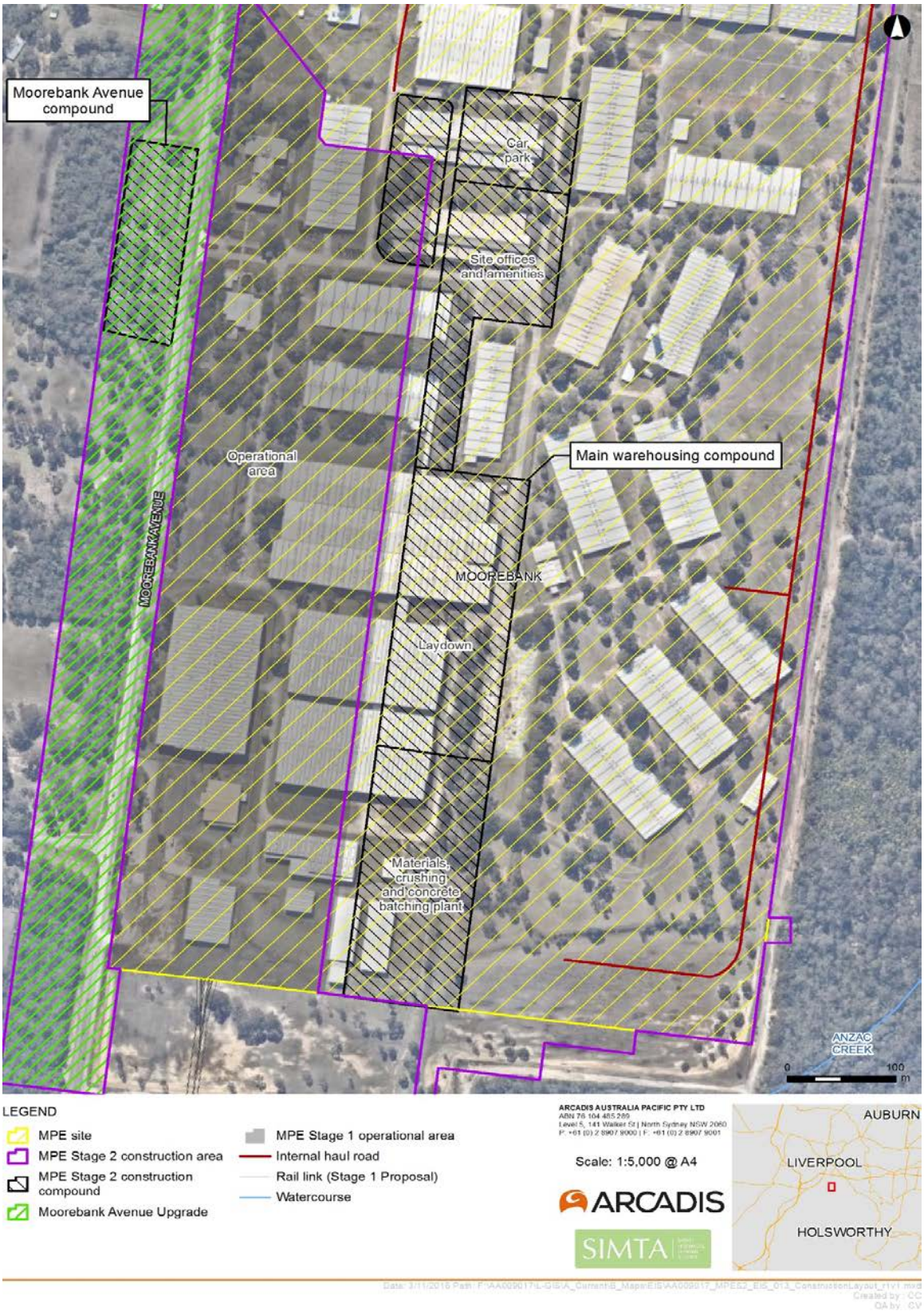

Figure 2 – Overview of the construction layout for the Proposal

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1.2.2 Built Form.

Warehousing

The Proposal would provide up to 300,000m^2 of warehousing across the Proposal site with ancillary offices attached. The Proposal would include eight warehouses, which would be up to 21 metres in height 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.

The indicative layout of the warehouses is shown in Figure 3.

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
- Internal fitout, comprising racking and storage.

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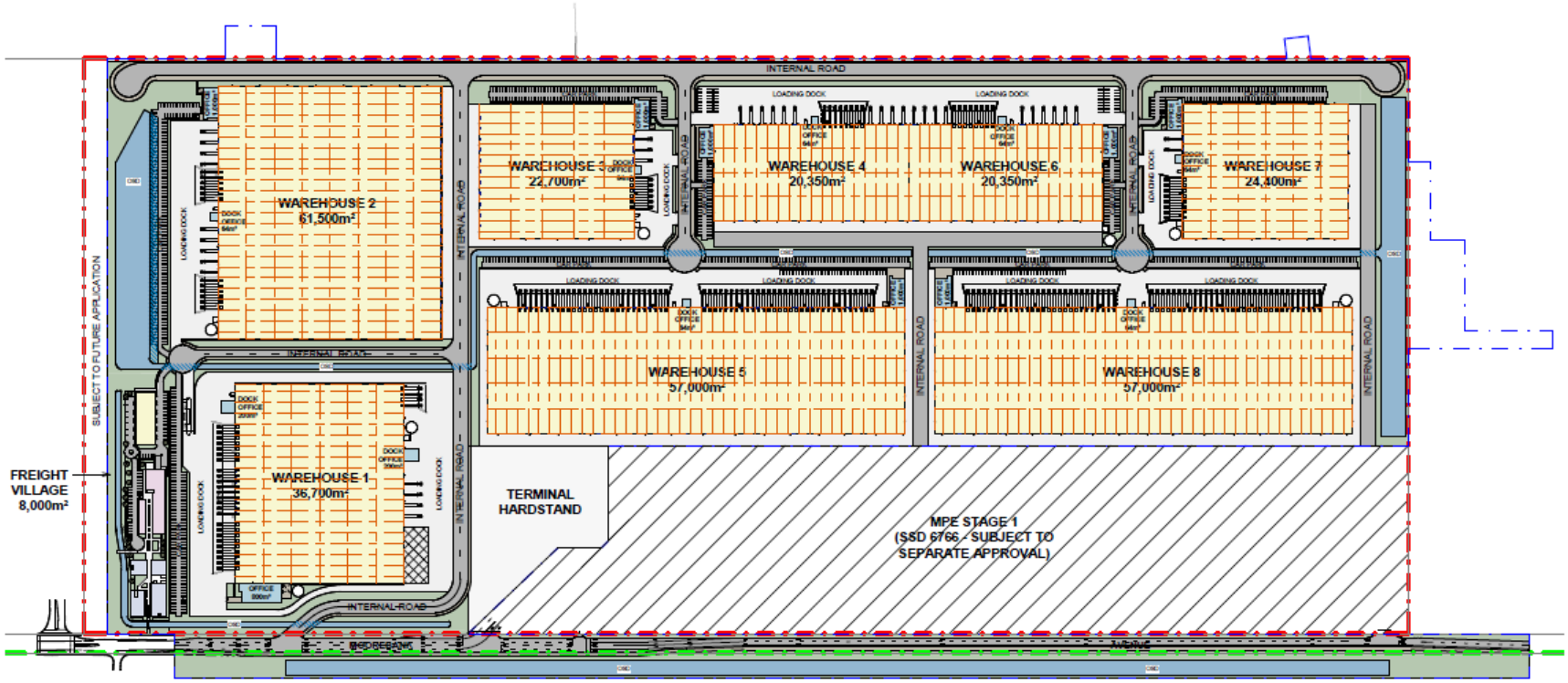

Figure 3 – Indicative Warehousing Layout

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Freight village

A freight village including amenities would be provided on the MPE site as part of the Proposal. The ancillary freight village would be located in the north-west of the Proposal 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 8,000m^2.

