

Chapter 23

Property and infrastructure



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23. Property and infrastructure

Chapter 23 provides a discussion of the impact that the Moorebank Intermodal Terminal (IMT) Project (the Project) may have on property and infrastructure on the Project site and the surrounding area. The impacts discussed within this chapter include those related to land use (both existing and future), property acquisition and property access. This chapter should be read in conjunction with Chapter 2 – *Site context and environmental values*, which provides detailed information on the Project and the surrounding locality's land use and environmental values.

This chapter addresses the requirements outlined in the relevant Commonwealth Department of the Environment (DoE)'s Environmental Impact Statement (EIS) Guidelines and the Secretary for the NSW Department of Planning and Environment (NSW DP&E)'s Environmental Assessment Requirements (NSW SEARs) as listed in Table 23.1.

Table 23.1 Relevant Commonwealth EIS Guidelines and NSW SEARs

Requirement	Where addressed
Commonwealth EIS Guidelines under the Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)</i>	
Descriptions of the existing and proposed urban activities and land uses within areas that may be affected by the proposal.	Refer section 23.1 for existing and proposed urban activities and land uses.
NSW SEARs under the NSW <i>Environmental Planning and Assessment Act 1979 (EP&A Act)</i>	
Property and infrastructure – including but not limited to:	
<ul style="list-style-type: none"> impacts on affected properties and land uses, including impacts relating to access, land use, business activities, future development potential, and property acquisition; and 	<p>This chapter assesses the impacts on affected properties and land uses, including impacts related to land use, future development potential, and property acquisition (refer section 23.2). Land use and environmental values are also discussed in Chapter 2 – <i>Site context and environmental values</i>.</p> <p>Impacts on access are discussed briefly in this chapter, with further assessment in Chapter 11 – <i>Traffic, transport and access</i>.</p> <p>Impacts on business activities are covered in Chapter 24 – <i>Social and Economic impacts</i>.</p>
<ul style="list-style-type: none"> service demand, capacity and augmentation of existing and proposed utilities and infrastructure, including any relocation as a result of the development. 	This chapter (see section 23.2).

23.1 Existing environment

The Project is located within the Liverpool local government area (LGA), approximately 30 kilometres (km) south-west of the Sydney Central Business District (CBD) and approximately 4 km south of the Liverpool CBD.

Chapter 2 – *Site context and environmental values* of this EIS provides detailed information on the existing land use and land ownership within the Project site and the surrounding area. This is summarised in the sections below.

23.1.1 Land use on the Project site

The Project site (as shown in Figure 1.1 in Chapter 1 – *Introduction*), is made up of the following:

- the main IMT site, situated to the east of the Georges River;
- the rail connection (including the Georges River) from the main IMT site to the Southern Sydney Freight Line (SSFL), including the three rail access options as proposed within the Project indicative concept layouts (refer to further discussion provided in section 1.2.3 of Chapter 1 – *Introduction*); and
- surrounding roads and intersections which provide access to the main IMT site and which are proposed to be upgraded as part of this Project.

Sections 23.1.2 to 23.1.4 below provide further detail on the land uses within the Project site. In addition, Figure 2.2 in Chapter 2 – *Site context and environmental values* shows the existing land uses, while Figure 2.3 to Figure 2.5 show the land ownership of the Project site.

23.1.2 The main IMT site

The main IMT site is defined as the area of land that is generally bounded by the Georges River to the west, Moorebank Avenue to the east, the East Hills Railway Line to the south and the M5 Motorway to the north. A riparian zone and the Georges River mark the western boundary of the main IMT site.

As shown on Figure 2.3 in Chapter 2 – *Site context and environmental values*, the main IMT site comprises Commonwealth-owned land, currently used for Department of Defence (Defence) purposes, which includes the School of Military Engineering (SME) and other minor Defence units. The main IMT site also includes two smaller parcels of land to the north of the SME land, known as the 'Northern Commonwealth Land' and the 'Northern Council Land'. More details of these parcels of land are provided in the sections below.

The import/export (IMEX) and interstate terminals and the warehousing precinct would be located on the main IMT site. This includes all supporting infrastructure associated with the terminals and warehousing, including repairs and maintenance, equipment storage, administration, parking and utilities.

School of Military Engineering

The SME currently occupies a large portion of the main IMT site and consists of 13 Australian Defence Units and four Defence facilities. The SME also includes training grounds with some administrative and residential buildings, as well as a Defence museum, which commemorates the actions of Defence personnel. The Defence museum, which is currently open to the public, would be relocated to the Holsworthy Barracks as part of the separate Moorebank Unit Relocation (MUR) Project (as discussed in section 8.1 of Chapter 8 – *Project development phasing and construction*).

The southern part of the main IMT site is currently occupied by the Royal Australian Engineers (RAE) Golf Course. This golf course is open to the public, with access provided off Moorebank Avenue via the Steele Barracks.

Northern Commonwealth Land

The main IMT site includes land owned by the Commonwealth, referred to as the 'Northern Commonwealth Land', which is land located north of Bapaume Road and west of Moorebank Avenue. This land is zoned for general industrial uses, but is currently vacant with sparse vegetation. The land is fenced off along Moorebank Avenue.

Northern Council Land

The Northern Council Land owned by the Liverpool City Council (LCC) consists of a small strip of land to the west of Moorebank Avenue, north of Bapaume Road and immediately east of the Northern Commonwealth Land (refer to Figure 2.3 in Chapter 2 – *Site context and environmental values*). This land, while a dedicated public road, has not yet been developed for road purposes, is currently vacant.

23.1.3 The rail access and bridge crossing

The Project includes the construction and operation of a rail access to connect the IMEX and interstate terminals to the SSFL. The rail connection would be achieved via a bridge structure over the Georges River, and would connect to the Project site at the north, south or centre of the IMT. Further discussion of the three rail access options proposed is provided in Chapter 7 – *Project built form and operations*. The rail access options would require the development of land outside the main IMT site as follows:

- The northern rail access option would connect the main IMT site to the SSFL via a bridge crossing the Georges River (Crown land) and an area referred to as the 'Northern Powerhouse Land', which is currently owned by LCC. The Northern Powerhouse Land comprises an area of open space along the western bank of the Georges River. The main access road to the site is Shepherd Street from the north, beneath the M5 Motorway bridge over the Georges River. The tie-in between the proposed rail access and the SSFL would also affect small areas of land owned by Sydney Trains (formerly RailCorp), used for the purposes of rail.

Construction of the northern rail access option would also require temporary occupation of LCC, Sydney Trains and NSW Road and Maritime Services land.

- The central rail access option would connect the main IMT site to the SSFL across the Georges River (Crown land), and would require development of Commonwealth land on the western bank of the Georges River, which is referred to as the 'hourglass land'. This land is heavily vegetated. Again, the tie-in between the proposed rail access and the SSFL would affect land owned by Sydney Trains.

Temporary occupation of land within the Glenfield Landfill site as well as LCC land adjacent to the Georges River may be required during construction of the central rail access option. This is shown on Figure 23.3. A number of Sydney Trains lots would also be temporarily occupied during construction of the central rail access option.

- The southern rail access option would connect the main IMT site to the SSFL across the Georges River (Crown land) and would cross the Glenfield Landfill site on the western side of the river. The Glenfield Landfill consists of landfill cells (voids) containing general solid waste. The East Hills railway line has been constructed over the former landfill cells.

