

Non-Indigenous Heritage



SIMTA

SYDNEY INTERMODAL TERMINAL ALLIANCE

Impact Assessment Report

EPBC Ref: 2011/6229

14/12/2012

Executive Summary

Artefact Heritage, on behalf of Hyder Consulting and the Sydney Intermodal Terminal Alliance (SIMTA) (a consortium of Qube Logistics and QR National), has undertaken an assessment of non-Indigenous heritage for the site of SIMTA's proposed intermodal terminal facility and rail link at Moorebank, New South Wales (NSW) (SIMTA proposal).

Status of proposed action

SIMTA seeks approval under the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) for the development of the SIMTA proposal, and this document has been prepared to address the requirements of the "Guidelines for the Content of a Draft Environmental Impact Statement" (EIS Guidelines) issued on 28 June 2012.

Separately, planning approval for the SIMTA proposal is also being sought from the NSW Minister for Planning and Infrastructure (NSW Minister) at State level under the Environmental Planning and Assessment Act 1979 (NSW) (EP&A Act). Non-indigenous heritage impacts associated with the SIMTA proposal will also be addressed in each application for planning approval for each stage of works.

SIMTA proposal

The SIMTA proposal includes the construction of an intermodal terminal facility located within the current Defence National Storage and Distribution Centre (DNSDC), which would provide container freight distribution and warehousing facilities and would be linked to the Southern Sydney Freight Line (SSFL) via a proposed new rail link. Stage 1A of the SIMTA proposal includes all works within the proposed rail corridor, as well as an area of approximately eight hectares in the south-western corner of the DNSDC. Stage 1A would involve the demolition of existing buildings within the Stage 1A area of the DNSDC, excavation, construction, the installation of new infrastructure services, the creation of additional rail connections, and the erection of a new bridge over the Georges River to carry the proposed new railway line parallel to the existing East Hills railway line. It would also involve enabling works in some parts of the DNSDC that do not fall within the Stage 1A footprint.

The SIMTA proposal is proposed to be undertaken as a staged development, and this report includes a detailed Statement of Heritage Impact (SoHI) for Stage 1A, while also assessing potential impacts to Commonwealth Lands and matters of National Environmental Significance (NES) for the SIMTA proposal as a whole, in order to fulfil the EIS Guidelines.

The SoHI for Stage 1A has been included in this report given that the proposed enabling works for Stage 1A will occur (subject to planning approval) while the DNSDC site is leased to the Department of Defence.

Heritage listings

The SIMTA proposal footprint includes two heritage listed items. The DNSDC is currently listed on the Commonwealth Heritage List (CHL) and is protected under the EPBC Act, while the proposed new rail link passes through a small part of the School of Military Engineering (SME) complex, which is listed under the Liverpool Local Environmental Plan (LEP) 2008 and is protected under the *Heritage Act 1977* (Heritage Act) and the EP&A Act. Glenfield Farm, listed on the State Heritage Register (SHR) and the Liverpool Local Environmental Plan (LEP), is located adjacent to the proposed rail corridor. The curtilage of Glenfield Farm is located around 50 metres from the western extent of the proposed new rail link, while the house and farm buildings are located approximately 220 metres from the proposed rail line.

Summary of findings

On the basis of background research and a site inspection and adhering to all statutory obligations, it is found that;

- There are no items of known or likely heritage significance within the proposed Stage 1A rail corridor area. The vegetated portion of the SME complex to the south of the DNSDC was not subject to historical development, while the remainder of the land has been significantly disturbed through the creation of the RAE golf course, East Hills railway line, and the Glenfield Waste Disposal facility.
- The proposed rail corridor would not have a significant impact on the Glenfield Farm SHR item, as views from the item have already been compromised by the creation of the Glenfield Waste Disposal facility and the ongoing construction of the SSFL.
- The DNSDC is highly significant as a largely intact network of WWII-era buildings, roads, drains, and rail sidings. It embodies important national heritage values, as indicated by its inclusion on the Commonwealth Heritage List, and it is necessary to conserve the site's heritage values where possible. The Stage 1A area of the DNSDC does not contain any WWII-era buildings, but does include historical road and drain alignments and contributes to the overall significance of the site.
- The statutory context of the DNSDC is expected to change in the near future, when Defence ceases to lease the site (anticipated to occur in 2017) and it is no longer protected as a "Commonwealth area" under the EPBC Act. The future management of the site's heritage values will then be guided by any subsequent listing on other heritage registers such as the National Heritage List (NHL) or State Heritage Register (SHR). If the site is listed on any heritage registers it would become subject to the regulatory requirements of the relevant legislation. The actions necessary before heritage impacts can occur at the SIMTA site will depend on the statutory context of the site at the time that approval is sought for each stage of the SIMTA proposal.



- Specific details regarding the potential impacts of the SIMTA proposal on the DNSDC have not yet been finalised, but the SIMTA proposal is expected to involve the demolition or removal of some or all of the WWII buildings, the construction of new buildings, and landscape modification through the installation of new water, sewerage, trade waste, and power infrastructure. These changes would have a major impact on the heritage significance of the site. The SIMTA proposal would impact on the relationships that currently exist between the different buildings, the historical road and rail alignments, and the broader landscape; and the site would no longer retain any visible physical connection to its long military history.
- Within the Stage 1A area of the DNSDC, heritage impacts are expected to include the removal of the original road and open drain alignments, possible impacts to potential archaeological material associated with former structures, impacts to underground water mains and sewerage lines dating to the 1940s, and significant impacts to the setting and context of three WWII-era buildings located close to the north-eastern corner of the Stage 1A area (Buildings 6, 10 and 11).
- Archaeological remains of former structures may exist throughout the DNSDC (including the Stage 1A area). Such remains have the potential to be of moderate research significance, as they may provide new evidence about the building types present throughout the site and the materials from which they were constructed.

Recommendations

In light of these findings, the following recommendations are made:

Commonwealth Lands

- There are no non-Indigenous heritage constraints for the land within the SIMTA rail corridor area including the SME land and the Glenfield Waste Disposal facility.
- There are no constraints on the SIMTA proposal with regard to Glenfield Farm. However, it is recommended that a commitment should be made by SIMTA to plant screening vegetation to soften the appearance of the rail lines adjacent to Glenfield Farm, if this is not done as part of the SSFL mitigation measures.
- A Statement of Heritage Impacts (SoHI) should be produced for each stage of the planning application and approval process, and each SoHI should address the legal status of the site and provide advice on required actions depending on whether or not the site is listed on another heritage register or environmental planning instrument at the time that approval is sought. This report includes the SoHI for Stage 1A of the SIMTA proposal. Each SoHI should also include recommendations regarding specific mitigation and management measures for each stage of the



SIMTA proposal, including consideration of built heritage, views and setting, and archaeological resources.

- A mitigation strategy should be developed for the DNSDC as a whole, once the nature of the SIMTA proposal has been more adequately defined. This strategy may be based on the potential mitigation options outlined in Table 8, and, at a minimum, would involve archival and photographic recording of the entire DNSDC. This recording should be completed for the whole site before Stage 1A commences.
- Because approval is being sought at the present time, while the entire area is still leased by Defence, the approvals process will need to meet the requirements of the EPBC Act 1999. The Commonwealth EIS, of which this report forms part, must be submitted to the Australian Government Minister for Sustainability, Environment, Water, Population and Communities (the Minister) for approval.

Stage 1A

- Archival recording in accordance with the DNSDC mitigation strategy (to be developed) would be undertaken prior to works commencing.
- Archaeological monitoring should be conducted for a representative sample of the sites of former structures that would be subject to proposed subsurface impacts for Stage 1A. Monitoring should be undertaken by a suitable archaeologist with Excavation Director Criteria qualifications, who would assess the likely significance of any archaeological deposits encountered, and provide advice regarding appropriate further action. A draft archaeological research design for the monitoring is provided in Appendix A. If highly significant remains were identified during monitoring, it might be appropriate to conduct further monitoring for additional sites of former structures or test excavations.
- Possible vibratory impacts to the three WWII-era buildings located adjacent to the Stage 1A area should be monitored in accordance with any recommendations made in the Construction Noise and Vibration Management Plan that will be developed prior to the commencement of construction.
- A Heritage Management Plan in adherence to NSW Heritage Council guidelines should be prepared as part of the Construction Environmental Management Plan for the Stage 1A proposal.
- If unexpected finds are located during works the NSW Heritage Council would be notified and an archaeological consultant engaged to assess the significance of the finds. Further archaeological work or recording may be recommended.

Contents

1.0	Introduction and background	1
1.1	Background to the report	2
1.1.1	Scope and limitations	2
1.2	The SIMTA proposal	4
1.3	The study area	8
1.4	Report authorship	9
2.0	Assessment methodology	11
3.0	Legislative framework	13
3.1	Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)	13
3.2	The Heritage Act 1977	13
3.3	Environmental Planning and Assessment Act 1979 (EP&A Act)	14
3.3.1	Liverpool Local Environmental Plan 2008	15
3.3.2	Liverpool Development Control Plan 2008	15
3.4	Implications of Legislation	15
3.4.1	Legal status of heritage items on the SIMTA site	15
3.4.2	Management responsibilities for heritage items	15
3.4.3	Conclusion	16
4.0	Historical context	17
4.1	Early settlement	17
4.2	The military at Liverpool	17
5.0	Register listings	29
6.0	Commonwealth Lands - DNSDC	33
6.1	Description	33
6.2	Archaeological potential	35
6.2.1	Military sanitary depot	36
6.2.2	5 th Aust. BOD	38
6.3	Assessment of significance	40
6.4	Assessment of potential impacts	44
6.5	Potential mitigation measures	44
6.5.1	Built heritage	44
6.5.2	Archaeological resources	45
7.0	Stage 1A assessment	50

7.1	DNSDC - Stage IA area	50
7.1.1	Description	50
7.1.2	Archaeological potential	54
7.1.3	Adjacent WWII-era buildings	57
7.1.4	Assessment of significance	57
7.1.5	Assessment of impact	59
7.1.6	Potential mitigation measures	65
7.2	The School of Military Engineering (SME)	66
7.2.1	Description	66
7.2.2	Archaeological potential	69
7.2.3	Assessment of significance	71
7.2.4	Assessment of impact	73
7.3	Glenfield Farm	74
7.3.1	Description	74
7.3.2	Assessment of significance	75
7.3.3	Assessment of impact	75
7.3.4	Potential mitigation measures	79
7.4	Glenfield Waste Disposal facility – archaeological potential	79
8.0	Summary	81
9.0	Recommendations	85
10.0	References	88
Appendix A Draft Archaeological Research Design for Stage IA Monitoring		

Figures

Figure 1: SIMTA proposal footprint (does not include rail corridor surrounding proposed rail link)	9
Figure 2: Components of the study area.	10
Figure 3: Accommodation huts, Oct 1916 (Source: AWM, ID No: C01205)	18
Figure 4: Plan of the Liverpool Manoeuvre Area c.1915 (Source: Brooks & Associates 2002:7)	19
Figure 5: Plan of Liverpool Camp, 1917 (Source: Liverpool City Council http://ebranch.liverpool.nsw.gov.au/electronicbooks/Subdivisionplans.pdf)	20
Figure 6: 1917 plan showing Liverpool camp, the Remount Depot, the Veterinary Section, and the Holsworthy internment camp (Source: Ludlow & Snowden 1993:56)	21
Figure 7: Detail of No. 1 Sub depot on corner of Anzac Rd and Moorebank Avenue 16/9/43 (Source: NAA: SP459/1, 420/7/1153)	22
Figure 8: Plan of Liverpool military area 6/10/1943, red arrows indicate the Liverpool camp area, the AFVTTC base, and the School of Military Engineering (Source: NAA: SP459/1, 420/7/1153)	23
Figure 9: Plan of proposed layout of Moorebank Ordnance Depot 25/4/44 (Source: NAA: SP459/1, 420/7/1153)	25
Figure 10: 5th Aust. BOD exterior view of No. 9 Bulk (Crane Served) Technical Store Shed, 23/1/46 (Source: AWM, ID No. 124623)	26
Figure 11: Aerial photograph showing the Ordnance Depot/DNSDC in 1951 (Source: Brooks & Associates 2002:9)	27
Figure 12: Current aerial photograph of the DNSDC (Six Viewer).....	28
Figure 13: Liverpool LEP heritage map showing the area of the overall SIMTA proposal and the area of Stage 1A, in relation to locally listed heritage items (Sheet HER_013).....	32
Figure 14: Building 7, at the centre of the DNSDC - a typical WWII composite timber and steel crane- served warehouse building	34
Figure 15: Building 75 (northern end)	34
Figure 16: Interior of Building 75, showing original timber post and beam construction	35
Figure 17: Railway line opposite Buildings 17 and 18	35
Figure 18: Overlay of 1943 plan and current aerial photograph showing location of former sanitary depot (National Archives 420/7/1153).....	37
Figure 19: 1943 aerial photograph showing former sanitary depot (Department of Lands).	37
Figure 20: Locations of former buildings (purple) in undeveloped areas of the DNSDC (based on a 1966 plan of the site). Inset shows surviving slab of former store building. Base map – Google Earth.	39

Figure 21: Stage 1A area in relation to extant WWII buildings (shaded).....	51
Figure 22: WWII-era Building 10 (adjacent to the north-eastern corner of the Stage 1A area).....	52
Figure 23: Modern Building 16 (adjacent to the mid-section of the Stage 1A area).....	52
Figure 24: Looking north along the eastern side of the proposed Stage 1A area, with WWII-era Building 11 on right.	52
Figure 25: Northern end of modern Building 19 (located within the Stage 1A area).....	52
Figure 26: 1940s open drain running north-south through Stage 1A area.	53
Figure 27: Road running north-south through Stage 1A area (west of Building 16).	53
Figure 28: Bitumen storage area within Stage 1A area.	53
Figure 29: Southern portion of Stage 1A area, facing south.	54
Figure 30: 1958 plan of Stage 1A area (Moorebank 2 B.O.D. Area 25/8/1958, National Archives CEN1149/FOLDER 64).	55
Figure 31: c. 1966 plan of Stage 1A area (2 B.O.D. Moorebank road resurfacing, National Archives NDL67/484/FOLDER 74).	55
Figure 32: 1967 plan of Stage 1A area (detail from plan of proposed East Hills railway line, National Archives C4177/FOLDER64).	56
Figure 33: 1977 plan of Stage 1A area (National Archives C4177/FOLDER64).....	56
Figure 34: 1981 plan of Stage 1A area (National Archives C4177/FOLDER64C).	57
Figure 35: Stage 1A area in relation to existing structures at DNSDC.....	62
Figure 36: Proposed enabling works (north to left of page).....	63
Figure 37: Stage 1A area in relation to the sites of former structures (Base map – Google Earth).	64
Figure 38: Stage 1A area in relation to water mains and sewerage lines (1958 plan National Archives CEN1149/FOLDER 64).	65
Figure 39: Detail of Item 57 on Liverpool LEP Heritage Map (Sheet HER_013)	67
Figure 40: The locations of features included in Item 57 of the Liverpool LEP (Base map – Six Viewer).	68
Figure 41: Detail of plan dating to 1967 showing former sewer farm at the southern end of the SME site (National Archives C4177/FOLDER64).	69
Figure 42: 1952 plan showing area to south of DNSDC (Mitchell Library a4123001).	70
Figure 43: 1977 plan showing area to south of DNSDC (National Archives C4177/FOLDER64).	70
Figure 44: Existing rail link running through vegetated area. Facing south-west.	71
Figure 45: At southern end of vegetated area – example of swampy ground.	71

Figure 46: Slabs of concrete and other structural material within vegetated area.	71
Figure 47: Pile of bricks, roof tiles and other material.	71
Figure 48: SME heritage curtilage (shaded green) in relation to SIMTA proposal	73
Figure 49: Detail of Glenfield Farm (Item 14) from Liverpool LEP Heritage map (Sheet_013)	74
Figure 50: View toward Glenfield Farm from the eastern side of the Glenfield Waste Disposal facility	74
Figure 51: Glenfield Farm SHR curtilage (shaded green) in relation to SIMTA proposal.	77
Figure 52: View from Glenfield Farm barn toward study area.....	78
Figure 53: View toward study area from the rear of Glenfield Farm house.	78
Figure 54: View toward study area from upstairs window of Glenfield farm house.....	78
Figure 55: 1906 plan with Glenfield Waste Disposal facility area outlined in pink (Mitchell Library a1528523).	80
Figure 56: 1952 plan with Glenfield Waste Disposal facility area outlined in pink (Mitchell Library a4123001).	80
Figure 57: Disturbance within the Glenfield Waste Disposal facility	80

Tables

Table 1: Fulfilment of EIS requirements	3
Table 2: Fulfilment of Stage 1A Project Application Requirements	3
Table 3: Land parcels affected by the SIMTA proposal	5
Table 4: Indicative staging for the SIMTA proposal	7
Table 5: Heritage items located in the vicinity of the SIMTA proposal that were assessed in the 2011 report (Artefact Heritage 2011).....	29
Table 6: Heritage items within and near the study area - Liverpool LEP	31
Table 7: DNSDC – Assessment of Significance.....	40
Table 8: SIMTA site – development options, impacts to built heritage and possible mitigation strategies.....	46
Table 9: Stage 1A area of DNSDC - Assessment of Significance	58
Table 10: Stage 1A area of DNSDC - SoHI	61
Table 11: Development and mitigations options table – Stage 1A DNSDC.	66



Table 12: SME – Assessment of Significance72

Table 13: Development and mitigations options table – DNSDC south.73

Table 14: Glenfield Farm - SoHI.....76

Table 15: Development and mitigations options table – Glenfield Farm79

Table 16: Development and mitigations options table – Glenfield Waste Disposal facility80

Table 17: Summary of Heritage Issues and Actions83

1.0 Introduction and background

The Sydney Intermodal Terminal Alliance (SIMTA) is a consortium of Qube Logistics and QR National. The SIMTA Moorebank Intermodal Terminal Facility (SIMTA proposal) is proposed to be located on the land parcel currently occupied by the Defence National Storage and Distribution Centre (DNSDC) on Moorebank Avenue, Moorebank, south west of Sydney. SIMTA proposes to develop the DNSDC occupied site into an intermodal terminal facility and warehouse/distribution facility, which will offer container storage and warehousing solutions with direct rail access to Port Botany. Construction of the rail connection from the SIMTA site to the Southern Sydney Freight Line (SSFL) will be undertaken as part of the first stage of works for the SIMTA proposal.

The Commonwealth Minister for Sustainability, Environment, Water, Population and Communities (Commonwealth Minister) has determined that the SIMTA proposal is a controlled action requiring assessment and approval under the EPBC Act before it can proceed. The relevant controlling provisions are:

- (1) Listed threatened species and communities (sections 18 and 18A, EPBC Act); and
- (2) Commonwealth land (sections 26 and 27A, EPBC Act).

The SIMTA site (owned by SIMTA) is located in the Liverpool Local Government Area. It is 27 kilometres west of the Sydney CBD, 17 kilometres south of the Parramatta CBD, 5 kilometres east of the M5/M7 Interchange, 2 kilometres from the main north-south rail line and future Southern Sydney Freight Line, and 0.6 kilometres from the M5 motorway.

The SIMTA site, approximately 83 hectares in area, is currently operating as a Defence storage and distribution centre. The SIMTA site is legally identified as Lot 1 in DPI048263 and zoned as General Industrial under Liverpool City Council LEP 2008. The parcels of land to the south and south west that would be utilised for the proposed rail link are referred to as the rail corridor. The proposed rail corridor covers approximately 75 hectares and adjoins the Main Southern Railway to the north and south. The rail line is approximately 3.5 kilometres in length, 20 metres in width (variable width) and includes two connections to the SSFL, one south and one north.

The proposed rail corridor is owned by third parties, including the Commonwealth of Australia, RailCorp, private owners and Crown Land held by the Department of Primary Industries, and would link the SIMTA site with the SSFL. Existing uses include vacant land, existing rail corridors (East Hills Railway and Main Southern Railway), extractive industries, and a waste disposal facility. The rail corridor is intersected by Moorebank Ave, Georges River and Anzac Creek. Native vegetation cover includes woodland, forest and wetland communities in varying condition. The proposed rail corridor is zoned partly 'SP2 Infrastructure (Defence and Railway)' and partly 'RE1 - Public Recreation'. The surrounding Commonwealth lands are zoned 'SP2 Infrastructure (Defence)'.

This technical document has been prepared to address both the Commonwealth EIS Guidelines as issued under the EPBC Act dated (28 June 2012).

The SIMTA proposal will be undertaken as a staged development and approval is being sought from the Commonwealth Minister for the SIMTA proposal. Staged planning approvals will also be sought at State level under the EPBC Act in conjunction with approval from the NSW government for the development of Stage 1A under the EP&A Act. The proposed first stage of works is Stage 1A, which comprises the rail link connection to the SSFL and the on-site rail sidings within the DNSDC. The Stage 1A area is approximately 7.25 hectares in area and would contain gantries for unloading freight from trains, container storage areas, a truck loading and unloading area and administrative ancillary facilities.

On obtaining approval from the Commonwealth and State government agencies, construction documentation is to be completed and modifications to existing buildings and services would commence as soon as possible to allow for demolition and construction of Stage 1A.

1.1 Background to the report

In 2011, Artefact Heritage was commissioned by Hyder Consulting on behalf of SIMTA, to conduct an assessment of non-Indigenous heritage to support SIMTA's Concept Plan Application for the SIMTA proposal, lodged with the NSW Minister under Part 3A of the EP&A Act. That assessment was an overall assessment for the entire project. The SIMTA proposal is proposed to be undertaken as a staged development, and Artefact Heritage was commissioned to produce a detailed Statement of Heritage Impact (SoHI) for Stage 1A, while also assessing potential impacts to Commonwealth Lands and matters of National Environmental Significance (NES) in order to fulfil the EIS requirements. The EIS requirements and the Stage 1A Project Application will be addressed in separate sections of this report.

1.1.1 Scope and limitations

Section 6.0 provides an assessment of the potential impacts of the overall SIMTA proposal across Commonwealth land and on matters of NES. The assessment is limited by the information available to date. This assessment is based upon the EIS Guidelines provided by the Commonwealth that were issued in June 2012.

This assessment will address the EIS requirements for the SIMTA proposal, as follows in Table 1:

Table 1: Fulfilment of EIS requirements

EPBC Act EIS Requirements for Whole of Site	Where addressed
Identify, describe and map places or items of historical heritage value on Commonwealth owned or leased land. Describe the significance of the value to people or groups associated with those places	Section 6.1-6.3
Identify places and items within land owned or leased by the Commonwealth with historical heritage significance that could be impacted directly or indirectly by the proposed action.	Section 6.0
Provide a comprehensive heritage assessment of the impacts the proposed action will have on any items with historical heritage values.	Section 6.4

Section 7.0 assesses the potential impacts of Stage 1A of the SIMTA proposal on items of heritage significance and recommends whether further action is required to fulfil statutory heritage obligations. This assessment will also fulfil the future Stage 1A Project Application Requirements for non-Indigenous heritage for the Stage 1A Project Application, at State level, as follows in Table 2:

Table 2: Fulfilment of Stage 1A Project Application Requirements

Where impacts to National, State or locally significant historical heritage items are identified, the assessment shall:	Where addressed
Outline the proposed mitigation and management measures (including measures to avoid significant impacts and an evaluation of the effectiveness of the mitigation measures) generally consistent with guidelines in the <i>NSW Heritage Manual</i> (1996).	Section 7.1.6/Section 6.5 Section 7.2.4 Section 7.3.4
Be undertaken by a suitably qualified heritage consultant.	Section 1.4
Include a Statement of Heritage Impact for all heritage items (including a significance assessment).	Section 7.1.4 - 7.1.5 Section 7.2.3 – 7.2.4 Section 7.3.2 – 7.3.3
Consider impacts from vibration, demolition, archaeological disturbance, altered historical arrangements and access, landscape and vistas and architectural noise treatment.	Section 7.1.5 Section 7.2.4 Section 7.3.3
Where archaeological excavation is required, demonstrate that an appropriate archaeological assessment methodology, including research design (where relevant) has been undertaken to guide physical archaeological test excavations and include the results of these excavations.	Appendix A

1.2 The SIMTA proposal

The SIMTA proposal is for the construction of an intermodal terminal facility, which would be linked to the SSFL and would provide container freight distribution and warehousing facilities. The intermodal terminal would be located within the current DNSDC, and it is assumed that the SIMTA proposal would involve the demolition or removal of some or all of the existing structures within the site. Stage 1A of the SIMTA proposal includes all works within the proposed rail corridor, as well as an area of approximately eight hectares in the south-western corner of the DNSDC (Figure 1). Enabling works are also proposed to be undertaken both prior to and in conjunction with the construction of the Intermodal Terminal within the Stage 1A area. The purpose of the enabling works is to provide the tenant, DNSDC, with replacement infrastructure on its retained leasehold area that is necessary to its ongoing operations.

Within the SIMTA site, Stage 1A would involve the demolition of existing structures and pavements, stripping of top soil and earthworks including excavation and filling, the installation of utilities, the construction of pavements, slabs, buildings, a rail siding and gantry rail, and kerbs and gutters. Within the rail corridor, the proposal would involve the construction of a new rail link with a 20 metre wide easement, and a crossing over the Georges River.

The four key components of the SIMTA proposal are described briefly in the sections below.

Rail Corridor and Rail Link

The proposed rail link is proposed to connect to the Southern SSFL, approximately 500 metres south of Casula railway station. It would then extend south, then east, crossing Georges River from the south-east corner of the Glenfield Waste Disposal Centre. The rail link would then continue east within the East Hills rail corridor, before heading north into the SIMTA Site.

The proposed rail link would be constructed over the following parcels of land (Table 3 provides details for each land parcel):

- SSFL rail corridor on the western side of the Georges River.
- Glenfield Waste Disposal Centre on the western side of the Georges River.
- East Hills rail corridor.
- Irregular shaped portion of land owned by RailCorp and located to the east of the intersection between Moorebank Avenue and the East Hills Railway Line.
- Land to the south of the DNSDC owned by the Commonwealth.

The proposed rail link would include the following infrastructure:

- Culvert crossing of Anzac Creek.

- A crossing under Moorebank Avenue in proximity to the existing grade-separated crossing which supports the existing East Hills Railway Corridor.
- Bridging the Georges River.

The indicative rail link alignment is shown in Figure 2.

Table 3: Land parcels affected by the SIMTA proposal

Lot	Deposited Plan	Property Address/Description
1	1048263	Moorebank Avenue, Moorebank (SIMTA Site)
3001	1125930	Moorebank Avenue, Moorebank (land immediately south and south-west of SIMTA Site, including School of Military Engineering)
1	825352	Railway land and to the north of East Hills Railway Line
2	825348	
1	1061150	
2	1061150	
1	712701	
5	833516	Privately owned land north of East Hills Railway Line, east of Cumberland & South Passenger Line and Southern Sydney Freight line and west of Georges River
7	833516	
51	515696	
52	517310	
104	1143827	
103	1143827	
91	1155962	Land west of the Georges River, north of the above privately owned land
4	1130937	
5	833516	
101	1143827	
102	1143827	Railway land along shared railway line – Cumberland & South Passenger Line and Southern Sydney Freight Line
Conveyance Book 76	Number 361	
NA	NA	Main Southern Rail Corridor
NA	NA	Georges River (Crown Land)

Intermodal Terminal

The intermodal terminal is proposed to be located on the western part of the site, adjacent to Moorebank Avenue and away from the nearest residential properties. Key elements include:

- Five rail tracks of approximately 650 to 1,200 metres in length, including four permanent and one temporary siding.