The freight village would also include the provision of:

- Food outlets
- Amenities
- Loading dock(s)
- Services area
- Services corridor
- Landscaping,
- Car parking (231 spaces), including basement parking.

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 of the MPE Stage 2 EIS (visual amenity, landscape and urban design). The Proposal would also include the internal fitout of these buildings, including utilities and 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 built form is a number of ancillary works, which include materials and finishes, signage, lighting, vegetation removal and landscaping, water management works and utilities.

Vehicle movement and access

The Proposal would include one site access point, with traffic circulating through the site using internal roads, service roads and internal transfer roads.

Roadworks – Moorebank Avenue

As part of the Proposal, Moorebank Avenue would be upgraded for about 1.4 kilometres between the northern boundary of the MPE site to approximately 120 metres south of MPE site. The Moorebank Avenue upgrade would be comprised of three key components:

- Raising the vertical alignment by about two metres from the existing levels, including kerbs, gutters and a sealed shoulder
- Modifications to the existing road configuration, including some widening

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- Signalling and intersection works.

Ancillary infrastructure

The Proposal would also include ancillary supporting infrastructure to facilitate the efficient operation of the Proposal, to minimise the environmental impact and enhance the visual amenity of the Proposal site. Ancillary infrastructure to be included on the Proposal site would comprise:

- Landscaping within the MPE site and along Moorebank Avenue
- Water management works, including stormwater infrastructure and on-site detention within the MPE site and along Moorebank Avenue
- The installation of signage throughout the Proposal site for the purposes of way finding and access to/from the warehousing facilities.
- The provision of road signage along Moorebank Avenue within the Proposal site
- Lighting around the warehouse entry and exit points, freight village, ancillary offices and along the internal roads.
- Street lighting along Moorebank Avenue
- Relocation and installation of utilities to connect to nearby public utility networks within the MPE site and along Moorebank Avenue
- Subdivision of the Proposal site for the purpose of segregating the intermodal terminal and warehousing, and also for the tenanting of individual warehouses within the facility

1.3 Key Terms relevant to the Proposal.

Table 3 provides a summary of the key terms which are included within this report. Figure 1 also provides an indication of the site areas discussed in this table.

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Table 3. Key terms

Term	Description
General terms	
The Moorebank Precinct	Refers to the whole Moorebank intermodal precinct, i.e. the MPE site and the MPW site
Moorebank Precinct West (MPW) Project (formerly the MIC Project)	The MPW Intermodal Terminal Facility as approved under the MPW Concept Plan Approval (SSD_5066) and the MPW EPBC Approval (No. 2011/6086).
Moorebank Precinct West (MPW) site (formerly the MIC site)	The site which is the subject of the MPW Concept Plan Approval, MPW EPBC Approval and MPW Planning Proposal. The MPW site does not include the rail link as referenced in the MPW Concept Plan Approval or MPE Concept Plan Approval.
Moorebank Precinct East (MPE) Concept Plan Approval (formerly the SIMTA Concept Plan Approval)	MPE Concept Plan Approval (SSD_0193) granted by the NSW Department of Planning and Environment on 29 September 2014 for the development of former defence land at Moorebank to be developed in three stages; a rail link connecting the site to the Southern Sydney Freight Line, an intermodal terminal, warehousing and distribution facilities and a freight village.
Moorebank Precinct East (MPE) Project (formerly the SIMTA Project)	The MPE Intermodal Terminal Facility, including a rail link and warehouse and distribution facilities at Moorebank (eastern side of Moorebank Avenue) as approved by the Concept Plan Approval (MP 10_0913) and the MPE Stage 1 Approval (14_6766).
Moorebank Precinct East (MPE) Site (formerly the SIMTA Site)	Including the former DSNDC site and the land owned by SIMTA which is subject to the Concept Plan Approval. The MPE site does not include the rail corridor, which relates to the land on which the rail link is to be constructed.
Statement of Commitments (SoC)	Recommendations provided in the specialist consultant reports prepared as part of the MPE Concept Plan application to mitigate environmental impacts, monitor environmental performance and/or achieve a positive environmentally sustainable outcome in respect of the MPE Project. The Statement of Commitments have been proposed by SIMTA as the Proponent of the MPE Concept Plan Approval.
MPE Stage 1 Project specific terms	
Rail Corridor	Area defined as the 'Rail Corridor' within the MPE Concept Plan Approval.
Rail Link	The rail link from the South Sydney Freight Line to the MPE IMEX Terminal, including the area on either side to be impacted by the construction works included in MPE Stage 1.
MPE Stage 1	Stage 1 (14-6766) of the MPE Concept Plan Approval for the development of the MPE Intermodal Terminal Facility, including the rail link at Moorebank. This reference also includes associated conditions of approval and environmental

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Term	Description
	management measures which form part of the documentation for the approval.
MPE Stage 1 site	Includes the MPE Stage 1 site and the Rail Corridor, i.e. the area for which approval (construction and operation) was sought within the MPE Stage 1 Proposal EIS.
Proposal specific terms	
MPE Stage 2 Proposal/ the Proposal	The subject of this EIS; being Stage 2 of the MPE Concept Plan Approval including the construction and operation of 300,000m^2 of warehousing and distribution facilities on the MPE site and the Moorebank Avenue upgrade within the Moorebank Precinct.
MPE Stage 2 site	The area within the MPE site which would be disturbed by the MPE Stage 2 Proposal (including the operational area and construction area). The MPE Stage 2 site includes the former DSNDC site and the land owned by SIMTA which is subject to the MPE Concept Plan Approval. The MPE site does not include the rail corridor, which relates to the land on which the rail link is to be constructed.
The Moorebank Avenue site	The extent of construction works to facilitate the construction of the Moorebank Avenue upgrade.
The Moorebank Avenue upgrade	Raising of the vertical alignment of Moorebank Avenue for 1.5 kilometres of its length by about two metres, from the northern boundary of the MPE site to approximately 120 metres south of the MPE site. The Moorebank Avenue upgrade also includes upgrades to intersections, ancillary works and the construction of an on-site detention basin to the west of Moorebank Avenue within the MPW site.
Construction area	Extent of construction works, namely areas to be disturbed during the construction of the MPE Stage 2 Proposal (the Proposal).
Operational area	Extent of operational activities for the operation of the MPE Stage 2 Proposal (the Proposal).

1.4 Statutory Planning Context

This assessment has been prepared having regard to the following legislative and planning requirements:

1.4.1 Legislation.

(a) Environmental Planning and Assessment Act (EPA Act)

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Planning and development within NSW is regulated by the *Environmental Planning & Assessment Act, 1997* (EPA Act). In relation to bushfire planning for new developments (including Industrial Development) in bushfire prone areas in NSW, the following section of the EPA Act applies:

(i) Section 79C(1) states *"In determining a development application, a consent authority is to take into consideration such of the following matters as are of relevance to the development the subject of the development application:*

- *The likely impacts of the development (e.g. natural hazards such as bushfire threat);*
- *The suitability of a site for development (e.g. bushfires)*

(ii) Section 79BA of the *Environmental Planning & Assessment Act* requires that a development comply with the specifications of *Planning for Bushfire Protection 2006.*

However, by virtue of clause 1B of Section 79BA, this section does not apply to State Significant Development.
Notwithstanding, in accordance with good environmental impact assessment practice, this report has considered the provisions of Section 79BA of the EP&A Act.

(b) Rural Fires Act 1997

The objectives of the *Rural Fires Act* are to provide:

- The prevention, mitigation and suppression of fires;
- Coordination of bushfire fighting and prevention;
- Protection of people and property from fires; and
- Protection of the environment.

In relation to the management of bushfire fuels on public and private lands within NSW, Sections 63(1) and 63(2) require public authorities and owners / occupiers of land to take all practicable steps to prevent the occurrence of bushfires on, and to minimize the danger of the spread of bushfires.