The tie-in to the SSFL would also affect land owned by Sydney Trains.

Temporary occupation of Commonwealth land (the hourglass land) may be required for construction of the southern rail access option.

23.1.4 Roads

The Project would include the redevelopment of Moorebank Avenue and the upgrade of the Moorebank Avenue/Bapaume Road intersection, the Moorebank Avenue/Anzac Road intersection and modification of the Moorebank Avenue/M5 Motorway intersection. Moorebank Avenue between the M5 Motorway and the East Hills Railway Line is included within the Project site.

Moorebank Avenue is a two-lane undivided road (i.e. one lane in each direction). Between the M5 Motorway interchange and Anzac Road, Moorebank Avenue is a local road owned and maintained by LCC. South of Anzac Road, Moorebank Avenue is a private road owned and maintained by the Commonwealth.

Bapaume Road and the Northern Council Land, both of which are public roads, are located almost entirely within the main IMT site boundary. Bapaume Road is a local road, owned and maintained by LCC, which provides access to the ABB site (off Moorebank Avenue at the northern end of the Project site). It is a two-lane undivided road.

23.1.5 Surrounding land uses

Section 2.2 of Chapter 2 – *Site context and environmental values* provides a description of the land uses surrounding the Project site, which include residential development to the west and east, commercial and industrial development to the north, and Defence land immediately east and to the south. A summary of the land uses in the vicinity of the Project site is provided below.

Residential suburbs

The Project site is surrounded by the neighbouring residential suburbs of Casula to the west, Glenfield to the south and Wattle Grove to the east (refer Figure 1.1 in Chapter 1 – *Introduction*). Low and medium residential development in these suburbs is interspersed with public parks and recreational facilities including Carroll Park (west of the Georges River, just north of the Casula Powerhouse) and Leacock Regional Park (west of the Georges River and adjacent to the Glenfield Landfill site).

Commercial and industrial areas

The Project site is surrounded by commercial and industrial developments to the north, as described below:

- The ABB site is located to the north of the SME on the eastern bank of the Georges River. Access to the site is via Bapaume Road off Moorebank Avenue.
- Moorebank Business Park is situated immediately to the north of the Sydney Intermodal Terminal Alliance (SIMTA) site, on the corner of Moorebank Avenue and Anzac Road. The site accommodates companies including Toyota, Electrolux and BMW warehousing and showroom facilities.

Defence land use

The Defence National Storage and Distribution Centre (DNSDC) facility to the east of the Project site and Moorebank Avenue is currently being relocated to West Wattle Grove, approximately 1.5 kilometres (km) north-east of the Project site. It was previously used as a logistics facility for Defence. The DNSDC site is leased to Defence by SIMTA.

These land uses are shown on Figure 2.2 in Chapter 2 – *Site context and environmental values*.

Recreational areas

The Casula Powerhouse Arts Centre is located south of the Northern Powerhouse Land on the western bank of the Georges River, on land owned by LCC. The Casula Powerhouse Arts Centre provides a gallery and theatre space for permanent and touring exhibitions and productions.

Georges River

The Georges River, owned by the Crown, borders the western side of the IMT site. It is used for, among other things, Defence training purposes as well as recreational activities such as barefoot water-skiing. The NSW Barefoot Water-ski Club is located near Helles Park on the eastern bank of the Georges River. The club has an aquatic licence (issued by NSW Roads and Maritime Services (RMS)) to use a section of the Georges River just north of the Project site (refer to Chapter 24 – *Social and economic impacts* for further details).

23.1.6 Land ownership

The Project would occupy predominantly Commonwealth land, with the exception of the Northern Council Land (on the north-eastern corner of the Project site) and Bapaume Road, both of which are owned by LCC. In addition, as discussed in section 23.1.3, the various rail access options would traverse land to the west of the Georges River including:

- the Northern Powerhouse Land, in the case of the northern rail access option;
- the 'hourglass land', in the case of the central rail access option; and
- the Glenfield Landfill, in the case of the southern rail access option.

All rail access options would also require occupation of Sydney Trains land to construct the tie-in between the rail access and the SSFL.

In addition, land required for temporary occupation during the tie-into of the rail access to the SSFL is identified in section 23.2.1.

Existing land ownership is shown in Figure 23.2 to Figure 23.4.

23.1.7 Proposed future land uses

Future land uses proposed by others

The Project site and surrounding area is located within the Liverpool LGA and is subject to the provisions of the *Liverpool Local Environmental Plan 2008* (Liverpool LEP 2008). Under the Liverpool LEP 2008, land surrounding the Project site is variously zoned as:

- general industrial;
- public recreation;
- low density residential;
- medium density residential;
- national parks and nature reserves; and
- infrastructure.

Figure 4.1 in Chapter 4 – *Planning and statutory requirements* shows the zoning of the land in the vicinity of the Project site.

In addition, land immediately east and north of the Project site is subject to the Moorebank South Industrial Precinct overlay under the Liverpool LEP 2008. This includes the DSNDL land immediately east of the Project site, the ABB site, the Northern Commonwealth Land and the Northern Council Land. The purpose of the Moorebank South Industrial Precinct is to promote future public transport planning, with future development subject to requirements relating to subdivision and street pattern design.