- Container hardstand of approximately 90,000m² located on both sides of the rail tracks to be used for container sorting and storage.
- Terminal administration offices and ancillary operational facilities of approximately 2,100m².
- The intermodal terminal is proposed to operate 24 hours a day, 7 days a week to enable continuous receipt and dispatch of freight, accommodating a wide range of servicing demands. It will be serviced by world class and leading practice intermodal facilities including:
 - Automatic gantry systems
 - Modern container handling equipment
 - Modern control tower and support facilities
 - State-of-the-art rolling stock

The final selection of mobile and static equipment will be made at the detailed application stage for the rail terminal, taking into account compliance with the criteria established by way of the Concept Plan approval, including noise levels, visual impacts and air quality.

Warehouse and Distribution Facilities

Approximately 300,000m² of warehouses with ancillary offices are proposed to be constructed to the east of the intermodal terminal. The proposed warehouses are to be sited and designed to provide a physical barrier between the intermodal terminal and the nearest residential properties to assist with mitigating the potential acoustic and visual impacts of the rail activities. These warehouses include:

- Intermodal Terminal Warehouse and Distribution Facilities (Terminal Warehouses) –approximately 100,000m² of warehouse floorspace will be located immediately adjacent to the intermodal terminal. These buildings will be designed for cross-dock operations and are anticipated to be occupied by large logistics operators dispatching goods in short turn-around times and with limited freight break-down.
- Large Format Warehouse and Distribution Facilities - approximately 200,000m² of warehouse floorspace will be located on the eastern part of the SIMTA site, east of the Terminal Warehouse facilities. These buildings will have perimeter loading docks and are anticipated to be occupied by logistics operators who require larger areas for operations, hold stock for longer periods and/or undertake larger amounts of freight-breakdown before dispatching.

Each of the warehouses will be serviced by the central internal road system. The road system design and location of the car park to the east of the large format warehouse buildings are proposed to maximise the separation of staff and freight vehicle movements and minimise potential vehicle conflicts.

Ancillary Terminal Facilities

A range of ancillary support facilities are proposed within the SIMTA Intermodal Terminal Facility to meet the needs of employees and visitors to the site. The final composition of these facilities will be based on demand and will be privately operated by individual tenants, however, it is anticipated that a total floorspace of approximately 8,000m² will be provided and the uses are likely to include:

- Site management and security offices.
- Retail and business service centre, potentially including a convenience store, banking facilities and post office.
- Meeting rooms/conference facilities available for hire by individual tenants.
- Sleeping facilities for drivers.
- A café/restaurant.

A centralised staff car parking area provided adjacent to the ancillary facilities will enable separation of heavy vehicle movements from private vehicle movements, particularly around the intermodal terminal warehouses.

Staging

The SIMTA Moorebank Intermodal Terminal Facility is proposed to be constructed in three stages, with the different stages as outlined in Table 4.

Table 4: Indicative staging for the SIMTA proposal

Stage	Scope	Timing
Stage 1 – <i>Construction of the intermodal terminal and rail link</i>	Stage 1 shall include: Construction of the rail link between the SIMTA site and the SSFL. Establishment of hardstand for container storage. Construction of freight truck loading and circulating area. Construction of a control tower and maintenance shed. Construction of access driveways and internal circulation roads required to service the intermodal terminal. Provision/ upgrade of stormwater infrastructure and utility services required to service the intermodal terminal. Landscaping. Possible construction of some warehousing.*	Commencement: 2013 Completion: End-2014

Stage 2 – <i>Construction of warehouses and distribution facilities</i>	Stage 2 shall comprise construction of the central portion of the intermodal terminal warehousing and distribution facilities and the south-eastern portion of the Large Format Warehousing and Distribution Facilities, including: Circulation roads required to service the proposed warehouses. Staff and visitor car parking spaces required to service the proposed warehouses. Landscaping treatments within the development areas. Provision/ upgrade of stormwater infrastructure and utility services required to service the Stage 2 warehouses.	Commencement: Subject to market demand Completion: Mid-2019
Stage 3 – <i>Extension of the intermodal terminal and completion of warehouses and distribution facilities</i>	Stage 3 (the final stage) shall include: Extension of the intermodal terminal from 650 metres to 1,200 metres in length. Construction of the remaining warehouse and distribution facilities. Construction of the ancillary terminal facilities in the north-east corner of the site. Completion of the circulation roads. Staff and visitor car parking spaces required to service the additional warehouses. Completion of the landscaping treatments. Provision/ upgrade of stormwater infrastructure and utility services requires to service the additional warehouses,	Completion: Mid-2022

1.3 The study area

The study area is located at Moorebank, on either side of the Georges River in the Liverpool LGA, and incorporates a number of overlapping components that will be referred to throughout this report.

Part of the SIMTA proposal area, which will be referred to as the DNSDC, is currently leased to the Department of Defence (Defence) and used as a Defence storage and distribution centre. The proposed intermodal terminal would be constructed over the majority of the DNSDC, in an area referred to as the SIMTA site. The SIMTA site is legally identified as Lot 1 in DPI048263 and does not include two small areas of land at the northern and southern ends of the DNSDC operation area. To the south and south-west of the SIMTA site is the SIMTA rail corridor area, which includes the rail link that would be constructed as part of Stage 1A of the SIMTA proposal, within a 20 metre wide corridor surrounding the centre line of the rail link. The remainder of Stage 1A would occur within the south-west corner of the SIMTA site (Figure 2), which is itself encompassed by the current DNSDC.

Section 6.0 of this report assesses the potential heritage impacts of the SIMTA proposal across the DNSDC, which is leased by Defence and is consequently within a “Commonwealth area”, while Section 7.0 addresses the potential impacts of Stage 1A of the SIMTA proposal.

1.4 Report authorship

Archaeologist Adele Anderson and Principal Archaeologist Dr Sandra Wallace prepared this report. The assistance of Rebecca Sommer and Shannon Blackmore of Hyder Consulting is acknowledged in supplying relevant plans and other information.

Figure 1: SIMTA proposal footprint (does not include rail corridor surrounding proposed rail link).

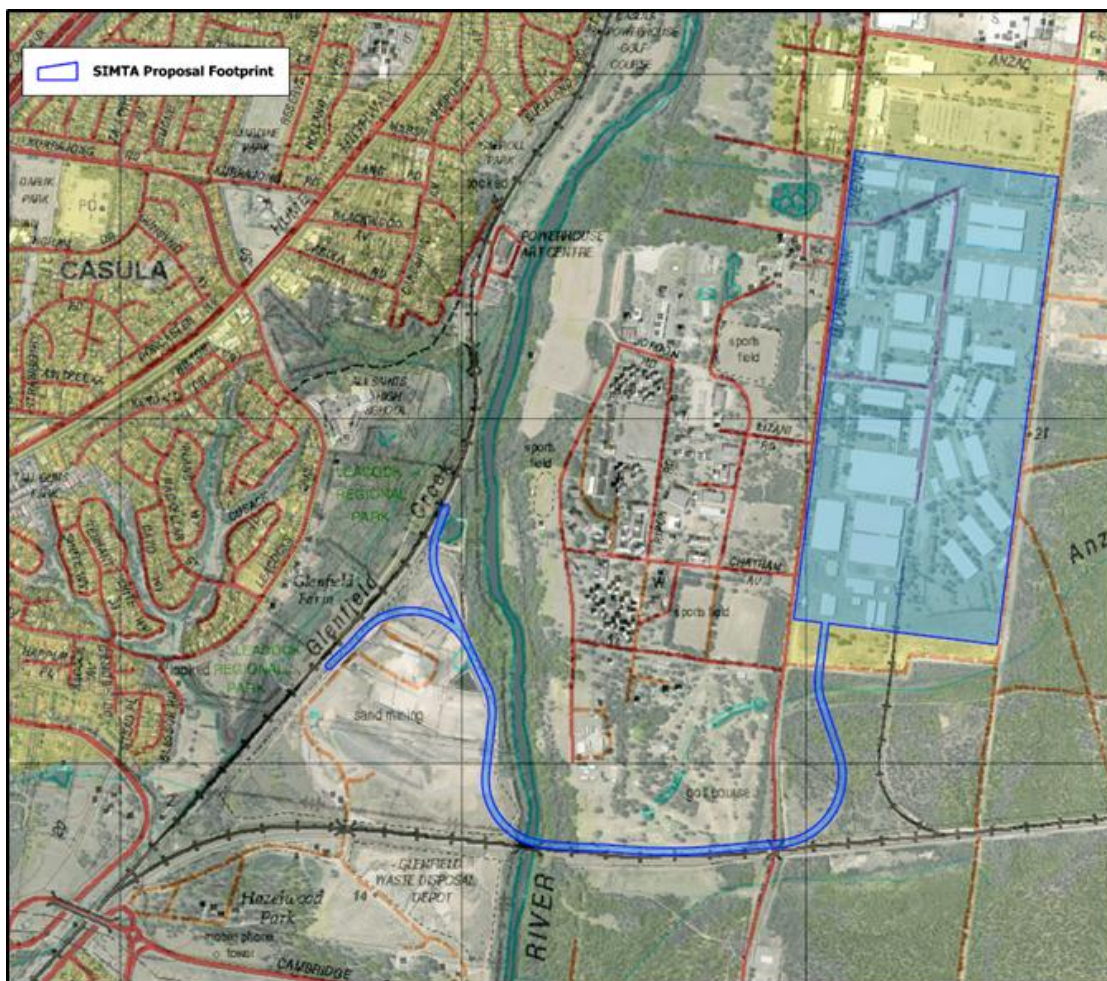
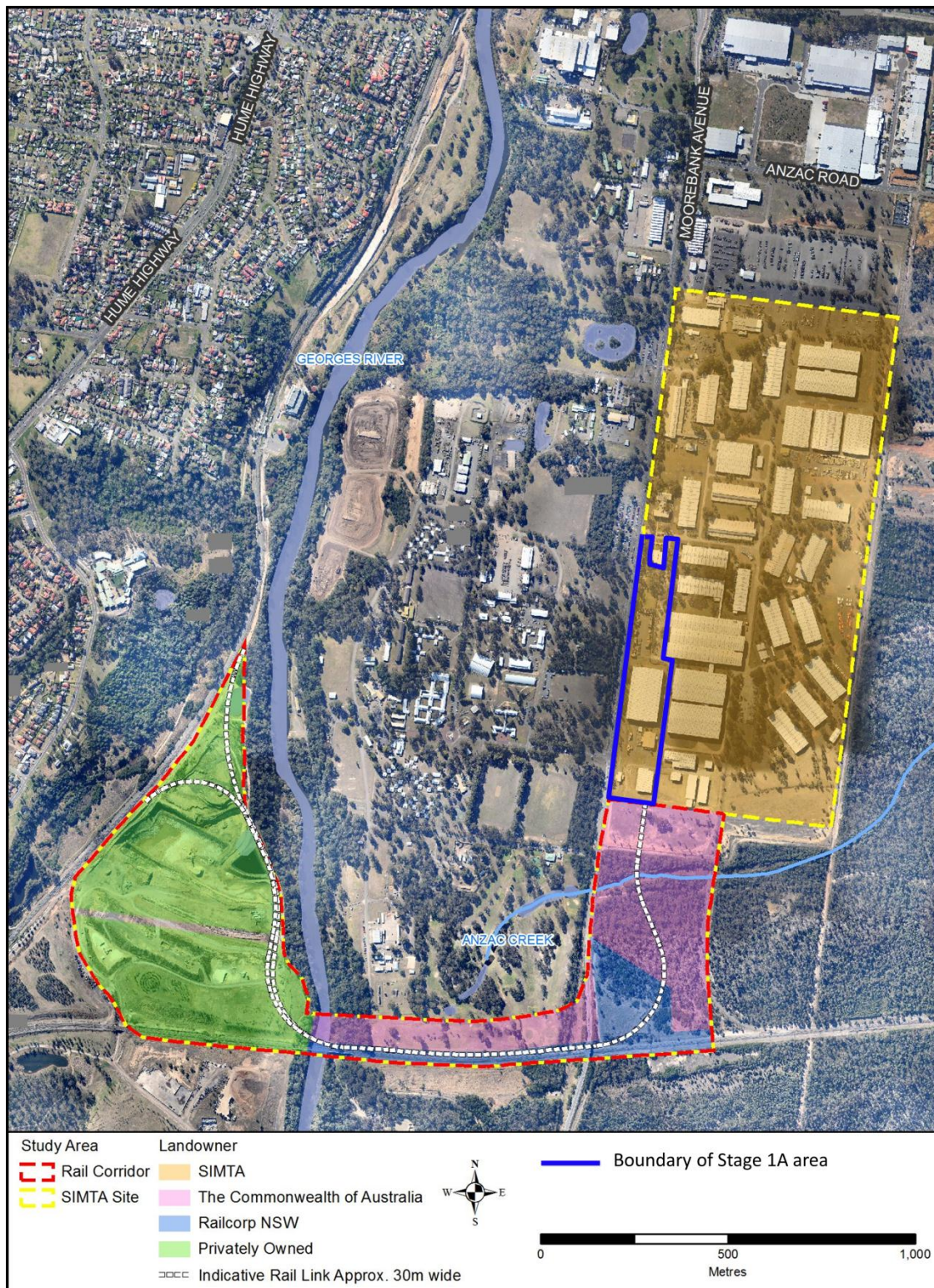


Figure 2: Components of the study area.



2.0 Assessment methodology

This assessment was based on the overall assessment of non-Indigenous heritage for the SIMTA proposal, previously undertaken by Artefact Heritage for SIMTA's Concept Plan Application, lodged at a State level under the EP&A Act in early 2012. The previous assessment included an initial search of heritage registers and documentary research, followed by a site survey to ground truth the desktop assessment and to identify and inspect any visible heritage items.

Heritage Register Search

Previously identified heritage items in the study area were located through a search of heritage registers, including:

- National Heritage List.
- Commonwealth Heritage List.
- State Heritage Register.
- State Heritage Inventory.
- Section 170 Registers.
- Liverpool Local Environmental Plan 2008.
- Liverpool Development Control Plan 2008.

Documentary Research

Documentary research was conducted to investigate the general history of the locality, as well as the history of the study area itself, and of identified heritage items within it. The following libraries and archives were consulted:

- Liverpool Library, Local Studies Collection.
- National Library of Australia.
 - Maps (accessed through <http://www.nla.gov.au/digicoll/maps.html>).
 - Newspaper archives (accessed through <http://trove.nla.gov.au/ndp/del/search?adv=y>).
- Department of Lands.
 - Parish Map Preservation Project.
 - Aerial Photographs.
 - Spatial Information Exchange.
- National Archives of Australia.
- Australian War Memorial digital collection (<http://www.awm.gov.au/search/collections/>).

Site Survey

A site survey was undertaken for the 2011 assessment by Sandra Wallace and Adele Anderson (Artefact) on 13 July 2011. This survey focused on the SIMTA site and also included the southern part of the School of Military Engineering. A second site survey was undertaken for the current assessment on 30 May 2012 and 11 July 2012.



This survey focused on the Stage 1A area of the SIMTA site, the proposed rail corridor area, and on potential impacts to the views and setting of the Glenfield Farm SHR item. The Glenfield Waste Disposal facility was visited, along with the section of the SIMTA site to the south of the DNSDC. Photographs were taken of all buildings and significant features within the SIMTA site and the vegetated area to the south of the DNSDC, of views toward Glenfield Farm from the Glenfield Waste Disposal facility, and of views from Glenfield farm toward the study area.

3.0 Legislative framework

At a Federal level, the key piece of legislation relevant to the current study is the EPBC Act, a summary of which is provided below.

3.1 Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)

The EPBC Act provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places. These are defined in the EPBC Act as matters of national environmental significance. Under the EPBC Act, nationally significant heritage items are protected through listing on the Commonwealth Heritage List or the National Heritage List.

According to the EPBC Act, a person must not take an action that has, will have, or is likely to have, a significant impact on any of the matters of environmental significance without approval from the Australian Government Minister for Sustainability, Environment, Water, Population and Communities (the Minister). An action is defined as a project, a development, an undertaking, an activity or a series of activities, or an alteration of any of these things. If a proposed action is likely to have a significant impact on a nationally significant heritage item, a referral must be made to the Minister to seek approval.

The Commonwealth Minister has determined that the SIMTA proposal is a controlled action requiring assessment and approval under the EPBC Act before it can proceed. The relevant controlling provisions are:

- (1) Listed threatened species and communities (section 18 and 18A); and
- (2) Commonwealth land (section 26 and 27A).

In addition, for completeness, the following pieces of relevant State legislation are also noted. Separate planning approvals are being sought for the SIMTA proposal at State level at which point the application of NSW legislation will be further considered and impacts assessed. A summary of these Acts and the implications for the SIMTA proposal follow.

3.2 The Heritage Act 1977

The *NSW Heritage Act 1977* (the Heritage Act) is the primary item of State legislation affording protection to items of environmental heritage (natural and cultural) in NSW. Under the Heritage Act, items of “environmental heritage” include places, buildings, works, relics, moveable objects and precincts identified as significant based on historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic values. State significant items

are listed on the NSW SHR and are given protection under the Heritage Act against any activities that may damage an item or affect its heritage significance.

The Heritage Act also protects 'relics', which can include archaeological material, features and deposits. Section 4(1) of the Heritage Act (as amended 2009) defines 'relic' as follows:

“relic means any deposit, artefact, object or material evidence that:

(a) relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and

(b) is of State or local heritage significance.”

Section 139[1] of the Heritage Act states that:

“A person must not disturb or excavate any land knowing or having reasonable cause to suspect that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed unless the disturbance or excavation is carried out in accordance with an excavation permit.”

Permits to disturb or excavate 'relics' are issued by the NSW Heritage Council or a Delegate of the NSW Heritage Council under Section 140 (for relics not protected by an SHR listing) or Section 60 (for relics protected by an SHR listing) of the Heritage Act. Exemptions to these permits may be applicable under certain conditions.

The Heritage Act also requires all government agencies to identify and manage heritage assets in their ownership and control. Under Section 170 of the Heritage Act, government instrumentalities must establish and keep a register which includes all items of environmental heritage listed on the SHR, in an environmental planning instrument, or which may be subject to an interim heritage order that are owned, occupied or managed by that government body. Under Section 170A of the Heritage Act all government agencies must also make sure that all items entered on its register are maintained with due diligence in accordance with State Owned Heritage Management Principles approved by the Minister on advice of the NSW Heritage Council.

3.3 Environmental Planning and Assessment Act 1979 (EP&A Act)

The EP&A Act establishes the framework for cultural heritage values to be formally assessed in the land use planning and development consent process. The EP&A Act requires that environmental impacts are considered before land development; including impacts on cultural heritage items and places as well as archaeological sites and deposits. The EP&A Act also requires that local governments prepare planning instruments (such as LEPs and Development Control Plans [DCPs]) in accordance with the EP&A Act to provide guidance on the level of environmental assessment required. The current study area falls within the boundaries of the Liverpool LGA and is within the area covered by the Liverpool LEP (2008) and Liverpool DCP (2008). As the SIMTA proposal is seeking approval under Part 4 of the EP&A Act, the Minister is not obliged to consider LEP or DCP requirements. For

completeness, the heritage provisions of these local planning instruments are outlined below and their application will be fully considered as part of any future application for planning approval at State level.

3.3.1 Liverpool Local Environmental Plan 2008

The aim of the LEP in relation to heritage, as stated in section 1.2 (g) is to conserve, protect and enhance the environmental and cultural heritage of Liverpool. The LEP lists items of heritage significance within the LGA and specifies conditions of development consent within heritage listed area.

3.3.2 Liverpool Development Control Plan 2008

The Liverpool Development Control Plan (DCP) aims to conserve the heritage significance of heritage items and heritage conservation areas of Liverpool including associated fabric, setting, curtilage and views, and to conserve archaeological sites (DCP page 69). The DCP states that development applications relating to heritage items or places in the vicinity of a heritage item, require a Statement of Heritage Impact (DCP page 70). It also addresses the importance of setting, stating that development in the vicinity of a heritage item should retain significant views to and from the item, retain original landscaping, and provide an adequate area around the place to allow interpretation of the item (DCP page 73).

Part 2.4 of the DCP specifically addresses development on the Moorebank Defence Lands and states that an appropriate curtilage should be maintained around Kitchener House. In order to retain an appropriate visual setting, the scale and character of new development along Moorebank Avenue should respect that of Kitchener House, should not intrude within its curtilage, and should be screened by planting (DCP page 24).

3.4 Implications of Legislation

3.4.1 Legal status of heritage items on the SIMTA site

The DNSDC is listed on the Commonwealth Heritage List (CHL) and is currently protected under the EPBC Act. However, items can only be included on the CHL while they are located within a “Commonwealth Area” (s341C (2) EPBC Act). The SIMTA site will only be located within a “Commonwealth Area” for as long as the Department of Defence leases the site, and once that lease expires or is relinquished, the SIMTA site would no longer be within a “Commonwealth Area” and would need to be removed from the CHL (s341L EPBC Act). It is possible that the site may then be considered for listing on another heritage register, such as the National Heritage List (NHL) or State Heritage Register (SHR). If either of these listings were to occur prior to the granting of development approval for the SIMTA site, SIMTA would be required to fulfil additional obligations under the relevant heritage legislation.

3.4.2 Management responsibilities for heritage items

The EPBC Act imposes obligations on the Commonwealth to prepare Heritage Management Strategies (HMSs) and Heritage Management Plans (HMPs) for places on the CHL that it “owns or controls” (s341S and s341ZA EPBC



Act). The DNSDC is one such place, as Defence is considered to “control” a place if it has rights under a lease or license to occupy or use the place and to take actions in relation to the place that could potentially have an impact on its heritage values. The Commonwealth is required to act in accordance with the HMSs and HMPs to minimise adverse impacts to the heritage values of listed places (s341V and s341ZC EPBC Act).

Defence has prepared a HMS which establishes Defence’s overall approach to heritage management, however, it is not known whether a HMP has yet been prepared for the DNSDC. Even if a HMP does exist for the DNSDC, the obligation to comply with the plan will only apply to Defence while it leases the SIMTA site.

3.4.3 Conclusion

Before works begin on each stage of the SIMTA proposal, Defence will have vacated the relevant areas of the site. However, because approval under the EPBC Act for the SIMTA proposal is being sought at the present time, while the entire area is still leased by Defence, and because proposed enabling works for Stage 1A of the proposal would occur within part of the DNSDC while it is still leased by Defence, the approvals process will need to meet the requirements of the EPBC Act 1999.

The Commonwealth EIS, of which this report forms part, must be submitted to the Australian Government Minister for Sustainability, Environment, Water, Population and Communities (the Minister) for approval. Approval is separately being sought from the NSW Government for the Stage 1A project application, under the EP&A Act.

4.0 Historical context

4.1 Early settlement

The first land parcels in the Liverpool area were granted in 1798. In 1810 Governor Macquarie founded Liverpool and named it after the Earl of Liverpool. The road connecting Liverpool to Sydney was completed in 1813 and settlement grew rapidly. The rich soils on the floodplain of the Georges River provided for a growing agricultural industry. In the 1860s many small farmers moved away from the river after a particularly large inundation and the area became open to larger scale agriculture such as dairy farming. Up until the mid-twentieth century agriculture co-existed with suburban areas in the Liverpool region.

4.2 The military at Liverpool

The association of military activities with the Liverpool district began in the early 1800s, when soldiers were stationed in the area to provide protection to early settlers and to oversee convict work gangs, and a military barracks was constructed at the corner of George and Moore Streets (Brooks and Associates 2002:8).

During the early 1900s, the area north of the SIMTA site hosted several military training camps. These were held annually as part of the ‘Easter Encampments’, a training programme which also involved camps at Paddington and Goulburn (*The Sydney Morning Herald* (SMH) 27/3/1906:6). By 1907, a military camp had been established on the eastern side of the Georges River, with a rifle range further south. The land which is currently occupied by the DNSDC formed part of this camp (Brooks and Associates 2002:8).

In January 1910, manoeuvres were held at the Liverpool camp for the inspection of Lord Kitchener, who was visiting Australia to give advice regarding the development of the national defence forces (Brooks and Associates 2002:8). *The Daily Telegraph* described the area used for the manoeuvres:

“The camp was pitched upon the paddocks to the left of the railway station on the ground that has been similarly occupied in recent years and which is nearly all included in the military manoeuvre area which the Commonwealth Government is endeavouring to secure ... the training ground embraces a stretch of country extending from Liverpool, on the southern line, across Heathcote on the Illawarra system, and it provides not only very fair opportunities for moving large bodies of troops in tactical exercises, but also has within its limits well equipped ranges for artillery and infantry shell and ball practice.” (*The Daily Telegraph* 7/1/1910:7)

Kitchener recommended that large, central training grounds should be established in each State (SMH 19/2/1910:12). His visit resulted in the acquisition of large areas of land around Liverpool by the Government, for use as permanent military training camps. The land was resumed in stages over the following years and included

the acquisition of 883 acres near Holsworthy in 1912 for the establishment of a Remount Depot and a Veterinary Hospital for horses, followed by 16,868 acres in 1913, which included the study area (Brooks and Associates 2002:4).

World War One

By 1913, the Liverpool camp accommodated 2000 troops in tents (SMH 3/1/1913:10), and during WWI it became the main training centre in New South Wales. In a plan dated to 1915 (Figure 4), Liverpool Camp is shown located between the Georges River and Moorebank Avenue, extending around 1.5 kilometres south from Illawarra Road, which was located in roughly the same position as the present Newbridge Road. To the east of the camp was an area marked 'Stores', which encompassed part of the current DNSDC, while east of the storage area was a rifle range.

Initially, new recruits were encamped in long lines of tents on the eastern bank of the river, though these had been replaced with huts by the end of 1916 (Figure 3). A detailed plan of the camp from July 1917 (Figure 5) shows that it was well established and included a large number of huts, kitchens, and mess buildings, as well as a saw mill, four church buildings, a post office, bank, power house, Y.M.C.A building, hospital buildings, nurses quarters, and buildings for the Salvation Army and the Red Cross.

Units that trained at the camp during the WWI included the Engineer and Field Mining companies, the field hospital, infantry and reinforcement units, and the artillery and light horse units.