(c) Threatened Species Conservation Act 1995 (TSC Act).

The TSC Act aims to protect and encourage the recovery of threatened species, populations and communities as listed under the Act. The TSC Act is integrated with the EP&A Act and requires consideration of whether a development or an activity (such as the implementation of hazard reduction and asset protection) is

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likely to significantly affect threatened species, populations and ecological communities or their habitat.

1.4.2 Planning Policies.

Planning for Bushfire Protection – 2006 **(Rural Fire Service)**

This document provides guidance on the planning and development control processes in relation to bushfire protection measures for rural residential and residential subdivision, *"Special Fire Protection Purpose"* and Class 5 – 8 and 10 buildings in bushfire prone areas.

The document provides recommendations on the provision of defendable space requirements to Class 5 – 8 and 10 buildings and access/water supply provisions for developments in bushfire prone areas. Provision for the assessment of construction standards to buildings and management / maintenance of the defendable space to buildings is also provided in the document.

1.5 Desktop review of background information

The following documents were reviewed in the preparation of this assessment:

- Overview Plan of the Proposal (Stage 2) prepared by Arcadis;
- Overview of the construction layout for the Proposal prepared by Arcadis;
- Indicative Warehousing and Freight Village Plan prepared by Reid Campbell;
- Aerial Photograph of the Proposal site;
- Liverpool Council Bushfire Prone Land Map;
- *Planning for Bushfire Protection 2006* prepared by the NSW Rural Fire Service.

1.6 Site Inspection.

Graham Swain of *Australian Bushfire Protection Planners Pty. Limited* inspected the Proposal site on the 18th December 2014, as part of the Concept Plan application, to assess the topography, slopes, vegetation classification and land use within and adjoining the development site.

Visual assessment was undertaken to determine likely fire runs, influence of terrain on wind patterns within the bushfire prone vegetation and an assessment of the access and egress to the Proposal site.

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2 – SITE DESCRIPTION

2.1 Regional context

The MPE site, including the Proposal site, is located approximately 27 km south-west of the Sydney Central Business District (CBD) and approximately 26 km west of Port Botany. The MPE site is situated within the Liverpool Local Government Area (LGA), in Sydney's South West subregion, approximately 2.5 km from the Liverpool City Centre.

The MPE site is located approximately 800 m south of the intersection of Moorebank Avenue and the M5 Motorway. The M5 Motorway provides the main road link between the MPE site, and the key employment and industrial areas within Sydney's West and South-Western subregions, the Sydney orbital network and the National Road Network. The M5 connects with the M7 Motorway to the west, providing access to the Greater Metropolitan Region and NSW road network. Similarly the M5 Motorway is the principal connection to Sydney's north and north-east via the Hume Highway. The regional context of the Proposal is shown on Figure 4.

2.2 Local context

The Proposal site is located approximately 2.5 km south of the Liverpool City Centre, 800 m south of the Moorebank Avenue/M5 Motorway interchange and one kilometre to the east of the SSFL providing convenient access to and from the site for rail freight (via a dedicated freight rail line) and for trucks via the Sydney Motorway Network.
The land surrounding the Proposal site comprises:

- The MPW site, formerly the School of Military Engineering (SME), on the western side of Moorebank Avenue directly adjacent to the MPE site (subject to the MPW Concept Plan Approval), which is owned by the Commonwealth;
- The East Hills Rail Corridor to the south of the MPE site, which is owned and operated by Sydney Trains;
- The Holsworthy Military Reserve, to the south of the East Hills Rail Corridor, which is owned by the Commonwealth; The Boot Land, to the immediate east of the MPE site between the eastern site boundary and the Wattle Grove residential area, which is owned by the Commonwealth.
- The southern Boot Land, to the immediate south of the MPE site between the southern site boundary and the East Hills Rail Corridor, which is owned by the Commonwealth.

Glenfield Waste Services, south-west of the Proposal is proposing to develop a Materials Recycling Facility on land owned by the Glenfield Waste Services Group within the boundary of the current landfill site at Glenfield. The facility is proposed to recycle a maximum of 450,000 tonnes of material per year. The

Glenfield Waste Services Proposal is the subject of a DA (SSD_6249) under Part 4, Division 4.1 of the EP&A Act.

A number of residential suburbs are located in proximity to the Proposal site. The approximate distances of these suburbs to the MPE Stage 2 site and the Moorebank Avenue site are provided in Table 4.

Table 4. Distance to residential suburbs from the Proposal site

Suburb	Distance to MPE Stage 2 Site	Distance to Moorebank Avenue site
Wattle Grove	360 m to the north-east	865 m to the north-east
Moorebank	1300 m to the north	1430 m to the north
Casula	820 m to the west	760 m to the west
Glenfield	1830 m to the south-west	1540 m to the south-west

The closest industrial precinct to the Proposal is at Moorebank, comprising around 200 hectares of industrial development. This area includes (but is not limited to) the Yulong and ABB sites to the south of the M5 Motorway and the Goodman MFive Business Park and Miscellaneous industrial and commercial development to the north of the M5 Motorway. The majority of this development is located to the north of the M5 Motorway between Newbridge Road, the Georges River and Anzac Creek. The Moorebank Industrial Area supports a range of industrial and commercial uses, including freight and logistics, heavy and light manufacturing, offices and business park developments.
There are other areas of industrial development near the Proposal at Warwick Farm to the north, Chipping Norton to the north-east, Prestons to the west and Glenfield and Ingleburn to the south-west.

The local context of the Proposal is shown on Figure 5.

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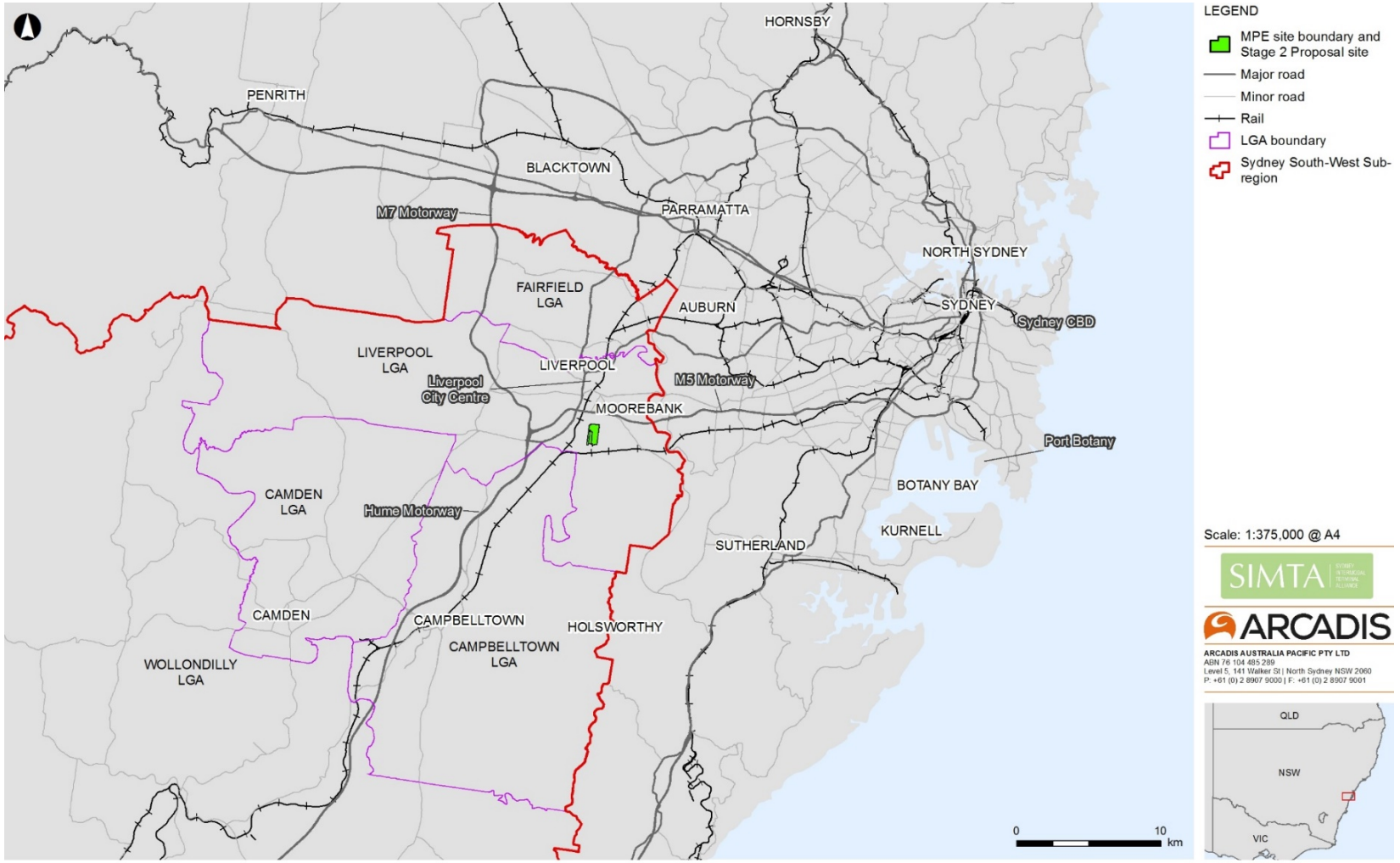

