5.2.3 Historical archaeological management units

In order to facilitate the management of archaeology the individual project footprints have been subdivided into discrete parcels of land referred to as HAMUs. The division of HAMUs takes into consideration factors such as the nature of the archaeological profile, the assessed level of archaeological potential, and existing geographic factors that create discrete parcels such as existing roads which impact on management recommendations. The Leichhardt, Rozelle, Iron Cove and Annandale project footprints have been divided into 11 separate HAMUs and each is described separately below in **section 5.3** to **section 5.8**. As the Haberfield and St Peters project footprints have been previously assessed, no further recommendations for archaeological management have been developed as part of this assessment.

An assessment of archaeological survival within each HAMU has been undertaken which compares past activities and events which may have resulted in the creation of archaeological remains against previous developments which are likely to have impacted or removed these remains. Based on this assessment the potential for archaeological remains to survive within each HAMU has been designated as either nil, low, moderate or high.

Following the assessment of potential archaeology for the individual HAMUs, a preliminary heritage significance assessment for each one has been undertaken. Each HAMU has been ascribed either local or state heritage value in relation to their archaeological resources. Archaeological resources should be managed in accordance with their heritage significance. Each HAMU and its archaeological potential has been mapped, as shown in **Figure 5-2** to **Figure 5-9**.

5.3 Area 1 – Haberfield/Ashfield (C1–C3)

The archaeological potential and significance of the area that would comprise construction ancillary facilities for Option A has been previously assessed under the M4 East project (GML September 2015[112]) and all archaeological remains were managed during these works. As outlined in **section 2.4.1**, for the purpose of this assessment it has been assumed that the proposed construction works associated with M4 East within this study area have been completed and any mitigation measures relating to impacts on archaeological remains have been implemented.

As the proposed works assessed under this report comprise the internal fitout of the ventilation facility, continued use of existing construction compounds and tie ins with the underground stub tunnels constructed as part of the M4 East project only, it is considered that these works would not result in any impacts to archaeological remains within the study area and no further assessment for the Haberfield under Option A has been undertaken.

The project footprint for Option B contains construction ancillary facilities at Haberfield and Ashfield which have not previously been subject to assessment. These are the Parramatta Road West civil and tunnel site (C1b) and Parramatta Road East civil site (C3b). The two sites are separated by Parramatta Road, which runs approximately north-south. The land slopes gently to the southwest, with most construction stepped to this slope. The Haberfield civil site (C2b) has been previously assessed by the M4 East project and is therefore not reported on below.

The following observations were made in regard to the physical conditions within the Haberfield/Ashfield Option B project footprint which informs the assessment of potential for archaeological deposits:

- Generally, the study area has been cleared of any previous development for the construction of the commercial development that comprises most of the sites
- New buildings along the western boundary of the project footprint have been cut into the original slope, to create a second storey at the rear of the blocks fronting Parramatta Road
- One section of the early twentieth century development remains, with two storey shopfronts remaining at 244-250 Parramatta Road, on the corner of Bland Street
- The original house at 266 Parramatta Road is extant, behind a modern shopfront building.

5.3.1 Site land use history

In addition to the site investigation, a desktop analysis of historical aerial photographs and plans has been undertaken to identify historic developments within the project footprint which may have had an impact on the survival of archaeological remains, but which may no longer be visible in the current landscape. The impact of the recent and historic developments is set out in **Table 5-1**. Collectively, these developments have resulted in disturbance across the project footprint. HAMUs within this project footprint are shown in **Figure 5-1**.

Table 5-1 Summary of past disturbance

Past developments	Nature of past disturbance	Level of disturbance
Late nineteenth/early twentieth century buildings – basement excavation	Disturbance of agricultural landscape features, fencelines	Moderate to high – Construction activities are likely to have caused significant disturbance to the ephemeral remains of early land clearing and agricultural land use.
Late twentieth century buildings – building foundations, cutting and levelling	Surface clearing and localised impacts resulting from excavation for building foundations.	Moderate to high – localised areas of complete disturbance where the slope from Parramatta Road means that excavation for two storey buildings has completely removed archaeological remains towards the western edge of the project footprint. There is potential for deposits to survive below concrete slabs or between deeper building footings.
Services	Excavation for services (water, gas, sewage) will have completely removed any remains within the trench footprint.	Moderate – localised areas of complete disturbance in particular along Parramatta Road.
Construction of roads – Parramatta Road	Construction and maintenance of road way.	Low to moderate – resurfacing and upgrades to the road surface is likely to have impacted on earlier road surfaces.

Figure 5-1 Historical Archaeological Management Unit within the Haberfield/Ashfield (Option B) project footprint (showing HAMU 1)

(Source: GML Heritage)

5.3.2 Archaeological potential and significance

The Haberfield/Ashfield project footprint consists of one HAMU which has potential for archaeological remains which do not meet the threshold for local significance.

HAMU 1 – Haberfield/Ashfield

HAMU 1	Haberfield/Ashfield
Listed archaeological items	There are no heritage register listings for potential historical archaeological resources within Haberfield/Ashfield HAMU 1.

HAMU 1	Haberfield/Ashfield
Archaeological potential	There is moderate or high potential for archaeological evidence to be present associated with the following: · Late 19th to early 20th century building footings · Early 20th century services beneath road surfaces and footpaths. There is low potential for archaeological evidence to be present associated with the following: · Early to mid-19th century property boundaries and garden/agricultural remains.
Significance assessment	Preliminary assessment against the NSW Heritage Criteria for *Assessing Significance for Historical Archaeological Sites and 'Relics'* (2009). Archaeological research potential: · Archaeological remains relating to the residential occupation of the study area are unlikely to provide information that is not available from other sites and sources due to the limited potential for artefact bearing deposits · Remains associated with the early 20th century early land clearance and farming of the site would have limited research value for their ability to supplement our knowledge of land uses prior to residential subdivision. Association with individuals, events, or groups of historical importance: · No historical associations have been identified at this stage. Aesthetic or technical significance: · The archaeological remains would not demonstrate aesthetic or technical significance. Ability to demonstrate the past through archaeological remains: · Archaeological remains have limited ability to demonstrate aspects of the past, including daily life of residents, or early settlement and farming practices.
Significance level	Nil – does not meet the threshold for significance.
Heritage impact assessment	Proposed works within the Haberfield/Ashfield HAMU include: · Site establishment and enabling works · Tunnelling and tunnelling/construction support activities · Surface earthworks and structures · Finishing works. The proposed works are likely to entail deep excavations associated with tunnelling activities. However, as there are unlikely to be significant archaeological remains in this HAMU, the proposed works are considered to have no heritage impact.
Mitigation measures	No further archaeological investigation required. An unexpected finds procedure should be implemented if archaeological remains are identified.

5.4 Area 2 – Leichhardt (C4)

The Darley Street project footprint is oriented around the alignment of the former Goods Line, which has resulted in significant modifications to the landscape. The topography of this area slopes steadily downwards from east to west across the project footprint towards Hawthorne Canal. The gradient of the slope is visible looking west along Darley Road.

The following observations were made in regard to the physical conditions within the Darley Road project footprint which informs the assessment of potential for archaeological deposits:

- In the eastern half of the project footprint the rail corridor has been cut into the original landform (sandstone bedrock) to create a level surface along which to lay the rail line. The edges of the cutting are visible beneath the staircase providing access to the Leichhardt North light rail stop outside the northeast boundary of the project footprint and on the northern side of the rail line. Within the project footprint itself, evidence of the reduction of the former ground surface is visible along the southern edge of the eastern car park
- Along the northwest boundary of the project footprint the rail line has been raised up on an earthen embankment to convey the rail line across the Charles Street Bridge. The southern edge of the embankment extends into the project footprint and is supported by a concrete retaining wall
- The open yard/car park in the western third of the project footprint appears to have undergone limited modification resulting from development impacts. The natural slope is still evident in this area and there is no visible evidence of cutting and/or levelling works. A stormwater grate visible on the southern edge of the yard/car park is likely to feed into the stormwater drain which runs along the southern boundary of the project footprint
- The existing c1960s brick warehouse contains a basement level occupying about 40 per cent of the building footprint. The line of windows visible along the lower edge of the building shows the approximate extent of the basement. Construction of the basement will have cut into the existing slope of the site in the eastern half of the building footprint
- The corrugated steel warehouse in the centre of the project footprint is founded on a concrete slab which extends the entire building length
- A stormwater culvert is visible in the southeast corner of the project footprint. The project footprint for the culvert was not visible within the existing landscape. However, excavation for the culvert will have disturbed any remains within the service trench footprint.

The site investigation for this assessment was undertaken in 2016, prior to the refurbishment of the commercial building.

5.4.1 Site land use history

In addition to the site investigation, a desktop analysis of historical aerial photographs and plans has been undertaken to identify historic developments within the project footprint which may have had an impact on the survival of archaeological remains, but which may no longer be visible in the current landscape. The impact of the recent and historic developments is set out in **Table 5-2**. Collectively, these developments have resulted in a moderate to high degree of impact across the project footprint indicating that much of the area has been heavily disturbed. HAMUs within this project footprint are shown in **Figure 5-2**.

Table 5-2 Summary of past disturbance

Past developments	Nature of past disturbance	Level of disturbance
Railway Goods Line	Excavation of sandstone bedrock, and levelling of ground surface for construction of the railway goods line.	High – the eastern half of the Darley Road project footprint lies below the surrounding street levels with areas of exposed bedrock visible indicating the high level of impact resulting from this work.
Early twentieth century reclamation	Filling and levelling within waterfront and estuary areas.	Low to moderate – the filling process may have caused some disturbance, such as the demolition of earlier structures, but their subsurface remains are likely to be present.
Twentieth century warehouses	Excavation and levelling to create a level surface for construction of the existing building.	High – the lower floor of the warehouse has been cut into the natural slope of the site and will have completely removed any earlier remains within the building footprint.

Past developments	Nature of past disturbance	Level of disturbance
Stormwater drainage system	Excavation for the stormwater culvert and pipe trenches.	High – construction of the culvert and excavation for the pipes, visible in the eastern half of the Darley Road project footprint, will have completely removed any deposits within the individual trench footprint/s.
Construction of Hawthorne Canal	Reclamation for the construction of the Hawthorne Canal	High – filling and levelling of the natural creek bed
Services– excavation for service trenches	Excavation for services (water, gas, sewage) will have completely removed any remains within the trench footprint.	Moderate – localised areas of complete disturbance.

Figure 5-2 Historical Archaeological Management Unit within the Leichhardt (Darley Road) project footprint (showing HAMU 2)

(Source: GML Heritage)

5.4.2 Archaeological potential and significance

The Darley Road project footprint consists of one HAMU. HAMU 2 is assessed as having no potential to contain archaeological remains.

HAMU 2 – Darley Road

HAMU 2	Darley Road
Listed archaeological items	There are no heritage register listings for potential historical archaeological resources within Darley Road HAMU 2.
Archaeological potential	There is nil potential for archaeological evidence to be present in the project footprint. Archaeological evidence associated with remains of 1890s houses will have been completely removed by more recent developments within the site as outlined in **Table 5-2**.
Significance assessment	Preliminary assessment against the NSW Heritage Criteria for Assessing Significance for Historical Archaeological Sites and 'Relics' (2009). Archaeological research potential: · Archaeological remains are not expected to survive in this HAMU and there is no research potential. Association with individuals, events, or groups of historical importance: · No historical associations have been identified at this stage. Aesthetic or technical significance: · The archaeological remains would not demonstrate aesthetic or technical significance. Ability to demonstrate the past through archaeological remains: · Archaeological remains are not expected to survive in this HAMU.
Significance level	Nil – does not meet the threshold for significance.
Heritage impact assessment	Proposed works within the Darley Road HAMU include: · Site establishment and enabling works · Tunnelling · Drainage · Finishing works · Construction of a motorway operations complex including a permanent water treatment plant. The proposed works are likely to entail deep excavations associated with tunnelling activities. However, as previous developments within this HAMU are anticipated to have completely removed any archaeological remains, the proposed works are considered to have no impact on significant archaeological remains
Mitigation measures	No further archaeological investigation required. An unexpected finds procedure should be implemented if archaeological remains are identified.

5.5 Area 3 – Rozelle, Lilyfield and Annandale (Rozelle Rail Yards, The Crescent, Rozelle Bay and Victoria Road) project footprint (C5, C6 and C7)

The following observations were made in regard to the physical conditions within the Rozelle, Lilyfield and Annandale (Rozelle Rail Yards, The Crescent, Rozelle Bay and Victoria Road) project footprint which informs the assessment of potential for archaeological deposits:

- Most of the project footprint has been artificially modified by historic development which is evident in the current layout of the area
- Sections of exposed sandstone bedrock along the northern boundary of the Rozelle Rail Yards, and within the White Bay Power Station site indicate that these sections of the project footprint have been quarried to facilitate historic developments which will have had an impact on the survival of archaeological remains
- Easton Park is relatively level, although there is a gradual slope towards Lilyfield Road on the southern edge of the park. The park dips downwards around the edges towards the playing field which occupies the centre of the park
- The light industrial area on the southern side of Lilyfield Road is occupied by single and two storey warehouses that will be demolished as part of the project. A canalised stormwater channel runs west to east bisecting the area. Exposed sandstone bedrock was observed within this area suggesting that construction of the existing buildings is likely to have resulted in a certain amount of cutting and/or filling which will have impacted on the survival of archaeological remains
- The parkland areas situated on the northern side of City West Link and the eastern part of Victoria Road leading to Anzac Bridge makes up a small per cent of the project footprint. This portion of the project footprint is low-lying in relation to the surrounding areas and relatively level. The parkland comprises grassed areas, extensive bitumen surfaces, and sections of disused rail track, in particular within the White Bay Power Station site
- The Rozelle foreshore area is generally covered by concrete hardstands, with timber wharves south of James Craig Road, and a stone seawall and concrete slips along The Crescent
- The project footprint contains a number of multi lane roads including the City West Link, The Crescent, Anzac Bridge and Victoria Road. Construction of these intersections have required cutting and filling of the natural topography. The roadways consist of bitumen road surfaces, concrete kerbing and islands, and infrastructure including signage, lighting, footpaths and footbridges, and street plantings
- Whites Creek has been enclosed in a concrete channel with grassed public parklands along the southern boundary, and mature trees along the northern edge.