Figure 3: Accommodation huts, Oct 1916 (Source: AWM, ID No: C01205)

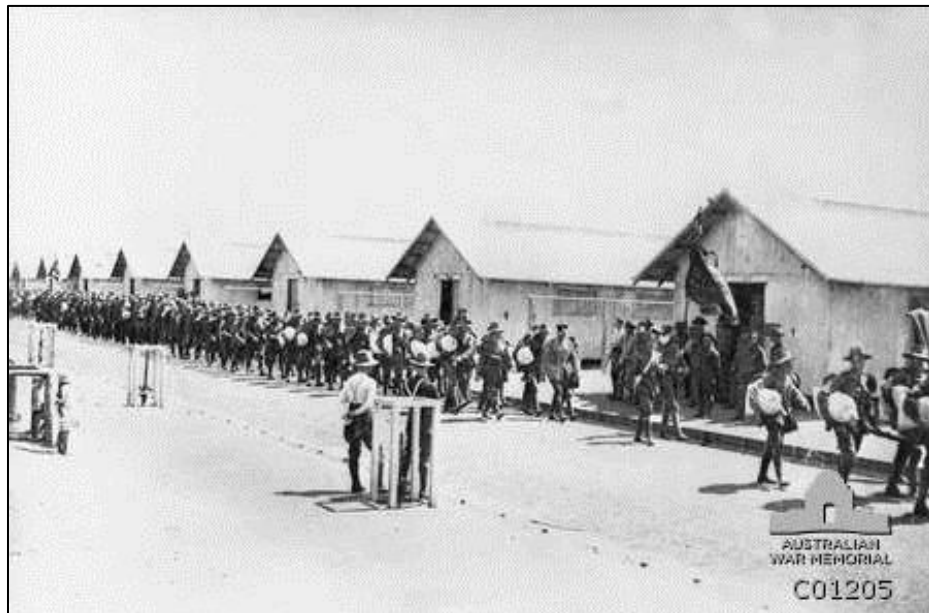


Figure 4: Plan of the Liverpool Manoeuvre Area c.1915 (Source: Brooks & Associates 2002:7)

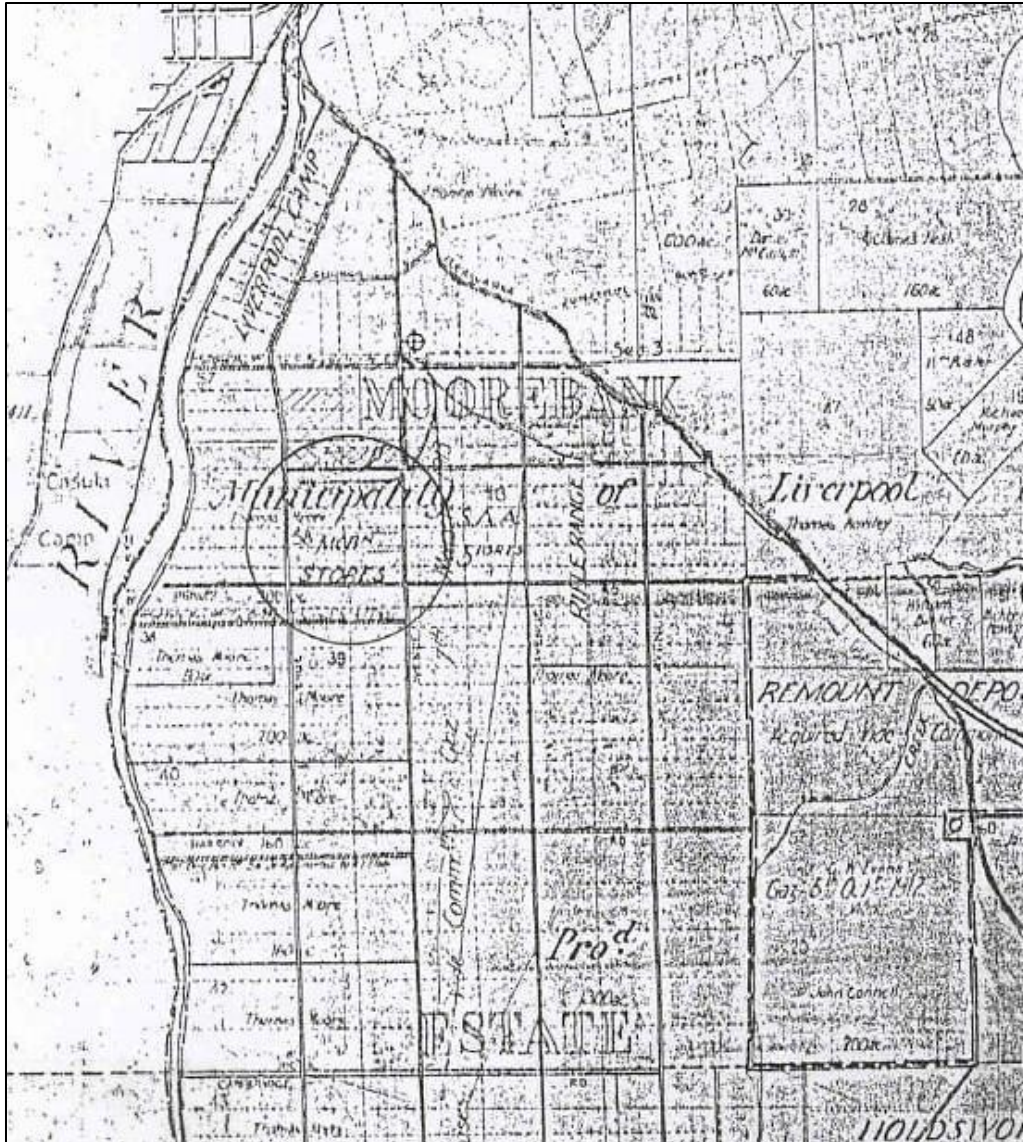
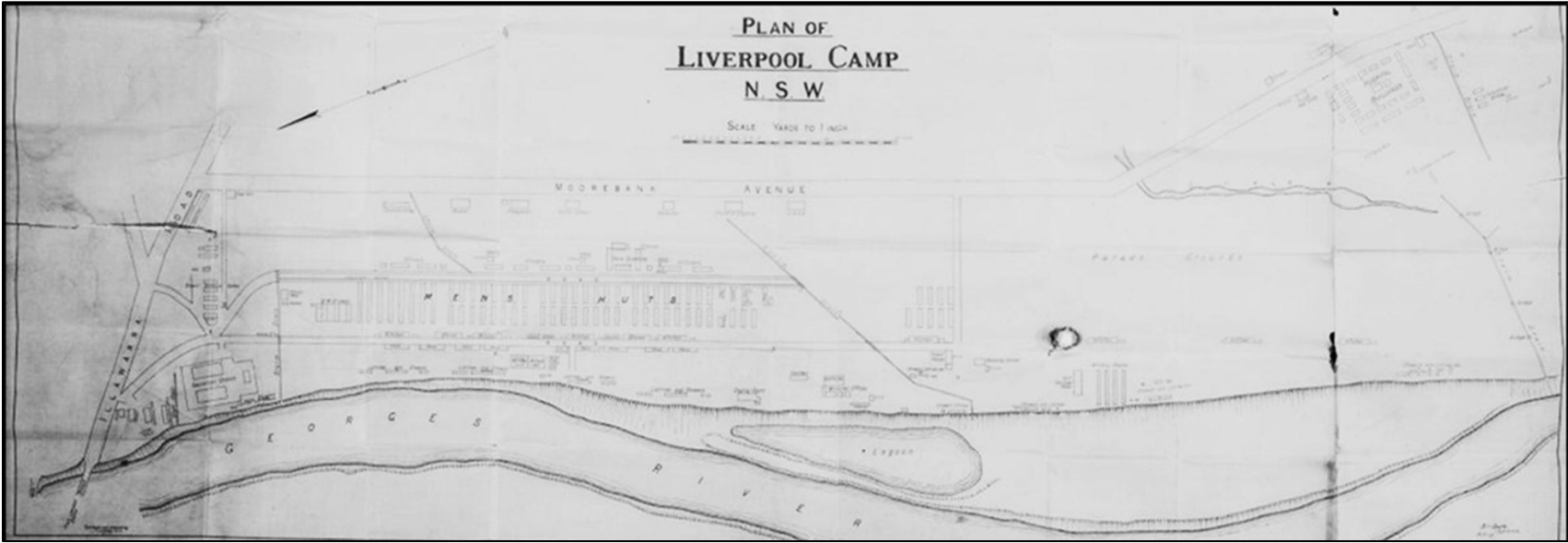


Figure 5: Plan of Liverpool Camp, 1917 (Source: Liverpool City Council <http://ebranch.liverpool.nsw.gov.au/electronicbooks/Subdivisionplans.pdf>)



In 1913, a Remount Depot had been established at Holsworthy, approximately four kilometres south-east of the Liverpool camp. The Remount Branch of the Australian Military Forces had been established in 1911 and was responsible for purchasing, breaking in, and caring for military horses. Initially, the Remount Depot at Holsworthy mainly supplied horses for artillery and transport, but during WWI it provided mounts for the enlisted Light Horsemen who came from other parts of NSW and Queensland to enrol, train, and embark from Sydney. By 1914, a Veterinary Section was also established at Holsworthy, to care for the horses (Figure 6) (Ludlow & Snowden 1991:64-5).

Also located at Holsworthy was a large internment camp for ‘enemy aliens’ and prisoners-of-war, which became known as the German Concentration Camp. The area occupied by the camp was never clearly defined, but measured approximately 1.5 kilometres by one kilometre, and was located south of the Remount Depot and Veterinary Section (Godden Mackay Logan 1995:2/1).

Figure 6: 1917 plan showing Liverpool camp, the Remount Depot, the Veterinary Section, and the Holsworthy internment camp (Source: Ludlow & Snowden 1993:56)



Internees from the German Concentration Camp assisted in the construction of new railway lines to link the different military establishments at Liverpool and Holsworthy (Ludlow & Snowden 1993:62). The Government wanted the new lines to service the Liverpool camp, the Artillery Range to its east, ordnance and ammunition

stores two miles from the main camp, the Remount Depot, Veterinary Section, and German Concentration Camp (Ludlow & Snowden 1993:60). Construction of the line began in February 1917 and was completed in January 1918, with additional sidings added in the following years. First the Ordnance Store Siding opened in April 1919, followed by the Ammunition Stores Siding on Anzac Parade, opened in October 1920 (Ludlow & Snowden 1993:60-1). These rail sidings were located to the north of the SIMTA site.

World War Two

The facilities at Liverpool and Holsworthy continued to be used for military training during the interwar years, although on a much reduced scale, before the beginning of WWII necessitated the nation-wide expansion of sites associated with defence training, manufacture, and storage. In the Liverpool area there was an enormous expansion of army installations, with about 40,000 troops in-training at Liverpool, Holsworthy, and Ingleburn (Department of Defence 'History of the 5th Brigade' http://www.army.gov.au/HQ5BDE/Unit_History.asp. Accessed: 16/7/11)

The School of Military Engineering was established to the south of Liverpool camp in 1939, immediately after the declaration of war. During the war 7,450 students were trained at the school (Liverpool Library Local Studies pamphlet 'The Army at Liverpool'). By 1943, the area of Liverpool camp between the Georges River and Moorebank Avenue accommodated the Armoured Fighting Vehicle Trade Training Centre (AFVTTC), and the Australian Electrical and Mechanical Engineers (AEME), while a sub depot had been established on the southern corner of Moorebank Avenue and Anzac Road (Figures 7 and 8).

Figure 7: Detail of No. 1 Sub depot on corner of Anzac Rd and Moorebank Avenue 16/9/43 (Source: NAA: SP459/1, 420/7/1153)

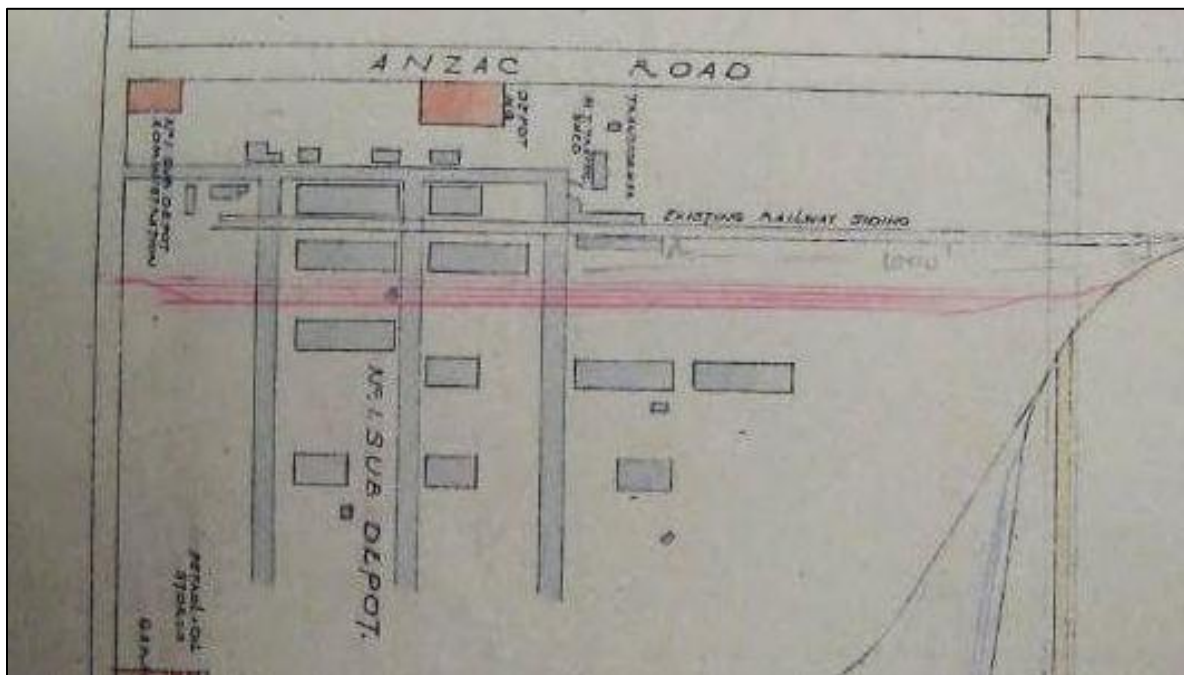
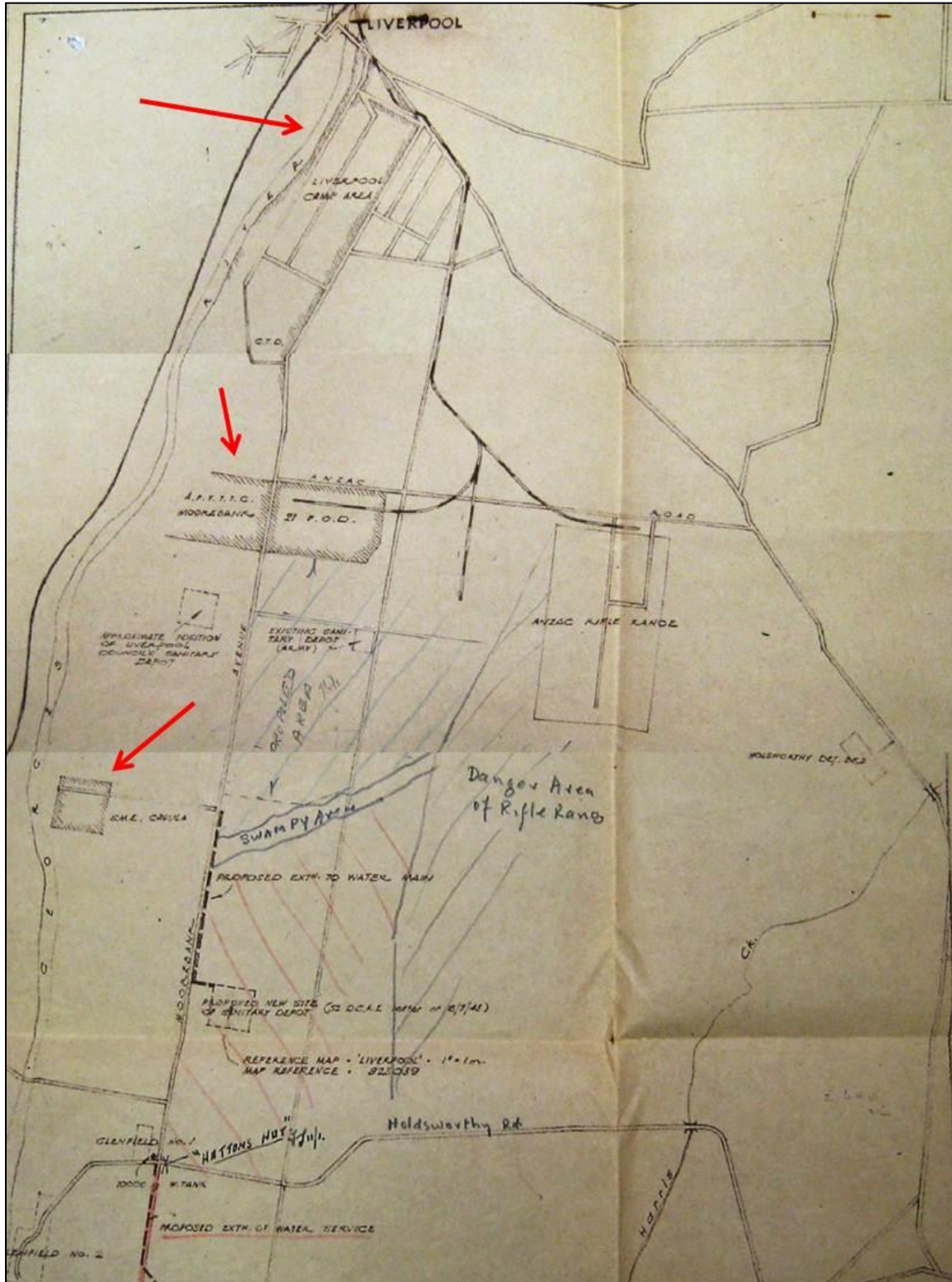


Figure 8: Plan of Liverpool military area 6/10/1943, red arrows indicate the Liverpool camp area, the AFVTTC base, and the School of Military Engineering (Source: NAA: SP459/1, 420/7/1153)



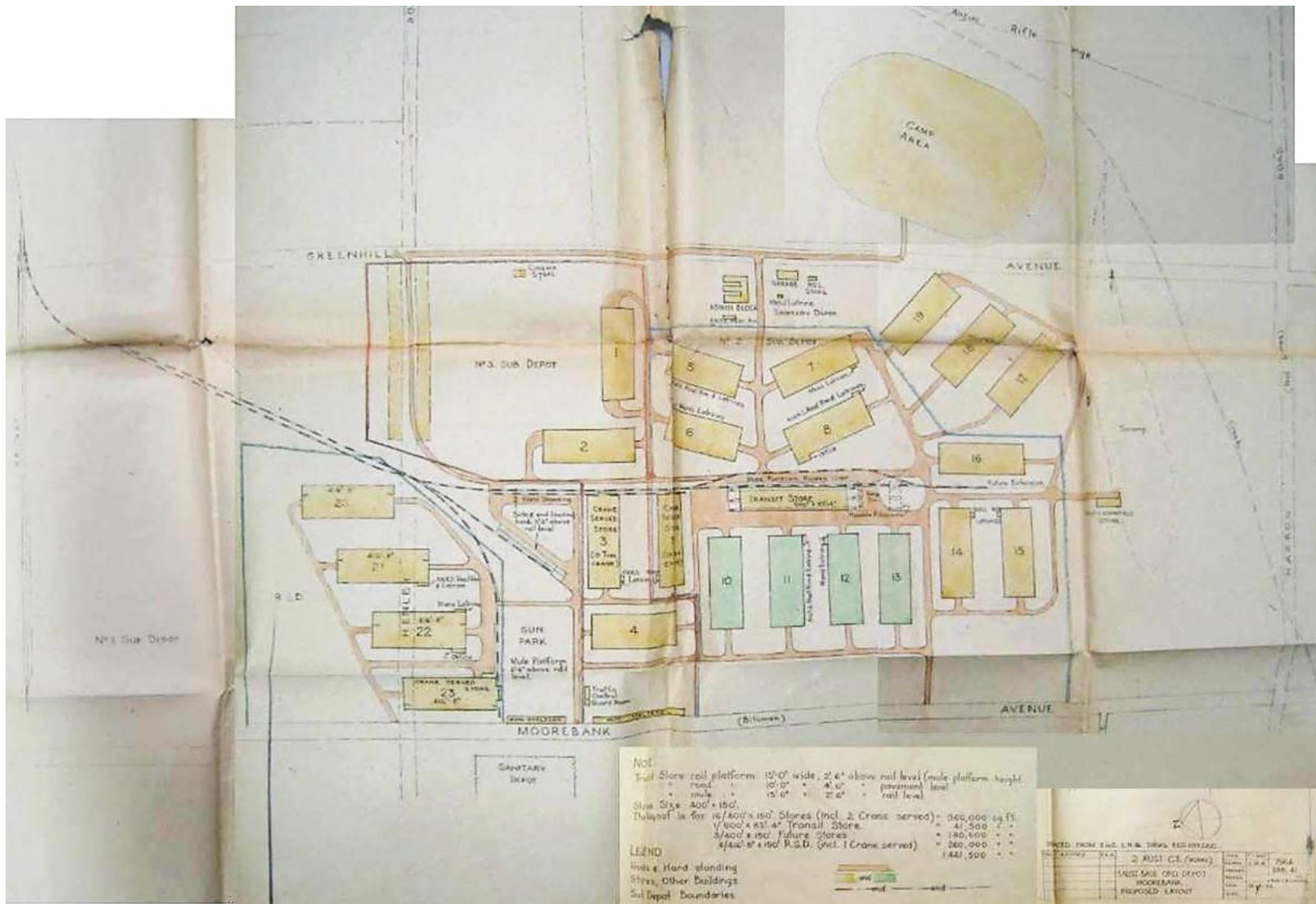
In September 1943, it was proposed that Ordnance Stores should be established at Moorebank for the 5th Australian Base Ordnance Depot (5 Aust. BOD) and by December a plan for the proposed layout of the Ordnance Depot had been drawn up. In January 1944, urgent approval was sought for the construction of four of the proposed storehouses (Numbers 10, 11, 12 and 13) due to a shortage of storage facilities in the area (*Letter from Quarter-Master General 11/11/44, NAA: SP459/1, 420/7/1153*). Approval was granted in February, and these buildings formed the first construction phase of the depot, now known as the DNSDC (*Letter from Quarter-Master General 16/2/44, NAA: SP459/1, 420/7/1153*). A plan from April 1944 (Figure 9) shows the proposed layout of the completed depot, which was to include:

- 17 stores (400' x 150' in size).
- Two crane served stores (400' x 150') (for example see Figure 10).
- 19 offices attached to each store (40' x 20').
- One transit store (500' x 83'4").
- Office acc. inside transit store.
- One cinematograph store (60' x 40').
- Two inflammables stores (100' x 50').
- 20, 000 square feet of equipment shelters.
- One traffic control building (18' x 17'8").
- One strong room (50' x 50').
- One Depot Administration building in three blocks (135'4" x 111' combined size).
- One combined garage, service station, fire station, P.O.L store, Tpt office (97' x 25').
- One SW guard house (60' x 20').
- One case making building (3,750 square feet).
- Seven men's latrines.
- Three AWAS latrines.
- Three AWAS latrines and rest rooms.

(NAA: SP459/1, 420/7/1153)

It was intended that the depot would have an ongoing role in peace-time as well as war-time (*Letter from Colonel Garnsey 5/4/44, NAA: SP459/1, 420/7/1153*).

Figure 9: Plan of proposed layout of Moorebank Ordnance Depot 25/4/44 (Source: NAA: SP459/I, 420/7/I I 53)



In April 1944, the AFVTTC transferred to the Ingleburn army camp and the vacated Liverpool camp buildings to the west of Moorebank Avenue were then used to accommodate the personnel of 5 Aust. BOD, as well as the 8th Australian Advanced Workshops of the AEME, who had been transferred from Bathurst. By 1945, the Australian Women's Army Service (AWAS) was also housed there (NAA: SP459/1, 420/7/1153).

Figure 10: 5th Aust. BOD exterior view of No. 9 Bulk (Crane Served) Technical Store Shed, 23/1/46 (Source: AWM, ID No. 124623)



Aerial photographs of the DNSDC show that little change occurred between the late 1940s and early 1990s, when five of the original 20 store buildings (in the south-west corner) were demolished and replaced with larger modern buildings (Figures 11 and 12). The remaining 15 store buildings were also reclad at this time, with modern steel sheeting replacing the original asbestos walls and new concrete floors laid (Brooks and Associates 2002:8).

In the early 1990s, the site became the DNSDC, as part of a reorganisation of defence supply services and warehousing arrangements. The DNSDC is the central warehouse for Australia's armed services, and also includes maintenance and engineering facilities (Brooks and Associates 2002:9).

Figure 11: Aerial photograph showing the Ordnance Depot/DNSDC in 1951 (Source: Brooks & Associates 2002:9)





Figure 12: Current aerial photograph of the DNSDC (Six Viewer).



5.0 Register listings

Statutory registers provide legal protection for heritage items. In NSW the Heritage Act, and the EP&A Act give legal protection. The SHR, the s.170 registers, and heritage schedules of LEPs are statutory listings. Places on the National Heritage List and the Commonwealth Heritage List are protected under the EPBC Act.

The heritage assessment for SIMTA's Concept Design Application under the EPBC Act identified nine heritage listed items located either within the overall project footprint or in its vicinity. Of these, only the DNSDC is listed on the Commonwealth Heritage List, and this site will be addressed in detail in Section 6.0. Most of the remaining items are located well outside the project footprint for the SIMTA proposal and will not be addressed further within this report. Details for these items are provided in Table 4, as well as a summary of potential impacts to each item from the SIMTA proposal as a whole (as evaluated in the previous assessment).

One further item, the Holsworthy Group (Liverpool LEP 2008, Commonwealth Heritage List), is located immediately south of the rail corridor portion of Stage 1A of the SIMTA proposal. However, the significant historical features included in the item's heritage listing are separated from the proposed project footprint by a thick expanse of scrub. The SIMTA proposal would have no direct impacts on the heritage significance of the item, nor would it affect the item's setting or views. As there will be no impacts to the Holsworthy Group, this heritage item will not be discussed further in this report. Details for the item are provided in Table 5.

The overall assessment completed by Artefact Heritage in February 2012 for the Part 3A Concept Plan Application at State level concluded that there would be no direct impact on the fabric, setting, or views of Kitchener House as a result of the SIMTA proposal. The views and setting of the house have already been significantly compromised by other industrial development nearby, and views from the house toward the SIMTA site are obstructed by modern industrial buildings. However, the house does have a historic relationship with the DNSDC which would be impacted by the demolition or removal of WWII-era buildings on the DNSDC. Kitchener House would not be negatively impacted by Stage 1A of the SIMTA proposal and is not located on Commonwealth lands, so it will not be discussed further in this report.

Table 5: Heritage items located in the vicinity of the SIMTA proposal that were assessed in the 2011 report (Artefact Heritage 2011)

Suburb	Item	Lot/DP	Register listings	Potential for impacts from overall SIMTA proposal
Casula	Casula Powerhouse (former power station)	Lots 1 and 2, DP 106957; Lot 1, DP 1115187	Liverpool LEP 2008	No impacts.
Casula	Railway viaduct	N/A Located 300 m south of Casula Powerhouse, Main Southern Railway Line	Railcorp s. 170 register	No impacts.

Suburb	Item	Lot/DP	Register listings	Potential for impacts from overall SIMTA proposal
Casula	Two railway viaducts	N/A Located near Woodbrook Road, Main Southern Railway Line	Liverpool LEP 2008	No impacts.
Moorebank	Kitchener House (formerly 'Arpafeelie')	Lot 1001, DP 1050177	Liverpool LEP 2008	No direct impact on fabric, setting, or views. However, the historic relationship with the DNSDC would be affected.
Holsworthy	Holsworthy Group, including powder magazine and former officers' mess, corporals' club, internment camp, Holsworthy railway station lock-up/gaol, German concentration camp	Lot 1, DP 825745; Part Lot 820, DP 1011240; Lot 2, DP 1048198; Part Lot 32, DP 848597; Part Lot 10, DP 1091209	Liverpool LEP 2008 Commonwealth Heritage List	No impacts.