Figure 4 Regional context of the Proposal

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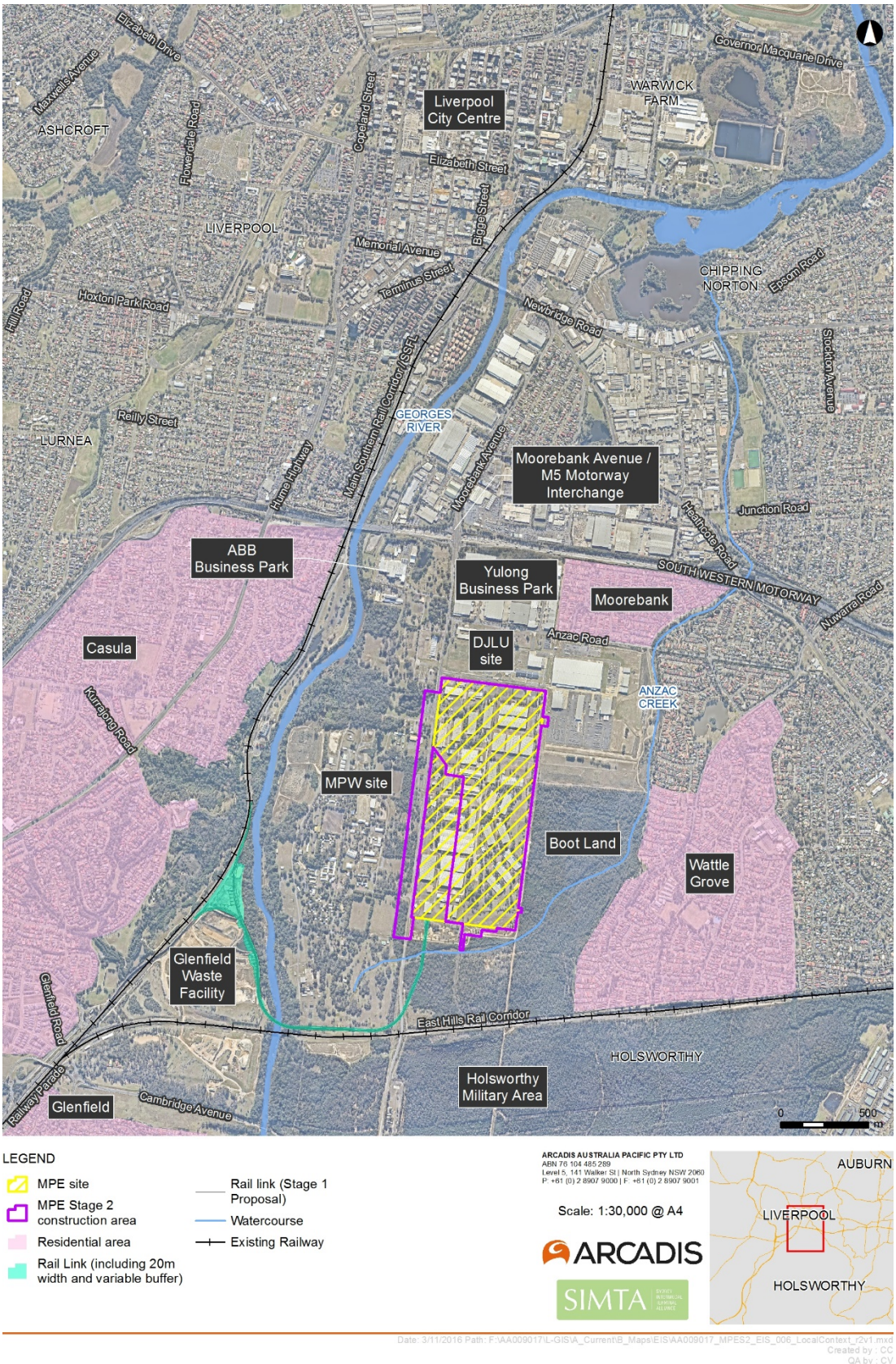

Figure 5 Local context of the Proposal

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2.3 Topography

2.3.1 Topography at the MPE Stage 2 Site

Appendix 2 of *Planning for Bushfire Protection 2006* states that slopes should be assessed, over a distance of at least 100m from a development site and that the gradient of the land should be determined which will most significantly influence the fire behaviour on the site. The land within the MPE site is level.

2.3.2 Topography adjoining the MPE Stage 2 Site

Except for a gradual fall towards the Anzac Creek corridor, which is located to the south of the MPE Stage 2 Site, the surrounding land is also level. Refer to Figure 5.