5.5.1 Site land use history

Evidence from the site investigation and a desktop analysis of historical aerial photographs and plans have been combined in order to identify the main developments within the project footprint that are likely to have impacted on earlier archaeological remains. The cumulative impacts of the recent and historic developments are set out in **Table 5-3**. The impacts of previous developments within the Rozelle project footprint has resulted in localised areas with a moderate or high potential for archaeological survival. Across most of the central and eastern sections of the Rozelle project footprint previous impacts such as quarrying, or cutting and levelling for the construction of roads and buildings has resulted in the removal of any archaeological remains. HAMUs within this project footprint are shown in **Figure 5-3**.

Table 5-3 Summary of past disturbance

Past development	Nature of past disturbance	Level of disturbance
Progressive reclamation	Multiple phases of filling and levelling within waterfront and estuary areas.	Moderate – the filling process may have caused some disturbance, such as the demolition of earlier structures, but their subsurface remains are likely to be present.
Quarrying and cutting sandstone	Excavation of sandstone bedrock, and levelling of ground surface.	High – the difference in ground levels between Lilyfield Road and the original shoreline means that excavation for the rail yards and industrial buildings is likely to have had a higher degree of impact towards the northern edge of the project footprint.
Construction of modern roads, Victoria Road, City West Link, Western Distributor	Demolition of previous structures and any earlier deposits, and earlier street alignments for new, upgraded or wider roads.	High – the construction of the modern road network within the project footprint has required varying levels of excavation for the creation of underpasses and stable road base.
Eighteenth and nineteenth-century buildings	Surface clearing and some excavation for footings.	Low – generally they were the first substantial structures built on the site and did not impact evidence of prior European settlement.
Twentieth century buildings–cutting and levelling	Demolition of pre-existing buildings and complete removal of any earlier deposits.	Moderate to High – the changing ground levels within the project footprint means that most modern buildings have been cut in to the bedrock, removing evidence of earlier occupation.
Infrastructure and services–excavation for service trenches	Excavation for services (water, gas, sewage) and infrastructure (trams on Lilyfield Road) will have completely removed any remains within the trench footprint.	Moderate – localised areas of complete disturbance.

Figure 5-3 Historical Archaeological Management Units within the Rozelle, Lilyfield and Annandale (Rozelle Rail Yards, The Crescent, Rozelle Bay and Victoria Road) project footprint (showing HAMUs 3 to 7)

(Source: GML Heritage)

5.5.2 Archaeological potential and significance

Based on the level of archaeological potential and management requirements, five separate HAMUs have been delineated within the Rozelle project footprint (HAMUs 3 to 7). HAMUs 3 and 6 are considered to have a high degree of archaeological potential. HAMUs 4 and 5 are considered to have some potential for archaeological remains which do not meet the threshold for significance, and do not require ongoing management. HAMU 7 has known archaeological remains associated with the state significant White Bay Power Station. Areas of archaeological potential within HAMUs are shown in **Figure 5-3** to **Figure 5-6**.

This assessment has not included any impacts on archaeological remains which may arise during the site management works at the Rozelle Rail Yards. The impacts of these works have been previously assessed and are not considered further in this report.

HAMU 3 – Lilyfield Road and Gordon Street

HAMU 3	Lilyfield Road and Gordon Street
Listed archaeological items	No heritage register listings specifically reference the significance of the potential historical archaeological resource within the Lilyfield Road and Gordon Street HAMU.
Archaeological potential	There is moderate potential for archaeological evidence to be present associated with the following: · Early residential occupation on Gordon Street (circa 1860–1915) such as structural remains and artefact deposits

HAMU 3	Lilyfield Road and Gordon Street
	· Previous phases of industrial activity at the site, including associated artefact deposits or structural remains. There is high potential for archaeological evidence to be present associated with the following: · Reclamation activities of the Rozelle foreshore prior to 1890. Most sites or features in this HAMU are likely to have been disturbed by the quarrying of the sandstone bedrock along the property boundary with Lilyfield Road, with the exception of the driveway areas of the industrial developments at 92–94 Lilyfield Road and 80–84 Lilyfield Road.
Significance assessment	Preliminary assessment against the NSW Heritage Criteria for Assessing Significance for Historical Archaeological Sites and 'Relics' (2009). Archaeological research potential: · Archaeological remains in this HAMU relating to early residential development may have low research potential depending on the nature and extent of the remains. · Archaeological remains in this HAMU relating to the establishment and development of industrial activities, including reclamation, may have moderate to high research potential depending on the nature and extent of the remains. Association with individuals, events, or groups of historical importance: · May have historical associations, particularly with former residents, but specific associations have not been identified at this stage. Aesthetic or technical significance: · There is no clear indication in historical records examined to date to establish whether or not archaeological remains would have aesthetic/technical significance. Ability to demonstrate the past through archaeological remains: · Structural and artefact deposits relating to the early residential development on Gordon Street have the potential to provide information relating to the lives of residents in the first phases of industrialisation in Rozelle. · Remains of industrial activities, including the reclamation of the foreshore have the potential to provide information about the earliest phases of industrialisation in the Rozelle area, prior to the construction of the Rozelle Rail Yards.
Significance level	Local
Heritage impact assessment	Proposed works within the Lilyfield Road and Gordon Street HAMU include: · Site establishment and enabling works · Tunnelling · Surface earthworks and structures · Drainage · Pavement · Operational Ancillary facilities · Finishing works. Much of the works in this HAMU may require deep excavation in areas where archaeological deposits are likely to be present, and in the location of the known

HAMU 3	Lilyfield Road and Gordon Street
	stormwater drain. Extensive ground disturbance of this kind will have a major adverse impact on any archaeological remains which may be present. Activities associated with surface earthworks, drainage, and finishing works (such as service installation, installation of bridge foundations and landscaping) would have more localised impacts on the historical archaeological resource. These works are likely to have a minor to moderate adverse impact on the potential historical archaeological resource, depending on the location, extent and nature of the proposed works.
Mitigation measures	Mitigation measures as outlined in **Chapter 8** for locally significant historical archaeology would apply including: · Further developing mitigation methodologies for the management of impacts on known and potential locally significant historical archaeological resources · Preparing a Historical Archaeological Research Design (HARD) · Developing a methodology and scope for a program of test excavation · Undertaking an archaeological excavation program including salvage.

Figure 5-4 Areas of archaeological potential within HAMU 3

(Source: GML Heritage)

HAMU 4 – Victoria Road, City West Link, The Crescent and vicinity

HAMU 4	Victoria Road, City West Link
Listed archaeological items	No heritage register listings specifically reference the significance of the potential historical archaeological resource within the Victoria Road, City West Link HAMU.
Archaeological potential	There is low potential for archaeological evidence to be present associated with the following: · Early residential occupation on Weston Road and Abattoir Road (c1860–1915) such as structural remains and associated artefact scatters · Early road alignments of Weston Road and Barnes Street predating the 1960s upgrades to Victoria Road, and alignment of Abattoir Road prior to construction of Rozelle Rail Yards and White Bay Power Station · Evidence of reclamation and modifications of the Rozelle Bay foreshore, including. There is moderate potential for archaeological evidence to be present associated with the following: · Subsurface structural remains, and basement of the former White Bay Hotel site foundations · Reclamation activities of the Rozelle foreshore prior to 1890, including early stages of bridging Glebe Island, and channelization of Whites Creek, reclamation fills, and structures such as revetments or slips. Most sites or features in this HAMU are likely to have been disturbed or destroyed by the sandstone quarrying for the construction of the Rozelle Rail Yards and White Bay Power Station, and late twentieth century developments, or by the construction of major roadways and the installation of associated services. Remains of the White Bay Hotel may have been extensively disturbed by the fire which destroyed the hotel, and subsequent demolition.

HAMU 4	Victoria Road, City West Link
Significance assessment	Preliminary assessment against the NSW Heritage Criteria *for Assessing Significance for Historical Archaeological Sites and 'Relics'* (2009). Archaeological research potential: · Archaeological remains in this HAMU have low research potential due to the level of anticipated disturbance · Archaeological remains relating to the former White Bay Hotel are of low research potential as they are unlikely to provide any information that is not available from existing sources · There is some research potential for the evidence relating to the reclamation of foreshore areas, for comparative analysis with the body of research resulting from large scale developments along much of the Sydney foreshore. Association with individuals, events, or groups of historical importance: · May have historical associations, particularly with former residents, but specific associations have not been identified at this stage · Archaeological remains in this HAMU relating to the former White Bay Hotel are associated with the former power station workers who frequently patronised the hotel. Aesthetic or technical significance: · The archaeological remains likely to be present would not have aesthetic/technical significance. Ability to demonstrate the past through archaeological remains: · The anticipated archaeological resource's potential to demonstrate the past through archaeological remains is limited.
Significance level	Nil – does not meet the threshold for significance.
Heritage impact assessment	Proposed works within the Victoria Road, City West Link HAMU include: · Site establishment and enabling works · Surface earthworks and structures · Bridge works · Drainage · Pavement · Finishing works. However, this HAMU is considered to have a low potential for archaeological remains, and any surviving remains are likely to have been highly disturbed and would not meet the threshold for local significance, or would not provide information that is not available from existing sources. Therefore, the works proposed in this HAMU are considered to have no impact on significant archaeological remains.
Mitigation measures	No further archaeological investigation required. An unexpected finds procedure should be implemented.

HAMU 5 – Former Rozelle Rail Yards (West)

HAMU 5	Former Rozelle Rail Yards (West)
Listed archaeological items	No heritage register listings specifically reference the significance of the potential historical archaeological resource within the Former Rozelle Rail Yards (West) HAMU. The Lilyfield Road Stormwater Canal extant within HAMU 3 (listed under SREP 26, see **Chapter 6**) continues underground in this HAMU, however the listing does not specifically address this portion of the canal.
Archaeological potential	There is low potential for archaeological evidence to be present associated with the following: · Early road alignments of Abattoir Road prior to construction of the Rozelle Rail Yards. There is high potential for archaeological evidence to be present associated with the following: · Reclamation activities of the Rozelle foreshore during the nineteenth and twentieth centuries · Nineteenth-century drainage infrastructure associated with channelising the creek, and early twentieth century drainage infrastructure associated with the stormwater canal · Elements and infrastructure related to the operation of the Rozelle Rail Yards including rail tracks, sleepers and infrastructure. Some sites or features in this HAMU are likely to have been disturbed by the quarrying of the sandstone bedrock along the northern boundary. Further disturbance may have been caused by the levelling of the area for the Rozelle Rail Yards, subsequent modifications to the yards for operational upgrades, and installation of services and utilities.
Significance assessment	Preliminary assessment against the NSW Heritage Criteria for *Assessing Significance for Historical Archaeological Sites and 'Relics'* (2009). Archaeological research potential: · Archaeological remains in this HAMU are of low research potential as they are unlikely to provide any information that is not available from existing sources. Association with individuals, events, or groups of historical importance: · May have historical associations, particularly with former residents, but specific associations have not been identified at this stage. Aesthetic or technical significance: · Archaeological remains may demonstrate some technical achievement but are unlikely to be sufficiently intact or sufficiently rare so as to be considered significant under this criterion · The underground portions of the Lilyfield Street stormwater canal may be of significance, dependent on the fabric and integrity. Ability to demonstrate the past through archaeological remains: · The anticipated archaeological resource's potential to demonstrate the past through archaeological remains is limited.
Significance level	Nil – does not meet the threshold for significance.

HAMU 5	Former Rozelle Rail Yards (West)
Heritage impact assessment	Proposed works within the Former Rozelle Rail Yards (West) HAMU include: · Site establishment and enabling works · Tunnelling · Surface earthworks and structures · Drainage · Pavement · Operational ancillary facilities · Finishing works. This HAMU is considered to have a low potential for archaeological remains, and any surviving remains are likely to have been highly disturbed and would not meet the threshold for local significance. Therefore, the works proposed in this HAMU are considered to have no impact on significant archaeological remains.
Mitigation measures	No further archaeological investigation required. Uncovering infrastructure such as railway infrastructure and twentieth century services and utilities would not trigger the unexpected finds procedure as they are unlikely to be of archaeological significance. Evidence of early drainage and stormwater systems may warrant archaeological investigation and recording depending on the extent of modifications. An unexpected finds procedure should be implemented where these are identified.