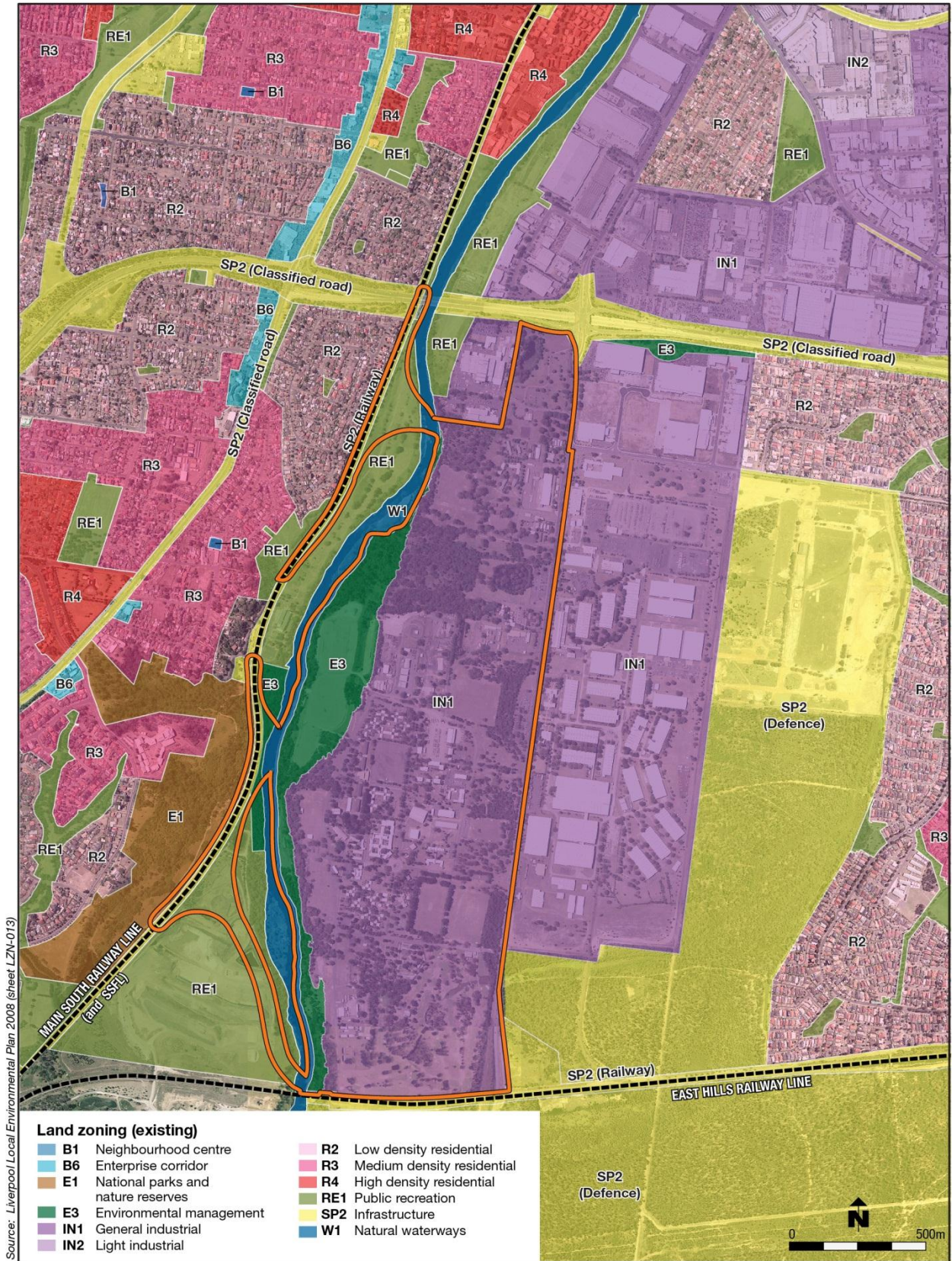
The DSNDL site, Northern Commonwealth Land and Northern Council Land are also identified as the 'Moorebank Defence Lands' under Part 2.4 of the *Liverpool Development Control Plan 2008* (Liverpool DCP 2008). These lands have been identified for future industrial and business opportunities under this Plan.

The Project site is located immediately west of the proposed location for the SIMTA Project, which SIMTA proposes to develop for the purposes of an IMT. As noted above, DSNDL functions on the SIMTA site are currently being relocated to West Wattle Grove and would be fully relocated before commencement of the Moorebank IMT Project. Further details of the proposed SIMTA Project are provided in section 6.5 of Chapter 6 – *Project development and alternatives*.

Proposed land use on the Project site

A planning proposal has been prepared to rezone part of the Project site to allow for the development of the IMT. This includes the rezoning of the IMT site to partly *IN1 General Industrial* (for the IMT) and partly *E3 Environmental Management* (for the conservation zone along the Georges River) (refer Figure 23.1). In addition, it is proposed to rezone land to the west of the Georges River (the hourglass land) from *SP2 (Defence)* to *E3 Environmental Management*, as it is proposed to develop this land for conservation purposes.

Amendments to Part 7 (additional local provisions) of the Liverpool LEP 2008 are also proposed to permit the construction and operation of the rail access options through land to the west of the Georges River.



Source: Liverpool Local Environmental Plan 2008 (sheet LZN-013)

Figure 23.1 Draft zoning map

23.1.8 Existing infrastructure and utilities

The Project site is located adjacent to existing major road and rail transport corridors including the M5 Motorway, the East Hills Railway Line and the SSFL, as shown in Figure 1.1 in Chapter 1 – *Introduction*.

The Project site is serviced by a number of arterial and local roads in the Moorebank area, including Moorebank Avenue, Cambridge Avenue (to the south of the Project) and Anzac Road. The main access to the Project site is via the M5 Motorway and Moorebank Avenue. Moorebank Avenue also provides an alternative access to Moorebank from Glenfield.

The SSFL is a dedicated freight rail line, located adjacent to the Main South Railway Line within the existing rail corridor, to the west of the Georges River. The East Hills Railway Line forms the southern boundary of the Project site.

The Project site is serviced by a number of utilities and services, which are listed in Table 23.2.

Table 23.2 Potentially affected utilities

Provider	Type of asset
Endeavour Energy	Main substation and distribution substations 2 x 33 kV feeder
Sydney Water	Water mains Sewer mains
Jemena	Gas supply
Telstra	Fibre optic cables
Optus	Fibre optic cables

Source: Suters Architects 2012

23.2 Impact assessment

23.2.1 Property acquisition and easements

As outlined in section 23.1.3 and also in section 2.3 of Chapter 2 – *Site context and environmental values*, construction and operation of the Project on the main IMT site will require the acquisition of LCC land which includes:

- the area known as the Northern Council Land, an undeveloped public road (approximately 4154 square metres in area) owned by LCC and located on the eastern side of Moorebank Avenue; and
- Bapaume Road, a public road owned by the LCC that provides access to the ABB site and is located in the northern portion of the Project site. Alternative access arrangements to the ABB site would be implemented.

In addition to the main IMT site, construction and operation of the rail access to connect the IMEX and interstate terminals to the SSFL would affect land on the western side of Georges River. This includes land affected by the permanent rail access and also land required for temporary occupation during construction of the rail access and tie-in to the SSFL. The land affected by the three proposed rail access options is identified in Table 23.3 and Table 23.4 below (also refer to Figure 23.2 to Figure 23.4).

Table 23.3 Potentially affected properties – permanent footprint of the rail access

Rail access option	Lot affected	Landowner
Northern rail access option	Lot 10 DP 881265	Liverpool City Council (Northern Powerhouse Land)
	Lot 6 DP 1186254	RailCorp ¹
	Lot 15 DP 881265	RailCorp
Central rail access option	Lot 1 DP 1130937	RailCorp
	Lot 3 DP 1130937	RailCorp
	Lot 4 DP 1130937	Commonwealth (hourglass land)
	Lot 4 DP 1186349	RailCorp
	Lot 102 DP 1143827	RailCorp
Southern rail access option	Lot 5 DP 833516	JC and FW Kennett Pty Ltd
	Lot 51 DP 515696	JC and FW Kennett Pty Ltd
	Lot 104 DP 1143827	JC and FW Kennett Pty Ltd
	Lot 103 DP 1143827	Figela Pty Ltd
	Lot 102 DP 1143827	RailCorp
	Lot 4 DP 1186349	RailCorp