Commonwealth Heritage List

The Commonwealth Heritage List, established under the EPBC Act, is a list of natural, Indigenous and historic heritage places which are either entirely within a Commonwealth area, or outside the Australian jurisdiction and owned or leased by the Commonwealth or a Commonwealth Authority. These include places connected to defence, communications, customs and other government activities that also reflect the development of the nation. To be entered on the Commonwealth List, a place must have 'significant' heritage value to the nation. Items on the list are under statutory protection.

The DNSDC, which encompasses the SIMTA site, is listed on the Commonwealth Heritage List. Although it is no longer owned by the Commonwealth, the site is under lease to Defence and will remain protected under the EPBC Act 1999 until this lease expires.

The Holsworthy Group is also listed on the Commonwealth list, but would not be impacted by the SIMTA proposal, as discussed above, and will not be addressed further in this report.

National Heritage List

On 1 January 2004, a new national heritage system was established under the EPBC Act. This led to the introduction of the National Heritage List, which was designed to recognise and protect places of outstanding heritage value to the nation. It includes natural, historic and Indigenous places that are of outstanding national heritage value to the Australian nation.

No sites in or near the study area are included on the National Heritage List.

Section 170 Registers

Section 170 of the Heritage Act requires government agencies to keep a register of heritage items. A s170 Register is a record of the heritage assets owned or managed by a NSW government agency. Relevant s170 Registers were checked (Sydney Water, RMS, Railcorp).

A railway viaduct listed on the Railcorp s170 Register is located to the north-west of the study area (see Table 4). However, this item is located well outside the study area and would not be impacted by the SIMTA proposal. It will not be discussed further in this report.

The State Heritage Register

The SHR is a list of places and objects of particular importance to the people of NSW and is administered by the Heritage Branch of the NSW Office of Environment and Heritage (OEH). The register lists a diverse range of over 1,500 items, in both private and public ownership. To be listed, an item must be deemed to be of heritage significance for the whole of NSW.

Glenfield Farm, located adjacent to the study area, is listed on the SHR.

Liverpool Local Environmental Plan (LEP) 2008

The Liverpool LEP includes a list and maps of items/sites of heritage significance within the LGA. A number of items (see Table 4) are located in the vicinity of the study area but will not be addressed further in this report as they would not be impacted by Stage 1A of the SIMTA proposal and are not located on Commonwealth lands.

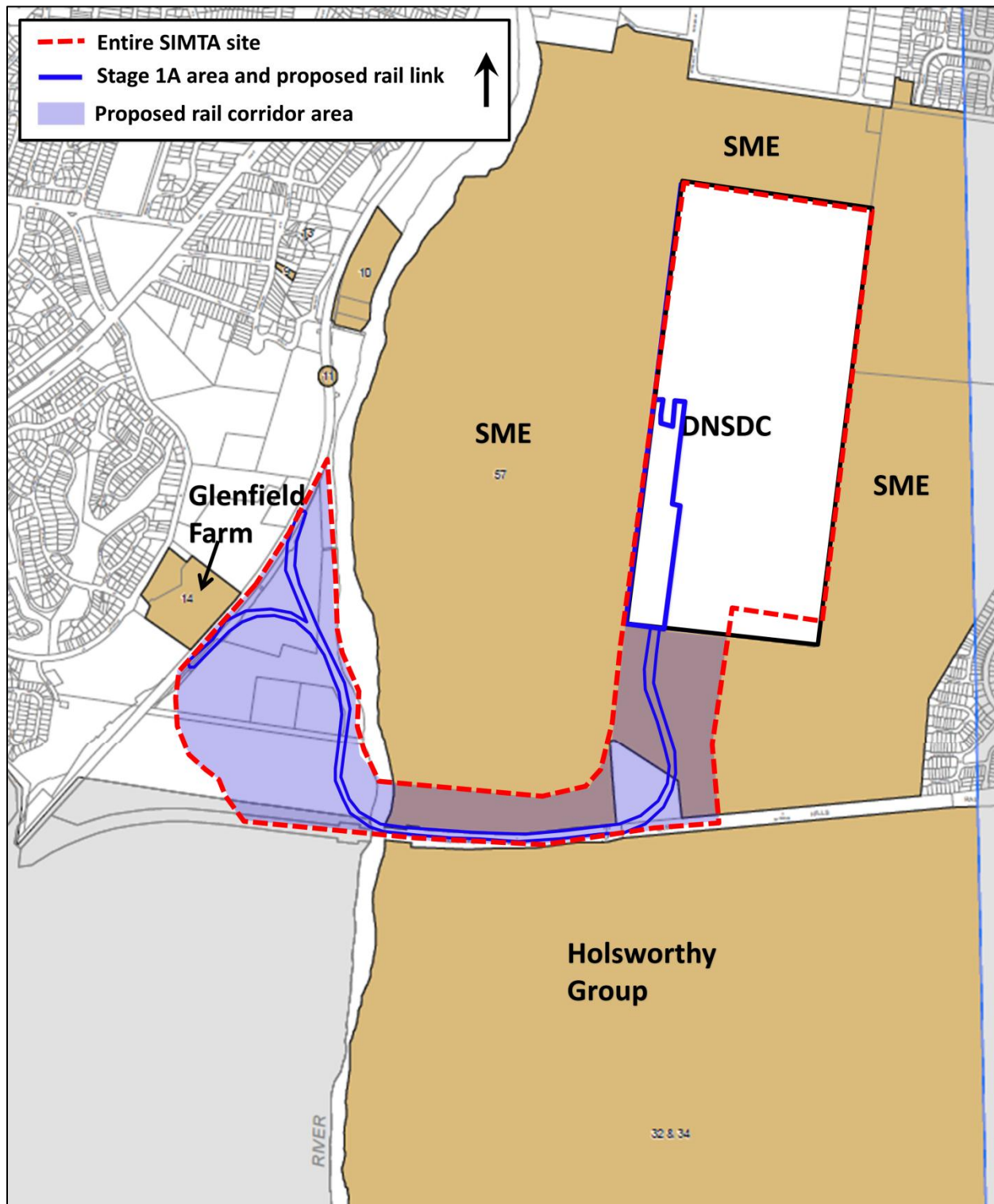
One item, the School of Military Engineering (SME) (also called the Australian Army Engineers Group) falls within the rail corridor portion of the Stage 1A area, while Glenfield Farm is located adjacent to the rail corridor portion of the Stage 1A area. Table 6 provides details for the SME and Glenfield Farm, as included in the LEP heritage schedule.

Figure 13 shows the area of the SIMTA proposal in relation to locally listed heritage items.

Table 6: Heritage items within and near the study area - Liverpool LEP

Suburb	Item	Within the study area?	Lot/DP	Significance	LEP Item number
Moorebank	Australian Army Engineers Group/ School of Military Engineering (SME)	Yes, southern end only	Lots 3001–3005, DP 1125930	Local	57
Casula	Glenfield Farm Group, including homestead, barn (former dairy and stables)	No.	Lots 1 and 2, DP 1126484	State	14

Figure 13: Liverpool LEP heritage map showing the area of the overall SIMTA proposal and the area of Stage 1A, in relation to locally listed heritage items (Sheet HER_013).



6.0 Commonwealth Lands - DNSDC

This section of the report provides an assessment of the potential impacts of the overall SIMTA proposal on the DNSDC, which is leased by Defence and is consequently located on Commonwealth lands. This assessment is based on the previous Artefact Heritage report (2012), however, some of the findings of this assessment differ from the previous report because newly released documents at the National Archives have enabled a more thorough understanding of the history of the site.

6.1 Description

The DNSDC is a rectangular block of land covering approximately 108 hectares. The site is bounded by Anzac Road on the north, Moorebank Avenue on the west, Greenhills Avenue to the east, and an area of natural bushland on the south and east. The main entrance to the site is located midway along Moorebank Avenue.

The site includes a number of large storage sheds (for example, Figures 14 and 15), along with smaller ancillary, administration, and workshop buildings. Among these structures are twenty timber post and beam buildings dating to WWII. Fifteen of these are of timber post and beam construction, with nine internal bays (Figure 16). They retain their original timber structure, though they have been reclad with modern steel sheeting, and have new concrete floors. Three of the buildings are composite timber and steel warehouses which have three bays of timber post and beam construction on either side of a central raised bay. The central bay has a steel frame to support an overhead gantry crane. The final two buildings are the smaller Quartermaster's Store, with five bays of timber post and beam construction, and the Carpentry Workshop, which are timber framed and three bays wide. Both the Quartermaster's Store and the Carpentry Workshop are constructed of Oregon, an American wood (Brooks and Associates 2002:10).

A number of buildings were constructed within the DNSDC in the mid-late 1990s (Figure 35). These include a cluster of buildings in the south western corner of the site and a number of buildings in the northern section of the site. These buildings do not share the same high heritage values as the WWII structures. Even so, as these buildings are within the DNSDC curtilage as listed on the Commonwealth Heritage Register, the relationship of these buildings to others in the military complex could have some heritage value.

Figure 14: Building 7, at the centre of the DNSDC - a typical WWII composite timber and steel crane-served warehouse building



Figure 15: Building 75 (northern end)



Figure 16: Interior of Building 75, showing original timber post and beam construction



Figure 17: Railway line opposite Buildings 17 and 18



6.2 Archaeological potential

The following assessment of archaeological potential within the DNSDC is based on documentary research, an analysis of available plans and aerial photographs of the site, and a site inspection. Archaeological potential is the likelihood of intact archaeological deposits being present, and is assessed through a consideration of the durability of the material that makes up these deposits and the subsequent ground disturbance that may have impacted on them.

An assessment of archaeological potential should also include a consideration of the research significance of potential archaeological deposits. In 1984, Bickford and Sullivan examined the concept and assessment of archaeological research potential; that is, the extent to which archaeological resources can address research questions. They developed three questions which can be used to assess the research potential of an archaeological site:

- Can the site contribute knowledge that no other resource can?
- Can the site contribute knowledge that no other site can?
- Is this knowledge relevant to:
 - General questions about human history?
 - Other substantive questions relating to Australian history?
 - Other major research questions?

In its guidelines for *Assessing Significance for Historical Archaeological Sites and 'Relics'*, the NSW Heritage Branch has since provided a broader approach to assessing the archaeological significance of sites, which includes consideration of a site's intactness, rarity, representativeness, and whether many similar sites have already been recorded, as well as many other factors. This document also acknowledges the difficulty of assessing the significance of potential subsurface remains, because the assessment must rely on predicted rather than known attributes (NSW Heritage Branch 2009).

The following section provides an assessment of archaeological potential and research significance for the different phases of development on the SIMTA site.

6.2.1 Military sanitary depot

Before the construction of the 5th Aust. BOD in 1944, the only development to have occurred within the SIMTA site was a sanitary depot that was labelled near the eastern boundary of the site in a 1943 plan (Figure 18). The plan was created as part of a proposal for a new sanitary depot, to allow the closure of the existing depot before the construction of the 5th Aust. BOD. Documentation related to the original depot is very sparse and there was no available information about its date of construction, the specific nature of its operation, or the manner in which it was decommissioned. The 1943 plan does indicate that the depot belonged to the Army, and differentiates it from the nearby Liverpool Council sanitary depot, suggesting that it is likely to have only contained waste from the nearby Liverpool military establishments.

An aerial photograph from 1943 (Figure 19) shows that the depot consisted of a partially cleared area, which encompassed a few irregular pits that appear to have been holding water at the time of the photograph. The photograph does not show any sign of formal infrastructure. It is assumed that the pits would have been filled when the depot ceased operation, however, it is not known what material was used as fill.

The area of the former sanitary depot was used as an open parking and storage space during WWII and was not built upon until the 1990s, when two large warehouse buildings and an associated bitumen car parking area were built on the site. It is likely that fill deposits within the former sanitary depot pits are present beneath the current buildings and bitumen surface, however, it is not known what these deposits may consist of. It is possible that the pits were simply filled with dirt or sand, but they may also have been filled with discarded structural material or other refuse such as metal, glass, and ceramic.

Any artefacts contained within the fill deposits would be out of context and, due to the lack of documentary evidence related to the depot, the provenance of this material would be unknown. Consequently, it would be difficult to formulate and answer pertinent research questions based on this material. It is not anticipated that potential archaeological deposits associated with the former sanitary depot would be of high research significance.

Figure 18: Overlay of 1943 plan and current aerial photograph showing location of former sanitary depot (National Archives 420/7/1153).

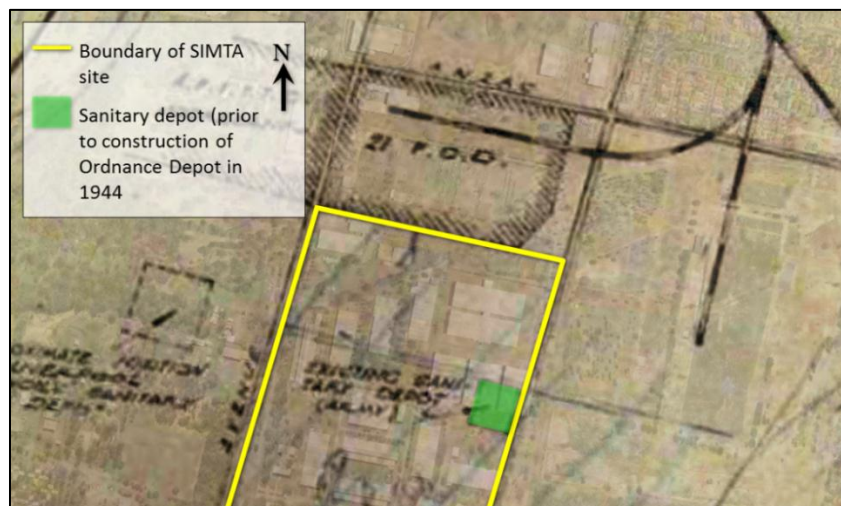
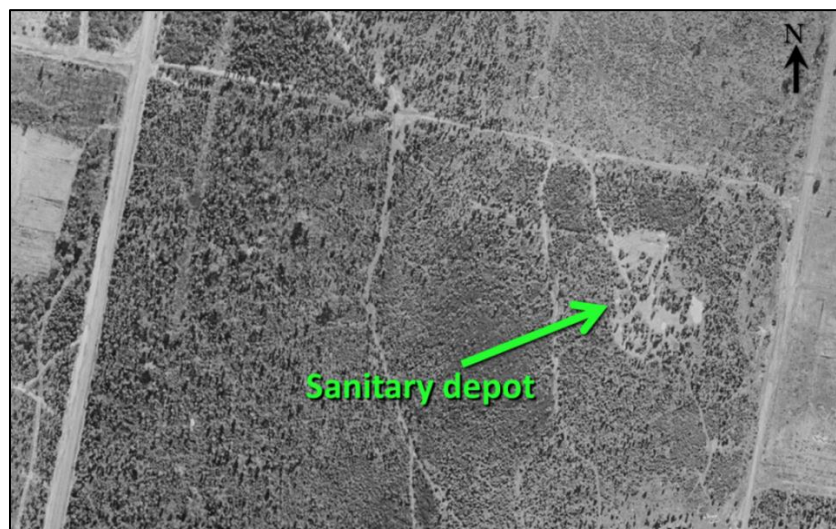


Figure 19: 1943 aerial photograph showing former sanitary depot (Department of Lands).



6.2.2 5th Aust. BOD

Plans of the site dating from the 1950s to the 1980s show that numerous structures were previously situated throughout the site in locations that have undergone little or no subsequent development. These include structures of various sizes and types, and their locations are marked in Figure 20. It is possible that structural material related to these former buildings exists beneath the ground surface, and this material would be likely to consist of concrete slabs and/ or brick footings. The concrete slab of one former store building is still clearly visible and is used as an open-air storage area (Figure 20). The historical plans also indicate the presence of water mains and sewerage pipelines throughout the site, as well as numerous latrines which may have contained refuse deposits.

Because the layout of buildings at the site has remained largely unchanged, the connecting roads are still located in the same places. It is possible that earlier road surfaces, which are likely to have been constructed of reinforced concrete, tar, or bitumen (Letter from Colonel Garnsey 5/4/44, NAA: SP459/1, 420/7/1153), are preserved beneath the current surfaces. The alignment of the roads and buildings also indicate the location of the old railway sidings, one of which is still clearly visible in the southern portion of the site.

Overall, there is a high potential for surviving archaeological remains associated with structures and features dating to WWII.

Research significance

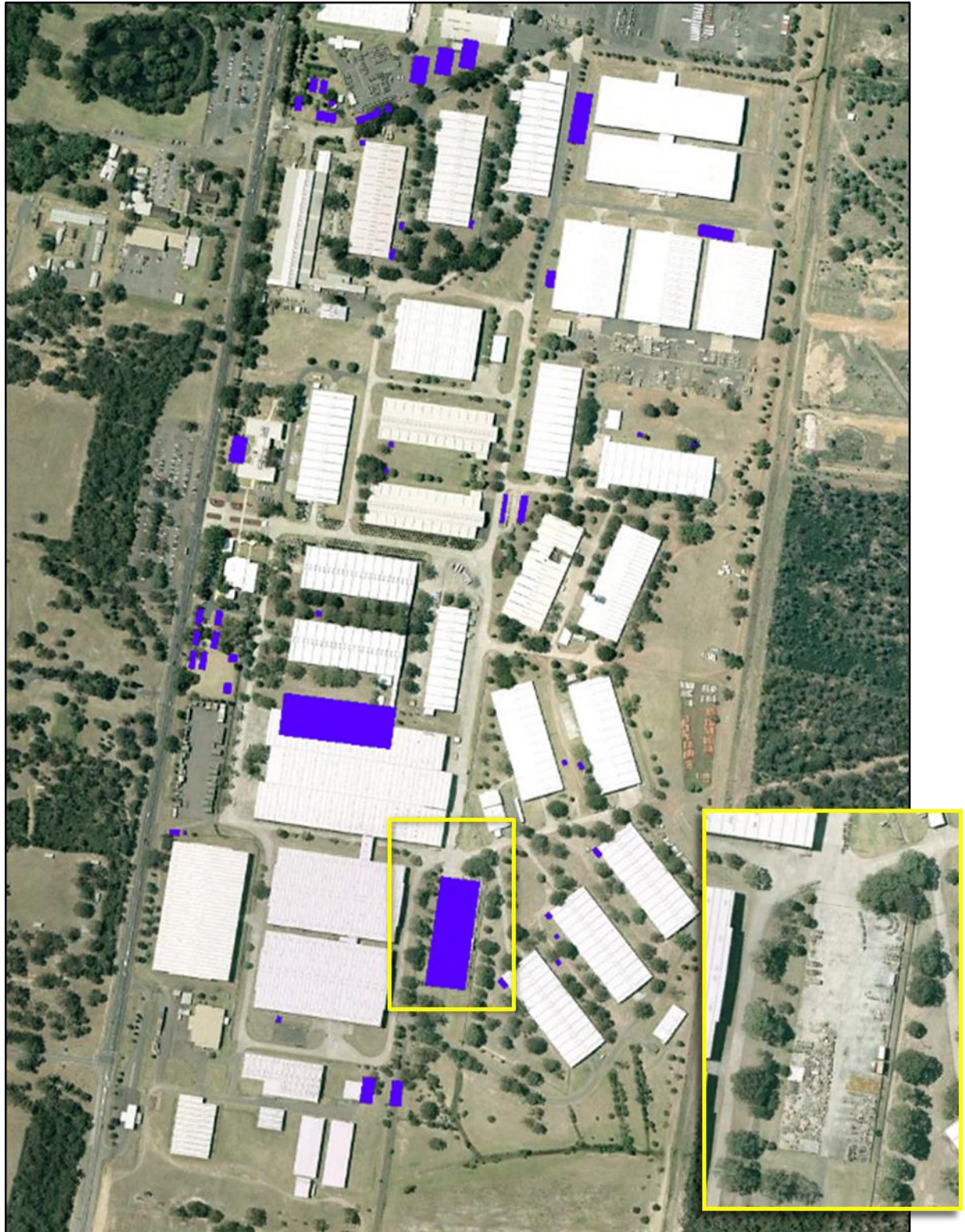
Any archaeological remains dating to WWII have the potential to be of historical significance as features of a military depot that has been of local and national importance for almost 70 years. However, the archaeological resource at the site is limited in nature and is unlikely to be of high research significance.

Because the site was never occupied by the personnel who worked there, there is little potential for the type of accumulated refuse deposits often found at occupation sites, which can provide information regarding changing lifeways over time. Consequently, it is unlikely that the site would yield significant evidence related to the personal experiences of workers at the site over the years.

Archaeological remains of former structures have the potential to be of moderate research significance, as they may provide new evidence about the building types present throughout the site and the materials from which they were constructed.

The water mains and sewerage pipes known to exist within the site are of low research significance as the locations of these pipes are already known from documentary evidence and the pipes themselves would be unlikely to make a significant contribution to the existing knowledge of the site.

Figure 20: Locations of former buildings (purple) in undeveloped areas of the DNSDC (based on a 1966 plan of the site). Inset shows surviving slab of former store building. Base map – Google Earth.



6.3 Assessment of significance

The following assessment of heritage significance of the DNSDC as a whole has been prepared in accordance with the ‘Assessing Heritage Significance’ (2001) guidelines from the NSW Heritage Manual. Table 7 below outlines a selective summary of the significance assessment detailed in the Australian Heritage Database entry for the site, and the heritage assessment conducted by Brooks and Associates in 2002.

Table 7: DNSDC – Assessment of Significance

Criteria	Description	Significance Assessment
A – Historical Significance	An item is important in the course or pattern of the local area’s cultural or natural history.	The site is highly significant for its association with the development of Australia’s military forces since the early 19 th century and particularly for its direct association with the military expansion in the early years of WWII. The site has played a continual role in Australia’s military infrastructure until the present day. The site is also of local historical significance for the role it played in the early settlement of the Liverpool area, and as an illustration of the boundaries and alignments of the original land grants and subdivisions in the area.
B – Associative Significance	An item has strong or special associations with the life or works of a person, or group of persons, of importance in the local area’s cultural or natural history.	The site has a significant association with the Australian Defence Forces.
C – Aesthetic Significance	An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in the local area.	The WWII buildings demonstrate the unique aesthetic characteristics of military buildings constructed during the war, and a high degree of technical achievement.
D – Social Significance	An item has strong or special association with a particular community or cultural group in the local area for social, cultural or spiritual reasons.	The site has social significance for the extensive community of Defence personnel who have worked at the site through its history, and for the local community of Liverpool and the broader community of Sydney, as the location of Defence operations since 1915.
E – Research Potential	An item has potential to yield information that will contribute to an understanding of the local area’s cultural or natural history.	There is a high potential for surviving archaeological remains associated with structures and features dating to WWII. Such remains have the potential to be of historical significance as features of a military depot that has been of local and national importance for almost 70 years. However, the archaeological resource at the site is limited in nature. Because the site was never occupied by the

Criteria	Description	Significance Assessment
		personnel who worked there, there is little potential for accumulated refuse deposits and it is unlikely that the site would yield significant evidence related to the personal experiences of workers at the site over the years. Archaeological remains of former structures have the potential to be of moderate research significance, as they may provide new evidence about the building types present throughout the site and the materials from which they were constructed.
F – Rarity	An item possesses uncommon, rare or endangered aspects of the local area's cultural or natural history.	The group of 18 WWII timber post and beam store buildings at the site are the only known surviving group of such buildings in NSW in Defence use. The only other known site with similar WWII timber store buildings, and which remains in Defence ownership, is Bandiana, in Victoria.
G – Representative	An item is important in demonstrating the principal characteristics of a class of NSWs (or the local area's): - cultural or natural places; or - cultural or natural environments.	The timber post and beam store buildings have significance as representative examples of this type of store building constructed during WWII for military storage purposes throughout the east coast of Australia.

Statement of Significance

The following Statement of Significance is taken from the Australian Heritage Database entry for the DNSDC:

“The Defence National Storage and Distribution Centre (DNSDC) is historically highly significant. As a military storage site it dates from 1915, and the Centre is important for its associations with the development of Australia's military forces prior to and during the First World War and particularly for its direct association with the military build-up in the early years of the Second World War. The DNSDC has continued to play an important role in Australia's military infrastructure, right up to the present time. The place also has an association with early nineteenth century settlement in the Liverpool area.

The DNSDC contains twenty Second World War post and beam warehouses, many of which, despite being re-clad, are good examples of their type. Particularly important are the fifteen timber post and beam military warehouses of the nine-bay type which played such an important role during the war and which were the widest post and beam military warehouses. Also important are the three composite steel and timber type warehouses. Post and beam military warehouses are small in number today, giving those at this site substantial rarity value. Additional interest is inherent in the

fact that the buildings are understood to have been prefabricated in the United States and shipped to Australia in the early 1940s. Further, the alignment of part of the former military railway system is evidenced by the alignment and siting of some of the buildings and roads at the site.

The Centre is of social value for Defence personnel, for the Liverpool community and for the broader Sydney community on account of the long-term Defence associations with the site.”

Also worth including here is an extract from a 1995 report on Department of Defence Timber Buildings from 1939-1945, which gives a clearer idea of the broader significance of WWII-era standard timber buildings, as part of a nationwide group:

“These buildings are culturally significant as they demonstrate the versatility and self-reliance of the Australian Government and people in a time of national emergency. Under direct military threat, the nation embarked on total mobilisation in its own defence and as it did so, reorganised itself to make the most efficient use of the resources at hand. While the labour force mobilised and the organisations instigated were largely transient, the facilities constructed and used during the conflict were not. They remain a national asset and a testament to the nation’s reaction. That these facilities were often constructed simply, ruggedly and in haste merely demonstrates the extent of emergency. They are culturally significant due to the large public association of these buildings with times of personal and national change and stress.

The buildings are historically significant because the forms and location of the structures depict the strategic reality facing Australia at the time of their construction. Prior to December 1941 development was urgent but considered, and timber construction was largely limited to the scale of building constructed before the war, that is, the timber hut building. These buildings were generally temporary structures for the training of troops. In early 1942, construction in timber was hectic and experimental, concentrating on south eastern Australia. Large complexes were constructed to provide stores, airfields and war industry plant. By 1943, experimentation lessened but the pace of building was maintained. Facilities were developed to bolster Australia’s defence and to provide forward supply bases for battles fought in the Pacific Islands. By 1944, the nation served as a storage and staging base for advances throughout the Pacific, and the buildings of that time concentrated around the major posts of Brisbane, Sydney, and to a lesser extent Melbourne.

The buildings have a political and technical significance as they show how standing design preferences and practices were overthrown as part of the national reorganisation. Technologies that had previously had little impact in Australia were used extensively, while technologies introduced by the USA military were embraced. Unseasoned local hardwood, a material that had previously been regarded as unsuitable for large buildings achieved primacy. The technical achievements of this period for timber construction cannot be overstated. The longest span and most widespread timber

structures in Australian history were constructed in this period. Almost every species of Australian timber was placed in extreme field test.

This significance has a further facet as the timber construction forms and technologies used throughout the war did not survive it. With demobilisation the pre-war preferences for steel construction re-emerged and timber construction for structures larger than houses did not recover its national popularity again until the 1960s.