HAMU 6 – Former Rozelle Rail Yards (East)

HAMU 6	Former Rozelle Rail Yards (East)
Listed archaeological items	No heritage register listings specifically reference the significance of the potential historical archaeological resource within the Former Rozelle Rail Yards (East) HAMU.
Archaeological potential	There is low potential for archaeological evidence to be present associated with the following: · Early industrial occupation on Lilyfield Road (c1860–1915), such as structural remains and associated artefact deposits in areas which have been quarried for the construction of the rail yards. There is moderate potential for archaeological evidence to be present associated with the following: · Early industrial occupation on Lilyfield Road (c1860–1915), such as structural remains and associated artefact deposits in areas which have been filled for the construction of the rail yards. There is high potential for archaeological evidence to be present associated with the following: · Reclamation activities of the Rozelle foreshore during the nineteenth and twentieth centuries · Elements and infrastructure related to the operation of the Rozelle Rail Yards including rail tracks, sleepers and infrastructure. Some sites or features in this HAMU are likely to have been disturbed by the quarrying of the sandstone bedrock along the northern boundary. Further disturbance may have been caused by the levelling of the area for the Rozelle Rail Yards, and subsequent modifications to the yards for operational upgrades, and installation of services and utilities.
Significance assessment	Preliminary assessment against the NSW Heritage Criteria for Assessing Significance for Historical Archaeological Sites and 'Relics' (2009). Archaeological research potential: · Archaeological remains in this HAMU relating to early industrial development may have moderate research potential depending on the nature and extent of the remains. Association with individuals, events, or groups of historical importance: · May have historical associations, particularly with former residents, but specific associations have not been identified at this stage. Aesthetic or technical significance: · Archaeological remains in this HAMU relating to early industrial development may have moderate technical significance for their ability to demonstrate early manufacturing and trade processes associated with the waterfront industries originally located here. Ability to demonstrate the past through archaeological remains: · The anticipated archaeological resource has the potential to demonstrate the nineteenth-century industrialisation of the Rozelle waterfront.
Significance level	Local

HAMU 6	Former Rozelle Rail Yards (East)
Heritage impact assessment	Proposed works within the Former Rozelle Rail Yards (East) HAMU are likely to include: · Site establishment and enabling works · Tunnelling · Earthworks and associated structures · Drainage · Pavement · Finishing works. Parts of these works will require deep excavation in areas where archaeological deposits may be present. Extensive ground disturbance of this kind will have a major adverse impact on any significant archaeological remains which may be present. Activities requiring minor excavation or levelling may not impact the zone where potential archaeological deposits are located and are therefore likely to have a minor adverse impact on the potential historical resource. Service installation works, installation of bridge foundations and landscaping would have more localised impacts on the historical archaeological resource. These works are likely to have a moderate adverse impact on the potential historical archaeological resource, depending on the location, extent and nature of the proposed works.
Mitigation measures	Mitigation measures as outlined in **Chapter 8** for locally significant historical archaeology would apply including: · Further developing mitigation methodologies for the management of impacts on known and potential locally significant historical archaeological resources · Preparing a HARD · Developing a methodology and scope for a program of test excavation · Undertaking an archaeological excavation program including salvage.

Figure 5-5 Areas of archaeological potential within HAMU 6

(Source: GML Heritage)

HAMU 7 – White Bay Power Station

HAMU 7	White Bay Power Station
Listed archaeological items	White Bay Power Station is a listed heritage item of State significance, with significant archaeological components of the system known to exist both within and outside the SHR curtilage. Impacts to this item and its contributory elements are also discussed in **section 6.5.5**.
Archaeological potential	There are extant archaeological elements associated with the White Bay Power Station including: · Water channels associated with the southern penstock · The specific location of the channels is unknown.
Significance assessment	The water channels are excluded from the SHR curtilage for White Bay Power Station, and, are not identified in the 2013 CMP. They are closely associated with the southern penstock, which is graded 'high significance' in the White Bay Power Station CMP as an element of the substantially intact cooling water system, which was integral to the operation of the complex.[113] The channels play an important role in strengthening and supporting the significance of the place and are therefore considered an element of high significance.
Significance level	State

HAMU 7	White Bay Power Station
Heritage impact assessment	Proposed works within the White Bay Power Station HAMU includes a minor encroachment during the construction phase of the project as a result of the alignment of the temporary Victoria Road bridge which would cross over the southern penstock of the power station complex. The extent of excavation in this area is unknown at this stage; however, physical and indirect impacts to this heritage element should be avoided.
Mitigation measures	Mitigation measures as outlined in **section 8** for elements of the White Bay Power Station. This should include: · Preparing a HARD to guide archaeological investigation of the HAMU · Developing a methodology and scope for a program of test excavation to identify the location and integrity of the White Bay Power Station water channels if excavation in this HAMU is required · A cover and bridging structure would need to be designed to protect the water channels and the southern penstock, and to distribute the loads away from the heritage asset. This cover and bridging structure must not be supported on the penstock or channels themselves.

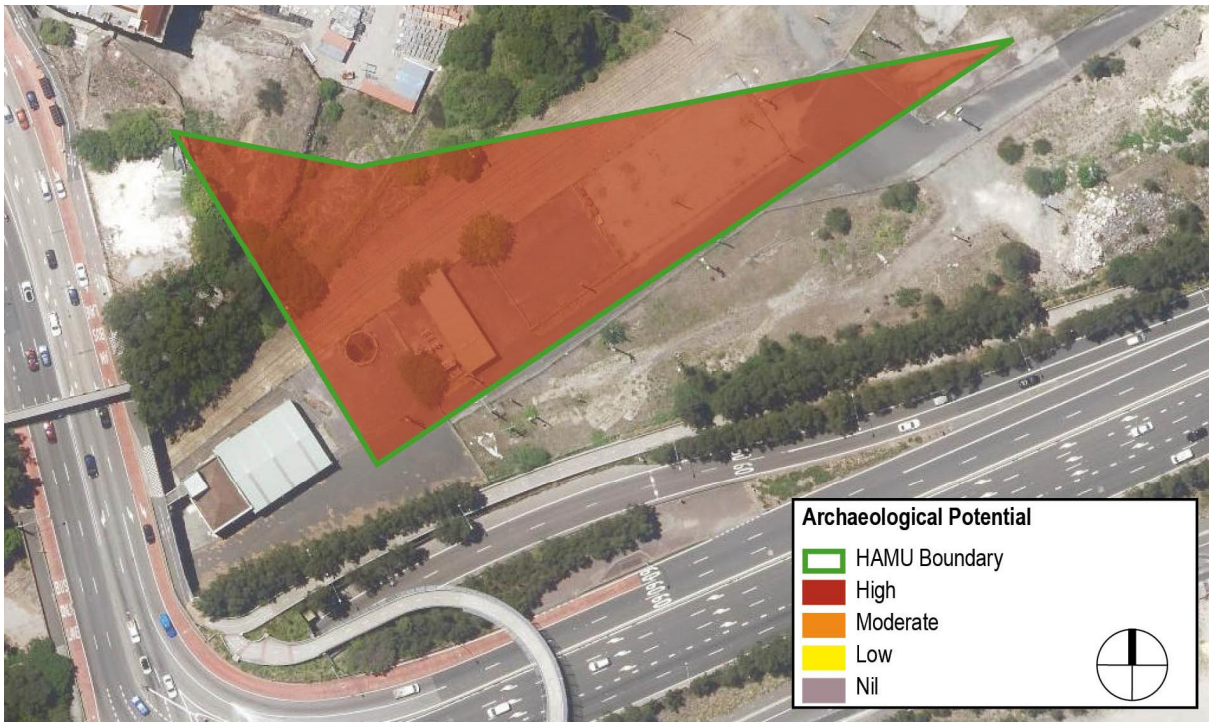


Figure 5-6 Areas of archaeological potential within HAMU 7

(Source: GML Heritage)

5.6 Area 4 – Iron Cove (C8) and bioretention facility

The following observations were made in regard to the physical conditions within the Iron Cove project footprint which informs the assessment of potential for archaeological deposits:

· The ground level within the project footprint slopes steeply downwards from Victoria Road along the side roads which branch off to the southwest (Byrne, Clubb, Toelle, Callan and Springside streets). To a lesser degree, the project footprint slopes down to the west along Victoria Road towards Iron Cove Bridge

- Construction of the existing late nineteenth and twentieth century properties has required varying degrees of cutting and filling to provide level surfaces on which to construct the buildings
- Several properties on Victoria Road between Byrnes Street and Toelle Street have been constructed directly onto the sandstone bedrock which appears to have been quarried in places to accommodate these buildings
- Other properties have been constructed on areas of fill where the ground level has been raised up. This is evident at 212-218 Victoria Road where the rear of the site has been raised by up to 1.5 metres. The concrete retaining wall along the rear boundary of the property. Similarly, the rear yard at 242 Victoria Road has also been built up with a brick retaining wall supporting the filled-in area
- As access inside the buildings was not possible at the time of the site visit the extent of any basements and/or lower ground floors was not able to be determined. However, observations of external features indicate some properties are likely to have lower ground floors which cut into the slope of the site (possibly down to bedrock), as at 224 Victoria Road; while others have been raised up on supporting foundations such as at 224 and 260 Victoria Road
- Comparison of the project footprint as it currently exists with aerial images taken during building of Iron Cove Bridge abutment between 2009 and 2011 shows that the section of King George Park within the project footprint was completely cleared to facilitate construction. The current landscaping is likely to be made up of imported fill deposited across the area to rehabilitate the park.

The following observations were made in regard to the physical conditions within the Manning Street project footprint which informs the assessment of potential for archaeological deposits:

- The ground level within the project footprint slopes down to the oval to the southwest
- The surface is generally grassed, with some areas of eroded soil along the road edge, showing gravels and scatters of broken ceramic and glass.

5.6.1 Site land use history

The combined evidence from the site investigation and desktop analysis of historical aerial photographs and plans has been analysed to identify the main historic developments within the Iron Cove project footprint and the proposed bioretention facility that are likely to have impacted on earlier archaeological remains. This assessment has indicated that around 80 per cent of the Iron Cove project footprint has been heavily disturbed by historic developments. The cumulative impact of the recent and historic developments is set out in **Table 5-4**. HAMUs within this project footprint are shown in **Figure 5-7**.

Table 5-4 Summary of past disturbance

Past developments	Nature of past disturbance	Level of disturbance
Construction of Iron Cove Bridge abutment	Excavation for the bridge head and adjacent construction compound.	High – construction works west of Byrne Street and south of Victoria Road within the current King George Park will have completely removed any earlier remains in the western part of the project footprint.
Former petrol station underground tanks at 212–218 Victoria Road	Complete removal of earlier remains within the tank/s footprint.	High (localised)
Cutting and levelling for late nineteenth/early twentieth century buildings	Excavation of bedrock to create level surfaces; areas of fill may have potentially buried remains.	Low to moderate – generally the structures were the first built structures and so would not have impacted evidence of prior European settlement.

Past developments	Nature of past disturbance	Level of disturbance
Construction of modern Victoria Road	Demolition of previous structures and any earlier deposits, and earlier street alignments for new, upgraded or wider roads.	High – construction of the modern roadway is likely to have involved grading of the roadway and removal of earlier surfaces.
Services–excavation for service trenches	Excavation for services (water, gas, sewage) will have completely removed any remains within the trench footprint.	Moderate – localised areas of complete disturbance.
Establishment of King George Park	Demolition of earlier buildings, and modification of the landscape including construction of new roads; areas of fill may have potentially buried remains.	Low to moderate

Figure 5-7 Historical Archaeological Management Units within the Iron Cove project footprint (showing HAMUs 8 to 9)

(Source: GML Heritage)

5.6.2 Archaeological potential and significance

The potential for archaeological remains within the Iron Cove project footprint (C8) and Manning Street bioretention facility (which comprises two HAMUs) has been assessed and is outlined in this section. The assessment has considered past activities that have occurred which may have left evidence in the archaeological record, as well as physical processes and developments that may

have impacted their survival. Overall, the project footprint is considered to have a low to moderate potential for archaeological remains along the southern side of Victoria Road (HAMU 8). HAMU 9 has moderate potential for locally significant archaeological remains. Areas of archaeological potential within HAMU 9 are shown in **Figure 5-8**.

HAMU 8 – Iron Cove

HAMU 8	Iron Cove
Listed archaeological items	There are no heritage register listings for potential historical archaeological resources within the Iron Cove HAMU.
Archaeological potential	There is low potential for archaeological evidence to be present associated with the following: · Remains of a quarry may have extended into the project footprint within King George Park adjacent to Byrne Street · Remains of zigzag air raid trenches visible on the 1943 aerial · Truncated footings and artefact scatters from 1890s houses at 212–218 and 224 Victoria Road · Earlier road surfaces, drainage features and services within Victoria Road and side streets including Byrnes, Clubb, Toelle, and Callan Street. Sites or features in this HAMU are likely to have been heavily disturbed or completely removed by modern developments, in particular from works associated with the construction of Iron Cove Bridge abutment and the ongoing maintenance and upgrading of Victoria Road and intersections.
Significance assessment	Preliminary assessment against the NSW Heritage Criteria for *Assessing Significance for Historical Archaeological Sites and 'Relics'* (2009). Archaeological research potential: · Any surviving archaeological remains are likely to be highly fragmentary and have limited research potential. Association with individuals, events, or groups of historical importance: · No historical associations have been identified at this stage. Aesthetic or technical significance: · Remains of the quarry, if present within the project footprint, are unlikely to demonstrate aesthetic or technical significance. Ability to demonstrate the past through archaeological remains: · Any archaeological remains are likely to be heavily truncated and fragmentary and as such would be of limited value in demonstrating the past.
Significance level	Nil – does not meet the threshold for significance.

HAMU 8	Iron Cove
Heritage impact assessment	Proposed works within the Iron Cove HAMU would likely include: · Site establishment and enabling works · Tunnelling · Earthworks and associated structures · Pavement · Operational ancillary facilities · Finishing works. These works are predominantly located within the footprint of Victoria Road and would likely require localised areas of deep excavations associated with the proposed earthworks, tunnelling and bridge works resulting in a major adverse impact. Along the southern edge of the HAMU ancillary works (such as utility relocation, road works, and finishing works) would likely result in minor to moderate adverse impacts. However, this HAMU is considered to have a low potential for archaeological remains, and any surviving remains are likely to have been highly disturbed and would not meet the threshold for local significance. Therefore, the works proposed in this HAMU are not considered likely to impact on significant archaeological remains.
Mitigation measures	No further archaeological investigation required. An unexpected finds procedure should be implemented if archaeological remains are identified.