HOLD POINT – Figure in preparation

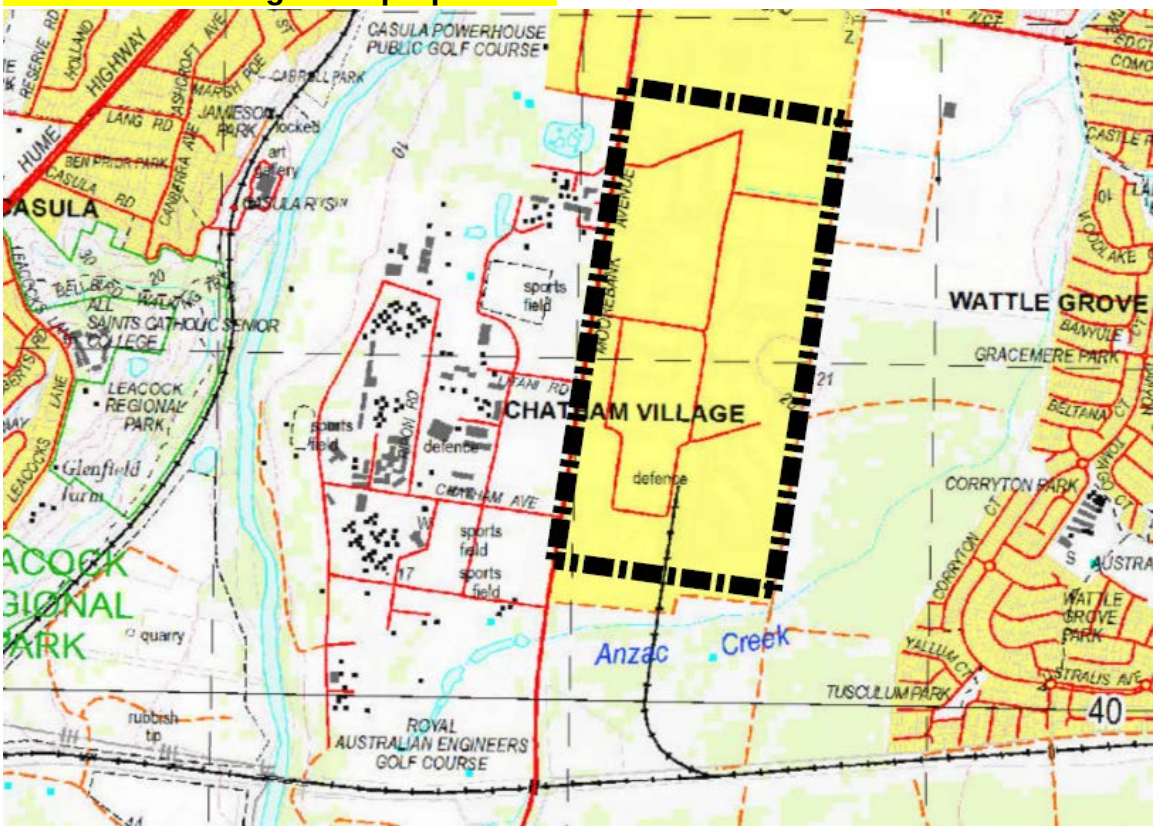

Figure 6 – Topographic Map of the MPE site and surrounding land.

2.4 Vegetation.

Appendix A2.3 of *Planning for Bushfire Protection 2006* provides a methodology for determining the predominant bushfire prone vegetation for at least 140 metres in all directions from the Proposal site.

Vegetation is classified using Table A2.1 of *Planning for Bushfire Protection 2006,* which classifies vegetation types into the following groups:

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(a) Forests (wet & dry sclerophyll forests);
(b) Woodlands;
(c) Plantations – being pine plantations not native plantations;
(d) Forested Wetlands;
(e) Tall Heaths;
(f) Freshwater Heaths;
(g) Short Heaths;
(h) Alpine Complex;
(i) Semi – arid Woodlands;
(j) Arid Woodlands; and
(k) Rainforests.

2.4.1 Vegetation Communities at the MPE Stage 2 Site.

There are currently mature trees lining the roads and paved areas of the Proposal site. Tree species are those that are commonly found as mature street trees in suburban Sydney, including Sydney Blue Gum and Lemon-scented Gum. The ground layer in the non-paved areas consists of mown grass lawns, dominated by Couch, Kikuyu and other exotic grass species. The current vegetation is proposed to be removed and replaced with landscaping. The Proposal site is classified as managed landscaped gardens.

2.4.2 Vegetation Communities adjoining the MPE Stage 2 Site.

The vegetation on the land to the east and south of the MPE Stage 2 Site consists of unmanaged EECs including the Castlereagh Scribbly Gum Woodland and Castlereagh Swamp Woodland extending to the east and south, beyond the fire/access track. These EECs contain threatened species *Persoonia nutans* and *Grevilla parviflora subsp. parviflora*.

For the purpose of determining bushfire protection measures this vegetation is classified as forest due to the density of the shrubs and interlocking canopies.

To the immediate west of the Proposal site is the MPE Stage 1 site, and Moorebank Avenue, and further to the west of Moorebank Avenue is the MPW site.

The MPE Stage 1 site will consist of hardstand associated with the intermodal terminal and Moorebank Avenue contains a managed vegetation within the road verge.

The MPW site also contains managed vegetation, including playing fields, ovals, a narrow corridor of remnant forest vegetation in varying widths, and the Royal Australian Engineers Golf Course. The current landuse and vegetation of the MPW

site will be replaced with the MPW development, which includes another intermodal terminal and warehousing and distribution facilities.

Vegetation on the land adjoining the MPE site is shown in Figure 7.

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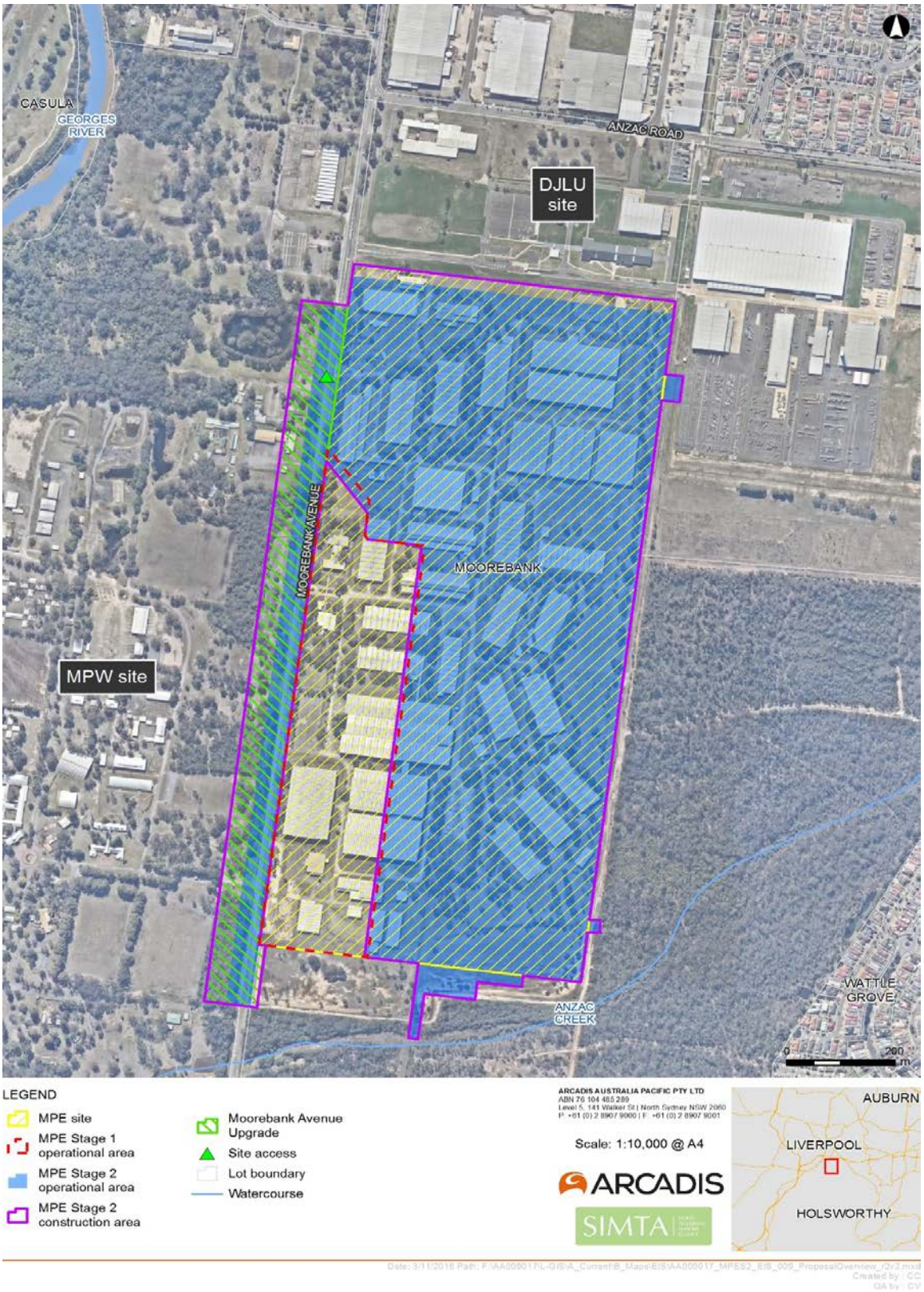

Figure 7 – Aerial Photograph of the MPE site showing the vegetation on the adjoining land.

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2.5 Significant Environmental Features on the land within the MPE Stage 2 Site.

The MPE Stage 2 Site does not contain any significant environmental features such as SEPP 14 – Coastal Wetlands; SEPP 26 Littoral Rainforests; SEPP 44 – Koala Habitat; Areas of Geological interest; Steep Lands (>18 degrees); Land slip areas, National Parks Estate or riparian corridors.