Aesthetically, the truss and other construction forms produced throughout the war are unique. They advanced the aesthetic which had lingered as a legacy from the king and queen posts forms used in Australian buildings with the mortice and tenon construction of the later 1900s, and lack the nostalgia invoked in the 1960s and 1970s for the farmhouse. They express themselves in true and clean engineering layouts as was essential in a time of emergency.

These buildings, located throughout Australia, therefore have a significant heritage value as a group that should be preserved, recognising the influences that determined the form and construction distribution of the group” (Nolan 1995).

Previous Studies

Heritage Assessment – DNSDC, Moorebank 2002

In 2002, Graham Brooks and Associates (Architects and Heritage Consultants), undertook a heritage assessment for the DNSDC. This study focused on the built heritage of the site, but did not address its archaeological potential. It was concluded that the site was of significant heritage value as a group of WWII buildings that should be preserved, and recommended that:

- The preferred conservation option for the 18 WWII timber post and beam warehouses is their continued use.
- There should be a detailed feasibility study for the ongoing or adaptive re-use of the timber post and beam warehouse buildings. This should be done either by Defence or a new owner.
- Subject to the re-use study, an acceptable conservation option for the collection of WWII timber post and beam stores buildings could be the retention of one or more of the buildings as a representative example, for continued use by either Defence, or adaptive re-use by others, provided that a viable re-use of the buildings can be identified.
- Should the re-use of the WWII buildings not be considered prudent or feasible, then demolition of all of the buildings would be acceptable, given the preparation of a photographic recording and measured drawing survey of the site (Brooks and Associates 2002: 27-8).

6.4 Assessment of potential impacts

Specific details regarding the potential impacts of the SIMTA proposal on the DNSDC have not yet been finalised and so this assessment of impacts is preliminary only. The SIMTA proposal involves the demolition or removal of some or all of the WWII buildings, the construction of new buildings, and landscape modification through the installation of new water, sewerage, trade waste, access, and power infrastructure. These changes would have a major impact on the heritage significance of the site.

The DNSDC is of national significance as an extremely rare complex of WWII era military buildings that have remained in use by Defence until the present day. In particular, the 18 WWII period warehouses are rare and representative examples of the unique aesthetic and technical characteristics of military buildings of this time, and their locations and orientations also indicate the alignments of former roads and rail sidings through the camp.

The SIMTA proposal is likely to involve the demolition and/or removal of some or all of the heritage buildings and will have a significant detrimental impact on the heritage value of the site. The absence of the buildings would impact the relationships that currently exist between the different buildings, the historical road and rail alignments, and the broader landscape; and the site would no longer retain any visible physical connection to its long military history.

If some of the buildings are relocated and preserved elsewhere (possibly for adaptive reuse), then these structures would retain some of their heritage value. However, the Burra Charter (Article 9.1-9.3) states that the physical location of a place is part of its significance and that relocation is generally unacceptable unless it is the sole means of ensuring the survival of a heritage item. When a building is moved it should be moved to an appropriate location and given an appropriate use. It is important to note that the preservation of some buildings in other locations would not mitigate the detrimental impacts to the heritage value of the DNSDC itself.

The construction of the proposed intermodal terminal is also expected to involve widespread subsurface impacts, which would affect known and potential archaeological resources.

6.5 Potential mitigation measures

6.5.1 Built heritage

It is recommended that a mitigation strategy should be developed for the DNSDC as a whole, once the nature of the SIMTA development has been more adequately defined.

Table 8 outlines the different development options that may be involved, the likelihood of each option occurring, and the likely heritage impacts of each option on the built heritage of the site; as well as offering possible measures that could be employed to mitigate the impact of these options on the heritage values of the site.

6.5.2 Archaeological resources

Archaeological remains of former structures may survive throughout the site. These remains have the potential to be of moderate research significance, and it is recommended that archaeological monitoring should be conducted for a representative sample of the sites of former structures (marked in Figure 20) that would be subject to proposed subsurface impacts. Monitoring should be undertaken by a suitable archaeologist with Excavation Director Criteria qualifications.

The archaeologist would assess the likely significance of any archaeological deposits encountered, and provide advice regarding appropriate further action. If highly significant remains were identified during monitoring, it might be appropriate to conduct further monitoring for additional sites of former structures. Because the locations of proposed subsurface impacts are not yet known, it is not possible to specify which sites of former structures should be monitored. An archaeological research design should be prepared for each stage of the SIMTA proposal. The research design for Stage 1A is included in Appendix A.

Table 8: SIMTA site – development options, impacts to built heritage and possible mitigation strategies.

Development option	Likelihood of option	Significance of impact	Possible mitigation strategies	Summary of mitigation strategy and its effect on heritage values
Conservation of the WWII buildings <i>in situ</i>	Low	The conservation of some or all buildings <i>in situ</i> would preserve some of the heritage value of the site. Values associated with the setting and context of the buildings would be affected.	Adaptive reuse of the buildings <i>in situ</i> , wherever practicable. Preservation of buildings to allow their conservation	The adaptive reuse of some buildings <i>in situ</i> would involve altering the buildings in order to make them suitable for reuse in new ways. It would avoid total demolition or removal, and would preserve a connection to the military history of the site. Ideally, representative examples of both store building types (timber post and beam, and composite timber and steel) would be retained. The form of adaptive reuse would depend upon the uses to which the buildings would be put as part of the SIMTA proposal, but should have minimal impact on the heritage significance of the building and its setting. The preservation of all or some of the WWII buildings would involve maintaining their physical fabric in its current state in order to conserve their heritage significance. Preservation of some of the buildings would facilitate the retention of built heritage values, but would affect values related to heritage context and may not allow alterations that could make future use of the buildings viable.
Demolition of the WWII structures to provide development areas for intermodal warehousing	Moderate	The demolition of all structures would have a significant impact on the heritage values of the DNSDC. If the current boundaries of the site were kept intact, the site would retain some local historical significance as an illustration of the boundaries and alignments of the original land grants and subdivisions in the area. The major national significance of	Architectural interpretation of the heritage value items within the design and construction of structural elements on the SIMTA site (e.g. lighting or building facades).	Architectural interpretation would be a way of reflecting the site's military past and memorialising the former buildings and layout at the site. Architectural interpretation would be most effective if employed in conjunction with the relocation and adaptive reuse of some of the WWII buildings.

Development option	Likelihood of option	Significance of impact	Possible mitigation strategies	Summary of mitigation strategy and its effect on heritage values
		the site lies in its role as a military camp, particularly in the WWII buildings (including their fabric, layout, and ability to demonstrate the original road and rail alignments through the military camp) and this would be diminished with the demolition of the buildings.	Archival and photographic recording of the site, with copies of the records held at the site and at the new locations of any buildings which have been relocated.	Archival and photographic recording of the site (including the buildings themselves, and the layout of the site) should be undertaken before any changes are made to the site. This mitigation option would not actually conserve the heritage values of the site or buildings, nor provide an easily accessible/visible interpretation of them.
Relocation for adaptive reuse on other Commonwealth land of some or all of the buildings that are of heritage value	Moderate	While there would be no impacts to the physical fabric of the structures, the heritage values of the buildings and the DNSDC would be significantly reduced by removing them from their historical setting and impacting the relationships that currently exist between the different buildings, the historical road and rail alignments, and the broader landscape. The relocation of the buildings would retain their aesthetic and representative significance, and, while not ideal, is preferable to demolition. It would be appropriate for the buildings to continue to be used by Defence on a different military site.	Architectural interpretation of the heritage value items within the design and construction of structural elements of the SIMTA site. Archival and photographic recording of the site, with copies of the records held at the site and at the new locations of any buildings which have been relocated.	Architectural interpretation would be a way of reflecting the site's military past and memorialising the former buildings and layout at the site. Architectural interpretation would be most effective if employed in conjunction with the relocation and adaptive reuse of some of the WWII buildings. Archival and photographic recording of the site (including the buildings themselves, and the layout of the site) should be undertaken before any buildings are relocated. If copies of these records were held at the site and at the new locations of relocated buildings, they would provide contextual information that would retain a connection with the past of the site and buildings. This mitigation option would not actually conserve the heritage values of the site or buildings, nor provide an easily accessible/visible interpretation of them.
Relocation for preservation on other Commonwealth land of some or all of the buildings that are of	Moderate	While there would be no impacts to the physical fabric of the structures, the heritage values of the buildings and the DNSDC would be significantly reduced by removing them from their historical setting and impacting the relationships that currently	Architectural interpretation of the heritage value items within the design and construction of structural elements of the SIMTA site.	Architectural interpretation would be a way of reflecting the site's military past and memorialising the former buildings and layout at the site. Architectural interpretation would be most effective if employed in conjunction with the relocation and adaptive

Development option	Likelihood of option	Significance of impact	Possible mitigation strategies	Summary of mitigation strategy and its effect on heritage values
heritage value		exist between the different buildings, the historical road and rail alignments, and the broader landscape. The relocation of the buildings would retain their aesthetic and representative significance, and, while not ideal, is preferable to demolition. It would be appropriate for the buildings to continue to be used by Defence on a different military site.	Archival and photographic recording of the site, with copies of the records held at the site and at the new locations of any buildings which have been relocated	reuse of some of the WWII buildings. Archival and photographic recording of the site (including the buildings themselves, and the layout of the site) should be undertaken before any buildings are relocated. If copies of these records were held at the site and at the new locations of relocated buildings, they would provide contextual information that would retain a connection with the past of the site and buildings. However, this mitigation option would not actually conserve the heritage values of the site or buildings, nor provide an easily accessible/visible interpretation of them. Other mitigation options would also need to be employed. The preservation of the buildings (as opposed to adaptive reuse) may allow more scope for heritage interpretation within the buildings – such as signage or posters featuring photographs, plans, and historical information related to the buildings and the DNSDC.
A combination of Options A, B, C and/or D.	High	Impacts to the heritage values of the site are likely to be significant, but would depend on the combination of options chosen and other determining factors.	Conservation and adaptive reuse of some buildings <i>in situ</i> Relocation and adaptive reuse of some buildings at other sites Relocation and preservation of some buildings at other sites Archival and photographic recording. Interpretation of heritage values at the SIMTA site and in the relocated	Given the nature of the SIMTA proposal it is unlikely that all of the WWII buildings would be retained. However, rather than demolition, a combination of mitigation options could provide an effective compromise and allow some of the heritage significance of the site and buildings to be preserved. The heritage values of both the <i>in situ</i> and relocated buildings should be interpreted

Development option	Likelihood of option	Significance of impact	Possible mitigation strategies	Summary of mitigation strategy and its effect on heritage values
			buildings	through the use of signage or posters featuring photographs, plans, and/or historical information related to the buildings and the DNSDC. The heritage values of the SIMTA site should be interpreted through the design and construction of structural elements on the SIMTA site. This interpretation should include physical references to the former buildings and layout of the DNSDC. Detailed archival and photographic recording should be undertaken before any changes are made to the site.
Demolition of structures built in the 1990s.	High	Impacts to the heritage significance of the site as a whole would be low if only the 1990s buildings were impacted.	Archival recording of the relationship between the 1990s buildings and other structures on the DNSDC.	Detailed archival and photographic recording should be undertaken before any changes are made to the site in order collect information on heritage values before they are impacted.
Subsurface excavations within areas of archaeological potential	High	The significance of the impacts will depend on the nature of remains identified within the areas of archaeological potential.	Monitoring of works conducted by an appropriately qualified heritage consultant/archaeologist.	Impacts would be mitigated by archaeological investigation as they would provide a means of recording and interpreting information about the heritage values of the site.

7.0 Stage 1A assessment

This section of the report assesses the potential impacts of Stage 1A of the SIMTA proposal on items of heritage significance, although it is noted that separate planning approval from the NSW Minister will be sought for discrete stages of the SIMTA proposal and heritage values will also be assessed in those applications. Stage 1A of the SIMTA proposal includes an area of approximately eight hectares within the heritage listed DNSDC, while a small portion of the SME local heritage item falls within the construction/operation site for Stage 1A. Adjacent to the western portion of the construction/operation site for Stage 1A is the Glenfield Farm SHR item.

7.1 DNSDC - Stage 1A area

7.1.1 Description

The portion of the DNSDC that is encompassed by Stage 1A of the SIMTA proposal includes a large modern store building (Building 19 – Figure 25) and several smaller modern structures but does not contain any extant WWII era structures. Immediately to the east of the Stage 1A area there are three large modern store buildings that were constructed on the sites of former WWII buildings during the 1990s (Buildings 16, 17 and 18) (Figure 23), and two WWII-era timber post and beam store buildings (Building numbers 10 and 11) (Figures 22 and 24). At its northern end, the Stage 1A area extends on either side of a modern building near the entrance to the DNSDC, surrounding it closely on three sides. To the north of the Stage 1A area is one WWII-era timber post and beam store building (Building 6) (Figure 21).

A wide concrete road runs north-south through the Stage 1A area, with driveways branching off to Buildings 10, 11, 16, 17, and 18 (Figure 27). The road and driveways follow the original alignments of roads first constructed in WWII. A 1958 plan of the site shows that the road was concrete at that time, and it is possible that the physical fabric of the road has not been significantly altered since it was originally built. The road running east-west in front of Building 19 was present by 1951.

There is a deep open drain running north-south through the construction/operation site for Stage 1A, adjacent to Buildings 10, 11, 16, 17, and 18 (Figure 26). This drain dates from WWII.

Opposite Building 16 is a large area sealed with bitumen and used for storing freight containers (Figure 28). Historical plans of the site show that this area has been sealed since the 1960s, and that during the 1950s it was surfaced with gravel.

Figure 21: Stage 1A area in relation to extant WWII buildings (shaded)

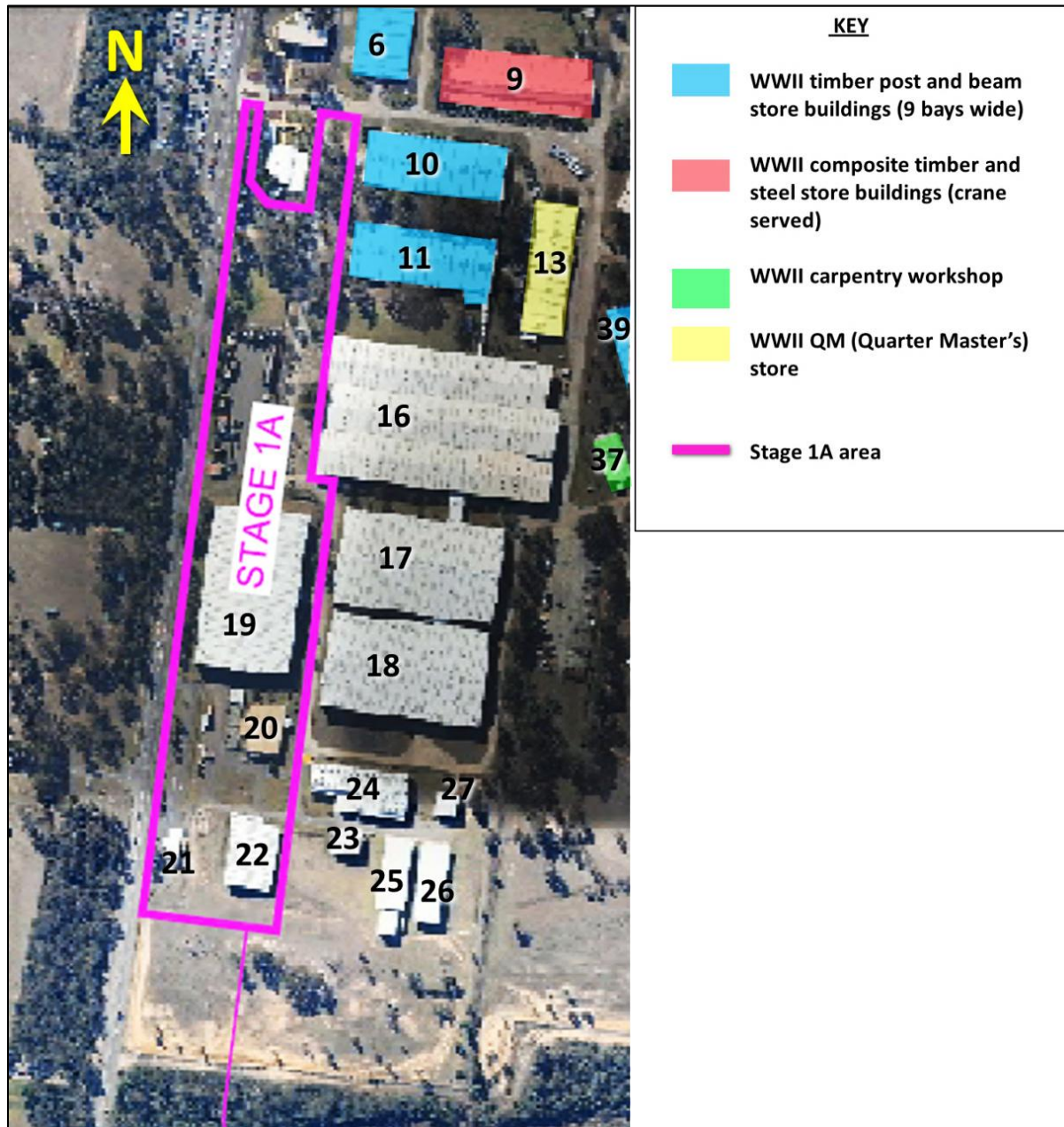


Figure 22: WWII-era Building 10 (adjacent to the north-eastern corner of the Stage 1A area)



Figure 24: Looking north along the eastern side of the proposed Stage 1A area, with WWII-era Building 11 on right.



Figure 23: Modern Building 16 (adjacent to the mid-section of the Stage 1A area)



Figure 25: Northern end of modern Building 19 (located within the Stage 1A area).



Figure 26: 1940s open drain running north-south through Stage 1A area.



Figure 27: Road running north-south through Stage 1A area (west of Building 16).



Figure 28: Bitumen storage area within Stage 1A area.



Figure 29: Southern portion of Stage 1A area, facing south.



7.1.2 Archaeological potential

It is possible that remains of former structures exist within the Stage 1A area. On plans from the 1950s, 1960s, and 1970s, two small structures are visible in the area immediately to the north of the present-day Building 19 (Figures 30-34). This area is currently undeveloped. Because the nature of the structures is unknown, it is difficult to assess the likelihood of subsurface remains being present.

The historical plans also show that several small structures were located in what is now a grassed area to the south of the office/canteen building at the entrance to the DNSDC. There were eight structures in plans from 1958 and 1966, three of which had been demolished by 1967. The five remaining structures were present until at least 1981. In the absence of evidence regarding the nature of the structures, it is difficult to assess the likelihood of structural remains surviving beneath the ground surface.

A plan of the site dating to 1958 (Figures 30 and 37) shows a number of water mains and sewerage lines running through the Stage 1A area, and it is assumed that these are still present. It is likely that these services date from the 1940s.

Overall, there is a high potential for archaeological features within the Stage 1A area.

Research significance

There is a possibility that archaeological remains of former structures could be encountered within the construction/operation site for Stage 1A, and water mains and sewerage lines dating from the 1940s are highly likely to be present. Any archaeological remains within the Stage 1A area have the potential to be of historical significance as features of a military depot that has been of local and national importance since WWII.

Any archaeological remains of the former structures have the potential to be of moderate research significance, as they may provide new evidence regarding the nature and function of the buildings, and the materials from which they were constructed.

Any water mains or sewerage pipes within the area would be of low research significance as the locations of these pipes are already known from documentary evidence and the pipes themselves would be unlikely to make a significant contribution to the existing knowledge of the site.

Figure 30: 1958 plan of Stage 1A area (Moorebank 2 B.O.D. Area 25/8/1958, National Archives CEN1149/FOLDER 64).

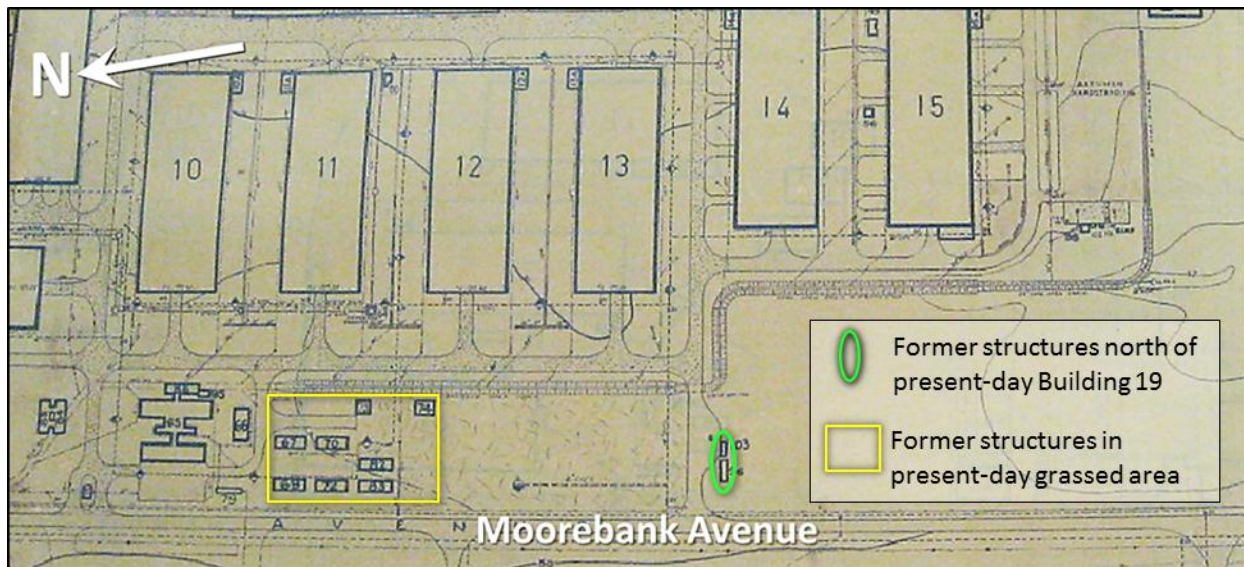


Figure 31: c. 1966 plan of Stage 1A area (2 B.O.D. Moorebank road resurfacing, National Archives NDL67/484/FOLDER 74).

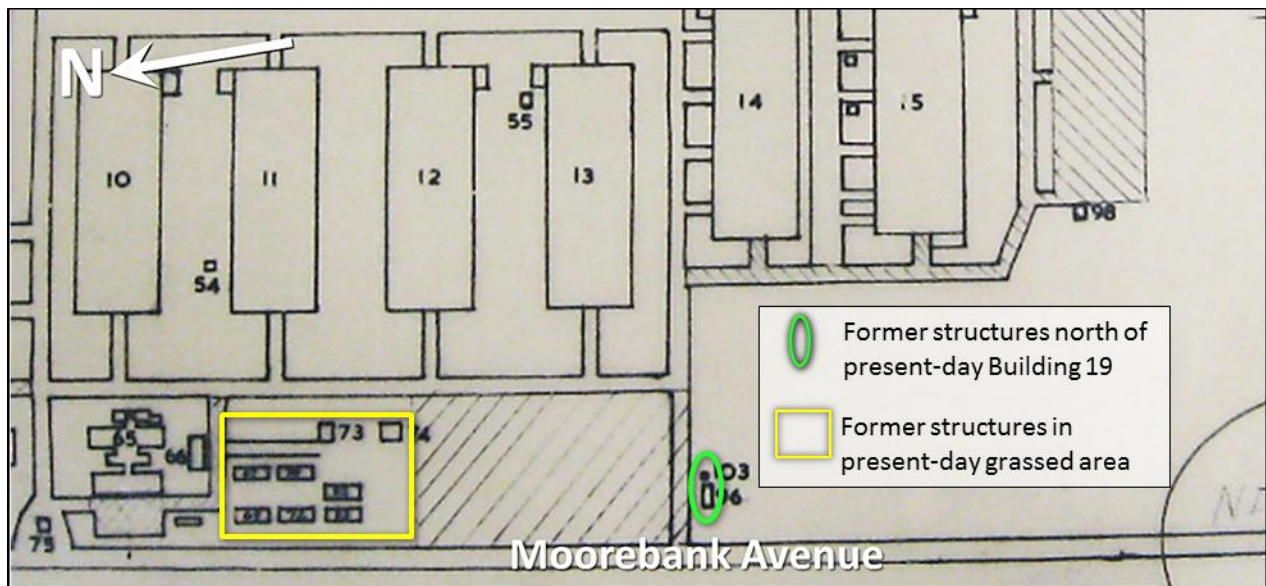


Figure 32: 1967 plan of Stage 1A area (detail from plan of proposed East Hills railway line, National Archives C4177/FOLDER64).

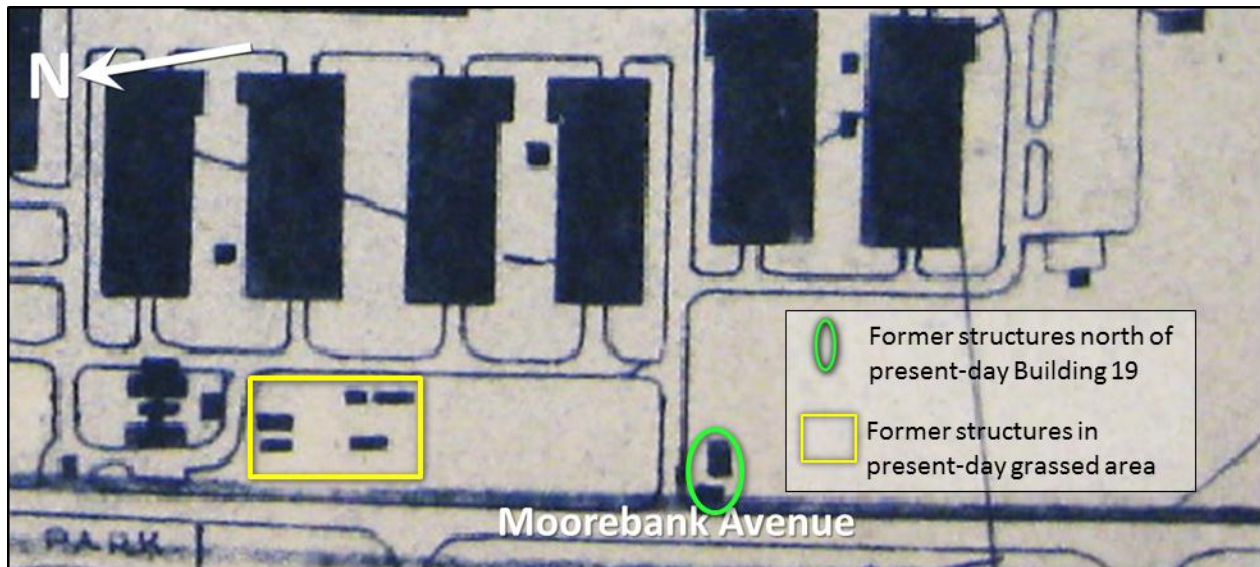


Figure 33: 1977 plan of Stage 1A area (National Archives C4177/FOLDER64).