HAMU 9 – Manning Street bioretention facility

HAMU 9	Manning Street bioretention facility
Listed archaeological items	There are no heritage register listings for potential historical archaeological resources within the Manning Street bioretention facility HAMU.
Archaeological potential	There is moderate potential for archaeological evidence to be present associated with the following: · Truncated footings and deposits associated with c1890s houses. Although localised service excavation will have resulted in areas of disturbance, the introduction of fill to create the parkland may have buried earlier remains which potentially survive intact beneath the modern ground surface.
Significance assessment	Preliminary assessment against the NSW Heritage Criteria for Assessing Significance for Historical Archaeological Sites and 'Relics' (2009). Archaeological research potential: · Truncated footings and artefact deposits may have research potential depending on the nature and extent of the remains. Association with individuals, events, or groups of historical importance: · No historical associations have been identified at this stage. Aesthetic or technical significance: · There is no clear indication in historical records examined to date to establish whether or not archaeological remains would have aesthetic/technical significance. Ability to demonstrate the past through archaeological remains: · Structural and artefact deposits associated with the c1890s houses have the potential to provide information relating to the lives of local residents in the early phases of subdivision in this area.
Significance level	Local
Heritage impact assessment	Proposed works within the Manning Street bioretention facility HAMU would likely include: · A new bioretention facility and upgrades to the existing car park at Manning Street at Rozelle, next to King George Park, to treat stormwater runoff generated by the surface road works associated with the Iron Cove Link · These works will require excavation in the area of archaeological potential, and a likely to result in a major adverse impact to archaeological remains of local significance.
Mitigation measures	Mitigation measures as outlined in **Chapter 8** for locally significant historical archaeology would apply including: · Further developing mitigation methodologies for the management of impacts on known and potential locally significant historical archaeological resources · Preparing a HARD · Developing a methodology and scope for a program of test excavation · Undertaking an archaeological excavation program including salvage.

Figure 5-8 Areas of archaeological potential within HAMU 9

(Source: GML Heritage)

5.7 Area 5 – Annandale (around Pyrmont Bridge Road and Parramatta Road) project footprint (C9)

The following observations were made in regard to the physical conditions within the Annandale (around Pyrmont Bridge Road and Parramatta Road) project footprint which informs the assessment of potential for archaeological deposits:

- The modern ground level surrounding the project footprint slopes down from east to west; the slope in ground level is more pronounced along Pyrmont Bridge Road bordering the northern edge of the project footprint (**Figure 5-9**). There is also a lesser slope in the ground level from Parramatta Road towards Bignell Lane
- The site is currently occupied by a range of two storey early to mid-twentieth century commercial buildings and warehouses. Access inside the buildings was not available at the time of the site visit
- The buildings at 164, 166–172, 174 and 176 Parramatta Road were all observed to contain basements. Based on the difference in ground levels between Parramatta Road and Bignell Lane, excavation for the basements is likely to have had a higher degree of impact towards the southern edge of the project footprint (Parramatta Road)
- The warehouse at 79 Pyrmont Bridge Road features a ground floor level which appears to have been cut into the existing slope of the site. As noted above, excavation for in the eastern half of the building will have likely removed any earlier remains within the building footprint
- The buildings at 93–95 Pyrmont Bridge Road, and at 162 and 182–186 Parramatta Road do not contain basements and earlier remains may survive beneath these buildings. Likewise, the street level car park at the rear of 164 Parramatta Road also has potential for earlier remains.

5.7.1 Site land use history

The combined evidence from the site investigation and a desktop analysis of historical aerial photographs and plans has been analysed to identify the main historic developments within the project footprint that are likely to have impacted on earlier archaeological remains. The cumulative impact of the recent and historic developments is set out in **Table 5-5**. HAMUs within this project footprint are shown in **Figure 5-9**.

Table 5-5 Summary of past disturbance

Past developments	Nature of past disturbance	Level of disturbance
Twentieth century buildings – basement excavation	Demolition of late nineteenth century buildings and excavation for basement levels.	Moderate to high – the difference in ground levels between Parramatta Road and Bignell Lane means that excavation for the basements is likely to have had a higher degree of impact towards the southern edge of the project footprint.
Twentieth century buildings – building foundations, cutting and levelling	Surface clearing and localised impacts resulting from excavation for building foundations.	Moderate – localised areas of complete disturbance although there is potential for deposits to survive below shallow floor slabs or between deeper building footings.
Services	Excavation for services (water, gas, sewage) will have completely removed any remains within the trench footprint.	Moderate – localised areas of complete disturbance in particular along Bignell Lane.
Construction of roads – Bignell Lane	Construction and maintenance of road way.	Low – resurfacing of the laneway is likely to have had limited impact on earlier remains which potentially survive below.

Figure 5-9 Historical Archaeological Management Units within the Annandale (around Pyrmont Bridge Road and Parramatta Road) project footprint

(Source: GML Heritage)

5.7.2 Archaeological potential and significance

Based on the level of archaeological potential, two separate HAMUs have been delineated within the Annandale study area. HAMU 10 encompasses those areas within the project footprint that are considered to have a moderate or high degree of archaeological potential for locally significant remains. HAMU 11 contains areas that have a low potential for archaeological remains. Areas of archaeological potential within HAMU 10 and 11 are shown in **Figure 5-10** and **Figure 5-11**.

HAMU 10 – Bignell Lane

HAMU 10	Bignell Lane
Listed archaeological items	There are no heritage register listings for potential historical archaeological resources within the Bignell Lane HAMU 10.
Archaeological potential	There is a moderate or high potential for archaeological evidence to be present associated with the following: · Western half of the c1860s Didliston House (building footings and deposits) · Footings and deposits associated with c1890s houses · Early twentieth century services beneath Bignell Lane · Early to mid-nineteenth-century property boundaries and garden/agricultural remains · External structures and features associated with the Bignell and Clarke steam joinery works (the main building is outside of this HAMU). Given the size of the twentieth century buildings and the absence of basements within this HAMU there is potential for archaeological remains to survive beneath the existing floor slabs and between building footings.
Significance assessment	Preliminary assessment against the NSW Heritage Criteria for Assessing Significance for Historical Archaeological Sites and 'Relics' (2009). Archaeological research potential: · Archaeological remains of Didliston House may have moderate research potential to contribute to our understanding of residential development along Parramatta Road in the mid-nineteenth century. · If present, remains associated with the Bignell and Clark steam joinery could contribute knowledge on the industrial development of this area. Association with individuals, events, or groups of historical importance: · Remains of the steam joinery would be of significance for its association with Bignell and Clark Company which was involved in the construction of the major local buildings such as the Sydney Town Hall, Strand Arcade, and Bondi Aquarium. Aesthetic or technical significance: · It is not currently known if significant structural remains of the steam joinery were located to the rear of the main building, and therefore it is not possible to determine if the archaeological remains may hold aesthetic or technical significance. Ability to demonstrate the past through archaeological remains: · Structural remains and artefact bearing deposits of Didliston House and, if present, the steam joinery have the potential to demonstrate earlier uses of the site.

HAMU 10	Bignell Lane
Significance level	Local
Heritage impact assessment	Proposed works within the Bignell Lane HAMU are likely to include: · Site establishment and enabling works · Earthworks and associated structures · Realignment of Bignell Lane · Tunnelling · Pavement · Finishing works. These works may require deep excavation in areas where archaeological deposits may be present. Extensive ground disturbance of this kind will have a major adverse impact on any archaeological relics which may be present. Activities requiring minor excavation or levelling may not impact the zone where potential archaeological deposits are located. Thus, the works are likely to have a minor to moderate adverse impact on the potential historical resource. Service installation works and landscaping would have more localised impacts on the historical archaeological resource. These works are likely to have a minor to moderate adverse impact on the potential historical archaeological resource, depending on the location, extent and nature of the proposed works.
Mitigation measures	Mitigation measures as outlined in **Chapter 8** for locally significant historical archaeology would apply including: · Further developing mitigation methodologies for the management of impacts on known and potential locally significant historical archaeological resources · Preparing a HARD · Developing a methodology and scope for a program of test excavation · Undertaking an archaeological excavation program including salvage.

Figure 5-10 Areas of archaeological potential within HAMU 10

(Source: GML Heritage)

HAMU 11 – Parramatta Road, Pyrmont Bridge Road

HAMU 12	Parramatta Road, Pyrmont Bridge Road
Listed archaeological items	There are no heritage register listings for potential historical archaeological resources within the Parramatta Road, Pyrmont Bridge Road HAMU 11.
Archaeological potential	There is a low potential for archaeological evidence to be present associated with the following: · Eastern half of the c1860s Didliston House (building footings and deposits) · Footings and deposits associated with c1890s buildings · Remains of the Bignell and Clarke Steam joinery works (main building) · Early to mid-nineteenth century property boundaries and garden/agricultural remains.

HAMU 12	Parramatta Road, Pyrmont Bridge Road
Significance assessment	Preliminary assessment against the NSW Heritage Criteria for Assessing Significance for Historical Archaeological Sites and 'Relics' (2009). Archaeological research potential: · Surviving structural remains are likely to be highly fragmentary and would have limited research value. Association with individuals, events, or groups of historical importance: · Remains of the steam joinery would be of local significance for its association with the Bignell and Clark Company which was involved in the construction of major landmark buildings such as the Sydney Town Hall, Strand Arcade, and Bondi Aquarium. Aesthetic or technical significance: · Remains of the Bignell and Clark steam joinery are likely to be highly fragmented and unlikely to contain evidence of technological processes and/or innovations. Ability to demonstrate the past through archaeological remains: · Any surviving archaeological remains are likely to have been heavily disturbed by later developments and would not meet this criterion.
Significance level	Local
Heritage impact assessment	Proposed works within the Parramatta Road, Pyrmont Bridge Road HAMU are likely include: · Site establishment and enabling works · Earthworks and associated structures · Tunnelling · Pavement · Finishing works. These works may require deep excavation in areas where archaeological deposits may be present. Extensive ground disturbance of this kind will have a major adverse impact on any archaeological relics which may be present. Activities requiring minor excavation or levelling may not impact the zone where potential archaeological deposits are located. Thus, the works are likely to have a minor to moderate adverse impact on the potential historical resource. Service installation works and landscaping would have more localised impacts on the historical archaeological resource. These works are likely to have a minor to moderate adverse impact on the potential historical archaeological resource, depending on the location, extent and nature of the proposed works.
Mitigation measures	Mitigation measures as outlined in **Chapter 8** for locally significant historical archaeology would apply including: · Further developing mitigation methodologies for the management of impacts on known and potential locally significant historical archaeological resources · Preparing a HARD · Developing a methodology and scope for a program of archaeological monitoring during site establishment works · Undertaking an archaeological excavation program including salvage.

Figure 5-11 Areas of archaeological potential within HAMU 11

(Source: GML Heritage)

5.8 Area 6 – St Peters project footprint (C10)

The archaeological potential and significance of this project footprint have been previously assessed under the New M5 project.[114] The study concluded that the St Peters interchange (within which this project footprint is located):

> *…retains the potential to encounter late nineteenth and early twentieth century refuse deposits and brick wasters (bricks that did not fire properly or were faulty in some way) from the surrounding bricks works. Within road reserves there is potential to encounter earlier road surfaces beneath the current asphalt or evidence of the dismantled tram network in the vicinity of the Princes Highway and Campbell Street intersection. Should such deposits or relics be encountered they are unlikely to be of archaeological significance due to their ubiquitous nature and lack of provenance, making their ability to contribute to archaeological research minimal. Uncovering such finds would not trigger the unexpected finds procedure as they are anticipated and are unlikely to be of archaeological significance.*

The current project footprint is located within this area of low archaeological significance, and therefore will not result in an adverse impact to archaeological remains.

6 Built and landscape heritage

6.1 Introduction

This section of the report comprises identification of the listed heritage items, potential heritage items and HCAs within or adjacent to the project footprint. It also assesses potential impacts from the construction or operation of the project on identified heritage items. Identified heritage items include heritage-listed buildings, structures, bridges, tunnels, parks, trees and HCAs. The section also includes a summary of the assessment of impacts on potential heritage items identified by this HIA (the full assessment is included as **Annexure A**).

The built and landscape heritage assessment adopts a broader survey area (referred to throughout this report as the heritage study area), which includes the proposed project footprint plus an appropriate buffer around the footprint in the cases of Haberfield/Ashfield (Option B), Iron Cove, Rozelle, Leichhardt and Annandale. This is to ensure that the assessment includes heritage items and HCAs adjacent to the project footprint that may be subject to indirect (visual, vibration or settlement) impacts, and each one has been determined on a case by case basis when undertaking site inspections of the areas. In the case of Haberfield (Option A), the Haberfield civil site (C2b) from Haberfield/Ashfield (Option B) and St Peters, the heritage study area coincides with the project footprint and refers to the assessment previously undertaken as part of the M4 East and New M5 projects, respectively. The total area surveyed by GML for this assessment is referred to in the singular as the heritage assessment area.

6.2 Overview of approach

The impact assessments have been set out on the basis of the identified heritage study area, illustrated collectively in **Figure 6-1**, **Figure 6-3**, **Figure 6-5**, **Figure 6-7**, **Figure 6-9** and **Figure 6-11** in accordance with the requirements of the SEARs, for each heritage study area, the report:

- Provides an overview of the heritage study area's heritage context
- Identifies the heritage items and HCAs within the area with the potential to be affected by the project, either through direct impacts and/or impacts on visual setting
- Identifies heritage items and HCAs that are likely to be physically impacted, or those that have a direct frontage to substantial project infrastructure (eg tunnel portals and noise walls). For these items and areas, the following structure has been employed:
- A description and statements of significance (drawn from existing heritage listings)
- An assessment of the heritage impact of the proposed works on the heritage significance of each of the affected heritage items and HCAs
- An overall ranking of the severity of the impact
- Identifies potential heritage items in the heritage study area, assesses their significance and assesses the impact of the project on those potential items
- Assesses the indirect impact of the tunnelling during construction on heritage items above the tunnel corridor.

The assessment also assigns an impact type to each item and HCA – above tunnel, setting, partial demolition and demolition. Impacts on 'setting' include visual impacts. The majority of the project footprint would be underground. However, surface works would be required to support tunnelling activities as well as construction compounds and to construct surface infrastructure such as interchanges, tunnel portals, ventilation facilities, ancillary operations buildings and facilities.

It is acknowledged that associated motorway infrastructure, including electronic toll gantries, traffic lights, signage, etc, would be required. However, the impact of these on the visual setting of heritage items and character of HCAs has not been comprehensively assessed in this HIA because there is no design/information at present about this associated infrastructure. Further assessment will be required as the design is developed.