Notes: ¹ RailCorp is now known as Sydney Trains

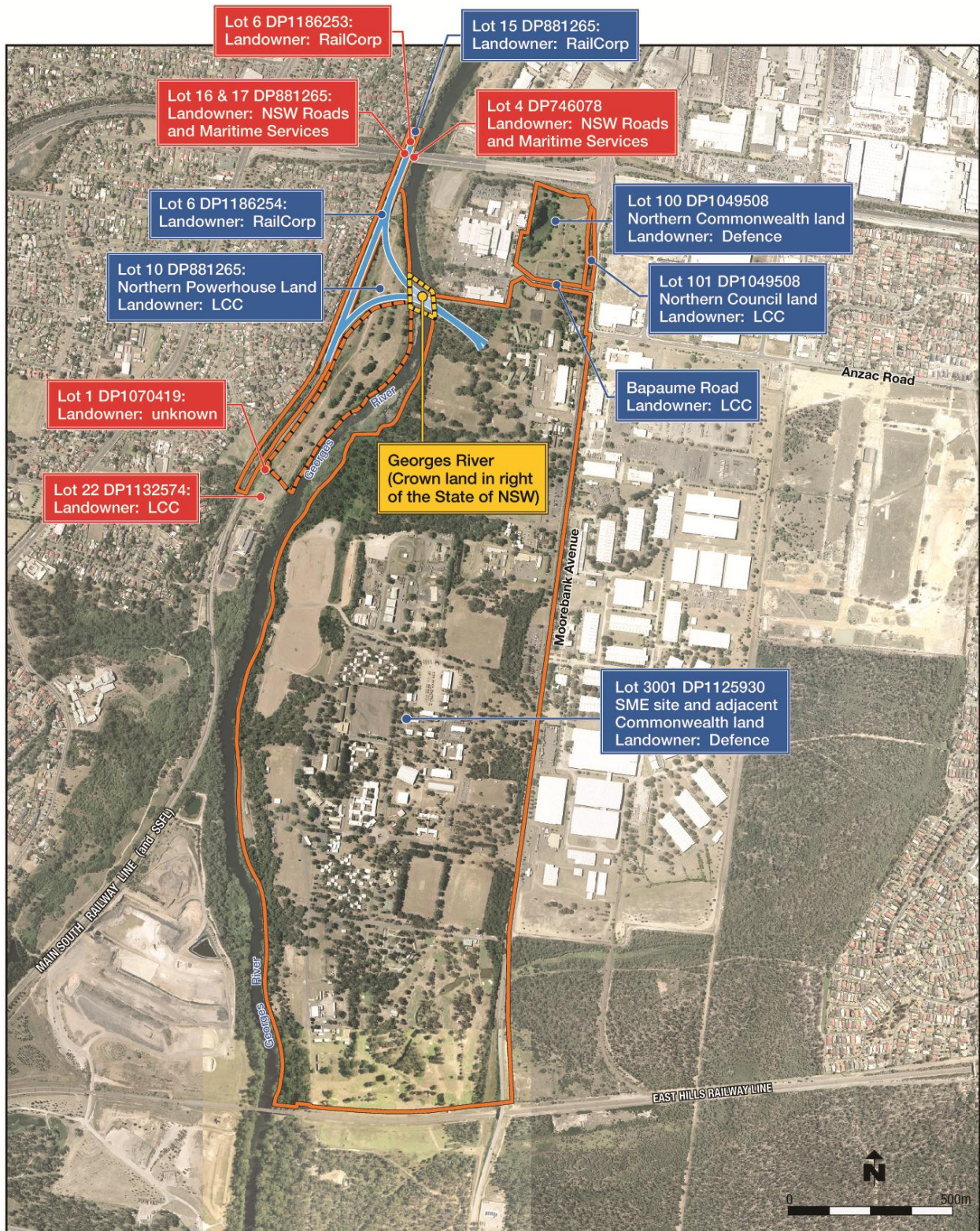
Table 23.4 Potentially affected properties – temporary occupation during construction of the rail access

Rail access option	Lot affected	Landowner
Northern rail access option	Lot 22 DP 1132574	Liverpool City Council
	Lot 4 DP 746078	NSW Roads and Maritime Services
	Lot 17 DP 881265	NSW Roads and Maritime Services
	Lot 16 DP 881265	NSW Roads and Maritime Services
	Lot 6 DP 1186253	RailCorp ¹
	Lot 1 DP 1070419	Unknown ²
Central rail access option	Lot 103 DP 1143827	Figela Pty Ltd
	Lot 2 DP 1130937	RailCorp
	Lot 5 DP 1186272	RailCorp
	Lot 1 DP 1115187	Liverpool City Council
	Lot 20 DP 1132574	RailCorp
	Lot 21 DP 1132574	RailCorp
	Lot 22 DP 1132574	Liverpool City Council
	Lot 24 DP 1132574	Liverpool City Council
Southern rail access option	Lot 4 DP 1130937	Commonwealth (hourglass land)
	Lot 1 DP 1130937	RailCorp

Notes: ¹ RailCorp is now known as Sydney Trains.

² This is a 7.15 m² parcel of land. A manual title search has identified that a *Real Estate Property Act 1900* title has not been created for this lot and the parcel is likely to be the result of an error during subdivision. Where land has no identified landowner, ownership reverts to the Crown.

Following selection of the rail access connection, MIC would investigate the most appropriate method of land acquisition, which may include whole or partial property acquisition. Alternatively, access easements may be entered into with the subject landholders to authorise the construction and operation of the rail link on private land.



- Land required for the Project
- Northern rail access option
- Proposed area of construction licence and easement for Georges River rail bridge
- Temporary occupation for construction
- Permanent land occupation
- Temporary land occupation

Figure 23.2 Land affected by the Project (based on the northern rail access option)