2.6 Known Threatened Species, Populations, Endangered Ecological Communities or Critical Habitat

2.6.1 Known Threatened Species, Populations, EECs or Critical Habitiat within the MPE Stage 2 Site

The Proposal site represents low quality habitat for threatened flora species, and targeted searches did not identify any threatened flora species within the Proposal site. Clearing of all vegetation within the Proposal site, including threatened ecological communities (TECs) will comprise clearing of 0.16 ha; the areas to be cleared comprise small, fragmented patches of vegetation and the disturbed edges of larger patches. As the MPE Stage 2 Site is proposed to be cleared of a small area of native vegetation, as part of this application there will be no known threatened species, populations, endangered ecological communities or critical habitat on the site.

2.6.2 Known Threatened Species, Populations, EECs or Critical Habitiat adjoining the MPE Stage 2 Site

As identified in the Biodiversity Assessment Report for the Proposal (Arcadis, 2016) there will be minimal expected impact on threatened flora species listed under the TSC Act and EPBC Act. While populations of several threatened plant species have been identified to the east and south of the Proposal site, potential habitat for these species within the Proposal site is poor quality, and subject to fragmentation and/or edge effects. Targeted surveys did not identify any threatened flora species in the Proposal site. There is potential for indirect impacts on threatened flora populations immediately adjacent to the Proposal site from adjoining areas of proposed fill. There are known locations of *Persoonia nutans* in the Hard-leaved Scribbly Gum – Parramatta Red Gum heathy woodland within the Boot land, adjoining the southern extent of the Proposal site. There are populations of several threatened flora species in the Boot land to the south and east of the Proposal site.

2.7 Details of Aboriginal / European Heritage within the MPE Stage 2 Site.

No known items of Aboriginal significance are located on the Proposal Site.

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During the time that the Department of Defence owned and then leased the MPE site, the entire site was listed on the Commonwealth Heritage List under the EPBC Act. However, as the Department of Defence no longer lease the site, the Commonwealth heritage listing no longer applies. The Office of Environment and Heritage (OEH) advised (8 October 2014) that these items are not currently considered suitable for listing on the State Heritage Register. Notwithstanding this, the MPE site has been recently (gazettal on 18 September 2015) listed as of local significance (item 57A “Defence National Storage and Distribution Centre”) under the Liverpool LEP.

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3 - BUSHFIRE HAZARD ASSESSMENT

3.1 Definitions.

Planning for Bushfire Protection 2006 defines *Bushfire Hazard* as the "*potential severity of a fire"* and is usually measured in terms of intensity (kW/m) with the factors influencing a bushfire hazard being climate and weather patterns, fuel (quantity, distribution and moisture content) and the effective slope of the land.

Planning for Bushfire Protection 2006 defines bushfire risk as *"the chance of a bushfire igniting, spreading and causing damage to assets of value to the community. Risk may be rated as extreme, major, moderate, minor or insignificant and is related to the vulnerability of the asset".*

Planning for Bushfire Protection 2006 defines defendable space as *"an environment in which a person can undertake property protection after the passage of a bushfire with some level of safety".* In non-residential applications, such as the Proposal, the defendable space is considered the same as an Asset Protection Zone. In industrial applications the defendable space must be greater than the flame length, the flame length being measured from the vegetation to the end of the flame.

3.2 Assessment of Bushfire Prone Vegetation.

Planning for Bushfire Protection 2006 provides the following procedure for assessing a development at a defined precinct level in order to determine whether the development is bushfire prone and if so, the need to provide appropriate setbacks:

(a) Determine vegetation distance, type and class as follows:

Identify all vegetation in each direction from the site for a distance of 140 metres, and then consult Table A2.1 to determine the vegetation formation which predominates.

(b) Determine the average slope of the land between the predominant vegetation class and the development:

Table 5 summarises the information provided in Section 2 to undertake a precinct level assessment to determine those aspects of the Proposal deemed to be prone to bushfire threat and therefore subject to the provision of Asset Protection Zones / Defendable Spaces.

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Table 5 Precinct Level Assessment – MPE Stage 2 Site

Aspect	Existing Land Use	Vegetation within 140 m of the Proposal	Predominant formation class	Effective Slope of land to distance of 100m.	Comments
North	Existing development	Managed curtilage	Nil	Not Applicable – not bushfire prone vegetation	The northern aspect to the MPE Stage 2 site does not contain bushfire prone vegetation within 140m of the site.
East	Unmanaged vacant land	Dry Sclerophyll Low Open Forest	Forest	< 5 degrees downslope to the east & southeast	The eastern aspect to the MPE Stage 2 site contains bushfire prone vegetation.
South	Managed & unmanaged vacant land	Slashed grassland & Dry Sclerophyll Low Open Forest	Forest	< 5 degrees downslope to the south & southeast	The southern aspect to the MPE Stage 2 site contains bushfire prone vegetation.
West	Existing development	Managed curtilage & isolated pockets of vegetation	Nil	Level	The western aspect to the MPE Stage 2 site currently contains small pockets of unmanaged bushfire prone vegetation that will be removed as part of the MPW Project proposal.

3.3 Bushfire Hazard Assessment.

Planning for Bushfire Protection 2006 does not provide a methodology for determining bushfire hazard – it defers instead to Bushfire Prone Land determined in accordance with the "*Bushfire Prone Land Mapping Guideline"*, issued by the Rural Fire Service on the 7th April 2004.

To be able to undertake a bushfire hazard assessment the *Department of Planning* document *Circular C10 (1983)* provides a suitable methodology. This methodology rates the vegetation and slope and provides an index value to each.

The overall Bushfire Hazard Score (low, medium and high) is determined by multiplying the Vegetation Index by the Slope Index.

3.3.1 Assessment to Determine the Bushfire Hazard to the Proposal

The vegetation that presents the potential bushfire threat to the Proposal is Dry Sclerophyll Low Open Forest on the vacant land to the east and south of the MPE Stage 2 Site and the vegetation beyond the Moorebank Avenue road corridor, to the west. It is noted that the land to the west of Moorebank Avenue is subject to a separate Development Application for the MPW Project.

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In the event that the MPW proposal is approved (and proceeds) it is likely that the majority of the vegetation in this area would be cleared. Table 6 provides a summary of the bushfire hazard at the MPE Stage 2 site.

Table 6 Bushfire Hazard – MPE Stage 2 Site

Aspect	Vegetation within 140 m of the Proposal	Vegetation Index Score	Slope Index Score	Bushfire Hazard Score	Bushfire Hazard Rating
North	Managed curtilage	Nil	Nil	0	N/A
East	Dry Sclerophyll Low Open Forest	2.8	2.0	5.6	High
South	Dry Sclerophyll Low Open Forest	2.8	2.0	5.6	High
West	Managed curtilage & isolated pockets of vegetation	The remnant vegetation on the land to the west of Moorebank Avenue is not contiguous with a large area of bushfire prone vegetation which could be involved in a fire spread from the northwest, west or southwest – the primary direction for severe/catastrophic bushfires			Low

3.4 Assessment of Bushfire Threat

Bushfire Threat is defined as the "measure of scale of impact or significance in terms of hazard and risk".

Table 7 provides a summary of the bushfire threat from land adjoining the MPE Stage 2 site.

Table 7 Bushfire Threat – MPE Stage 2 Site

Aspect	Vegetation Type	Bushfire Hazard Rating	Bushfire Threat	Explanation
North	Managed curtilage	N/A	N/A	The north of the site is developed with no unmanaged vegetation
East	Dry Sclerophyll Low Open Forest	High	High	Large extents of unmanaged vegetation and a fire path under prevailing north east winds
South	Dry Sclerophyll Low Open Forest	High	Moderate	Fire path under fire path under prevailing from south-east and south-westerly winds
West	Managed curtilage & isolated pockets of vegetation	Low	Low	Limited vegetation and buffers including Moorebank Avenue and MPE Stage 1

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As described in Table 7 the bushfire threat to the MPE Stage 2 Site, from the vegetation on the land to the south, is deemed to be moderate. This is based on the continued management of the 60m defendable space within the Proposal site and the 50m cleared area to the south of the site boundary being maintained (refer to Attachment A). This area south of the Proposal boundary includes overhead powerlines and a fire trail, indicating that clearing practices in this area are likely to continue. However, should this activity cease, the hazard will increase to high. It is noted there are no EECs or threatened species within the defendable space to the east or south of the Proposal.