6.3 General impacts

As a consequence of the identified construction aspects above, the potential direct heritage impacts could include:

- Complete or partial demolition of heritage items
- Complete demolition of non-listed buildings assessed as having heritage values (ie potential heritage items)
- Complete demolition of contributory buildings within a HCA
- Modifications to heritage items/structures
- Removal of heritage vegetation
- Inadvertent damage to heritage trees/roots.

Potential indirect impacts could include:

- Impacts to heritage curtilage or visual setting of heritage items or HCAs
- Continued use of existing construction compounds at Haberfield and St Peters
- Vibration impacts from earthworks, piling and tunnelling activities
- Settlement and groundwater drawdown from tunnelling activities.

6.4 Summary heritage impacts – all heritage study areas

6.4.1 Listed heritage items

Table 6-1 summarises all the listed heritage items and HCAs (ie 25 items in total) located within the six study areas, and includes their level of significance (local or State), the statutory register(s) on which they are listed, and their impact type and ranking (if impacted), as identified in the detailed heritage impact assessments in the following chapters.

Table 6-1 uses:

- Orange shading to identify heritage items which would be subject to direct impacts from the M4-M5 Link project through full demolition (three items)
- Yellow shading to identify heritage items which would be subject to direct impacts from the M4-M5 Link project through partial demolition (one item)
- Green shading to identify heritage items and HCAs which would be subject to indirect impacts from the M4-M5 Link project through vibration, settlement and visual setting (21 items).

Table 6-1 Summary of potential impacts (type and ranking) on listed heritage items and HCAs within the study areas

Register listing	Item name	Address	Significance	Impact type	Impact ranking
Area 1 – Haberfield and Ashfield					
Ashfield LEP 2013 (Item no. C42)	Haberfield HCA	Haberfield	Local	Setting, vibration and settlement	Neutral
Ashfield LEP 2013 (Item no. 273)	Commercial building	476 Parramatta Road, Ashfield	Local	Setting, vibration and settlement	Neutral
Area 2 – Leichhardt					
RailCorp S170 Register (#4805738)	Leichhardt (Charles Street) Underbridge	Charles Street, Leichhardt	Local	Setting, vibration	Minor adverse
Area 3 – Rozelle and Lilyfield					
Leichhardt LEP 2013 (Item no. C16)	Brennan's Estate Heritage Conservation Area	Rozelle	Local	Setting, vibration and settlement	Minor adverse
Leichhardt LEP 2013 (Item no. C18)	Easton Park Heritage Conservation Area	Rozelle	Local	Setting, vibration and settlement	Minor adverse
Leichhardt LEP 2013 (Item no. I752)	Easton Park	Denison Street, Rozelle	Local	Vibration and settlement, temporary visual, potential tree root impacts	Minor adverse
Sydney Water S170 Register (#4571704)	Sewage Pumping Station No.6	168 Lilyfield Road, Rozelle	Local	Vibration and settlement, temporary visual	Minor adverse
Leichhardt LEP 2013 (Item no. C19)	Hornsey Street Heritage Conservation Area	Rozelle	Local	Demolition of a non-contributory building, setting, vibration and settlement	Neutral

Register listing	Item name	Address	Significance	Impact type	Impact ranking
SHR (#01015) SREP 26 (Schedule 4, Part 3, #11) Ausgrid S170 Register (#74)	White Bay Power Station	Victoria Road and Robert Street, Rozelle	State	Minor encroachment on curtilage and setting	Minor adverse
Sydney Water S170 (#4570343)	Whites Creek Stormwater Channel No 95	Railway Parade to Parramatta Road, Annandale	Local	Partial demolition resulting from 'naturalisation' and reshaping of the channel. Setting, vibration	Moderate adverse
Leichhardt LEP 2013 (Item no. I78)	Street trees – row of Palms on Railway Parade	Railway Parade, Annandale	Local	Setting, vibration	Neutral
Leichhardt LEP 2013 (Item no. I79)	Avenue of Phoenix canariensis on Railway Parade	Railway Parade, Annandale	Local	Setting, vibration	Neutral
SREP 26 (Schedule 4, Part 3, #7) RailCorp S170 (#4803231)	Annandale (Railway Parade) Railway Bridge	Railway Parade, Annandale	Local	Setting, vibration	Minor adverse
SREP 26 (Schedule 4, Part 3, #8)	Arched Bridge (at Whites Creek)	Whites Creek, Annandale	Local	Nil	Neutral
SREP 26 (Schedule 4, Part 3, #9) RailCorp S170 (#4803229)	Annandale (Johnston Street) Underbridge	Johnston Street, Annandale	Local	Setting, vibration	Neutral
SREP 26 (Schedule 4, Part 3, #6)	Stormwater Canal	Lilyfield Road, Rozelle	Local	Full demolition	Major adverse
SREP 26 (Schedule 4, Part 3, #3)	'Cadden Le Messurier'	84 Lilyfield Road, Rozelle	Local	Full demolition	Major adverse

Register listing	Item name	Address	Significance	Impact type	Impact ranking
SREP 26 (Schedule 4, Part 3, #2)	Former Hotel	78 Lilyfield Road, Rozelle	Local	Full demolition	Major adverse
Area 4 – Iron Cove					
SREP SHC (#17) RTA S170 (#65)	Iron Cove Bridge	Rozelle	State	Setting, vibration	Minor adverse
Leichhardt LEP 2013 (Item no. C6)	Iron Cove HCA	Rozelle	Local	Setting, vibration	Neutral
Area 5 – Annandale					
Leichhardt LEP 2013 (Item no. I613)	Kerb and gutter	Chester Street, Annandale	Local	Setting, vibration	Neutral
Leichhardt LEP 2013 (Item no. I616)	Warehouse including interiors	52–54 Pyrmont Bridge Road, Annandale	Local	Setting, vibration	Minor adverse
Sydney LEP 2012 (Item no. I2242)	Former Grace Bros Repository including interiors	6-10 Mallett Street, Annandale	Local	Setting, vibration	Minor adverse
Marrickville LEP 2011 (Item no. I5)	Bridge Road School (former Camperdown Public School), including interiors	127 Parramatta Road, Annandale	Local	Setting, vibration	Minor adverse
Area 6 – St Peters					
Marrickville LEP 2011 (Item no. I12)	Terrace group including interiors	2–34 Campbell Road, St Peters	Local	Setting	Neutral

6.4.2 Potential heritage items

The following table summarises all buildings assessed as having potential heritage significance (17 items in total) across the six study areas, and includes their assessed significance, impact type (if impacted) and ranking, as identified in **Annexure A**. **Table 6-2** uses:

- Orange shading to identify items with assessed potential heritage value which would be subject to direct impacts from the M4-M5 Link project through full demolition (nine items) and results in major adverse impacts
- Yellow shading to identify items with assessed potential heritage value which would be subject to direct impacts from the M4-M5 Link project through partial demolition (one item) and results in moderate adverse impacts.
- Green shading to identify items with assessed potential heritage value which would be subject some indirect impacts from the M4-M5 Link project, or which would not be impacted (seven items).

Table 6-2 Summary of potential impacts on potential heritage items within the study area

Item name	Assessed Significance	Impact type	Impact ranking
Area 1 – Haberfield			
135 Bland Street, Haberfield	Local	Setting	Neutral
136 Bland Street, Haberfield	Local	Setting	Neutral
138 Bland Street, Haberfield	Local	Setting	Neutral
139 Alt Street, Ashfield	Local	Nil	Neutral
144 Alt Street, Ashfield	Local	Nil	Neutral
Area 3 – Rozelle and Lilyfield			
Victoria Road Bridge, Rozelle	Local	Full demolition	Major adverse
Sandstone cutting, Rozelle	Local	Partial demolition	Moderate adverse
Former White Bay Hotel site foundations (plinth and archaeology)	Local	Full Demolition	Major Adverse
Southern Penstock (associated with the White Bay Power Station)	State	Vibration	Neutral
Area 4 – Iron Cove			
260 Victoria Road, Rozelle	Local	Full demolition	Major adverse
262 Victoria Road, Rozelle	Local	Full demolition	Major adverse
264 Victoria Road, Rozelle	Local	Full demolition	Major adverse
266 Victoria Road, Rozelle	Local	Full demolition	Major adverse
248 Victoria Road, Rozelle	Local	Full demolition	Major adverse
250 Victoria Road, Rozelle	Local	Full demolition	Major adverse
8 Callan Street, Rozelle	Local	Vibration, setting	Neutral

Item name	Assessed Significance	Impact type	Impact ranking
Area 5 – Annandale			
164 Parramatta Road, Annandale (former Bank of NSW)	Local	Full demolition	Major adverse

6.5 Area 1 – Haberfield/Ashfield heritage study areas (Option A: C1a, C2a and C3a) and (Option B: C1b, C2b and C3b)

6.5.1 Overview

As identified in the M4 East Non-Aboriginal Heritage Impact Assessment (GML 2015), Haberfield contains a large number of heritage items and a HCA listed on the Ashfield LEP and the Roads and Maritime S170 Register. Almost the entire suburb of Haberfield, from Dobroyd Canal (Iron Cove Creek) to Hawthorne Canal and north west to Iron Cove, but excluding properties along Parramatta Road, is listed as a HCA of local significance on the Ashfield LEP. Impacts associated with the demolition of heritage and contributory items within the Haberfield HCA were assessed within the M4 East project.

For Option A, and the Haberfield civil site (C2b) of Option B, the project footprint for the M4-M5 Link interface within Haberfield falls within the bounds of the previously assessed M4 East project footprint. Within Area 1, the M4-M5 Link project works are limited to connecting to the underground M4 East mainline tunnels, fitout of the dive structures and cut and cover tunnels at the Wattle Street interchange and fitout of the ventilation facility on the corner of Parramatta Road and Walker Avenue, which are all being constructed as part of the M4 East project.

Additional external construction work associated with the M4-M5 Link project at this location is not proposed. Some finishing works would be undertaken (re-establishment works for compounds), but would not have substantial heritage impacts. Under Option A, the M4-M5 Link project will utilise the Northcote Street civil site (C3a), Wattle Street civil and tunnel site (C1a) and the Haberfield civil and tunnel site (C2a) construction ancillary facilities currently being utilised by the M4 East project during construction of that project. There are no additional property acquisitions in Haberfield (Option A) as a result of the M4-M5 Link project, nor were any new heritage assessments undertaken to identify potential items, as all items were previously identified and assessed as part of the M4 East project.

For Option A, and the Haberfield civil site (C2b) of Option B, the findings of the M4 East Non-Aboriginal heritage impact assessment (GML 2015) remain valid. However, indirect and cumulative impact on the Haberfield HCA would primarily result from the extension of time associated with using the existing M4 East construction ancillary facilities for the M4-M5 Link project.

For Option B, the project footprint includes commercial development on the east and west sides of Parramatta Road, around the intersections of Alt Street and Bland Street. These sites are outside of the Haberfield HCA and were not assessed as part of the M4 East project. The M4-M5 Link project works at these sites would involve a civil and tunnel site and laydown area at C1b, and construction workforce parking and a site office at C3b. This option would also include the site C2b which is the same as C2a from Option A, however, without the tunnelling activities from that site.

Construction work associated with the M4-M5 Link project at these sites would involve the demolition of the existing buildings, adapting the sites as car parks and laydown areas (where possible), and constructing an acoustic tunnel shed over the tunnel site at C1b. Owing to the location, scale, type and temporary nature of construction activity at these new construction sites, no new statutory heritage items or HCAs were identified as needing further impact assessment (additional to the assessment undertaken for the M4 East project and as part of Option A). However, additional heritage assessments were undertaken to identify potential heritage items within and in the vicinity of these new construction sites (C1b and C3b).

Figure 6-1 Haberfield/Ashfield project footprint (Option A and Option B) with heritage study area shown (Source: Google Maps with GML overlay)

6.5.2 Heritage items and conservation areas

Table 6-3 and **Figure 6-2** set out the listed heritage items and HCAs in the Haberfield/Ashfield heritage study areas that have the potential to be impacted by the M4-M5 Link project. These items have been described in detail previously for the M4 East HIA. Refer to the M4 East Non-Aboriginal heritage impact assessment (GML 2015) for further information on these items.

Table 6-3 Statutory heritage listings for heritage items in the Haberfield/Ashfield heritage study area. Items with no shading may be subject to indirect impacts.

Item name	Address	Suburb	Significance	Listing	Impact Type
Haberfield HCA		Haberfield	Local	Ashfield LEP 2013 (Item no. C42)	Setting, vibration and settlement

Item name	Address	Suburb	Significance	Listing	Impact Type
Commercial building	476 Parramatta Road	Ashfield	Local	Ashfield LEP 2013 (Item no. 273)	Setting, vibration and settlement

Figure 6-2 Haberfield/Ashfield project footprint (Option A and Option B) with heritage study area shown

(Source: Google Maps with GML overlay) (Source: Ashfield LEP 2013 Heritage Map (001), overlay by GML)

6.5.3 General heritage impact assessment

The construction of the M4 East project will require the demolition of houses, gardens and street trees in Haberfield around Wattle Street, including 53 heritage and contributory items in the Haberfield HCA which would have been located in the M4-M5 Link project footprint.