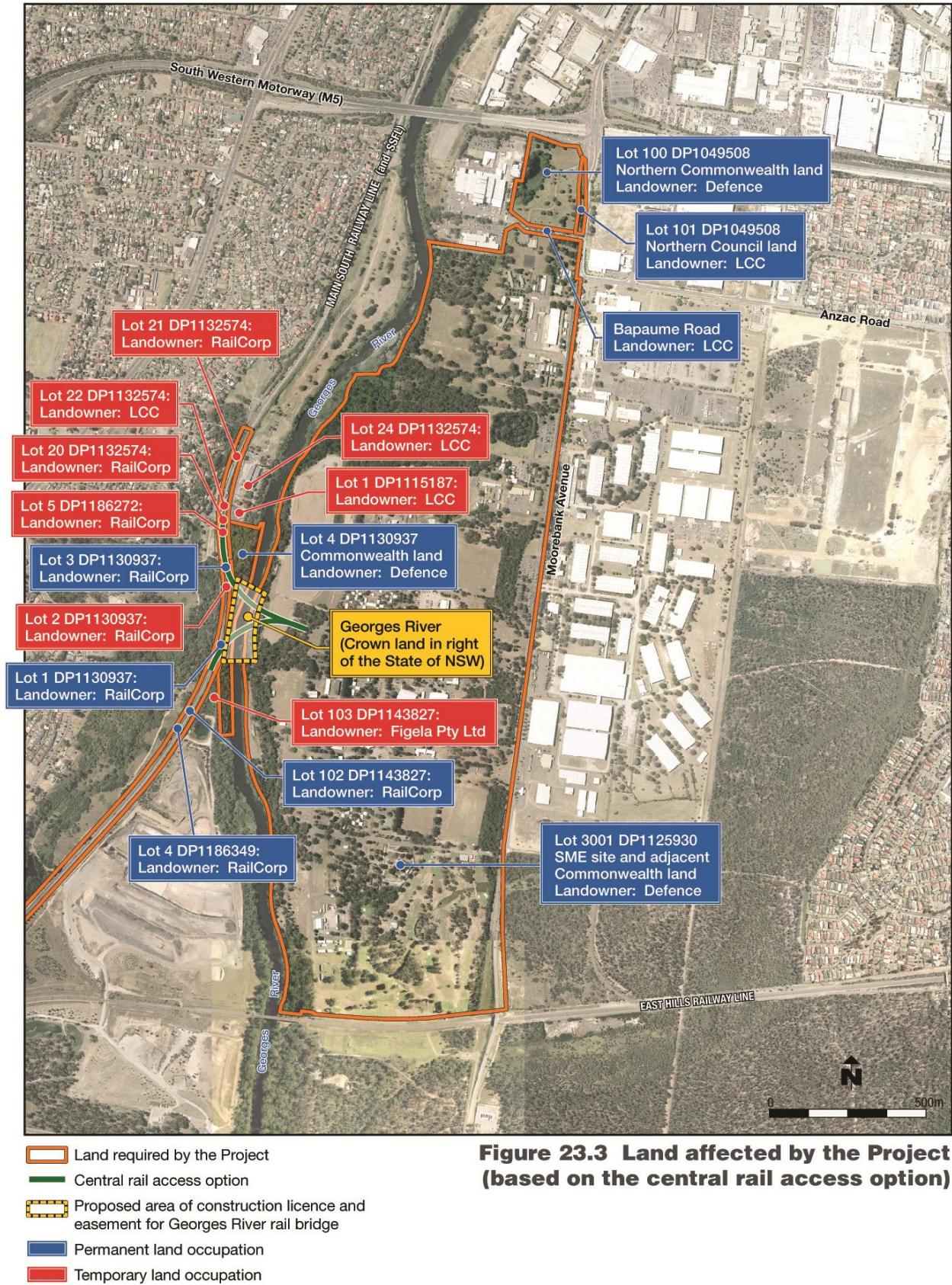


Figure 23.3 Land affected by the Project (based on the central rail access option)

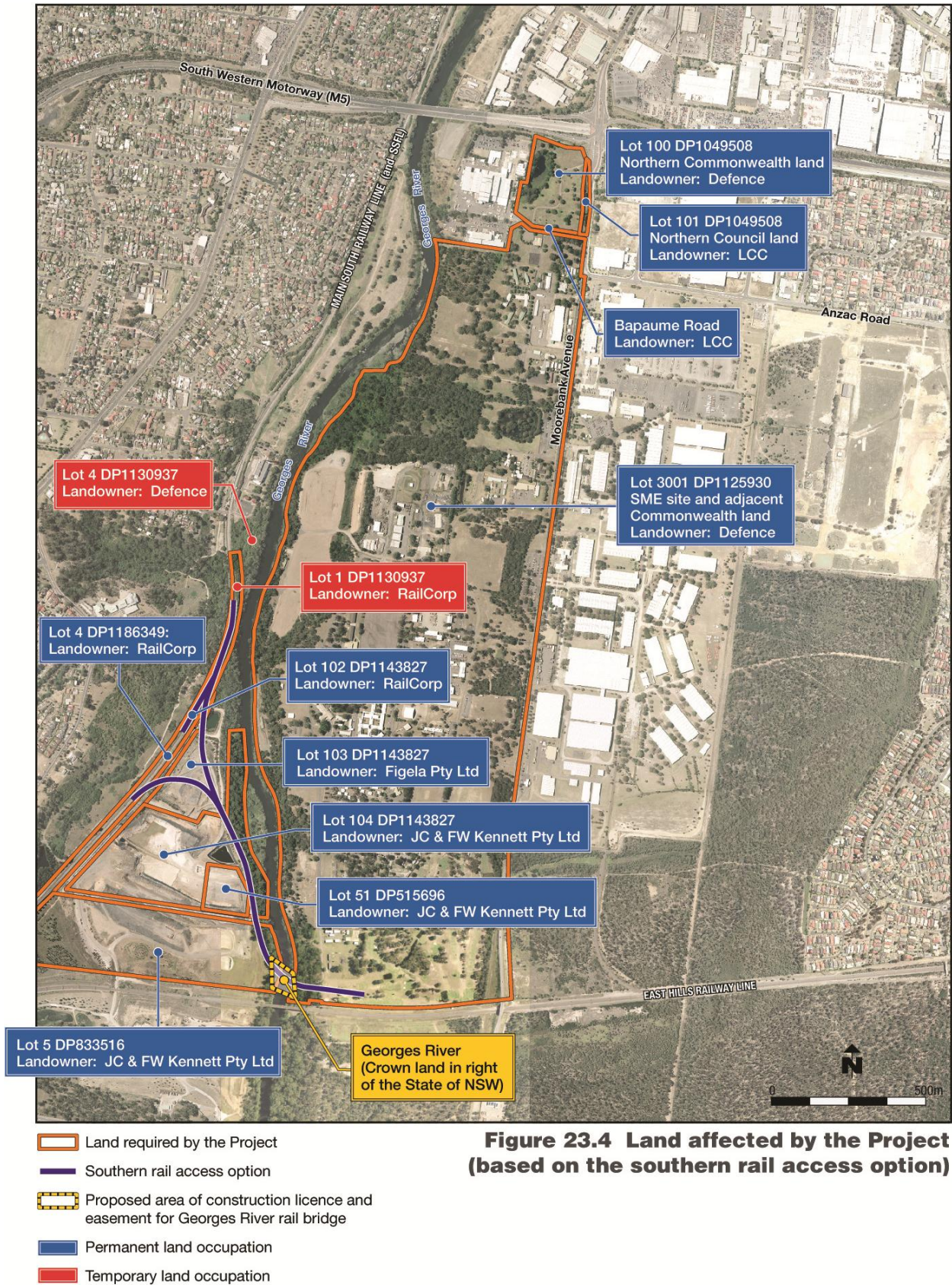


Figure 23.4 Land affected by the Project (based on the southern rail access option)

23.2.2 Early Works

As detailed in Chapter 8 – *Project development phasing and construction*, the Project would be constructed in phases commencing with the Early Works development phase in 2015. The main activities to be undertaken during Early Works include initial site preparation activities, some site remediation, building demolition, service disconnection, establishment of construction access and services, and establishment of the conservation area.

The land use impacts associated with the Early Works development phase include those related to the demolition of Defence buildings to prepare the Project site for IMT construction. This would result in a change to the use of the land from Defence purposes to a construction site; however, no IMT construction would occur during this phase.

The riparian area on the eastern bank of the Georges River would be converted to a conservation area. This would not involve any significant change in land use from existing conditions. However, the Defence plant and equipment training area known as the ‘dust bowl’ would be revegetated as part of the conservation area.

Some site decontamination would also occur during Early Works, involving the removal of asbestos contaminated buildings. This would result in a positive impact, removing potential hazards associated with land contamination. Further details in relation to the contamination impacts are discussed in Chapter 15 – *Contamination and soils*.

23.2.3 Construction impacts

Construction of the IMEX and interstate terminals and warehousing would be undertaken between early 2016 and 2030, during:

- Phase A – Construction of initial IMEX terminal and warehousing;
- Phase B – Operation of initial IMEX terminal and warehousing, construction of additional capacity; and
- Phase C – Operation of IMEX terminal and warehousing, construction of interstate terminal and additional warehousing.

The main construction impacts expected during these phases are described below.