3.5 Bushfire Prone Land Map

Pursuant to Section 146 of the *Environmental Planning & Assessment Act 1979* Liverpool Council has prepared a Bushfire Prone Land Map in accordance with the NSW Rural Fire Service's *'Guideline for Bushfire Prone Land Mapping 2006'.*

Figure 8 provides a copy of an extract from the map certified by the Commissioner of the NSW Rural Fire Service as being a map which identifies the extent of Category 1 Bushfire Prone Vegetation on the land adjoining the MPE Stage 2 Site and the affectation on the site of the 100 metre wide buffer zone to the bushfire prone vegetation.

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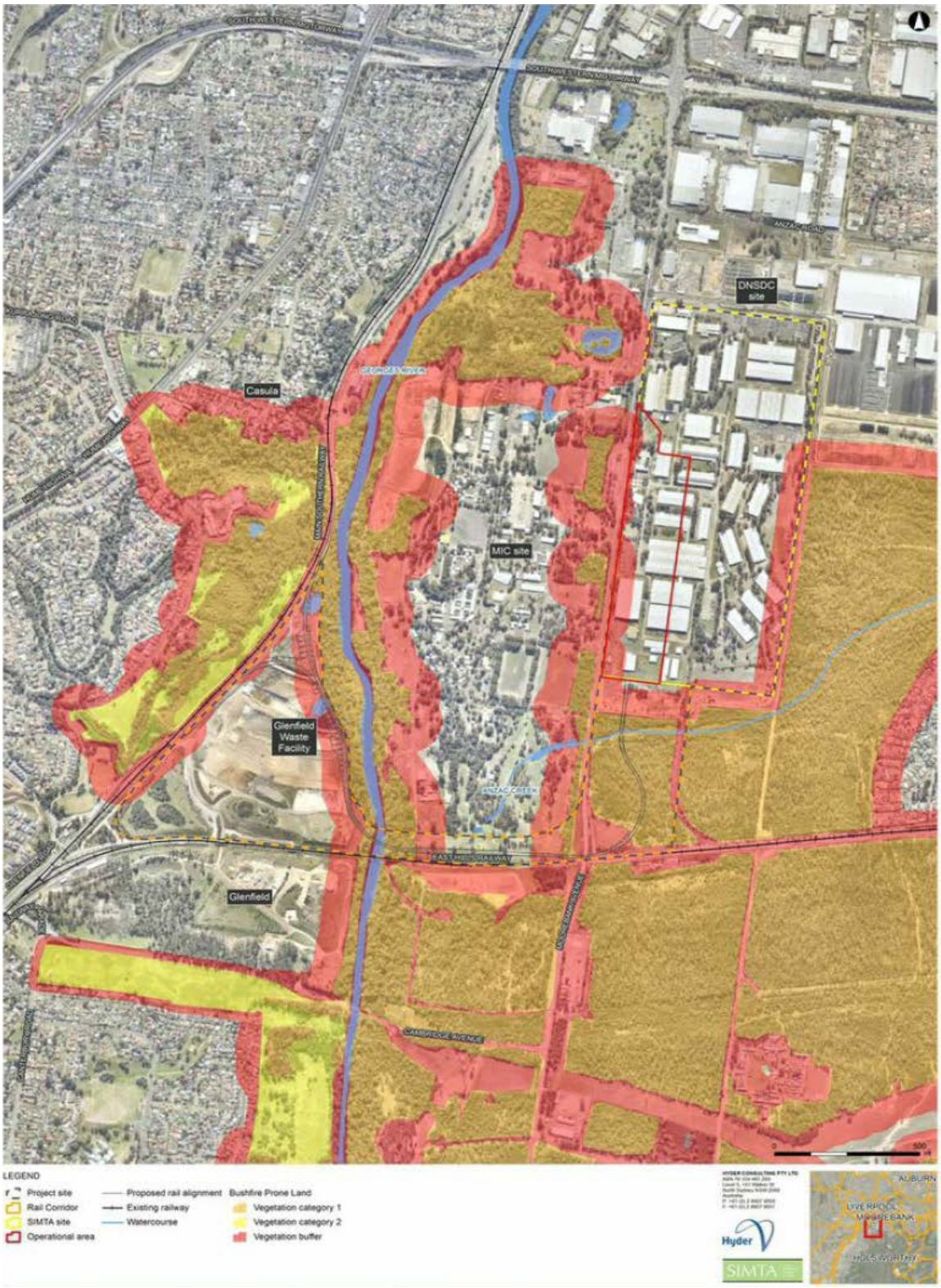

Figure 8 – Extract of the Certified Liverpool Bushfire Prone Land Map showing the location of the MPE Stage 2 Site.
HOLD POINT – Revised figure in preparation

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4 - BUSH FIRE PROTECTION ASSESSMENT

Chapter 1, Section 1.3 of *Planning for Bushfire Protection 2006* states that the construction of Class 5 – 8 and Class 10 buildings on bushfire prone land, or land impacted by bushfire prone vegetation, must meet the aim and objectives of the document.

The stated aim of the document is to use the NSW development assessment system to provide for protection of human life (including fire-fighters) and to minimize impacts on property from the threat of bushfire, while having due regard to development potential, on-site amenity and protection of the environment.

The objectives of the document are:

(1) Afford occupants of any building adequate protection from exposure to the impacts of a bushfire;
(2) Provide for a defendable space to be located around buildings;
(3) Provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent direct flame contact and material ignition;
(4) Ensure that safe operational access/egress for emergency service personnel and occupants relocating is provided and/or available;
(5) Provide for ongoing management and maintenance of bushfire protection measures, including fuel loads within the Asset Protection Zone/s;
(6) Ensure that utility services are adequate to meet the needs of fire-fighters (and others assisting in bushfire fighting operations).

Chapter 4, Section 4.3.6(f) of *Planning for Bushfire Protection 2006* discusses the bushfire protection to buildings of Class 5 to 8 and 10b of the Building Code of Australia and states:

"The BCA does not provide for any bushfire specific performance requirements and as such A.S.3959 – 1999 does not apply as a set of 'deemed to satisfy provisions'.

The general fire safety construction provisions for this class of building are taken as acceptable solutions, but the aim and objective of Planning for Bushfire Protection 2006 apply in relation to access and water supply for fire-fighting operations, emergency planning (evacuation) and landscaping / vegetation management".

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4.1 Bushfire Protection Assessment for the proposed MPE Stage 2 development:

The performance criteria for the Proposal are described in the sections below:

(1) Afford occupants of any building adequate protection from exposure to the impacts of a bushfire:

The Proposal includes the construction of up to 300,000m^2 of warehousing across the Proposal site, with ancillary offices attached and a Freight Village located to the north of the warehouse complex.

The Proposal includes 7 warehouses which will be up to 21 metres in height and of varying size and design.

An overview plan showing the Defendable Spaces to the MPE Stage 2 site is provided in Attachment A. The Proposal sites boundaries are located approximately 50 metres from the bushfire hazard on the land to the east and more than 100 metres to the unmanaged vegetation on the land to the south.

The separation to the east is provided by the managed land within the MPE site and to the south by the setback to the warehouse buildings and the managed vegetation on the adjoining Commonwealth land.

These setbacks afford the occupants of the facility adequate protection from a bushfire event which may occur in the vegetation to the east and south.