These direct and visual heritage impacts from construction of the new motorway infrastructure has already been assessed in the M4 East Non-Aboriginal Heritage Impact Assessment, prepared by GML in September 2015. The general heritage impact assessment is provided below:

> *The potential for heritage impacts resulting from the project in the Haberfield area would arise from the demolition of heritage items and contributory items within the Haberfield HCA and the construction of new motorway infrastructure, including dive structures, cut-and-cover tunnels, tunnels, noise barriers, ventilation facilities and ancillary motorway buildings and services. Direct physical impacts would result from the demolition of buildings and gardens. Visual impacts would arise from new motorway infrastructure and the loss or reduction of significant streetscapes. Temporary visual impacts would also result from the establishment of work sites (C7, C8 and C9) during construction.*
>
> *Although localised in the section of the HCA around Wattle Street, Northcote Street and Wolseley Street, the impact of the project on the heritage significance of the Haberfield HCA and individual heritage items within it would be major and unable to be effectively mitigated.*
>
> *In Ashfield, the potential for heritage impacts would arise from the demolition of heritage items and construction of new motorway infrastructure, including dive structures, cut-and-cover tunnels, driven tunnels, noise barriers and a civil construction site (C10) in the vicinity of heritage items, and possible damage from the effects of construction vibration. The M4 East alignment has been modified to avoid direct impacts on Ashfield Park.*

Previous mitigation measures including relocating and making the ventilation facilities and motorway infrastructure less intrusive, urban design and landscaping treatments and photographic archival recording have been incorporated into conditions of approval for the M4 East project. However, all the previously identified mitigation measures, conclusion of construction works and revegetation would not totally offset the substantial heritage impacts on the Haberfield HCA as a whole. Recognised as a suburb of heritage significance to NSW and Australia, the historic garden suburb will be impacted by a new motorway and its associated motorway facilities. The M4 East EIS (September 2015) was prepared by AECOM Australia Pty Ltd and GHD Pty Ltd. Approval for this SSI project (SSI 6307) was granted on 11 February 2016. Construction works commenced in March 2016 and are ongoing.

As noted in the M4 East HIA, all ramps, interchanges, ventilation and ancillary facilities for the western end of the M4-M5 Link project are being constructed as part of the M4 East project to avoid the need to undertake further substantial surface works in the Haberfield HCA in association with key M4-M5 Link infrastructure. While the M4 East HIA did note that further impacts to the Haberfield HCA might be required for construction compounds for the M4-M5 Link project, it noted that further works for permanent infrastructure in the Haberfield HCA should be avoided.

The M4-M5 Link project has sought to minimise further impacts to the Haberfield HCA through the design and construction planning for the project, in accordance with the recommendations made in the M4 East HIA. The M4-M5 Link project proposes to reuse but also reduce the size of some of the construction compounds, being only to support the construction of the mainline tunnel component of the project. Heritage items which were retained as part of the M4 East project (ie 146-148 Ramsay Street and 150-152 Ramsay Street) would be retained and indirect impacts minimised. Dwellings located at 18, 20 and 22 Walker Avenue were retained in accordance with the approval conditions for the M4 East project. These sites would continue to be protected and indirect impacts minimised by the M4-M5 Link project.

6.5.4 Detailed heritage impact assessments

Overall assessment of the impact of the M4 East project on the Haberfield HCA has previously been assessed in the M4 East Non-Aboriginal HIA.

Within Area 1 – Haberfield, for Option A, the M4-M5 Link project works are limited to connecting to the underground M4 East mainline tunnels, fitout of the dive structures and cut and cover tunnels at the Wattle Street interchange; and fitout of the Parramatta Road ventilation facility, which are all being constructed as part of the M4 East project, and some minor amendments to the surface road network.

It is not anticipated that the internal fitout of the Parramatta Road ventilation facility would have any further adverse heritage impacts on any of the listed items within the Haberfield study area or on the Haberfield HCA. The construction of the underground tie-ins to the stub tunnels would not have any direct impacts to the retained heritage items or the Haberfield HCA.

Option A at Haberfield for the M4-M5 Link project will utilise the Wattle Street civil and tunnel site (C1a), Haberfield civil and tunnel site (C2a) and Northcote Street civil site (C3a), currently being used by the M4 East project for construction of that project. Additional external construction work associated with the M4-M5 Link project at this location is not proposed. Finishing works (eg re-establishment works for compounds, line marking, signage) are unlikely to have substantial additional heritage impacts within the M4-M5 Link project footprint.

There are no additional property acquisitions or demolition of buildings in Haberfield as a result of Option A, nor were any new heritage assessments undertaken to identify potential items, as all items were previously identified and assessed as part of the M4 East project.

The indirect and cumulative impact on the Haberfield HCA from Option A of the M4-M5 Link project would primarily result from the extension of time associated with using the existing M4 East construction ancillary facilities for the M4-M5 Link project.

Option B at Haberfield/Ashfield for the M4-M5 Link project would require new construction ancillary facilities on the east and west sides of Parramatta Road, around the intersections of Alt Street and Bland Street. These would comprise the Parramatta Road West civil and tunnel site (C1b) and Parramatta Road East civil site (C3b) in addition to the Haberfield civil site (C2b) which is subject to the assessment undertaken in the M4 East project as explained above. The Parramatta Road sites are outside of the Haberfield HCA and were not specifically assessed as part of the M4 East project. The M4-M5 Link project works at these sites would involve a civil and tunnel site and laydown area at C1b and construction workforce parking and a site office at C3b. C2b in Option B is the same as C2a from Option A, however, without the tunnelling activities from that site.

Construction work associated with the M4-M5 Link project at these sites would involve the demolition of existing commercial premises. Owing to the location, scale, type and temporary nature of construction activity at these new construction sites, aside from the adjacent Haberfield HCA, no new statutory heritage items or conservation areas were identified as needing further impact assessment (additional to the assessment undertaken for the M4 East project).

The indirect and cumulative impact on the Haberfield HCA from Option B of the M4-M5 Link project would result from the expansion of the construction areas further east along Parramatta Road. This option would allow most of the M4 East construction ancillary facilities (aside from C2a/b) to be rehabilitated and delivery of the M4 East Urban Design Landscape Plan and Residual Land Management Plan to be delivered earlier.

6.5.5 Potential heritage items

For Option A, no new heritage assessments have been undertaken for Haberfield for the M4-M5 Link as the project footprint falls within the bounds of the previously assessed M4 East project footprint and works proposed as part of the M4-M5 Link project within that footprint and not substantially different than previously assessed. Refer to the M4 East HIA report for the full inventory of buildings, which were subject to heritage assessments as part of the M4 East project.

For Option B, during the surveys the additional areas at Haberfield/Ashfield were surveyed to identify items with potential heritage value that are not listed and may be impacted by the project, both within

and in the vicinity of these new construction sites (C1b and C3b). This was achieved via a pedestrian survey of the project footprint.

The following buildings (in **Table 6-4** to **Table 6-8**) were identified on the site inspection to be of potential heritage significance, were subject to a heritage values assessment and an impact assessment.

Table 6-4 Heritage significance assessment and impact assessment for potential heritage item

Address	**135 Bland Street, Haberfield**	
Assessment of Significance	The site demonstrates local heritage significance as a contributory item to the broader Haberfield HCA.	
Assessed level of significance	Local – contributory to the Haberfield HCA	
Proposal	Nil	
Heritage impact assessment	Owing to the physical separation between this property and the project footprint, there would be no physical impact. However, with the construction of the site office (opposite) would change in the setting of this property. However, the existing setting (car dealership) was not contributory to the property or to the significance of the Haberfield HCA, so it would be a neutral impact.	
Impact type	Setting	
Impact ranking	Neutral	

Table 6-5 Heritage significance assessment and impact assessment for potential heritage item

Address	**136 Bland Street, Haberfield**	
Assessment of Significance	The site demonstrates local heritage significance as a contributory item to the broader Haberfield HCA.	
Assessed level of significance	Local – contributory to the Haberfield HCA	
Proposal	Nil	
Heritage impact assessment	Owing to the physical separation between this property and the project footprint, there would be no physical impact. However, the construction of the site office (adjacent) would change in the setting of this property. However, the existing setting (commercial) was not contributory to the property or to the significance of the Haberfield HCA, so it would be a neutral impact.	
Impact type	Setting	
Impact ranking	Neutral	

Table 6-6 Heritage significance assessment and impact assessment for potential heritage item

Address	138 Bland Street, Haberfield	
Assessment of Significance	The site demonstrates local heritage significance as a contributory item to the broader Haberfield HCA.	
Assessed level of significance	Local – contributory to the Haberfield HCA	
Proposal	Nil	
Heritage impact assessment	Owing to the physical separation between this property and the project footprint, there would be no physical impact. However, the construction of the site office (to the south separated by 135 Bland Street) would change in the setting of this property. However, the existing setting (commercial) was not contributory to the property or to the significance of the Haberfield HCA, so it would be a neutral impact.	
Impact type	Setting	
Impact ranking	Neutral	

Table 6-7 Heritage significance assessment and impact assessment for potential heritage item

Address	139 Alt Street, Ashfield	
Assessment of Significance	The site demonstrates local heritage significance as a contributory item to the broader Haberfield HCA.	
Assessed level of significance	Local – contributory to the Haberfield HCA	
Proposal	Nil	
Heritage impact assessment	Owing to the physical separation between this property and the project footprint, the existence of an intermediate building (137 Alt Street), and the proposed use of the closest civil site for construction workforce parking, there would be no physical or visual impact.	
Impact type	Nil	
Impact ranking	Neutral	

Table 6-8 Heritage significance assessment and impact assessment for potential heritage item

Address	144 Alt Street, Ashfield	
Assessment of Significance	The site demonstrates local heritage significance as a contributory item to the broader Haberfield HCA.	
Assessed level of significance	Local – contributory to the Haberfield HCA	
Proposal	Nil	
Heritage impact assessment	Owing to the physical separation between this property and the project footprint, the existence of an intermediate building (142 Alt Street), and the proposed use of the closest civil site for construction workforce parking, there would be no physical or visual impact.	
Impact type	Nil	
Impact ranking	Neutral	

6.6 Area 2 – Leichhardt heritage study area (C4)

6.6.1 Overview

The study area for Leichhardt is shown on **Figure 6-3**. Directly to the north of the project footprint is the Leichhardt North Light Rail Stop. It is a mainly residential area in Leichhardt interspersed with commercial properties concentrated along Norton Street and Marion Street, and some light industrial areas.

Settlement of the area dates from the 1790s, with land used mainly for grazing and farming. Rapid development took place from the late 1800s into the 1920s. Some expansion occurred from the post-war years into the 1970s. The population increased during the late 1990s as new dwellings were added to the area.

Today, the Leichhardt heritage study area mainly consists of detached and semi-detached, single storey residences on narrow lots. Some later two storey dwellings and amalgamated developments also characterise the area. There are no notable heritage buildings, however, there is rail infrastructure including the Charles Street underbridge, historically a part of the Goods Line, and now functioning as part of the light rail.

Figure 6-3 Leichhardt project footprint with heritage study area shown

(Source: Google Maps with GML overlay)

6.6.2 Heritage items and conservation areas

Table 6-9 below sets out the listed heritage items and conservation areas in Area 2 – Leichhardt, and are also shown on **Figure 6-4**.

Table 6-9 Statutory heritage listings for heritage items in the Leichhardt heritage study area. Items with no shading may be subject to indirect impacts.

Item name	Address	Suburb	Significance	Listing	Impact Type
Leichhardt (Charles Street) Underbridge	Dulwich Hill to Rozelle Goods Line 12.405km Charles Street	Leichhardt	Local	RailCorp S170 Register (#4805738)	Setting, vibration

Figure 6-4 Statutory heritage listings for heritage items in the vicinity of the Leichhardt study area

(Source: Google Earth with GML overlays 2016)

6.6.3 General heritage impact assessment

The works in Leichhardt study area comprise the use of the site at Darley Road as a civil and tunnel site. A motorway operations complex, comprising a permanent water treatment plant and associated substation to service to mainline tunnel for the project would be constructed at the Darley Road civil and tunnel site.

Generally, the potential for adverse heritage impacts resulting from the project in the Leichhardt heritage study area is neutral to minor. The Darley Road civil and tunnel site is in the vicinity of the Leichhardt (Charles Street) Underbridge (which is located adjacent to the project footprint) but is not in the vicinity of any HCAs. Therefore, the use of the site for construction would not directly physically impact on any identified heritage values, however some indirect setting and vibration impacts may occur to the Charles Street Underbridge.

6.6.4 Detailed heritage impact assessment

Table 6-10 provides an impact assessment for the statutory heritage item within the area with the potential to be directly or indirectly affected by the project. For this item, a description and statement of significance (drawn from existing heritage citations) is provided, an assessment of the heritage impact of the proposed works on the heritage significance of the affected heritage item is undertaken, and an overall ranking of the severity of the impact is identified.

Table 6-10 Heritage significance assessment and impact assessment for Leichhardt (Charles Street) Underbridge

Name	Leichhardt (Charles Street) Underbridge	
Address	Dulwich Hill to Rozelle Goods Line 12.405km Charles Street, Leichhardt	
Significance	Local – RailCorp S170 (#4805738)	
Description	Single span, double track, steel half-through plate web girder bridge, with a 22.86m span between brick abutments, with perpendicular wing walls.	
Statement of Significance	The Charles Street Underbridge is significant as part of the original infrastructure for the Metropolitan Goods Line, one of the most significant and effective railway projects in NSW during the twentieth century, which separated freight and passenger rail traffic within the metropolitan network. The bridge is a good representative example of riveted plate girder rail bridges, with a span towards the maximum length for plate web girders, and is a highly visible landmark structure over Charles Street.	
Heritage Impact Assessment	The Darley Road civil and tunnel site would have a minor and temporary impact on the Leichhardt (Charles Street) Underbridge, as it would result in the site adjacent to the heritage item (currently commercial) being demolished and used for construction. Owing to the narrowness at the western extent of the civil and tunnel site (ie the area closest to the underbridge), this area would be used for a substation and vehicle parking area during construction. The civil and tunnel construction works would not directly impact on the underbridge as it would be retained and continue to function during construction (for the Sydney light rail). However, some indirect impacts from vibrations or changes to visual setting could be experienced. However, these would also be minor and temporary. At the conclusion of tunnelling works, a motorway operations complex would be constructed on a portion of the site. The remainder of the site would be rehabilitated and would become remaining project land. The exact location of the motorway operations complex would be determined as part of the detailed design. However, for the purposes of this assessment has been assumed to be located closest to the underbridge. Landscaping, following the construction of the substation, should consider screening the substation and water treatment plant, from the Leichhardt (Charles Street) Underbridge. The design and location of the landscaping would be informed by a heritage specialist and should seek to create a visual separation between the new structure and the heritage item.	
Impact Type	Setting, vibration	
Impact Ranking	Minor adverse	

6.6.5 Potential heritage items

During the surveys, areas of potential heritage value were investigated to identify items with heritage value that are not listed and may be impacted by the project. This was achieved via a pedestrian and vehicle survey of the project footprint in order to assess the external condition and nature of properties in the vicinity.