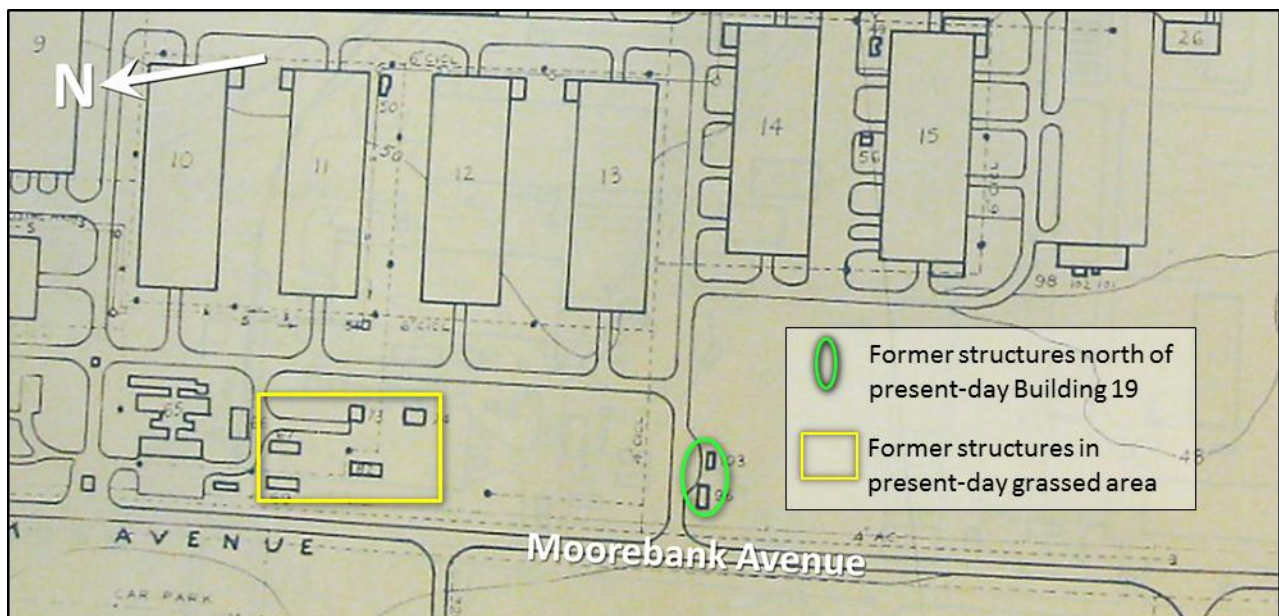
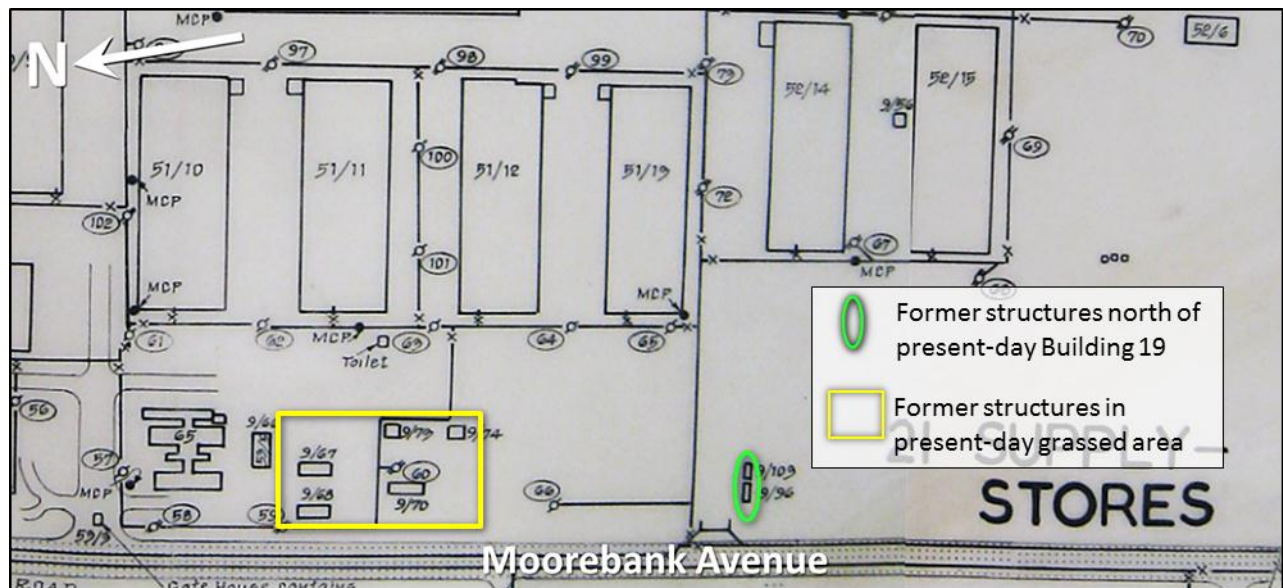


Figure 34: 1981 plan of Stage 1A area (National Archives C4177/FOLDER64C).



7.1.3 Adjacent WWII-era buildings

Surrounding the north-east corner of the proposed Stage 1A area are three WWII timber post and beam store buildings. Buildings 10 and 11 are located approximately 10 metres east of the Stage 1A project footprint and 2 metres east of the proposed enabling works, and are oriented east-west, while Building 6 is located around 40 metres north of the project footprint and is oriented north-south. Like the other WWII-era buildings on the site, each of the buildings was reclad and roofed with modern materials during the 1990s.

The buildings are located close to the entrance to the site and partially obstructed views of the buildings are available from Moorebank Avenue. However, because they are clad in modern materials, the historical significance of the buildings is now mainly evident through their architectural form and interior construction, neither of which can be appreciated by the general public from Moorebank Avenue.

Buildings 10 and 11 are the only surviving examples of the six WWII store buildings that were originally located in a line along the western side of the complex. They are accessed by concrete driveways off the main road running through the Stage 1A footprint. This road and the driveways are still on their original alignments.

7.1.4 Assessment of significance

The Stage 1A area of the DNSDC does not contain any extant WWII-era buildings; however, it does include original roads and a large open drain dating to WWII, and is of significance as part of the largely intact complex of WWII defence structures and associated infrastructure represented by the DNSDC as a whole.

Table 9 provides an assessment of significance for the Stage 1A area.

Table 9: Stage 1A area of DNSDC - Assessment of Significance

Criteria	Description	Significance Assessment
A – Historical Significance	An item is important in the course or pattern of the local area's cultural or natural history.	The Stage 1A area is significant as part of the DNSDC which is of high historical significance for its association with the development of Australia's military forces since the early 19 th century and particularly for its direct association with the military expansion in the early years of the Second World War. The site has played a continual role in Australia's military infrastructure until the present day. The site is also of local historical significance for the role it played in the early settlement of the Liverpool area, and as an illustration of the boundaries and alignments of the original land grants and subdivisions in the area.
B – Associative Significance	An item has strong or special associations with the life or works of a person, or group of persons, of importance in the local area's cultural or natural history.	The site has a significant association with the Australian Defence Forces.
C – Aesthetic Significance	An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in the local area.	The Stage 1A area does not contain any items of aesthetic significance.
D – Social Significance	An item has strong or special association with a particular community or cultural group in the local area for social, cultural or spiritual reasons.	The Stage 1A area is of social significance as part of the DNSDC, which is significant to the extensive community of Defence personnel who have worked at the site through its history, and for the local community of Liverpool and the broader community of Sydney, as the location of Defence operations since 1915.
E – Research Potential	An item has potential to yield information that will contribute to an understanding of the local area's cultural or natural history.	The Stage 1A area has a high potential for subsurface archaeological deposits to remain. Any remains of former structures may be of moderate research significance for their ability to provide new evidence regarding the nature and function of the buildings, and the materials from which they were constructed.
F – Rarity	An item possesses uncommon, rare or endangered aspects of the local area's cultural or natural history.	The Stage 1A area does not include any features that are rare within the DNSDC.
G – Representative	An item is important in demonstrating the principal characteristics of a class of NSWs	The Stage 1A area does not include any features that are significant for their representative values.

Criteria	Description	Significance Assessment
	(or the local area's): - cultural or natural places; - -cultural or natural environments.	

7.1.5 Assessment of impact

Detailed design for the Stage 1A area is expected to incorporate:

- Modifications and /or demolition of existing buildings for the container hardstands.
- Construction of new buildings and relocation of existing buildings and associated services modifications associated with the existing / new buildings.
- Infrastructure services (new water, sewerage, trade waste and power) for future connection.
- Proposed new rail corridor, container hardstand and associated services.
- Access roads for reach stacker container handlers and B-doubles.
- Landscape zone.
- Enabling works to provide Defence with replacement infrastructure on its retained leasehold area.

This assessment of potential impacts will assume that Stage 1A of the SIMTA proposal would involve the demolition of all existing structures within the Stage 1A area, excavation for the installation of the rail corridor and new infrastructure services, and potential excavation for the construction of the new buildings.

The proposed enabling works (Figure 36) would include:

- The demolition of pavements, roadways, external areas, and part of an existing stormwater channel directly adjacent to the majority of the eastern boundary of the Stage 1A area.
- The construction of an interface corridor along the eastern boundary of the Stage 1A area, including a new stormwater channel and access road to service retained DNSDC facilities.
- The construction of a new container hardstand area adjacent to the existing container yard located approximately 190 metres east of the Stage 1A area boundary. The new hardstand would be located between Buildings 18 and 33.
- The construction of a new Dangerous Goods facility approximately 200 metres east of the Stage 1A area boundary (adjacent to Building 26).
- If necessary, modifications and upgrades would be made to the existing DNSDC road network to provide compliant access to the new hardstand area and Dangerous Goods facility.
- Modifications to the modern warehouse Building 16, and construction of an improved outdoor lunch area and car park between Building 16 and WWII-era Building 11.

- Modifications to the car park and external areas around the canteen facility to the north of the Stage 1A area.

Impacts of Stage 1A would include:

- The removal of the original road and open drain alignments running through the Stage 1A area.
- Possible impacts to potential archaeological material associated with the former structures that are visible in the Stage 1A area on plans dating from the 1950s to 1980s (Figure 37).
- Possible impacts to underground water mains and sewerage lines visible on a 1958 plan of the site, which probably date to the 1940s (Figure 38).
- Impacts to the setting and context of three WWII-era buildings located close to the north-eastern corner of the Stage 1A area (Buildings 6, 10 and 11) (Figure 35).

No WWII-era buildings would be directly impacted as part of the Stage 1A development, however, the SIMTA proposal would involve indirect impacts to Buildings 6, 10, and 11, which are all WWII timber post and beam store buildings. The proposed enabling works along the eastern boundary of the Stage 1A area would be located only around 2 metres from Buildings 10 and 11.

Construction within the Stage 1A project footprint would impact on the connection between Buildings 10 and 11, their driveways, and the main road that currently runs to the west of the buildings. The existing partial views from Moorebank Avenue to Buildings 10 and 11 would also be obstructed by the proposed construction, however, these views do not currently allow an appreciation of the historical significance of the buildings and their loss would not significantly impact on the heritage value of the DNSDC. Because the Stage 1A footprint is located close to Buildings 10 and 11, the SIMTA proposal would also involve impacts to the views toward these buildings from within the site, while views toward Building 6 would be unaffected. It is also possible that construction and operations in the Stage 1A area and during the enabling works could involve vibratory impacts to the adjacent WWII-era buildings.

The enabling works that are proposed to be undertaken as part of Stage 1A would involve the demolition of part of the 1940s open stormwater channel that runs through the Stage 1A area.

The construction of the proposed new container hardstand and Dangerous Goods facility would not have a significant impact on the heritage significance of the DNSDC. These new features would not interrupt the historical layout of WWII-era buildings or road networks, and would be in keeping with the historical function of the site.

The possible future modifications and upgrades to existing roads that would provide access to the area of the proposed new hardstand and Dangerous Goods facility would be unlikely to have a negative heritage impact. These roads have already been subject to upgrades and modifications since their construction and, provided that no

major changes were made to their alignments, further modifications would not have any impact on the heritage values of the site.

Overall, although it would impact on the setting and historical layout of the south-western side of the DNSDC, Stage 1A of the SIMTA proposal would have a relatively minor impact on the overall significance of the DNSDC.

Any archaeological remains of former structures within the Stage 1A area have the potential to be of moderate research significance and impacts to these remains would have a minor impact on the heritage value of the DNSDC.

Table 10 provides a summary SoHI for the Stage 1A area of the DNSDC.

Table 10: Stage 1A area of DNSDC - SoHI

Impact on a heritage item	Discussion
The following aspects of Stage 1A of the SIMTA proposal respect or enhance the heritage significance of the item or conservation area for the following reasons.	No WWII-era buildings would be directly impacted as part of Stage 1A of the SIMTA proposal.
The following aspects of Stage 1A of the SIMTA proposal could detrimentally impact on heritage significance.	- The removal of the road network and open stormwater channel in the Stage 1A area, which date from WWII. - Impacts on the setting and historical layout of the south-western side of the DNSDC. - Impacts to the setting and context of three WWII-era buildings located close to the north-eastern corner of the Stage 1A area (Buildings 6, 10 and 11). - Impacts to potential archaeological material associated with former structures. These are of moderate research significance. - Probable impacts to underground water mains and sewerage lines visible on a 1958 plan of the site, which probably date to the 1940s. These are of low research significance.
The following sympathetic solutions have been considered and discounted for the following reasons.	n/a

Figure 35: Stage 1A area in relation to existing structures at DNSDC

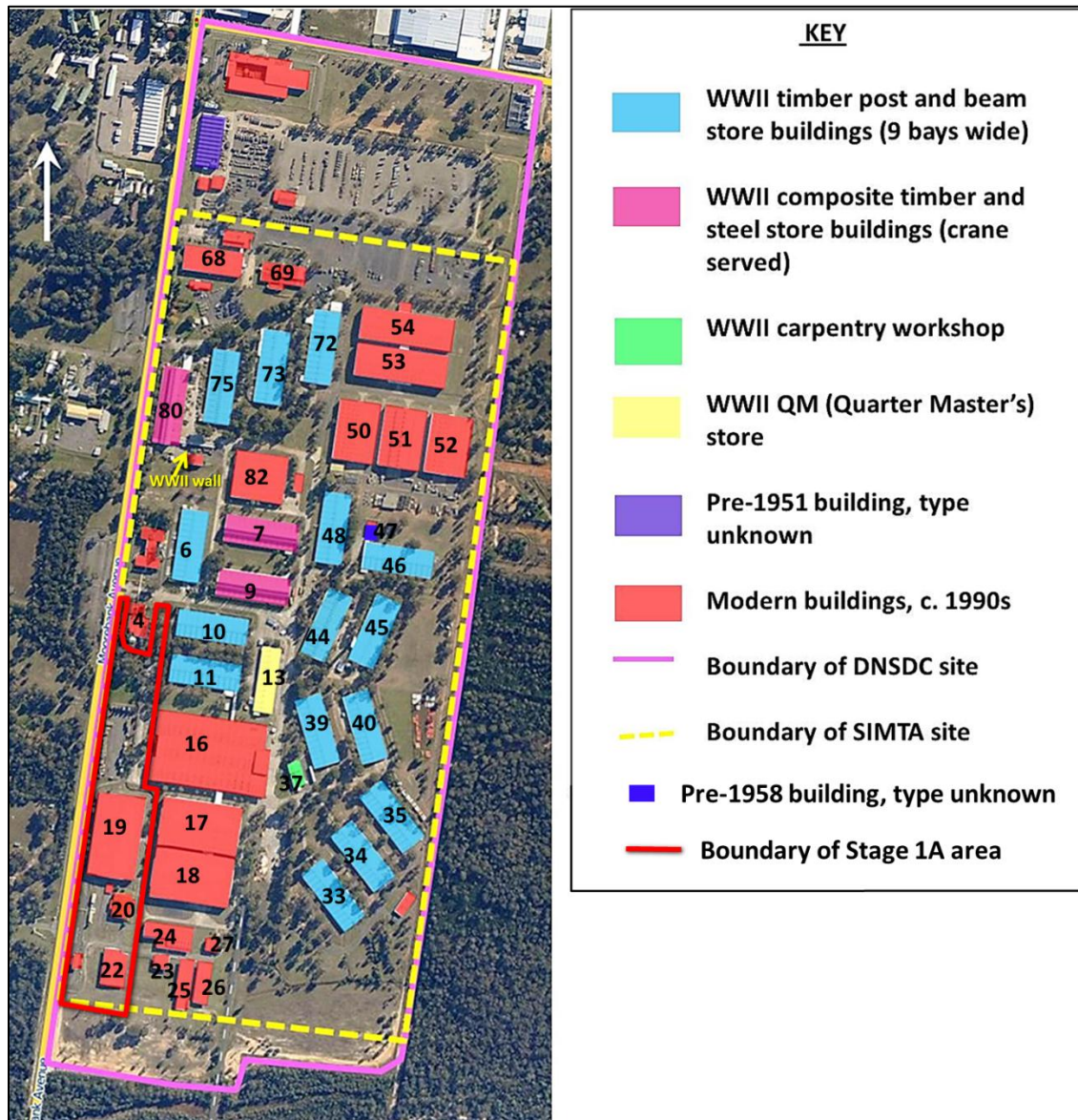


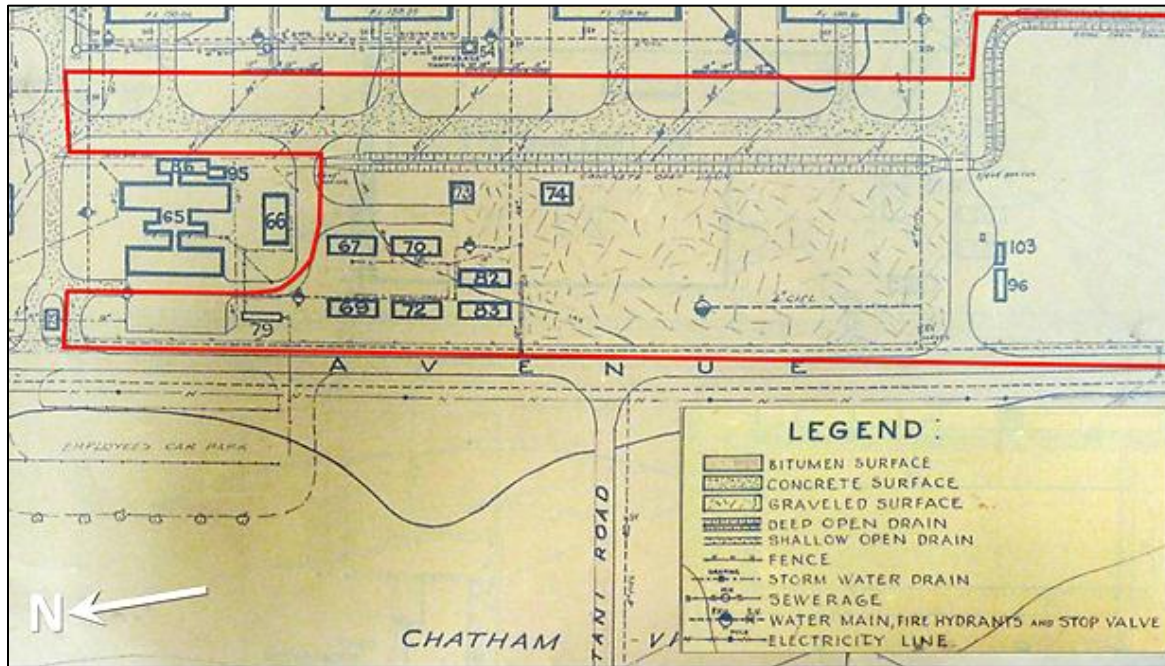
Figure 36: Proposed enabling works (north to left of page)



Figure 37: Stage 1A area in relation to the sites of former structures (Base map – Google Earth).



Figure 38: Stage 1A area in relation to water mains and sewerage lines (1958 plan National Archives CEN1149/FOLDER 64).



7.1.6 Potential mitigation measures

It is impractical to offer mitigation measures for Stage 1A without taking into consideration the probable impacts to the remainder of the DNSDC as part of the subsequent stages of the SIMTA proposal. Rather than attempting to provide separate mitigation measures for the Stage 1A area, it is suggested that a mitigation strategy should be developed for the DNSDC in its entirety, once the nature of the SIMTA proposal has been more adequately defined. This strategy may be based on the potential mitigation options outlined in Table 7 of this report. At the least, mitigation should involve archival and photographic recording of the entire DNSDC, including the Stage 1A area. This recording should be completed for the whole site before Stage 1A commences.

Potential vibratory impacts to the WWII-era buildings adjacent to the Stage 1A area should be monitored, in accordance with any recommendations made in the Construction Noise and Vibration Management Plan that will be developed prior to the commencement of construction.

Archaeological remains of former structures may be present within the Stage 1A area. The remains of former structures have the potential to be of moderate research significance, and it is recommended that archaeological monitoring should be conducted for a representative sample of the sites of former structures (marked in Figure 37) that would be subject to proposed subsurface impacts. Monitoring should be undertaken by a suitable archaeologist with Excavation Director Criteria qualifications.

The archaeologist would assess the likely significance of any archaeological deposits encountered, and provide advice regarding appropriate further action. If highly significant remains were identified during monitoring, it might

be appropriate to conduct further monitoring for additional sites of former structures. A draft research design for this monitoring is included in Appendix A.

Table 11 summarised development and mitigation options for Stage 1A.

Table 11: Development and mitigations options table – Stage 1A DNSDC.

Development option	Likelihood	Significance of impact	Possible mitigation strategies	Summary of mitigation strategy /effect on heritage values
Demolition of existing structures in the Stage 1A area.	High	Impacts to the heritage significance of the site as a whole would be low if only the 1990s buildings were impacted.	Archival recording of the relationship between the 1990s buildings and other structures and features on the DNSDC.	Detailed archival and photographic recording should be undertaken before any changes are made to the site in order collect information on heritage values before they are impacted.
Subsurface impacts.	High	The significance of the impacts will depend on the nature of remains identified within the areas of archaeological potential.	Monitoring of works conducted by an appropriately qualified heritage consultant/archaeologist.	Impacts would be mitigated by archaeological investigation as they would provide a means of recording and interpreting information about the heritage values of the site.
Construction of new buildings.	High	Moderate impact on the setting of three WWII-era buildings (6, 10, and 11), and significant impact to the historical layout of the Stage 1A area. Overall, construction in this area would have a fairly minor impact on the significance of the DNSDC as a whole.	Archival and photographic recording of the Stage 1A area and the settings of Buildings 6, 10, and 11.	Archival and photographic recording would document the existing historical layout of the area and would create a record of the heritage values of the site before it is disturbed.

7.2 The School of Military Engineering (SME)

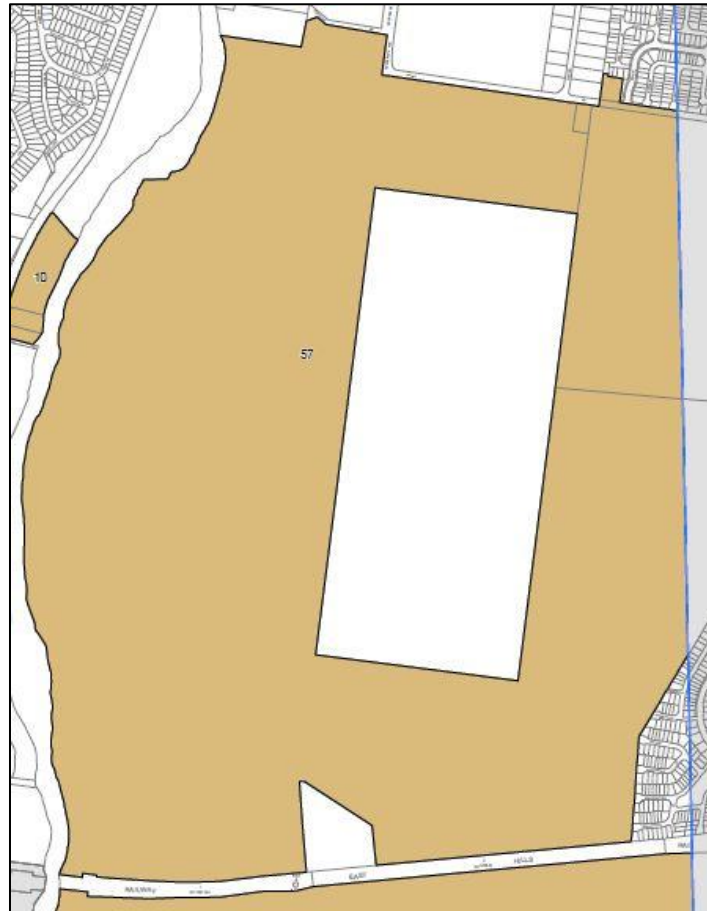
7.2.1 Description

General

The School of Military Engineering is listed on the Liverpool LEP (2008) under its alternate name, the Australian Army Engineers Group (Item 57). This listing notes that the site includes the Royal Australian Engineers (RAE) Memorial Chapel, RAE Monument, Major General Sir Clive Steele Memorial Gates, and The Cust Hut. According to the LEP Heritage map, Item 57 also encompasses most of the land surrounding the DNSDC, between the East Hills railway line and Anzac Road, as well as a building on the north side of Anzac Road (Figures 39 and 40). This

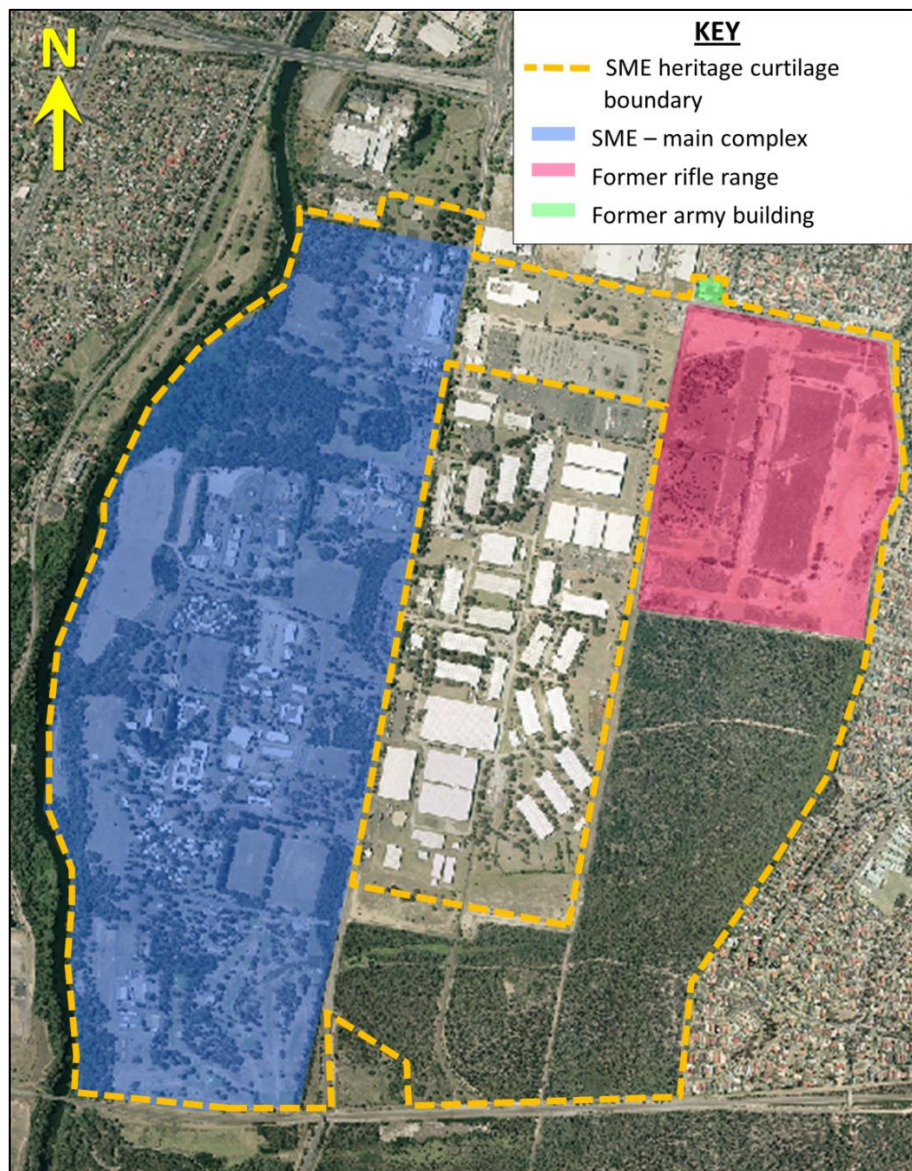
building is not specifically mentioned in the LEP, and is listed separately in the State Heritage Inventory as an ‘Army Building (Former)’.