The main IMT site

As construction of the Project progresses, land use would change from the current Defence facility to an IMT. This change would be phased, with the initial IMEX facility and warehousing developed in Phase A, followed by additional IMEX and warehousing in Phase B and the interstate facility in Phase C. However, it is likely that all Defence uses on the Project site would cease before the start of construction of Phase A. The specific impacts of relocating these Defence operations would be dealt with as part of the approved MUR Project and are not assessed in this EIS. The MUR Project is explained further in section 8.1 in Chapter 8 – *Project development phasing and construction* of this EIS. Heritage impacts of the MUR Project are also summarised in Chapter 21 – *European heritage*.

The RAE Golf Club at the south of the SME site is currently open to the public as a golf course. This land use would change to IMT and warehousing and, as a result, the area would no longer be accessible to the general public. The social impacts of this land use change are covered in Chapter 24 – *Social and economic impacts*.

The land uses of Moorebank Avenue and Bapaume Road would be largely unchanged. There would be construction impacts as a result of upgrades to Moorebank Avenue and Bapaume Road; however, access provided by these facilities would be maintained (refer to Chapter 11 – *Traffic, transport and access* for further impact details).

The rail access and bridge crossing site

In addition to the changes on the IMT site itself, construction of the rail access and bridge over Georges River would result in land use impacts on the eastern side of the Georges River.

The use of the land would change during the Project construction, as a result of the rail access and bridge over Georges River. The impacts would differ between the three rail access options, as described below.

Northern rail access option

- Under the northern rail access option, use of the Northern Powerhouse Land would change as a result of the construction of the rail access traversing this land. The Northern Powerhouse Land is currently vacant grassland, zoned for recreational activities. The land use would change to that of a rail bridge crossing connecting the IMT site to the SSFL. LCC has plans to convert this land to public parklands, as further discussed in section 23.2.4 below.
- During construction of the rail access in Phase A, most of the area south of the rail access would be used for construction purposes, including the operation and storage of machinery. However, once construction of the northern rail access option was complete, any land not required for the ongoing operation of the IMT would be handed back to Council, in order to facilitate the potential development of the land for recreational (public park) or other purposes (to be determined). Opportunities would be explored during the detailed design process to utilise the remaining space for recreational purposes. The Northern Powerhouse Land would again be affected during the Phase C for the southbound rail connection to the interstate terminal; however, most of the land would potentially then be available for redevelopment, for recreational or other purposes (to be determined).

Central rail access option

- Under the central rail access option, construction would primarily be from the Project site, on the eastern bank of the Georges River. However, a 60 m wide corridor would be required through the Commonwealth hourglass land to provide for the construction of rail access to both the IMEX and interstate terminals. This would result in land use change from heavily vegetated bush to a rail bridge crossing to the SSFL. Following completion of construction, the area surrounding the rail access would be revegetated, apart from a 30 m wide corridor, which would be kept free of vegetation to allow for future maintenance and access. Revegetation would reduce the overall long term impact of this rail access option.
- In addition, as noted in section 23.1.3, construction of the rail access to the interstate terminal (i.e. the southern approach) during Phase C may impact on an area of land at the northern corner of the Glenfield Landfill site. This effect is likely to be minimal given that the area of impact is only small and the works would be temporary in nature.

Southern rail access option

- Under the southern rail access option, construction of the bridge across Georges River would primarily be from the Project site, from the eastern bank of the Georges River. However, the rail access east of the bridge to the SSFL would be constructed on the Glenfield Landfill site. The land use change on the western bank of the Georges River is expected to be minimal, given that the rail access could be constructed over already filled voids at the Glenfield Landfill site (as described in section 23.1.3 above) without impacting on the overall use of the site. However, there may be some impact where voids would need to be filled and covered prior to construction of the rail access. The potential contamination impacts resulting from this rail access option are discussed in Chapter 15 – *Contamination and soils*.

Construction of the southern rail access option may also require the temporary occupation of Commonwealth land (the hourglass land) for the purposes of tie-in to the SSFL.

Surrounding land uses

Residential suburbs

The residential suburbs (Casula and Glenfield) on the western side of the Project site may experience some land use amenity impacts during construction of the Project. These may include impacts relating to construction traffic, noise and air amenity. Details of these impacts and the specific mitigation measures proposed are provided in Chapter 11 – *Traffic, transport and access*, Chapter 12 – *Noise and vibration*, Chapter 17 – *Local air quality* and Chapter 24 – *Social and economic impacts*.

Access to residential properties would be maintained throughout the construction phases of the Project.

Commercial and industrial areas

The commercial and industrial areas to the north of the Project site, including Moorebank Business Park, may experience access impacts associated with traffic generated by the movement of construction vehicles in and out of the Project site. Impacts on the operation of these commercial and industrial areas would be minimised by locating, where possible, the main construction access points further down Moorebank Avenue away from the intersection with the M5 Motorway.

Bapaume Road, which is the main access road to the ABB site, would be acquired and modified to facilitate the internal IMT road network as well as the warehouse component of the IMT. Alternative access to the ABB site would be established to minimise impacts on access to the ABB site during the construction stage. These traffic related issues are further discussed in the Chapter 11 – *Traffic, transport and access*.

Construction activities may affect future users of the DNSDC land (i.e. the proposed SIMTA Project) through impacts such as traffic, noise and vibration, air discharges and visual amenity. However, as the SIMTA IMT Project is currently at an early stage of design, the impacts are not yet able to be determined. These would need further investigation and assessment once both projects reach the detailed design and construction planning stages. During construction of this Project, access along Moorebank Avenue would be maintained in order to limit potential impacts on the land use at the DNSDC/SIMTA site.

Defence lands

Defence operations at the DSNDC would be fully relocated to West Wattle Grove before the Project commences.

Access to the new site would not be affected by the Project. Land use amenity impacts relating to air quality and noise for this new location are addressed in Chapter 12 – *Noise and vibration* and Chapter 17 – *Local air quality*, respectively.

Road and rail infrastructure

During construction, the proposed haulage routes to the Project site would include roads such as the M5 Motorway and Moorebank Avenue (refer Figure 8.13 to Figure 8.15). Moorebank Avenue would also undergo an upgrade as part of the Project works. During the upgrade, access would be maintained; however, some disruption to traffic is likely to occur (as further described in Chapter 11 – *Traffic, transport and access*).

Bapaume Road would also be reconfigured as part of Phase A. Continued access to the ABB site would be maintained during the relocation of the road.

The Project would potentially have temporary impacts on the SSFL while the rail turnout connection is made to the SSFL during Phase A (under the northbound rail connection) or Phase C (southbound rail connection).

Georges River

There is the potential for some recreational and amenity impacts associated with the construction of the rail access bridge across the Georges River. Each of the three rail access options is expected to generate similar impacts. The recreation and amenity impacts are likely to include:

- disruption to recreational activities (as a result of temporary closure of the river to operate barges);
- noise impacts; and
- visual amenity impacts.

These impacts could temporarily affect the activities of the NSW Barefoot Water-ski Club, which launches from Helles Park during summer months, although the club's current aquatic licence does not extend as far south as the proposed construction works (refer to Chapter 24 – *Social and economic impacts*).