No buildings within the study area were identified as potential heritage items therefore no heritage assessments were required.

6.7 Area 3 – Rozelle, Lilyfield and Annandale (Rozelle Rail Yards, The Crescent, Rozelle Bay and Victoria Road) heritage study area (C5, C6 and C7)

6.7.1 Overview

The study area for Rozelle and Lilyfield (C5, C6 and C7) is shown on **Figure 6-5**.

The Rozelle Rail Yards are the dominant element within the Rozelle heritage study area. They are bounded by the multi-laned City West Link to the south and the CBD and South East Light Rail Rozelle maintenance depot to the west. To the east, the Rozelle Rail Yards extend under the Victoria Road bridge for about 80 metres. A quarried sandstone cutting rises up to demarcate the Rozelle Rail Yards' northern boundary in the western portion and directly beyond lies Lilyfield Road. In the vicinity of Gordon Street, the northern boundary abuts industrial and commercial buildings. To the east of Gordon Street, the northern boundary is marked by a quarried sandstone cutting, with residential properties above this.

Figure 6-5 Rozelle project footprint with Rozelle, Lilyfield and Annandale (Rozelle Rail Yards, The Crescent, Rozelle Bay and Victoria Road) heritage study area shown

(Source: Googles maps with GML overlay)

The Rozelle study area is of a linear character, oriented along the Goods Line. The ground slopes gently to the southeast corner where a concrete slab has been laid, and is currently occupied by temporary structures and crane parts. The southern boundary of the study area is raised, approximately three metres to the surface level of the adjacent roadway.

The Rozelle Rail Yards are located on what was a filled and reclaimed estuary and are set down into an early cutting through the sandstone of the ridgeline. There are a number of other landscape modifications that have occurred at the rail yards, which are consistent with their use as an industrial site, including road paving and gravel landscaping. Based on historical imagery, it appears the Rozelle Rail Yards have been cleared of a large portion of infrastructure that related to its use as a rail yard.

The Rozelle Rail Yards site management works are being undertaken to remove rail and rail related infrastructure from the site and allow existing issues at the site such as waste and noxious weeds to be appropriately managed. Key features of the works relevant to the REF HIA include removal of existing above ground rail infrastructure including gantries, railway lines, ballast, sleeps and buildings (excluding the southern penstock, switching station, transformer and rail infrastructure to the east of the Victoria Road bridge) generally to a depth of 500 millimetres below ground level, except where drainage channels and sediment basins are required. No listed heritage items are being demolished as part of the site management works. However, the REF HIA identified a number of items of potential local heritage significance in and around the Rozelle Rail Yards site. Some of these items are being demolished as part of the site management works, being a lighting tower and Port Authority building. Mitigation measures including archival recordings of these items and salvage and storage of the lighting tower and rail gantries for potential reuse in future development of the Rozelle Rail Yards were recommended in the REF.

The character of the surrounding suburbs of Lilyfield and Rozelle is predominantly residential, with much of the housing built to serve workers employed by rail and maritime reliant industries over the first half of the twentieth century. There are many vestiges of the area's industrial and port focused past around the waterfronts of Rozelle Bay and White Bay.

6.7.2 Heritage items and conservation areas

Table 6-11 and **Figure 6-6** sets out the listed heritage items and conservation areas in Area 3 – Rozelle, Lilyfield and Annandale (Rozelle Rail Yards, The Crescent, Rozelle Bay and Victoria Road).

Table 6-11 Statutory heritage listings for heritage items in the Rozelle, Lilyfield and Annandale (Rozelle Rail Yards, The Crescent, Rozelle Bay and Victoria Road) heritage study area.

Items with the potential to be directly affected by the M4-M5 Link project are shaded. Items with no shading may be subject to indirect impacts.

Item name	Address	Suburb	Significance	Listing	Impact Type
Brennan's Estate HCA		Rozelle	Local	Leichhardt LEP 2013 (Item no. C16)	Setting, vibration, settlement
Easton Park HCA		Rozelle	Local	Leichhardt LEP 2013 (Item no. C18)	Setting, vibration, settlement
Easton Park	Denison Street	Rozelle	Local	Leichhardt LEP 2013 (Item no. I752)	Vibration, settlement, temporary visual, potential tree root impacts
Sewage Pumping Station No.6	168 Lilyfield Road	Rozelle	Local	Sydney Water S170 Register (#4571704)	Vibration, settlement
Hornsey Street HCA		Rozelle	Local	Leichhardt LEP 2013 (Item no. C19)	Demolition of non-contributory building, setting, vibration, settlement

Item name	Address	Suburb	Significance	Listing	Impact Type
White Bay Power Station	Victoria Road and Robert Street	Rozelle	State	State Heritage Register (#01015) Sydney Regional Environmental Plan - City West REP No. 26 - Sch. 4, Part 3 (#11) AusGrid S170 (#74)	Setting, minor curtilage encroachment
Whites Creek Stormwater Channel No 95	Railway Parade to Parramatta Road	Annandale	Local	Sydney Water S170 (#4570343)	Partial demolition, reshaping, setting, vibrations
Street trees – row of Palms	Railway Parade	Annandale	Local	Leichhardt LEP 2013 (Item no. I78)	Setting, vibration
Avenue of Phoenix canariensis	Railway Parade	Annandale	Local	Leichhardt LEP 2013 (Item no. I79)	Setting, vibration
Annandale (Railway Parade) Railway Bridge	Railway Parade	Annandale	Local	Sydney Regional Environmental Plan - City West REP No. 26 - Sch. 4, Part 3 (#7) RailCorp S170 (4803231)	Setting, vibration
Arched Bridge	Whites Creek	Annandale	Local	Sydney Regional Environmental Plan - City West REP No. 26 - Sch. 4, Part 3 (#8)	Nil
Annandale (Johnston Street) Underbridge	Johnston Street	Annandale	Local	Sydney Regional Environmental Plan - City West REP No. 26 - Sch. 4, Part 3 (#9) RailCorp S170 (4803229)	Setting, vibration

Item name	Address	Suburb	Significance	Listing	Impact Type
Stormwater Canal	Lilyfield Road	Rozelle	Local	Sydney Regional Environmental Plan – City West REP No. 26 – Sch. 4, Part 3 (#6)	Full demolition
'Cadden Le Messurier'	84 Lilyfield Road	Rozelle	Local	Sydney Regional Environmental Plan - City West REP No. 26 - Sch. 4, Part 3 (#3)	Full demolition
Former Hotel	78 Lilyfield Road	Rozelle	Local	Sydney Regional Environmental Plan - City West REP No. 26 - Sch. 4, Part 3 (#2)	Full demolition

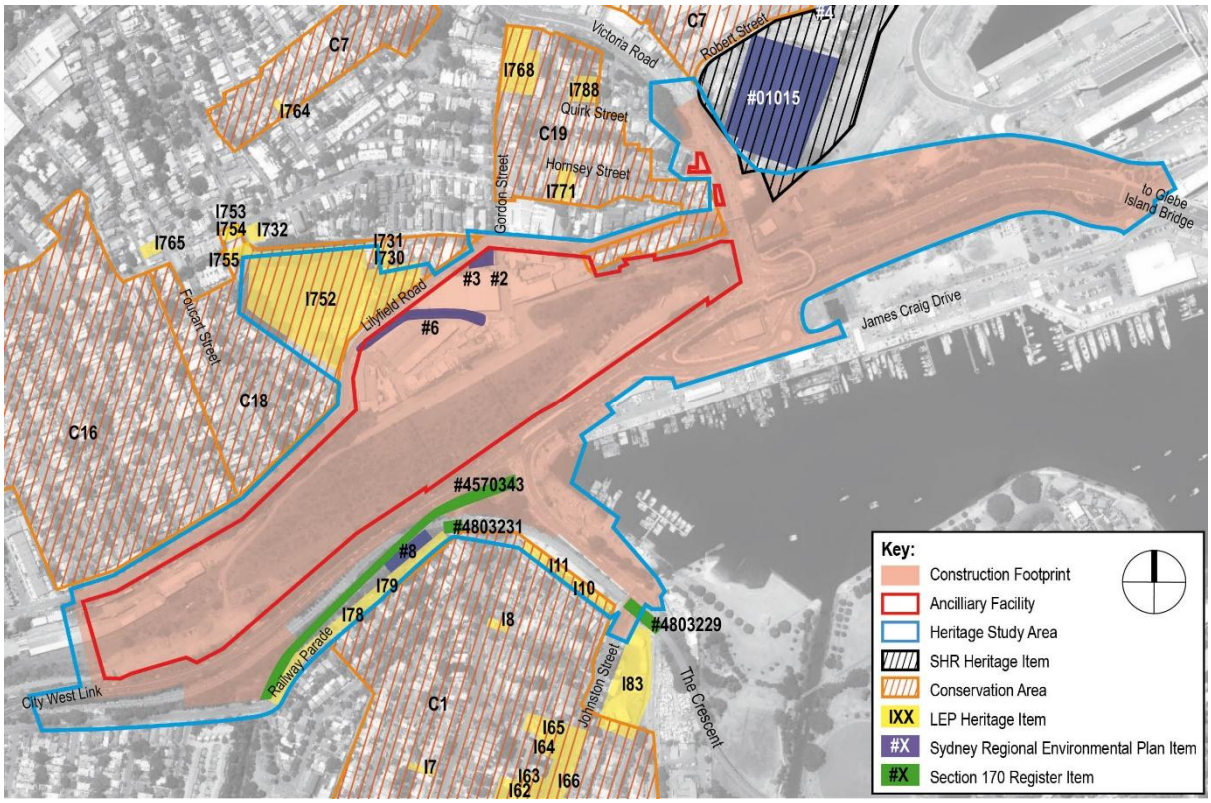


Figure 6-6 Rozelle project footprint with heritage items and HCAs shown

(Source: Leichhardt LEP 2013 Heritage maps 004 and 008, overlay by GML)

6.7.3 General heritage impact assessment

In relation to the Rozelle civil and tunnel site (within the Rozelle Rail Yards), the site management works (including site clearing, removal of redundant rail infrastructure and service investigations) have been previously assessed in the Rozelle Rail Yards HIA (GML 2016). In summary:

> *The assessment concluded that the most notable impact is to the role that the Rail Yards has within a broader network of Sydney industrial and freight sites, known as the 'goods lines'. Although successively fragmented, the network still offers a contribution to the local historic landscape, industrial and maritime history and working class character of the area. With regard to heritage impacts on individual items the proposal has been found to have neutral/no impact in the majority of cases. What little impact has been identified is able to be mitigated through a few simple measures.*

The Rozelle interchange would be constructed mostly underground around the Rozelle Rail Yards with connections north to the Iron Cove Link and the proposed future Western Harbour Tunnel and Beaches Link project, east to Victoria Road and Anzac Bridge, and south to the connecting tunnels south towards Haberfield.

Visible surface structures in and around Rozelle Rail Yards would consist of:

- Tunnel portals connecting into the New M5 at the western end of the site
- Tunnel portals and structures for the Iron Cove Link / M4 East to Anzac Bridge connections at the eastern end of the site
- Tunnel portals connecting to the proposed future Western Harbour Tunnel and Beaches Link at the centre of the site.

While the design of the open space and landscaping to be provided at the Rozelle Rail Yards is yet to be finalised, generally it would change the character of the area and impact surrounding HCAs (with additional infrastructure, landscaping, changing the topography).

The potential for heritage impacts resulting from the project in the Rozelle area would arise from the demolition of SREP listed heritage items (Stormwater Canal, 'Cadden Le Messurier' and Former Hotel) and contributory items within the Hornsey Street HCA to facilitate the dive portals, cut-and-cover tunnels, and ancillary infrastructure. There is also potential for setting, vibration and settlement impacts to a number of other listed heritage items.

The permanent infrastructure within the motorway operations complex (ie water treatment plant, ventilation facility and outlets) have been sited towards the centre of the Rozelle civil and tunnel site and as far as possible to the south, near the City West Link, away from the HCAs to the north. This is to maximise physical and visual separation in an effort to minimise intrusion/impacts on the curtilage and setting of the HCAs to some extent. Where feasible, the size, form, design and materiality of the proposed ventilation facility, outlets and water treatment plant would be as recessive as possible to reduce permanent visual impacts on the HCAs. Urban design and landscaping would also be designed to reduce the prominence of the infrastructure within the overall design of remaining project land.

The ventilation supply facility and substation is contained in the motorway operations complex and is sited at the southwestern extent of the Rozelle civil and tunnel site, adjacent to facilities constructed for the CBD and South East Light Rail project. Similar principles to that described above have been employed to reduce the visual prominence of this infrastructure.

6.7.4 Detailed heritage impact assessment

The following tables (**Table 6-12** to **Table 6-26**) provide an impact assessment for each statutory heritage item and HCA within the area with the potential to be directly or indirectly affected by the project. For these items and areas, a description and statements of significance (drawn from existing heritage citations) is provided, an assessment of the heritage impact of the proposed works on the heritage significance of each of the affected heritage items or HCAs is undertaken, and an overall ranking of the severity of the impact is identified.