Figure 39: Detail of Item 57 on Liverpool LEP Heritage Map (Sheet HER_013)



The main complex of the SME covers approximately 220 hectares between the Georges River and Moorebank Avenue. The SME is accessed from Moorebank Avenue and within its grounds is a group of heritage items associated with the Royal Australian Engineers, including the Royal Australian Engineers monument, the Plant Hangar, and the Memorial Chapel. Located at the south of the site is the Royal Australian Engineers golf course, which overlooks the East Hills rail line. The site is currently in use for army training.

The former army building north of Anzac Road is a long, rectangular corrugated iron shed. This building is some distance from the study area and has no views to or from the study area. Consequently, it will not be impacted by the SIMTA proposal.

Figure 40: The locations of features included in Item 57 of the Liverpool LEP (Base map – Six Viewer).

The rest of the land encompassed by Item 57 on the Liverpool LEP listing consists mostly of bushland. Since this land was part of Liverpool's military precinct from 1915 and has remained undeveloped since the 1940s. Plans of the military precinct during the 1940s and 1950s do not show any structures in this area. To the north, between the SIMTA site and the residential development at Wattle Grove, is an area that was used as a rifle range from WWI. Two structures that were visible on an aerial photograph from 1943 are still present within this area.

SIMTA rail corridor area

Approximately four hectares at the southern end of the main SME complex, and around 16 hectares within the vegetated part of the complex (south of the DNSDC), is included in the area of the proposed rail corridor that forms part of Stage 1A of the SIMTA proposal. The southern end of the main complex is part of the RAE golf

course and has been highly disturbed through the creation of the golf course and the existing East Hills railway line that runs along its southern boundary.

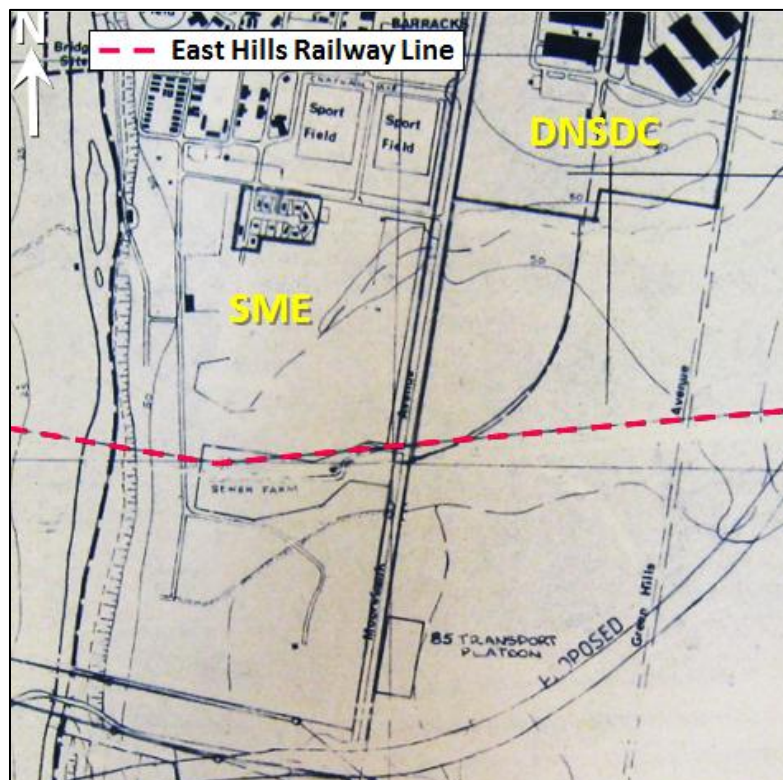
The vegetated area is located between the DNSDC and the East Hills railway line and consists of approximately 29 hectares of native scrub and swampy land. A railway link, dating to the 1970s, runs through the middle of this area, between the DNSDC and the East Hills railway line (Figure 44). The proposed Stage 1A rail corridor encompasses roughly half of this area, from Moorebank Avenue on the west to just beyond the existing railway link on the east.

The proposed rail link itself would only include a narrow strip of land in the vegetated area (approximately 672 metres long and 20 metres wide), before running to the west within the existing East Hills Railway corridor.

7.2.2 Archaeological potential

The southern portion of the main SME complex has low archaeological potential. A plan of the site dating to 1967 (Figure 41) shows that this area was partly occupied by a sewer farm and an associated access road or track, however, it is unlikely that these features would have left any significant material traces. The creation of the sewer farm would probably have disturbed any surviving archaeological material related to the WWI occupation of the Liverpool Military Camp. Furthermore, the area underwent major landscape modification in the creation of the Royal Australian Engineers Golf Course, and the construction of the adjacent railway line. This area has low archaeological potential.

Figure 41: Detail of plan dating to 1967 showing former sewer farm at the southern end of the SME site (National Archives C4177/FOLDER64).



Historical documents related to the DNSDC and SME sites do not record the presence of any structures in vegetated area before or during WWII, and plans from the 1950s, 1960s, and 1970s show that there were no structures here during this period (Figures 42 and 43). The absence of development was probably due to the swampiness of the land (Figure 45). During the 2012 site survey, numerous piles of dumped rubbish were found through the area, most of which were located along a track about 90 metres south of the southern boundary of the DNSDC (Figures 46 and 47). These piles consisted mainly of structural material such as bricks and concrete, but also included broken up bitumen slabs, beer bottles, and various metal objects. None of the visible material appeared to pre-date the mid-20th century and it is likely it was dumped in the area by Defence following the demolition of former structures and roads within the DNSDC. Because this material is disturbed and out of context, it has low research significance and does not warrant further investigation. It is not likely that intact archaeological deposits are present within this part of the study area.

Figure 42: 1952 plan showing area to south of DNSDC (Mitchell Library a4123001).



Figure 43: 1977 plan showing area to south of DNSDC (National Archives C4177/FOLDER64).

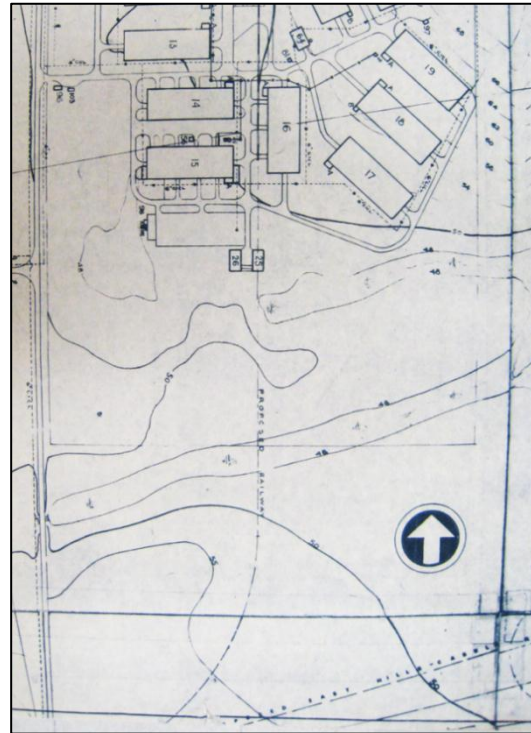


Figure 44: Existing rail link running through vegetated area. Facing south-west.



Figure 45: At southern end of vegetated area – example of swampy ground.



Figure 46: Slabs of concrete and other structural material within vegetated area.



Figure 47: Pile of bricks, roof tiles and other material.



7.2.3 Assessment of significance

Assessment Criteria

The table below outlines a selective summary of the significance assessment detailed in the NSW Heritage Office database entry for the item. It provides a context for the recommendations for the section of the site to be impacted by the SIMTA proposal.

Table 12: SME – Assessment of Significance

Criteria	Description	Significance Assessment
A – Historical Significance	An item is important in the course or pattern of the local area's cultural or natural history.	The site demonstrates the military history of the area and particularly relates to Australia's military engineering history.
B – Associative Significance	An item has strong or special associations with the life or works of a person, or group of persons, of importance in the local area's cultural or natural history.	The site is associated with the Royal Australian Engineers and is a testimony to their contribution to Australia's war campaigns.
C – Aesthetic Significance	An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in the local area.	The site reflects the changing technologies used by the Royal Australian Engineers.
E – Research Potential	An item has potential to yield information that will contribute to an understanding of the local area's cultural or natural history.	There is the potential to gain more information on the site from further architectural, archaeological and documentary research. (This criterion applies to the main complex of the SME, but is not applicable to the portion of the SME that falls within the study area. This portion is of low research potential due to an absence of historical development over most of its area, and high levels of disturbance in those parts that were developed in the past.)
F – Rarity	An item possesses uncommon, rare or endangered aspects of the local area's cultural or natural history.	The site contains a number of war memorabilia that are rare heritage items that reflect Australia's military past.

Statement of Significance

The following statement of significance is taken from NSW Heritage Office database entry for the site:

“The School of Military Engineering demonstrates the military history, particularly the engineering military history of the area. The site encompasses a complex of heritage items that are associated with the Royal Australian Engineers. It traces the evolution of the technologies used by the RAE. Much of the war memorabilia on display is now rare. The site is representative of the RAE's pride in their military past and present. There is the potential to gain more information on the site from further architectural, archaeological and documentary research.”



However, it should be noted that while the SME as a whole is of heritage significance and the main complex is of some research potential, the small portion of the site that falls within the Stage 1A area does not possess significant heritage values and is of low research potential.

7.2.4 Assessment of impact

Stage 1A of the SIMTA proposal involves the construction of an additional rail line which would run through a small part of the SME complex: the vegetated area to the south of the DNSDC. Impacts would be limited to a small portion of the SME site, and would not have any impact on the heritage significance of the item (Figure 48).

Figure 48: SME heritage curtilage (shaded green) in relation to SIMTA proposal

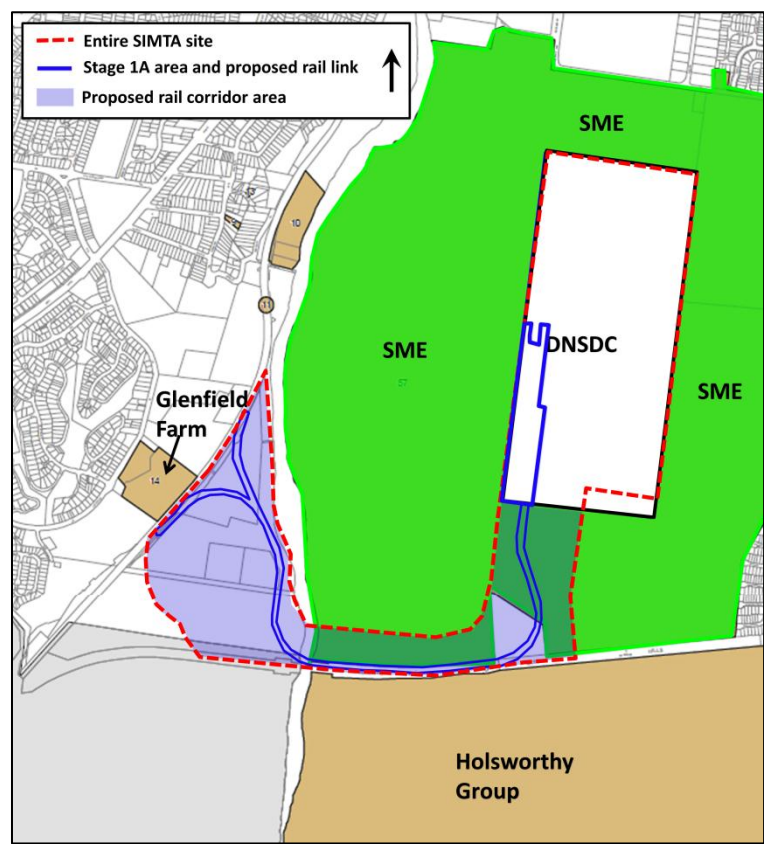


Table 13: Development and mitigations options table – DNSDC south.

Development option	Likelihood	Significance of impact	Possible mitigation strategies	Summary of mitigation strategy /effect on heritage values
Southern section of SME developed as part of the rail corridor.	High	No impacts to heritage significance.	N/A	N/A

7.3 Glenfield Farm

7.3.1 Description

Glenfield Farm is listed on the SHR and is of exceptional historical significance as one of the few surviving rural farm complexes in New South Wales dating from the original land grant of 1810 and still capable of use for family living and limited farming activities. The buildings on the property are located to the western part of the listed area on top of a ridge and contain a 14 room homestead, a dairy, coach house/barn and privy. The land to the east of the site consists of former rural pastures and the original site fencing (NSW Heritage Office n.d. “Glenfield Farm”). The curtilage of the item extends down to the Southern railway line, and is located only around 50 metres from the western extent of the proposed new rail link (Figure 49). The house and farm buildings are located approximately 220 metres from the proposed rail line (Figure 50).

The house overlooks the Glenfield Waste Disposal facility and the Southern railway line.

Figure 49: Detail of Glenfield Farm (Item 14) from Liverpool LEP Heritage map (Sheet_013)



Figure 50: View toward Glenfield Farm from the eastern side of the Glenfield Waste Disposal facility



7.3.2 Assessment of significance

The Statement of Significance included in the NSW Heritage Office database entry for the item states that:

“Glenfield Farm homestead and its outbuildings are of exceptional historical significance as one of the few surviving rural farm complexes in New South Wales dating from the original land grant of 1810 and still capable of use for family living and limited farming activities.

Taken as a whole, the grounds of Glenfield Farm that remain have the capability to demonstrate both the core activities of the farm, and, to a modest degree, the planting tastes, garden layout, and functional requirements of successive occupants. Their approach was, for the most part, pragmatic and utilitarian - as is often the case with dairy farms - and cumulatively the grounds have high heritage significance (sic).

The homestead and garden complex can still be appreciated to some extent in their original relationship with the escarpment and Glenfield Creek valley, as can some of their traditional view prospects.

The place retains its traditional prominence along the ridge from the east, as a local landmark.”

The Conservation Management Plan (CMP) developed for the site in 2002 emphasised the importance of the views to and from the east and recommended that they be retained intact (Mayne-Wilson & Associates 2002:116). The recommended management of the site includes ensuring appropriate controls on areas beyond the estate to the east within the estate's visual catchment. In particular, the scale, height and treatment of the adjacent landfill area (NSW Heritage Office n.d. “Glenfield Farm”).

7.3.3 Assessment of impact

Stage 1A of the SIMTA proposal involves the construction of a rail link from the intermodal terminal, across the Georges River, and through the Glenfield Waste Disposal facility, which would then branch into two lines that would connect with the SSFL now in construction (Figure 51). Potential impacts to the Glenfield Farm SHR item include impacts to its views and setting, and a possible increase in noise from activity along the proposed new rail lines and the SSFL.

The historic structures on the site are located around 220 metres from the south-western branch of the proposed new rail line that would connect with the SSFL, which is currently under construction. Although there is some screening vegetation located within the property, some view lines do exist from the house and barn over the study area, and these vistas were assessed to be significant in the 2002 CMP for the property (Mayne-Wilson & Associates 2002:116). These vistas have already been considerably compromised by the creation of the Glenfield Waste Disposal facility, the construction of the Southern railway line and, particularly, the recent erection of a concrete flyover (known as the Glenfield flyover) to carry the SSFL over the Southern railway line (Figures 52-54).

The built heritage assessment undertaken as part of the SSFL Environmental Assessment did not take into consideration the impact of the SSFL on the historically significant views from Glenfield Farm (Caldis Cook Group 2005:42).

As the views from the property have already been compromised by railway development, it is considered unlikely that the additional rail links proposed as part of Stage 1A of the SIMTA proposal would further impact on the heritage significance of the item.

It is possible that the increased numbers of freight trains travelling along the SSFL and proposed connecting rail lines as a consequence of the intermodal terminal would result in an increase in noise levels. However, existing noise levels from the Southern railway line have already somewhat compromised the historical character of the site, and it is unlikely that the increase in noise levels and train frequency due to the SIMTA proposal would make a significant difference. The Noise Impact Assessment would provide further information on possible impacts of increased noise levels.

Table 14 provides a summary SoHI for Glenfield Farm.

Table 14: Glenfield Farm - SoHI

Development adjacent to a heritage item	Discussion
How is the impact of the new development on the heritage significance of the item or area to be minimised?	The SIMTA proposal would not have a significant negative impact on the current heritage value of Glenfield Farm, as views from the site toward the study area have already been compromised by existing development.
Why is the new development required to be adjacent to the heritage item?	The SIMTA proposal is required to be adjacent to the heritage item because it involves the construction of new rail lines that will connect with the SSFL currently being constructed near the south-eastern boundary of the item.
How does the new development affect views to, and from, the heritage item? What has been done to minimise negative effects?	The construction of two new rail lines as part of the SIMTA proposal is likely to have some negative impact on the views from the heritage item. However, these views have already been significantly compromised by existing development and it is unlikely that the additional rail links would substantially exacerbate the existing situation.
Is the new development sympathetic to the heritage item? In what way?	No.
Will the additions visually dominate the heritage item? How has this been minimised?	The proposed additional railway lines would not visually dominate the heritage item.
Will the public, and users of the item, still be able to view and appreciate its significance?	At present, the most publically accessible views of the item are from Leacocks Lane, to the north-west of the house. The public will continue to be able to view and appreciate the significance of the site from this location.

Figure 5I: Glenfield Farm SHR curtilage (shaded green) in relation to SIMTA proposal.



Figure 52: View from Glenfield Farm barn toward study area.



Figure 53: View toward study area from the rear of Glenfield Farm house.



Figure 54: View toward study area from upstairs window of Glenfield farm house.



7.3.4 Potential mitigation measures

It is possible that measures employed as part of the SSFL project to mitigate the visual impact of the Glenfield flyover may also reduce the potential impacts of the SIMTA proposal. However, the visual assessment report for the SSFL only included general design strategies such as the use of screening vegetation and terracing or earth mounding to soften the impact of the flyover (Caldis Cook Group 2006: 25). The Statement of Commitments for the SSFL does not include any measures specifically intended to mitigate the visual impact of the Glenfield flyover. It is therefore recommended that a commitment be made by SIMTA to plant screening vegetation to soften the appearance of the rail lines from Glenfield House, if this is not done as part of the SSFL mitigation measures.

Table 15: Development and mitigations options table – Glenfield Farm

Development option	Likelihood	Significance of impact	Possible mitigation strategies	Summary of mitigation strategy /effect on heritage values
Two new rail links built adjacent to Glenfield Farm.	High	Minor impact on views from Glenfield Farm, however, these views have already been compromised by existing development.	Screening vegetation should be planted to soften the appearance of the rail lines from Glenfield Farm (if not done as part of the SSFL project).	Screening vegetation would mitigate the potential impact of the SIMTA proposal on views from Glenfield Farm.

7.4 Glenfield Waste Disposal facility – archaeological potential

The proposed Stage 1A rail corridor area runs through the Glenfield Waste Disposal facility, which is located to the west of the Georges River.

Historical plans show that a number of structures were once present within the area now occupied by the waste disposal facility (see Figures 55 and 56). However, the creation of the facility has caused major subsurface disturbance (see Figure 57), and this part of the study area has no archaeological potential. The construction of the proposed rail lines within this area would have no direct impacts on any heritage items or potential archaeological resources, though there may be impacts to the views from Glenfield Farm, as discussed above (Section 7.3.3).



Figure 55: 1906 plan with Glenfield Waste Disposal facility area outlined in pink (Mitchell Library a1528523).

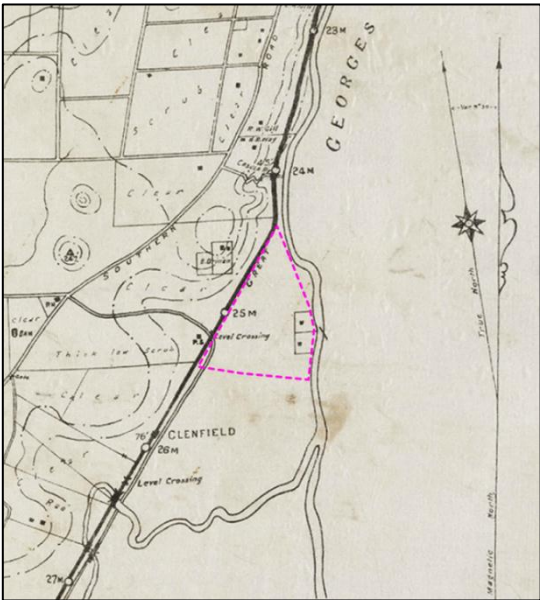


Figure 56: 1952 plan with Glenfield Waste Disposal facility area outlined in pink (Mitchell Library a4123001).

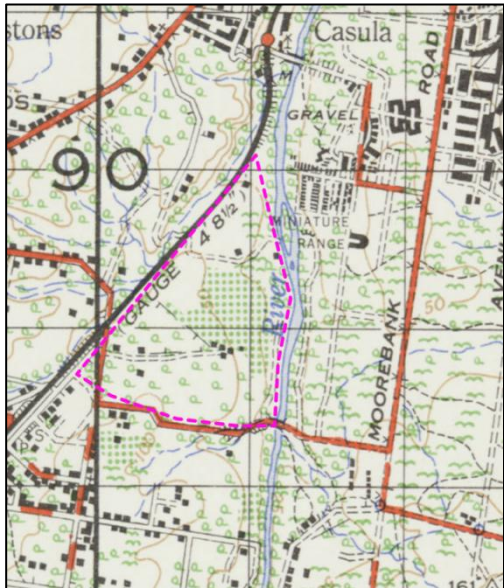


Figure 57: Disturbance within the Glenfield Waste Disposal facility



Table 16: Development and mitigations options table – Glenfield Waste Disposal facility

Development option	Likelihood	Significance of impact	Possible mitigation strategies	Summary of mitigation strategy /effect on heritage values
Construction of rail links through waste disposal facility.	High	No impacts to heritage items or potential archaeological material.	N/A	N/A

8.0 Summary

The findings of this assessment have indicated that there are no heritage constraints on the SIMTA proposal within the proposed rail corridor area (included in Stage 1A of the SIMTA proposal). This area is unlikely to contain items of non-Indigenous heritage significance due to either an absence of historical development, or high levels of disturbance. The heritage listed DNSDC and Glenfield Farm would be impacted to varying degrees by the SIMTA proposal.

Commonwealth Lands – entire DNSDC

The SIMTA proposal would have a significant impact on the heritage significance of the DNSDC, which is currently leased by the Australian Defence Force and is listed on the CHL and protected by the EPBC Act 1999. However, the SIMTA site will only be located within a “Commonwealth Area” for as long as Defence leases the site, and once that lease expires or is relinquished (anticipated to occur in 2017), the SIMTA site would no longer be within a “Commonwealth Area” and the DNSDC would need to be removed from the CHL (s341L EPBC Act). It is possible that the site may then be considered for listing on another heritage register, such as the National Heritage List (NHL) or State Heritage Register (SHR). If either of these listings were to occur prior to the granting of development approval for the SIMTA site, SIMTA would be required to fulfil additional obligations under the relevant heritage legislation.

However, regardless of the statutory context, the heritage values of the DNSDC are known to be high and it is preferable that significant elements of the site are conserved where possible, whether this is through the re-use of the warehouses or the conservation of the most representative samples of the structures.

The SIMTA proposal would have a significant impact on the DNSDC and its heritage values, although a combination of mitigation measures would minimise this impact where practicable. The SIMTA proposal is likely to involve the demolition and/or removal of all or some of the heritage buildings on the DNSDC, the construction of new buildings, and landscape modification through the installation of new water, sewerage, trade waste, and power infrastructure. These changes would impact on the heritage significance of the WWII buildings located at the DNSDC site, although it is likely that these impacts would be mitigated by a combination of conservation, adaptive reuse, and relocation of some of the WWII structures.

If buildings are to be demolished, re-use of heritage fabric within an interpretive context would be appropriate and archival recording would be necessary. While some recording was completed in 2001 (Brooks & Associates 2002:28), updates to this record would be required. The historical landscape context of the site should also be taken into account. Elements such as the alignment of the roads and rail line may be preserved, or embedded through conservation or interpretation in the new development design (Brooks & Associates 2002:28).

It is recommended that a mitigation strategy should be developed for the DNSDC as a whole, once the nature of the SIMTA proposal has been more adequately defined. This strategy may be based on the potential mitigation options outlined in Table 8 and, at a minimum, would involve archival and photographic recording of the entire DNSDC. At the Project Applications stage, at State level, detailed Statements of Heritage Impact will be produced for each stage of the SIMTA proposal, based on the information provided in this, and previous, reports. This report provides the SoHI for Stage 1A.

It is possible that archaeological remains of former structures exist throughout the site, and these have the potential to be of moderate research significance. Recommendations for mitigation and management measures for areas of archaeological potential would be made within the SoHIs for each stage of the SIMTA proposal.

Stage 1A area of DNSDC

No WWII-era buildings would be directly impacted as part of Stage 1A of the SIMTA proposal and associated enabling works; however, there would be significant impacts to the setting and context of three WWII-era buildings located close to the north-eastern corner of the Stage 1A area. It is also possible that construction and operations within this area could involve vibratory impacts to the adjacent WWII-era buildings. The setting and historical layout of the south-western side of the DNSDC would be impacted through the removal of the original road and open drain alignments, and subsurface impacts may affect potential archaeological remains of former structures.

As the Stage 1A area is still leased by Defence, and because the proposed enabling works for Stage 1A would occur within part of the DNSDC while it remains under lease by Defence, the approvals process will need to meet the requirements of the EPBC Act 1999. The Commonwealth EIS, of which this report forms part, must be submitted to Commonwealth Minister for approval. Separate approval must also be sought from the NSW Minister for the Stage 1A project application, under the EP&A Act.

Rather than attempting to provide specific mitigation measures for the Stage 1A area in isolation, this report has suggested that a mitigation strategy should be developed for the DNSDC as a whole, once the nature of the SIMTA development has been more adequately defined. This strategy may be based on the potential mitigation options outlined in Table 8, and, at a minimum, would involve archival and photographic recording of the entire DNSDC. This recording should be completed for the whole site before Stage 1A commences.

Potential vibratory impacts to the WWII-era buildings adjacent to the Stage 1A area should be monitored, in accordance with the Construction Noise and Vibration Management Plan that would be developed prior to the commencement of construction.