(2) Provide for a defendable space to be located around buildings:

The defendable space to the east of the warehouse complex is at least 50 metres whilst to the south the defendable space within the MPE Stage 2 Site is 60 metres, with an additional 50 metres of managed land on the adjoining Commonwealth land.

The management of the adjoining land to the south of the Warehouse buildings provides a defendable space to this part of the MPE Stage 2 site of more than 100 metres.

(3) Provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent direct flame contact and material ignition:

The setbacks to the fixed assets (Warehouse buildings) reduce the chance of direct flame contact on the building.

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(4) Ensure that safe operational access/egress for emergency service personnel and occupants relocating, is provided and/or available:

Public Roads

The Proposal is accessed from Moorebank Avenue which is a Local Road where it meets the site and a State Road above the M5 Motorway and provides safe operational access/egress for emergency service personnel and occupants of the facility. This road is proposed to be upgraded as part of the Proposal.

Fire Trail Access

No fire trail access provided or required – refer to Emergency Response Access/Egress below. The design layout for the MPE Stage 2 site provides a fire service access to the eastern aspect of the complex and partly to the southern aspect. The adjoining Commonwealth land contains an existing fire access road that extends to the east from Moorebank Avenue, turning to extend north along the eastern boundary of the MPE Stage 2 Site.

Emergency Response Access / Egress

The design layout for the MPE Stage 2 site provides for access to the site via Moorebank Avenue.

Light and heavy vehicles will travel along an east/west internal road which connects to a north/south road that extends along the eastern side of Proposal site, terminating in a cul-de-sac at each end which provides access to light and heavy vehicles to all warehouses along the Proposal's eastern boundary.

The proposed internal access roads provide safe operational access for emergency service personnel and safe egress is available for emergency service personnel and staff and satisfies item (iv) of the Objectives of *Planning for Bushfire Protection 2006.*

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(5) Provide for ongoing management and maintenance of bushfire protection measures, including fuel loads within the Asset Protection Zones/Defendable Space:

The continued maintenance of the existing vegetation on the land to the east and south of the Warehouses, within the Proposal site, provides a satisfactory reduction of fuel loads within these defendable spaces (Attachment A). As highlighted in Section 3.4 there are no threatened species or EECs in these areas and the buffer zone south of the Proposal boundary is a powerline easement and fire trail, vegetation will continue to be managed in this area.

(6) Ensure that utility services are adequate to meet the needs of fire-fighters (and others, assisting in bushfire fighting operations):

The Proposal includes the relocation and installation of utilities to connect to nearby public utility networks within the MPE Site and along Moorebank Avenue.

An onsite fire-fighting water supply shall be installed to comply with A.S. 2419.1 - 2005, providing a satisfactory fire-fighting water supply to the complex.

(7) Emergency Management for Fire Protection / Evacuation:

The evacuation of the MPE Stage 2 site, due to the threat of a bushfire occurrence in the unmanaged vegetation to the east, maybe required.

The width of the defendable space (including the continued management of the land to the south of the MPE site) mitigates the risk from a south-westerly fire path and therefore reduces the impact on the warehouse buildings located adjacent to the southern boundary of the MPE site.

However, the Emergency Management Plans prepared for the buildings shall include protocols that address the bushfire risk to the site.

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5 - MITIGATION MEASURES

The following actions would be considered for implementation, where reasonable and feasible, for mitigation of bushfire risk during construction:

- A bushfire management strategy, or equivalent, would be prepared as part of the CEMP for the construction phase. The strategy would include:
  - Emergency response plans and procedures
  - Restrictions on activities (namely hot works) that cannot be undertaken on total fire ban days within areas of high Bushfire Hazard Rating, unless otherwise advised by the NSW Rural Fire Service
  - All site offices and temporary buildings would have a minimum setback of 10 m to bushfire prone areas
  - All site offices would be accessible via access roads suitable for firefighting appliances similar to NSW Rural Fire Service category 1 tankers.

The following mitigation measures would be implemented during the operation of the Proposal:

- A bushfire management strategy, (including a fire safety and evacuation plan) or equivalent, would be prepared as part of the OEMP
- Management of the landscaped areas within the Proposal site would be undertaken to maintain minimum dry fuels loads

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6 - CONCLUSION

Item 15 (Bushfire Management) of the SEARs for the Proposal requires that an assessment be undertaken against *'Planning for Bushfire Protection 2006'.*

Section 79BA of the *Environmental Planning & Assessment Act 1979* would ordinarily apply to any development which is to occur on the site. Section 79BA of the *Environmental Planning and Assessment Act* requires that the proposed development comply with the requirements of *Planning for Bushfire Protection 2006* with respect to the protection of persons, property and the environment from the danger that may arise from a bushfire.

However, by virtue of clause 1B of Section 79BA, the provisions of section 79BA do not apply, as the Proposal is considered to be State Significant Development (SSD). As the Proposal is considered State Significant Development compliance with the *Planning for Bushfire Protection 2006* is not mandatory however undertaking an assessment against the provisions of the *Planning for Bushfire Protection 2006* is considered good practice.
This report has examined the Proposal in relation to the provision of bushfire protection measures to the proposed infrastructure to be established within the Proposal site.

The report has found that the aim and objectives of *Planning for Bushfire Protection 2006* have been satisfactorily addressed.

Table 8 below provides a summary of aspects of the Proposal related to the specific objectives provided by *Planning for Bushfire Protection 2006*.

Table 8. Aspects of Proposal in relation to the objectives of *Planning for Bushfire Protection 2006.*

Objective	Compliance with deemed-to-satisfy provisions of *Planning for Bushfire Protection 2006.*
Afford occupants of any building adequate protection from exposure to a bushfire.	The flame length associated with the vegetation to the south and east of the Proposal site is in the order of 25m. Therefore the separation between the fixed assets and the bushfire prone vegetation (at least 50m) exceeds the defendable space widths required by *Planning for Bushfire Protection 2006* and reduces the risk of flame contact, high levels of radiant heat and ember attack.
Provide for a defendable space to be located around the building	A defendable space of at least 50 metres is provided to the east and more than 100 metres to the south of the Warehouse buildings.

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Objective	Compliance with deemed-to-satisfy provisions of *Planning for Bushfire Protection 2006.*
Provide appropriate separation between a hazard and buildings, which, in combination with other measures, prevent direct flame contact and material ignition.	The width of the defendable space provided between the fixed assets and the bushfire prone vegetation (at least 50m) reduces the possibility of flame contact and high levels of radiant heat impact on the buildings.
Ensure that safe operational access and egress for emergency service personnel and staff/visitors is available.	Safe egress from the MPE Stage 2 Site is provided onto Moorebank Avenue.
Provide for ongoing management and maintenance of bushfire protection measures, including fuel loads in Asset Protection Zones.	Management of the landscaped areas within the MPE Stage 2 site will be undertaken by the operators to maintain minimum dry fuels loads.
Ensure that utility services are adequate to meet the needs of fire-fighters and others assisting in bushfire fighting.	Utility services meet the needs of fire-fighting requirements.

A bushfire management strategy, or equivalent, would be prepared to manage potential bushfire impacts for both the construction and operational phases of the Proposal.

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REFERENCES:

- N.S.W Rural Fire Service – *Planning for Bushfire Protection 2006*;
- *Environmental Planning & Assessment Act – 1979*;
- *Rural Fires Act – 1997*;
- *Rural Fires and Environmental Assessment Legislation Amendment Act 2002*;
- NSW Rural Fire Service – *Guideline for Bushfire Prone Land Mapping 2015*;
- *Threatened Species Conservation Act 1995*;
- *Native Vegetation Act*;
- *Bushfire Environmental Assessment Code 2006*;
- Building Code of Australia;
- Australian Standard A.S 3959-2009 "*Construction of Buildings in Bushfire Prone Areas"*;
- *Liverpool Bushfire Prone Land Map.*

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ATTACHMENT A – Plan showing the Defendable Spaces to the MPE Stage 2 site

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