Recreational areas

In addition to the recreational impacts on the Georges River, construction of the northern rail access option would have some impacts on activities on the western side of the Georges River. In particular, the northern rail access would occupy part of the Northern Powerhouse Land, which is directly north of the Casula Powerhouse Arts Centre. This land has been identified by LCC for potential future public parkland in the *Georges River Casula Parklands Concept Master Plan* (LCC 2013). Visitors to the Casula Powerhouse Arts Centre would experience amenity impacts during construction of the Project, as described in Chapter 11 – *Traffic, transport and access*, Chapter 12 – *Noise and vibration*, Chapter 17 – *Local air quality*, Chapter 22 – *Visual and urban design* and Chapter 24 – *Social and economic impacts*.

Construction of the central rail access option is also likely to have amenity impacts on the Casula Powerhouse Arts Centre in terms of noise, visual amenity and air quality. These impacts are described in Chapter 12 – *Noise and vibration*, Chapter 17 – *Local air quality*, Chapter 22 – *Visual and urban design* and Chapter 24 – *Social and economic impacts*.

In addition, the northern and central rail access options would necessitate the realignment of Powerhouse Road, which provides access to the Casula Powerhouse Arts Centre. However, it is not likely that an extended closure of Powerhouse Road would be required, and access to the Casula Powerhouse Arts Centre would therefore be maintained. Local traffic management would be in place during construction of the rail access and bridge, to ensure that road safety is maintained for local traffic.

Utilities

The Project has the potential to affect various utility assets, as discussed in Chapter 7 – *Project built form and operations*. Impacts on utilities would be reduced by confirming their location during the detailed design process and, where possible, avoiding any conflicts. Where impacts are unavoidable, discussions with the utility providers would be undertaken to either protect or relocate the affected utilities. Potentially affected assets are further summarised below.

Power

Bulk power supply to the Project would be provided from the Anzac Village Substation, which is operated by Endeavour Energy. During construction, minor impacts are expected on the power supply to the Project site. Although existing cables along Moorebank Avenue would need to be relocated for construction of Phase A, this is not expected to interrupt services. The Endeavour Energy easement on the north of the Project site may be relocated during construction. This may result in temporary interruption of power supply, but if planned appropriately, the interruption time would be minimised. The proposed power supply to the Project is discussed in section 7.11 of Chapter 7 – *Project built form*.

Water and wastewater

While there would be no need for augmentation of existing water and sewer systems servicing the Project site during Phase A, a new water mains system would be constructed during this phase. This is discussed further in Chapter 16 – *Hydrology, groundwater and water quality*. In addition, a proposed sewage system network would be developed for the Full Build of the Project during Phase A; this is discussed in section 7.11 of Chapter 7 – *Project built form and operations*.

Drainage and stormwater

The Project site consists of existing pipes and open channels which discharge into the Georges River. During the Early Works development phase and Phase A, there would be some impacts on existing drainage onsite, as new stormwater and drainage infrastructure would be developed for the full build. This is also discussed in section 7.11 of Chapter 7 – *Project built form and operations* and of Chapter 16 – *Hydrology, groundwater and water quality*.

Gas supply

Natural gas is available to the Project site from an existing pipe on Moorebank Avenue. During construction of Phase A, the gas main would be realigned and potentially increased in size. This is subject to confirmation with Jemena.

23.2.4 Operation impacts

Main IMT site

As discussed previously, the land use on the Project site would change from a Defence facility to an IMT. This would result in a change to the physical structures on the site, from administrative and operational Defence buildings to rail tracks, IMEX and interstate terminals, equipment and storage yards, offices and warehousing. Land at the southern end of the site currently comprises the RAE Golf Club. The Golf Club would also be converted to IMT land use.

Land use of the conservation zone as a riparian strip would not be changed, except for enhancement of vegetation and use of small strips of land for drainage and the rail access bridge crossing the Georges River.

Rail access and bridge crossing

There would also be permanent land use changes on the western bank of the Georges River associated with the rail access. As discussed in section 23.2.2, in the case of the northern rail access option, this would result in a rail link through recreational land (the Northern Powerhouse Land). The central rail access option would result in a rail link through heavily vegetated bush with a 30 m wide corridor maintained for maintenance. The southern rail access option would result in a rail link through the Glenfield Landfill site. The impacts of these rail accesses on surrounding land uses are discussed in the sections below.

For the northern rail access connection, the Northern Powerhouse Land would be subject to a permanent change of land use, from recreational to freight transport purposes during operation of the Project. Access to Casula Powerhouse Arts Centre is proposed to continue via Shepherd Street and Powerhouse Road, under the M5 Motorway bridge over the Georges River.

Surrounding land uses

Residential suburbs

The residential suburbs of Casula and Glenfield could experience some traffic, visual, air and noise amenity impacts associated with the operation of the Project, including the operation of the rail access; however, impacts would be minimised through the application of mitigation and management measures. Potential impacts and associated mitigation measures are discussed further in Chapter 11 – *Traffic, transport and access*, Chapter 12 – *Noise and vibration*, Chapter 17 – *Local air quality*, Chapter 22 – *Visual and urban design* and Chapter 24 – *Social and economic impacts*.

Commercial and industrial areas

The commercial and industrial areas surrounding the Project site could benefit commercially from operation of the Moorebank IMT. In particular, access to these areas would improve as a result of upgrades to Moorebank Avenue. In addition, the close proximity of the Moorebank IMT could improve business operations for those industries operating out of the Moorebank Business Park (refer Chapter 24 – *Social and economic impacts*). However, the presence of additional heavy vehicles using Moorebank Avenue may cause some traffic impacts on these land uses, as discussed in Chapter 11 – *Traffic, transport and access*.

During the operation of the Project there may be impacts on land uses immediately east of the Project site, namely, the proposed SIMTA Project. As DNSDC operations are currently being relocated to West Wattle Grove, no impact on DNSDC operations is expected. The exact impacts on the SIMTA Project are not able to be determined at this stage, but it is expected that access to the SIMTA site would improve as a result of upgrades to Moorebank Avenue. However, there would be additional heavy vehicles using Moorebank Avenue, as assessed in Chapter 11 – *Traffic, transport and access*. The SIMTA Project has recently received approval under the EPBC Act (approval received March 2014) and on 29 September 2014, the Planning Assessment Commission of NSW (PAC) determined to approve the SIMTA concept plan, with modifications and subject to further assessment requirements. The PAC approval also placed a limit of 500,000 TEU per annum throughput on the project. A cumulative assessment of the Project in combination with development of the SIMTA site is included in Chapter 27 – *Cumulative impacts*.

Recreational areas

The Casula Powerhouse Arts Centre could experience visual, noise and air amenity impacts associated with the operation of the Project, as described in Chapter 11 – *Traffic, transport and access*, Chapter 12 – *Noise and vibration*, Chapter 17 – *Local air quality* and Chapter 22 – *Visual and urban design*. The impacts on the Casula Powerhouse Arts Centre as a result of the northern rail access option and the central rail access option are greater than those anticipated from the southern rail access option. This is due to the distance of the southern rail access option from the Casula Powerhouse Arts Centre. Access to the Casual Powerhouse Arts Centre for visitors and staff would not be affected during operation of the Project.