It is possible that archaeological remains of former structures exist within the Stage 1A area, and these have the potential to be of moderate research significance. It is recommended that archaeological monitoring should be conducted for a representative sample of these sites, where they would be subject to proposed subsurface

impacts. Monitoring should be undertaken by a suitable archaeologist with Excavation Director Criteria qualifications, who would assess the likely significance of any archaeological deposits encountered, and provide advice regarding appropriate further action. If highly significant remains were identified during monitoring, it may be appropriate to conduct further monitoring for additional sites of former structures. A draft archaeological research design for the monitoring is provided in Appendix A.

Glenfield Farm

Stage 1A of the SIMTA proposal involves the construction of an additional rail line from the intermodal terminal which would run through the Glenfield Waste Disposal facility before branching into two lines that would connect with the SSFL close to the curtilage of Glenfield Farm. Glenfield Farm overlooks this area, however, because the views from the property have already been compromised by railway development and the creation of the waste disposal facility, it is considered unlikely that the additional proposed rail links would have further impacts on the heritage significance of the item.

It is also possible that the SIMTA proposal could result in an increase in noise levels along the rail line near Glenfield Farm. Possible impacts from noise would be addressed in the Noise Impact Assessment for this project.

It is possible that measures employed as part of the SSFL project to mitigate the visual impact of the Glenfield flyover adjacent to Glenfield Farm may also reduce the potential impacts of the SIMTA proposal. However, the Statement of Commitments for the SSFL does not include any specific measures to mitigate potential impacts on Glenfield Farm. It is therefore recommended that a commitment should be made to plant screening vegetation to soften the appearance of the rail lines adjacent to Glenfield Farm, as part of the SIMTA proposal.

Table 17: Summary of Heritage Issues and Actions

Area	Within the study area?	Listing	Actions Required
School of Military Engineering	Yes	Liverpool LEP	None
Glenfield Waste Disposal facility	Yes	None	None
DNSDC	Yes	Commonwealth Heritage List	Submit this report to the Australian Minister for Sustainability, Environment, Water, Population and Communities, as part of EIS for the SIMTA proposal. Further detailed Statement of Heritage Impacts at Project Application stage for different stages of the SIMTA proposal. Develop overall mitigation and management strategy.
Stage 1A area of DNSDC	Yes	Commonwealth Heritage List	Submit this report as part of the EIS to: - Australian Minister for Sustainability, Environment, Water, Population and Communities - Submit SoHIs for staged planning applications at State level.
Glenfield Farm	No	State Heritage Register	Submit SoHIs to NSW Minister for Planning and Infrastructure as part of staged planning applications at

Area	Within the study area?	Listing	Actions Required
		Liverpool LEP	State level. Commit to planting screening vegetation to soften the appearance of the rail lines adjacent to Glenfield Farm.

Overall Stage 1A considerations

A Heritage Management Plan in adherence to NSW Heritage Council guidelines should be prepared as part of the Construction Environmental Management Plan for the Stage 1A proposal. If unexpected finds are located during works the NSW Heritage Council would be notified and an archaeological consultant engaged to assess the significance of the finds. Further archaeological work or recording may be recommended.

9.0 Recommendations

On the basis of background research and a site inspection and adhering to all statutory obligations, it is found that;

- There are no items of known or likely heritage significance within the proposed Stage 1A rail corridor area. The vegetated area to the south of the DNSDC was not subject to historical development, while the remainder of the land has been significantly disturbed through the creation of the RAE golf course, East Hills railway line, and the Glenfield Waste Disposal facility.
- The proposed rail corridor would not have a significant impact on the Glenfield Farm SHR item, as views from the item have already been compromised by the creation of the Glenfield Waste Disposal facility and the ongoing construction of the SSFL.
- The DNSDC is highly significant as a largely intact network of WWII-era buildings, road, drains, and rail sidings. It embodies important national heritage values, as indicated by its inclusion on the Commonwealth Heritage List, and it is necessary to conserve the site's heritage values where possible. The Stage 1A area of the DNSDC does not contain any WWII-era buildings, but does include historical road and drain alignments and contributes to the overall significance of the site.
- The statutory context of the DNSDC is expected to change in the near future, when Defence ceases to lease the site (anticipated in 2017) and it is no longer protected under the EPBC Act. When this occurs, whether the site falls under statutory protection or not will depend on whether the SIMTA site is subsequently listed on the NHL or SHR and thereby becomes subject to the regulatory requirements of the relevant legislation. The actions necessary before heritage impacts can occur at the SIMTA site will depend on the statutory context of the site at the time that approval is sought for each stage of the SIMTA proposal.
- Specific details regarding the potential impacts of the SIMTA proposal on the DNSDC have not yet been finalised, but the SIMTA proposal is expected to involve the demolition or removal of some or all of the WWII buildings, the construction of new buildings, and landscape modification through the installation of new water, sewerage, trade waste, and power infrastructure. These changes would have a major impact on the heritage significance of the site. The SIMTA proposal would impact on the relationships that currently exist between the different buildings, the historical road and rail alignments, and the broader landscape; and the site would no longer retain any visible physical connection to its long military history.
- Within the Stage 1A area of the DNSDC, heritage impacts are expected to include the removal of the original road and open drain alignments, possible impacts to potential archaeological material associated with former structures, impacts to underground water mains and sewerage lines dating to the 1940s, and

significant impacts to the setting and context of three WWII-era buildings located close to the north-eastern corner of the Stage 1A area (Buildings 6, 10 and 11).

- Archaeological remains of former structures may exist throughout the DNSDC (including the Stage 1A area). Such remains have the potential to be of moderate research significance, as they may provide new evidence about the building types present throughout the site and the materials from which they were constructed.

In light of these findings the following recommendations are made:

Commonwealth Lands

- There are no non-Indigenous heritage constraints for the land within the SIMTA rail corridor area including the SME land and the Glenfield Waste Disposal facility.
- There are no constraints on the SIMTA proposal with regard to Glenfield Farm. However, it is recommended that a commitment should be made by SIMTA to plant screening vegetation to soften the appearance of the rail lines adjacent to Glenfield Farm, if this is not done as part of the SSFL mitigation measures.
- A Statement of Heritage Impacts (SoHI) should be produced for each stage of the planning application and approval process, and each SoHI should address the legal status of the site and provide advice on required actions depending on whether or not the site is listed on another heritage register or environmental planning instrument at the time that approval is sought. This report includes the SoHI for Stage 1A of the SIMTA proposal. Each SoHI should also include recommendations regarding specific mitigation and management measures for each stage of the SIMTA proposal, including consideration of built heritage, views and setting, and archaeological resources.
- A mitigation strategy should be developed for the DNSDC as a whole, once the nature of the SIMTA proposal has been more adequately defined. This strategy may be based on the potential mitigation options outlined in Table 8, and, at a minimum, would involve archival and photographic recording of the entire DNSDC. This recording should be completed for the whole site before Stage 1A commences.
- Because approval is being sought at the present time, while the entire area is still leased by Defence, the approvals process will need to meet the requirements of the EPBC Act 1999. The Commonwealth EIS, of which this report forms part, must be submitted to the Australian Government Minister for Sustainability, Environment, Water, Population and Communities (the Minister) for approval.

Stage IA

- Archival recording in accordance with the DNSDC mitigation strategy (to be developed) would be undertaken prior to works commencing.
- Archaeological monitoring should be conducted for a representative sample of the sites of former structures that would be subject to proposed subsurface impacts for Stage IA. Monitoring should be undertaken by a suitable archaeologist with Excavation Director Criteria qualifications, who would assess the likely significance of any archaeological deposits encountered, and provide advice regarding appropriate further action. A draft archaeological research design for the monitoring is provided in Appendix A. If highly significant remains were identified during monitoring, it might be appropriate to conduct further monitoring for additional sites of former structures or test excavations.
- Possible vibratory impacts to the three WWII-era buildings located adjacent to the Stage IA area should be monitored in accordance with any recommendations made in the Construction Noise and Vibration Management Plan that will be developed prior to the commencement of construction.
- A Heritage Management Plan in adherence to NSW Heritage Council guidelines should be prepared as part of the Construction Environmental Management Plan for the Stage IA proposal.
- If unexpected finds are located during works the NSW Heritage Council would be notified and an archaeological consultant engaged to assess the significance of the finds. Further archaeological work or recording may be recommended.

10.0 References

Artefact Heritage (2012) Non-Indigenous Heritage Assessment: SIMTA Part 3A Concept Plan Application.

Australian Heritage Database (<http://www.environment.gov.au/cgi-bin/ahdb/search.pl>) entry: “Defence National Storage and Distribution Centre”.

Brooks and Associates (2002) Heritage Assessment: Defence National Storage Distribution Centre (DNSDC) Moorebank Defence Site, Moorebank.

Caldis Cook Group (2005) Built Heritage Assessment for the Southern Sydney Freight Line. Report to Parsons Brinckerhoff.

Caldis Cook Group (2006) Visual Assessment for the Southern Sydney Freight Line. Report to Parsons Brinckerhoff.

Godden Mackay Logan (1995) First Field Hospital Site, Holsworthy: Archaeological Assessment.

Ludlow, C. & Snowden, C. (1991) History and Significance of the site of the Remount Depot, Holsworthy: Report to the Defence Housing Authority.

Mayne-Wilson & Associates (2002) Conservation Management Plan for Glenfield Farm, 88 Leacock Lane, Casula.

NSW Heritage Branch (2009) Assessing Significance for Historical Archaeological Sites and ‘Relics’.

Nolan, G. (1995) Timber Buildings 1939 to 1945: Report to the Department of Defence.

NSW Heritage Database entries (accessed online):

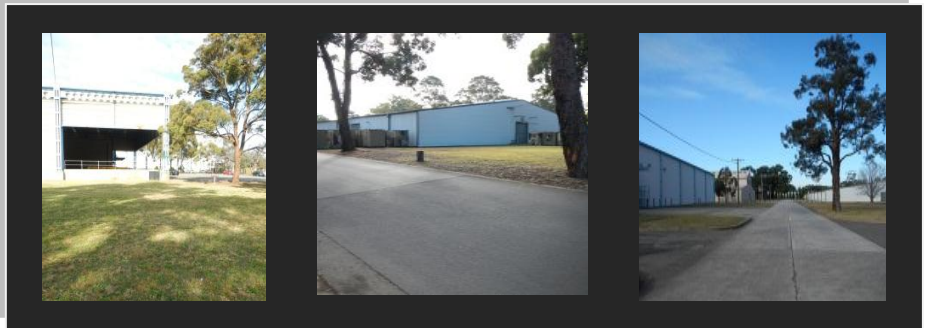
- “Glenfield Farm” (http://www.heritage.nsw.gov.au/07_subnav_04_2.cfm?itemid=5045531)
- “School of Military Engineering” (http://www.heritage.nsw.gov.au/07_subnav_04_2.cfm?itemid=1970180).

Appendix A: Draft Archaeological Research Design for Stage 1A Monitoring

SIMTA Proposal: Stage 1A

Archaeological research design

December 2012



Artefact Heritage
ABN 73 144 973 526
PO BOX 772 Rose Bay
NSW Australia 2029
+61 2 9025 3958
+61 2 9025 3990
office@artefact.net.au
www.artefact.net.au

Contents

1.0	Introduction	4
1.1	Background.....	4
1.2	Study area	4
1.3	Heritage listings.....	4
1.4	Methodology and limitations.....	5
1.5	Report authorship	5
2.0	Historical context.....	6
2.1	History of the site	6
2.2	Contextual analysis: Historical themes	8
3.0	Areas of archaeological potential	9
3.1	Archaeological potential	9
3.2	Research significance.....	9
4.0	Archaeological research design.....	10
4.1	Research questions.....	10
4.2	Methodology	11
4.2.1	Background.....	11
4.2.2	Monitoring.....	12
4.2.3	Recording.....	12
4.2.4	Artefact processing, analysis and storage.....	13
4.2.5	Unexpected finds procedure	13
4.2.6	Reporting	13
5.0	References	14

...

Figures

Figure 1: Sites of former structures in Stage 1A area 11

1.0 Introduction

1.1 Background

In 2012, Artefact Heritage, on behalf of Hyder Consulting and the Sydney Intermodal Terminal Alliance (SIMTA) (a consortium of Qube Logistics and QR National), undertook an assessment of non-Indigenous heritage for the site of SIMTA's proposed intermodal terminal facility and rail link at Moorebank, New South Wales (NSW) (SIMTA proposal). This assessment included a detailed Statement of Heritage Impact (SoHI) for Stage 1A of the proposal, while also assessing potential impacts to Commonwealth Lands and matters of National Environmental Significance (NES) for the SIMTA proposal as a whole.

The SIMTA proposal includes the construction of an intermodal terminal facility located within the current Defence National Storage and Distribution Centre (DNSDC), which would provide container freight distribution and warehousing facilities and would be linked to the Southern Sydney Freight Line (SSFL) via a proposed new rail link. Stage 1A of the SIMTA proposal includes all works within the proposed rail corridor, as well as an area of approximately eight hectares in the south-western corner of the DNSDC. Stage 1A would involve the demolition of existing buildings within the Stage 1A area of the DNSDC, excavation, construction, the installation of new infrastructure services, the creation of additional rail connections, and the erection of a new bridge over the Georges River to carry the proposed new railway line parallel to the existing East Hills railway line. It would also involve enabling works in some parts of the DNSDC that do not fall within the Stage 1A footprint.

The SoHI for Stage 1A of the SIMTA proposal identified some areas of archaeological potential within the footprint of Stage 1A, and recommended that archaeological monitoring should be conducted to mitigate the impacts of the SIMTA proposal on those areas. This archaeological research design has been prepared to guide the proposed archaeological monitoring.

1.2 Study area

The study area is located within the SIMTA site at Lot 1, DP 1048263, on Moorebank Avenue, Moorebank. The Stage 1A footprint is located in the south-west corner of the site.

1.3 Heritage listings

The DNSDC site is listed on the Commonwealth Heritage List (CHL) and is protected under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

• • •

1.4 Methodology and limitations

The methodology used to prepare this report was consistent with NSW Heritage Office guidelines.

This report is based on documentary research and a field inspection undertaken as part of the SoHI for Stage 1A of the SIMTA proposal. It is possible that further historical research may provide additional or contradictory information, and support a different interpretation of the available evidence.

1.5 Report authorship

Archaeologist Adele Anderson wrote this report, with management input from Dr Sandra Wallace.

2.0 Historical context

2.1 History of the site

The site is part of a wider area that was used for military purposes from the early years of Liverpool's settlement, although the development of the site did not begin until WWII.

The association of military activities with the Liverpool district began in the early 1800s, when soldiers were stationed in the area to provide protection to early settlers and to oversee convict work gangs, and a military barracks was constructed at the corner of George and Moore Streets (Brooks and Associates 2002:8).

During the early 1900s, the area north of the SIMTA site hosted several military training camps. These were held annually as part of the 'Easter Encampments', a training programme which also involved camps at Paddington and Goulburn (The Sydney Morning Herald (SMH) 27/3/1906:6). By 1907, a military camp had been established on the eastern side of the Georges River, with a rifle range further south. The land which is currently occupied by the DNSDC formed part of this camp (Brooks and Associates 2002:8).

By 1913, the Liverpool camp accommodated 2000 troops in tents (SMH 3/1/1913:10), and during WWI it became the main training centre in New South Wales. In a plan dated to 1915, Liverpool Camp is shown located between the Georges River and Moorebank Avenue, extending around 1.5 kilometres south from Illawarra Road, which was located in roughly the same position as the present Newbridge Road. To the east of the camp was an area marked 'Stores', which encompassed part of the current DNSDC, while east of the storage area was a rifle range. Initially, new recruits were encamped in long lines of tents on the eastern bank of the river, though these had been replaced with huts by the end of 1916. Military facilities were also established at Holsworthy during WWI, to the east of the study area.

The facilities at Liverpool and Holsworthy continued to be used for military training during the interwar years, although on a much reduced scale, before the beginning of WWII necessitated the nation-wide expansion of sites associated with defence training, manufacture, and storage. In the Liverpool area there was an enormous expansion of army installations, with about 40,000 troops in-training at Liverpool, Holsworthy, and Ingleburn (Department of Defence 'History of the 5th Brigade' http://www.army.gov.au/HQ5BDE/Unit_History.asp. Accessed: 16/7/11)

The School of Military Engineering was established to the south of Liverpool camp in 1939, immediately after the declaration of war. During the war 7,450 students were trained at the school (Liverpool Library Local Studies pamphlet 'The Army at Liverpool'). By 1943, the area of Liverpool camp between the Georges River and Moorebank Avenue accommodated the Armoured Fighting Vehicle Trade Training Centre (AFVTTC), and the

• • •

Australian Electrical and Mechanical Engineers (AEME), while a sub depot had been established on the southern corner of Moorebank Avenue and Anzac Road.

In September 1943, it was proposed that Ordnance Stores should be established at Moorebank for the 5th Australian Base Ordnance Depot (5 Aust. BOD) and by December a plan for the proposed layout of the Ordnance Depot had been drawn up. In January 1944, urgent approval was sought for the construction of four of the proposed storehouses (Numbers 10, 11, 12 and 13) due to a shortage of storage facilities in the area (Letter from Quarter-Master General 11/1/44, NAA: SP459/1, 420/7/1153). Approval was granted in February, and these buildings formed the first construction phase of the depot, now known as the DNSDC (Letter from Quarter-Master General 16/2/44, NAA: SP459/1, 420/7/1153). The completed depot was proposed to include:

- 17 stores (400' x 150' in size).
- Two crane served stores (400' x 150') (for example see Figure 10).
- 19 offices attached to each store (40' x 20').
- One transit store (500' x 83'4").
- Office acc. inside transit store.
- One cinematograph store (60' x 40').
- Two inflammables stores (100' x 50').
- 20, 000 square feet of equipment shelters.
- One traffic control building (18' x 17'8").
- One strong room (50' x 50').
- One Depot Administration building in three blocks (135'4" x 111' combined size).
- One combined garage, service station, fire station, P.O.L store, Tpt office (97' x 25').
- One SW guard house (60' x 20').
- One case making building (3,750 square feet).
- Seven men's latrines.
- Three AWAS latrines.
- Three AWAS latrines and rest rooms.

(NAA: SP459/1, 420/7/1153)

It was intended that the depot would have an ongoing role in peace-time as well as war-time (Letter from Colonel Garnsey 5/4/44, NAA: SP459/1, 420/7/1153).

• • •

In April 1944, the AFVTTC transferred to the Ingleburn army camp and the vacated Liverpool camp buildings to the west of Moorebank Avenue were then used to accommodate the personnel of 5 Aust. BOD, as well as the 8th Australian Advanced Workshops of the AEME, who had been transferred from Bathurst. By 1945, the Australian Women's Army Service (AWAS) was also housed there (NAA: SP459/1, 420/7/1153).

Aerial photographs of the DNSDC show that little change occurred between the late 1940s and early 1990s, when five of the original 20 store buildings (in the south-west corner) were demolished and replaced with larger modern buildings. The remaining 15 store buildings were also reclad at this time, with modern steel sheeting replacing the original asbestos walls and new concrete floors laid (Brooks and Associates 2002:8).

In the early 1990s, the site became the DNSDC, as part of a reorganisation of defence supply services and warehousing arrangements. The DNSDC is the central warehouse for Australia's armed services, and also includes maintenance and engineering facilities (Brooks and Associates 2002:9).

2.2 Contextual analysis: Historical themes

The 'Assessing Heritage Significance' guidelines included in the *NSW Heritage Manual* (NSW Heritage Office 2001) highlight the importance of the relationship between a site and its historical context in the assessment process. The NSW Historical Themes were developed by the Heritage Council of NSW to connect local issues to the broader history of NSW and provide a context in which the heritage assessment criteria can be applied.

A consideration of these themes can aid in assessing the potential research significance of an archaeological site. The following themes have been found to be relevant to the subject site:

Australian Theme	NSW Theme
Governing	Defence
Developing local, regional and national economies	Industry
Developing local, regional and national economies	Transport

Although much research has been conducted into Australia's military history, generally this work has been concerned with accounts of overseas battles and has not paid particular attention to the process of military storage and distribution in Australia, or built heritage related to that process.

The DNSDC site, including standing structures and potential archaeological evidence, would provide information regarding Australia's military response during WWII. Such information could relate to processes of manufacture, transport and storage, as well as the process of planning and constructing a major ordnance depot.



3.0 Areas of archaeological potential

3.1 Archaeological potential

The SoHI for Stage 1A of the SIMTA proposal identified the sites of a number of former structures within the Stage 1A footprint.

On plans from the 1950s, 1960s, and 1970s, two small structures are visible in the area immediately to the north of the present-day Building 19. This area is currently undeveloped. Because the nature of the structures is unknown, it is difficult to assess the likelihood of subsurface remains being present.

The historical plans also show that several small structures were located in what is now a grassed area to the south of the office/canteen building at the entrance to the DNSDC. There were eight structures in plans from 1958 and 1966, three of which had been demolished by 1967. The five remaining structures were present until at least 1981. In the absence of evidence regarding the nature of the structures, it is difficult to assess the likelihood of structural remains surviving beneath the ground surface.

A plan of the site dating to 1958 shows a number of water mains and sewerage lines running through the Stage 1A area, and it is assumed that these are still present. It is likely that these services date from the 1940s.

Overall, there was assessed to be a high potential for archaeological features within the Stage 1A area.

3.2 Research significance

The SoHI stated that any water mains or sewerage pipes within the area would be of low research significance as the locations of these pipes are already known from documentary evidence and the pipes themselves would be unlikely to make a significant contribution to the existing knowledge of the site.

Any archaeological remains of the former structures have the potential to be of moderate research significance, as they may provide new evidence regarding the nature and function of the buildings, and the materials from which they were constructed.



4.0 Archaeological research design

4.1 Research questions

The archaeological monitoring would aim to address the following basic questions related to the nature of the archaeological resource at the site:

- What features or deposits are present?
- What is their nature and extent?
- How intact are they?
- How significant are they?
- Can they be dated?
- How does this evidence compare to the available documentary information?

In addition, the report will also consider more complex research questions based on the relevant NSW historical themes, identified above:

What evidence is there of the Department of Defence's approach to manufacture, storage and distribution during WWII and subsequent years?

Remains of former structures or artefacts near the sites of former structures may provide evidence for the functions of those structures. Such evidence could be interpreted in relation to existing documentary information and the extant structures and features on the site, in order to gain an improved understanding of the arrangement of the site and the relationships between different areas of it.

Is there evidence related to building construction and infrastructure on the site during WWII, and what does this evidence tell us about the response of Defence to the need for rapid mobilisation? Were structures designed to be permanent or temporary?

Remains of former structures and features could provide evidence for the building materials and construction techniques employed. Such evidence may indicate whether the buildings were intended to be permanent or temporary, and whether they were constructed in haste as part of WWII mobilisation efforts.

4.2 Methodology

4.2.1 Background

It is proposed that the archaeological methodology for Stage 1A of the SIMTA proposal will consist of monitoring of a sample of the sites of former structures identified within the Stage 1A area. The locations of former structures within the Stage 1A area are marked in purple on the following image.

Figure 1: Sites of former structures in Stage 1A area



• • •

The potential sites within the Stage 1A area consist of three groups of structures: 6 small rectangular structures located in the north-west corner of the existing grassed area to the south of the canteen building; two small square buildings on the eastern side of the grassed area; and two small buildings to the south of the existing container hardstand area, west of Building 16.

It is proposed that the sample of sites to be monitored should include at least one structure from each of the three groups. This will ascertain whether any evidence for the structures survives, and what the nature of the structures may have been. The methods for monitoring and recording would follow best practice standards, as outlined below.

A supervising archaeologist who is suitably qualified and experienced in historical archaeology and meets the Heritage Council Excavation Director Criteria would be nominated.

4.2.2 Monitoring

Archaeological monitoring will occur in accordance with the construction timetable for Stage 1A. The nominated archaeologist will monitor the proposed excavation works in order to record any significant archaeological material uncovered.

Excavation would be undertaken by the contractors in a controlled manner under the supervision of the archaeologist, in order to determine whether archaeological remains are present. Control measures will be determined by the archaeologist and are likely to include the removal of soil in scrapes of a set depth determined by the archaeologist (eg. 20cm deep), using a smooth edged mud bucket. This would minimise damage to potential archaeological deposits. The archaeologist would monitor the works and would have the authority to halt excavations to examine the trenches.

If substantial, intact or significant archaeological features, deposits and/or relics of potentially State significance are uncovered, construction would cease and the NSW Heritage Branch would be contacted.

4.2.3 Recording

If relics, features or deposits are encountered, work would stop to allow them to be inspected by the archaeologist. The following steps would then be taken:

- A survey datum would be established to record the location of the relics, features or deposits.
- Hand excavation would be undertaken as required to better define the feature.
- Stratigraphic units and their relationships to each other would be recorded.
- Scaled plans, cross sections, and Harris Matrices would be drawn, as necessary.
- All phases of monitoring and recording would be photographed with a photographic scale, and a log kept of the photographs taken.

• • •

- A context recording form would be completed for each stratigraphic unit, on which the unit would be numbered, and its location, dimensions and characteristics recorded.
- Artefacts would be bagged and labelled according to the stratigraphic unit in which they were found.

If no archaeological material is encountered during monitoring, then only a simple location plan and photographic record of the excavation would be required to document the work.

4.2.4 Artefact processing, analysis and storage

Any artefacts recovered would be cleaned on-site, sorted according to fabric type, bagged and labelled with contextual information, and boxed. Following the completion of works, discussions would be held between SIMTA and the Heritage Branch to determine whether further analysis, conservation, or other measures are required, based on an assessment of the significance of the artefacts. This discussion would also include consideration of an appropriate repository for any artefacts recovered.

It is common during archaeological excavation for artefacts of low significance (e.g. from disturbed contexts) to be collected. Following the analysis of the artefacts, any artefacts from disturbed contexts of that are not of Local or State significance will be disposed of.

4.2.5 Unexpected finds procedure

If unexpected finds are encountered elsewhere within the Stage 1A area when the archaeologist is not present, all works in the immediate vicinity of the identified deposits must stop and the nominated archaeologist must be contacted. The archaeologist will then either assess the likely significance of the find based on information sent to them online (e.g. photos or video), or visit the site to inspect the find in person.

Based on their assessment they will then either authorise work to continue or undertake further investigation in order to determine the significance of the find. The archaeologist will also contact the Heritage Branch to notify them of the find. If the find is significant, the archaeologist will also seek advice from the Heritage Branch regarding appropriate further action or required approvals.

4.2.6 Reporting

On the completion of works, the archaeologist will prepare an archaeological monitoring report, including the results of the excavation and any artefact analysis, as well as any additional historical research undertaken to inform an interpretation of the recorded material. This report will be prepared in accordance with the *NSW Heritage Manual* and a copy will be submitted to the Heritage Branch.

• • •

5.0 References

Artefact Heritage (2012) *SIMTA EIS: Non-Indigenous Heritage Impact Assessment Report (Draft)*. Report to Hyder Consulting and SIMTA.

Brooks and Associates (2002) *Heritage Assessment: Defence National Storage Distribution Centre (DNSDC) Moorebank Defence Site, Moorebank*.

NSW Heritage Branch (2009) *Assessing Significance for Historical Archaeological Sites and 'Relics'*.