LCC has advised that it has publicly exhibited a parkland embellishment plan which includes the land proposed for the northern rail access from the SSFL to the Project site. The *Georges River Casula Parklands Concept Master Plan* was publicly exhibited between March and April 2013. LCC has provided the public exhibition panels for the Concept Master Plan that was exhibited. The Concept Master Plan still has not been adopted by LCC and remains as a draft. The land that is the subject of this Concept Master Plan could experience noise and visual impacts from the rail access; however, direct impacts on the use of the land would be minimised. Further assessment of impacts of the rail access on users of the park will be undertaken during detailed design, in consultation with LCC, to ensure that impacts on the park are taken into account.

Georges River

Once the rail crossing is fully constructed and connected to the SSFL, there would be no access impacts on the Georges River during operation. As part of the MUR Project (discussed in section 8.1 of Chapter 8), Defence would have relocated to the Holsworthy Barracks by this time, and the Defence training activities on the Georges River would no longer be active.

Recreational activities on the Georges River (such as those carried out by the NSW Barefoot Water-skiers Club) are unlikely to be affected by the operation of the rail crossing (refer to Chapter 23 – *Social and economic impacts*).

Potential future developments

Potential future developments in the vicinity of the Project site include the proposed SIMTA site (addressed in section 23.17) and the Moorebank South Industrial Precinct, which includes the ABB site and the Northern Commonwealth Land.

The Project would preclude the Moorebank South Industrial Precinct from proceeding, which could limit the future development potential of the surrounding area.

Rail and road infrastructure

During operation of the Project, there would be no impact on operation of the passenger rail lines. The SSFL has capacity to carry freight trains to service the Moorebank IMT, and was specifically developed to enable greater freight transport by rail, as proposed by the Project (refer Chapter 11 – *Traffic, transport and access*).

Although the Project would increase heavy vehicle traffic on the road, Moorebank Avenue and intersections along this road would be upgraded to accommodate increased traffic, and would therefore result in improved access to surrounding industrial and business parks. Further details of traffic and access impacts are provided in Chapter 11 – *Traffic, transport and access*.

Utilities

Construction impacts on utilities (as described above) would be permanent. Once the required connections and any necessary augmentations have been undertaken as part of the construction phase, operation of the IMT would not impose any ongoing impacts on utilities.

23.3 Management and mitigation

The following management and mitigation measures would be implemented to minimise impacts on property and infrastructure from the construction and operation of the IMT.

23.3.1 Detailed design

- Undertake further investigations into the location of existing utilities and the likely impact on these utilities. This would include consultation with asset owners to determine the appropriate measures for relocation.

- Continue consultation with the Australian Rail Track Corporation (ARTC) regarding the design of the rail access to the SSFL, to confirm design, construction and operational measures to avoid or minimise impacts on operation of the SSFL.
- Consider impacts on recreational and other uses of the Georges River during detailed design of the Georges River bridge crossing.

23.3.2 Early Works

- Maintain access to the ABB site and other adjoining sites such as DSNDP and the Moorebank Business Park. This would be addressed during detailed design and as part of traffic management plans to be prepared for the Early Works development phase.
- Implement 'Dial Before You Dig' protocols for all utilities potentially affected by the Project.
- Minimise amenity impacts on land uses through measures identified in Chapter 11 – *Traffic, transport and access*, Chapter 12 – *Noise and vibration*, Chapter 17 – *Local air quality*, Chapter 22 – *Visual and urban design* and Chapter 24 – *Social and economic impacts*.

23.3.3 Construction

- Maintain access to the ABB site and other adjoining sites such as DSNDP, the Moorebank Business Park and local residences in Casula and Glenfield. This would be addressed during detailed design and as part of construction traffic management plans to be prepared for each development stage.
- Implement 'Dial Before You Dig' protocols for all utilities potentially affected by the Project.
- Minimise amenity impacts on land uses through measures identified in Chapter 11 – *Traffic, transport and access*, Chapter 12 – *Noise and vibration*, Chapter 17 – *Local air quality*, Chapter 22 – *Visual and urban design* and Chapter 24 – *Social and economic impacts*.

23.3.4 Operation

- Minimise amenity impacts on land uses through measures identified in Chapter 11 – *Traffic, transport and access*, Chapter 12 – *Noise and vibration*, Chapter 17 – *Local air quality*, Chapter 22 – *Visual and urban design* and Chapter 24 – *Social and economic impacts*.

23.4 Summary of key findings

In summary, the key findings of property and infrastructure assessment are as follows:

- The Project would result in a change of land use from the current Defence facility to an IMT. The social impacts of the land use change are covered in Chapter 24 – *Social and economic impacts*.
- Construction of the Project would permanently affect some small areas of LCC land. In addition, depending on the rail access option selected, some LCC-owned, Sydney Trains-owned, NSW Roads and Maritime Services, and privately owned land (Glenfield Landfill site) would be temporarily and permanently impacted.

- Visitors to the Casula Powerhouse Arts Centre may experience some amenity impacts during construction of the northern or the central rail access options. In addition, the northern and central rail access options would necessitate the realignment of Powerhouse Road, which provides access to the Casula Powerhouse Arts Centre. However, it is not likely that an extended closure of Powerhouse Road would be required, and access to the Casula Powerhouse Arts Centre would therefore be maintained.
- There is potential for some temporary recreational and amenity impacts associated with the construction of the rail access bridge across Georges River.
- The Project would result in the need for upgrades to or augmentation of some infrastructure and services (including energy, water, wastewater, stormwater).
- During construction, some utilities assets may be affected; however impacts would be reduced by confirming their location during detailed design and avoid conflicts where possible.
- The Project would potentially have temporary impacts on the SSFL while the rail turnout connection is made to the SSFL.
- No major infrastructure or utility impacts are predicted, other than disruptions to local roads such as Moorebank Avenue, which would be upgraded, and Bapaume Road, which would be reconfigured.

Table 23.5 summarises the predicted impacts at Full Build, without mitigation, for each rail access option.

Table 23.5 Summary of property and infrastructure impacts at Full Build, without mitigation, for each rail access option

Impact	IMT layout and associated rail access connection option		
	Northern	Central	Southern
Main IMT site			
Change in land use from Defence to an IMT	•	•	•
Permanent occupation of LCC land	•	•	•
Proposed conservation area along Georges River, with enhancement to vegetation	•	•	•
Upgrades to or augmentation of some infrastructure and services	•	•	•
Rail access connection option			
Permanent occupation of LCC land (recreational land)	•	-	-
Permanent occupation of Sydney Trains-owned land	•	•	•
Permanent occupation of Commonwealth land (hourglass)		•	
Permanent occupation of NSW Roads and Maritime Services land	-	-	-
Permanent occupation of privately-owned land (Glenfield Landfill site)	-	-	•

Key: • = impact, - = no impact

Key measures proposed to avoid, manage and/or mitigate property and infrastructure impacts include:

- ongoing consultation with utility asset owners and road and rail authorities, and implementing 'dial before you dig' protocols';
- detailed design and traffic management plans to ensure access is maintained to all adjoining properties during construction and operation; and
- managing amenity impacts on land uses through the measures identified for traffic, transport and access; noise and vibration; local air quality; visual and urban design; and social and economic impacts.

In addition landholders would be compensated in accordance with the *Lands Acquisition (Just Terms Compensation) Act 1991*. Alternatively, access easements may be entered into with the subject landholders to authorise the construction and operation of the rail access connection on private land.