Table 6-12 Heritage significance assessment and impact assessment for Brennan's Estate HCA

Name	Brennan's Estate HCA	
Address	Rozelle	
Significance	Local - Leichhardt LEP 2013 (#C16)	
Description	Brennan's Estate HCA comprises all of JR Brennan's estate, excepting the southwestern allotments recently redeveloped from industrial purposes to multi-unit residential uses. It also includes on its northern boundary, the allotments facing O'Neill Street, created from the last subdivision of the Maida Estate in 1915.	
Statement of Significance	One of a number of conservation areas that collectively illustrate the nature of Sydney's early suburbs and Leichhardt's suburban growth particularly between 1871 and 1891, with pockets of infill up to the end of the 1930s (ie prior to World War II). This area was intensely developed 1880s–1890s, and this forms the major element of its identity. It is significant for its surviving development from this period and the pockets of later infill development prior to World War II (ie up to 1939). Through its pattern of subdivision and the scale, shape, siting and materials of its buildings it provides a very intact example of a late nineteenth, early twentieth century suburb built for working men and tradesmen. The density and regularity of its development across the landform, the views so created out of the area, together with the small-scale detail of its modest architectural decoration result in a place of aesthetic value. It demonstrates through its remaining factories and the town houses that have replaced others, the mixed industrial/residential/retail nature of suburban development of that period, before the rise of cheap public transport, and before the urban reform movement sought to separate land uses into zones. Through its small scale regular housing and the narrowed width of Joseph Street, it demonstrates a continuing theme in residential development throughout suburban Australia – the owner's determination to gain as much as possible from his land. The concentration of free-standing houses in an area of narrow allotments demonstrates possibly both early fire regulations and the social status attached to a free-standing house. It demonstrates the role of timber as a building material in nineteenth century Sydney especially for the most modest end of the housing market, and the proximity of the timber yards in Whites Bay. It demonstrates, through its groupings of three to five identical houses, the work of small-scale building contractors who constructed the suburb. It illustrates through the existence of back lanes the reliance on the night soil cart before the reticulation of sewerage systems throughout suburban Sydney. Source: Inner West Council, 2013, 'Conservation Area 9 – Brennan's Estate', viewed 1 November 2016 < http://www.leichhardt.nsw.gov.au/Planning---Development/Planning-Controls--DCPs--LEPs--VPAs-/Heritage/Conservation-Area-9-Brennan-s-Estate>	

Name	Brennan's Estate HCA
Heritage Impact Assessment	Generally, the potential for adverse heritage impacts resulting from the project in this area arises from visual impacts on the setting of the conservation area from the temporary construction buildings and hoardings, and from permanent above ground infrastructure. The siting of the ventilation facility, outlets and water treatment plant a fair distance to the northeast of the HCA, and the efforts to minimise their prominence through design and landscaping, helps to reduce its visual impact on the HCA. Owing to the topography of the Rozelle Rail Yards site (ie lower than the conservation area) the closest infrastructure (ie the air intake facility and substation located at the southwestern extent of the project footprint) would be below the road level of Lilyfield Road and therefore slightly obscured from views from the conservation area. The retention of street trees along Lilyfield Road would also help to screen the proposed buildings/structures. These factors would help to minimise the visual impact on the HCA. Their location in the same area as the infrastructure of the CBD and South East Light Rail project minimises but does not ameliorate the intrusion in the curtilage of the Brennan's Estate HCA.
Impact Type	Setting, vibration and settlement
Impact Ranking	Minor adverse

Table 6-13 Heritage significance assessment and impact assessment for Easton Park HCA

Name	Easton Park HCA	
Address	Rozelle	
Significance	Local - Leichhardt LEP 2013 (#C18)	
Description	The Easton Park HCA occupies a small knoll of land above Whites Creek, and the small valley to its north, now largely occupied by Easton Park (reclaimed from Rozelle Bay).	

Name	Easton Park HCA
Statement of Significance	One of a number of conservation areas which collectively illustrate the nature of Sydney's early suburbs and Leichhardt's suburban growth particularly between 1871 and 1891, with pockets of infill up to the end of the 1930s (ie prior to World War II). This area illustrates development of workers' and tradesmen's housing from the 1880s-1930s in response to nearby industry. It is significant for its surviving development from the pre-World War II period (ie pre-1939). In its now rare weatherboard buildings it can continue to demonstrate the nature of an important/major construction material in the fabric of early Sydney suburbs, and the proximity of the timber yards in Whites Bay. Through the mixture of shops, and nearby industrial buildings it demonstrates the nature of a Victorian suburb, and the close physical relationship between industry and housing in nineteenth century cities before the advent of the urban reform movement and the separation of land uses. Of aesthetic value for the valley siting and mature plantings of Easton Park, and the relationship of adjoining and enclosing anchor buildings with verandas. It demonstrates the nature of some private subdivisions before the introduction of the Width of Streets and Lanes Act of 1881 required roads to be at least one chain wide. Source: Inner West Council, 2013, 'Conservation Area 10 – Easton Park', viewed 1 November 2016 <http://www.leichhardt.nsw.gov.au/Planning---Development/Planning-Controls--DCPs--LEPs--VPAs-/Heritage/Conservation-Area-10-Easton-Park>
Heritage Impact Assessment	Easton Park which is at the 'centre' of this HCA would not be physically affected by the project. The historic contribution and aesthetic significance of Easton Park to the conservation area would not be compromised by the project. The historic and aesthetic values embodied in the surrounding subdivision, houses and gardens would also not be compromised by the project. Generally, the potential for adverse heritage impacts resulting from the project in this area arises from visual impacts on its setting from the temporary construction buildings and hoardings, and from permanent above ground infrastructure. For the proposed infrastructure in the centre of the Rozelle Rail Yards, the siting of the ventilation facility, outlets and water treatment plant to the south of this HCA would have a moderate adverse impact on the visual setting of the HCA despite efforts to minimise their prominence through design and landscaping. For the proposed infrastructure in the southwestern extent of the Rozelle Rail Yards, there would not be a noticeable impact on the Easton Park HCA, due to the substantial physical separation between the air intake facility and substation.
Impact Type	Setting, vibration and settlement
Impact Ranking	Minor adverse

Table 6-14 Heritage significance assessment and impact assessment for Easton Park

Name	Easton Park	
Address	Denison Street, Rozelle	
Significance	Local - Leichhardt LEP 2013 (Item no. I752)	
Description	Easton Park is located within the suburb of Rozelle and is bounded by Lilyfield Road, Denison Street and Burt Street. The main entry to the park is from Lilyfield Road. The site comprises passive open space areas and a local sports field utilised for soccer in the winter months and junior cricket in the summer. It also contains an enclosed children's playground a hip-roofed, brick and corrugated iron amenities building incorporating a public toilet and a heritage listed sewer pumping station owned by Sydney Water. The parkland is defined by the curvilinear street edges to the south and west, a reflection of the site's historical topography and settlement pattern, near the edge of Rozelle Bay. It contains 15 mature *Ficus microcarpa var. hillii* (Hills Weeping fig) and one *Ficus macrophylla* (Moreton Bay Fig) which are protected by a Tree Preservation Order. These significant Hills Fig trees at the northern and western border create much of the character of the park. The park is used for passive public recreation, including walking, dog walking, and playing in addition to the active use of the playing field. There are concrete footpaths of varying widths with an existing footpath along the southern edge of the park to Lilyfield Road. An asphalt footpath runs along the Burt Street alignment. The playing field and playground are enclosed. The playground has a grassed, rectangular shaped playing area with timber slatted seating and table, children's play equipment comprising swing, climbing structure and slide, and overhead shade structure. The central open space area is utilised for off-leash dog exercise. There is an area to the east of the amenities (containing public toilet and change facilities) which is used for the storage of play equipment and nets.	
Statement of Significance	Easton Park was established in the early 1890's and significantly retains original features and early formal layout such as the sewer pumping station owned by Sydney Water, the Morton Bay fig trees, low fences, paths, open grassed area, and various native trees and shrubs. This is overlayed by modern features such as the playground which overall make a positive contribution to the local area. Source: OEH, 2012, 'Easton Park', viewed 17 July 2017 <http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=1940802>	

Name	Easton Park
Heritage Impact Assessment	Easton Park itself is not physically affected by the proposed construction works. Its significant features of the park, including the Sewage Pumping Station and the Moreton Bay fig trees, would not be directly impacted. However, owing to the tunnelling under the park from Rozelle Rail Yards, there is the potential for indirect vibration and settlement impacts on the park. The visual setting of the park would be temporarily impacted by the proposed construction works owing to the hoardings which will be required to secure the site. Overall, the heritage values of Easton Park would be retained and interpretable throughout the construction, and its primary (significant) use as a public park would be maintained. There would be no operational impacts on Easton Park.
Impact Type	Potential vibration and settlement, temporary visual and potential tree root impacts
Impact Ranking	Minor adverse

Table 6-15 Heritage significance assessment and impact assessment for Sewage Pumping Station No.6 (SP0006)

Name	Sewage Pumping Station No.6 (SP0006)	
Address	168 Lilyfield Road, Rozelle	
Significance	Local – Sydney Water S170 Heritage and Conservation Register (#4571704)	
Description	SP0006, Rozelle is a low level sewage pumping station prominently located in Easton Park. It consists of two distinct parts: a superstructure comprising a small rectangular single storey loadbearing brick building; and a substructure constructed of concrete which houses a machinery and sewage chambers. Architecturally, the building was designed in a utilitarian version of the Federation Queen Anne style. Externally there is a corrugated iron gambrel roof with timber louvered gable vents and exposed eaves with timber sarking boards; double casement windows with multi paned fanlights; dark red-brown tuck pointed brickwork laid in English bond with a splayed brick plinth and engaged brick piers capped with rubbed sandstone; rock faced sandstone sills and lintels; quadrant gutters and cast iron rainwater heads and downpipe. Internally, the ceiling is lined with tongue and grooved boarding and walls are rendered and lined out to simulate ashlar coursing. The substructure is divided into a machinery well comprising two vertical spindle centrifugal pumps, each direct coupled to electric motors. Adjacent are two sewage wells and an inlet well.	

Name	Sewage Pumping Station No.6 (SP0006)
Statement of Significance	SP0006 is of historic, aesthetic and technical/research significance. Historically it was part of an original network of twenty low level sewage pumping stations constructed at the end of the nineteenth century to serve Sydney. The station along with the construction of the Bondi Ocean Outfall Sewer (10 years earlier) formed a part of the major advance in the protection of the public health of Sydney by ending the discharge of sewage into the Harbour. They were built as a direct response to the outbreaks of enteric fever (typhoid) which plagued Sydney from the 1870s to 1890s, and the recommendations of the Sydney City and Suburban Health Board (established by the NSW Government in 1875 to report on the best means of sewage disposal) which proposed the establishment of outfall sewers. Aesthetically it is a good example of a small-scale industrial building designed in the Federation Queen Anne style. Due to its prominent location in the public reserve, the station contributes to the local cultural landscape. In its surviving fabric, SP0006 reflects the importance of Federation Period public utilities, which is evident in the overall design, technical excellence of the traditional construction techniques and craftsmanship such as the stone dressing and tuckpointed brickwork. The station is also technically significant for its continuous use nearly a century after its introduction as a low level sewage pumping station as originally designed and constructed, apart from mechanical and electrical modifications. It has educational and interpretation potential to reveal information about sewage pumping engineering and in architectural taste in a period when utilitarian buildings were given as much careful attention as public buildings. The station occupies a prominent location along Lilyfield Road within Easton Park and by virtue of its design, scale, colour and texture it makes a valuable contribution to the townscape and cultural landscape of Rozelle. Source: Sydney Water, 2014, 'Sewage Pumping Station No 6 (SP0006)', viewed 17 July 2017 <https://www.sydneywater.com.au/SW/water-the-environment/what-we-re-doing/Heritage-search/heritage-detail/index.htm?heritageid=4571704&FromPage=searchresults>
Heritage Impact Assessment	The Sewage Pumping Station would not be physically impacted by the proposed construction works. However, owing to the tunnelling under this item from Rozelle Rail Yards, there is the potential for indirect vibration and settlement impacts on the item depending on the depth at which the tunnel is when it is under this southern extent of the park (which is currently a minimum of 10m below ground level). This would be managed in accordance with the recommendations of noise and vibration assessment in **Appendix J** (Technical working paper: Noise and vibration) of the EIS and with the recommendations of **Chapter 12** (Land use and property) of the EIS. The visual setting of the item would be temporarily impacted by the proposed construction works owing to the hoardings which will be required to secure the site. Overall, the historic, aesthetic and technical/research heritage values of the Sewage Pumping Station and its operation would be retained.
Impact Type	Potential vibration and settlement, temporary visual
Impact Ranking	Minor adverse

Table 6-16 Heritage significance assessment and impact assessment for Hornsey Street HCA

Name	Hornsey Street HCA	
Address	Rozelle	
Significance	Local – Leichhardt LEP 2013 (#C19)	
Description	This HCA is situated around a small knoll of land above Victoria Road, and just above the Whites Creek estuary and the industrial areas of Rozelle Bay. There are views across to Rozelle Bay and the city skyline.	
Statement of Significance	One of a number of conservation areas which collectively illustrate the nature of Sydney's early suburbs and Leichhardt's suburban growth particularly between 1871 and 1891, with pockets of infill up to the end of the 1930s (ie prior to World War II). This area illustrates a number of layers of development from an early pre-suburban villa of 1876 to small scale tradesmen and workers' housing from the 1870s through to the 1930s. It is significant for its surviving development from the pre-World War II period (ie pre-1939). Demonstrates the close physical relationship between industry and housing (both middle class and workers' housing) in nineteenth century cities. Demonstrates the nature of some private subdivisions before the introduction of the Width of Streets and Lanes Act of 1881 required roads to be at least one chain wide. Source: Inner West Council, 2013, 'Conservation Area 11 – Hornsey Street', viewed 1 November 2016 <http://www.leichhardt.nsw.gov.au/Planning---Development/Planning-Controls--DCPs--LEPs--VPAs-/Heritage/Conservation-Area-11-Hornsey-Street>	
Heritage Impact Assessment	The two-storey commercial property at 32 Victoria Road (Rozelle Rugs Centre) would be demolished to accommodate the associated road widening of Victoria Road in this area. This would not have an impact on the heritage values of the HCA. Care must be taken when demolishing the subject building as it is 'attached' to No.5 Lilyfield Road; the row of adjacent terraces. There are some sections of early sandstone kerbing in two locations along the Victoria Road frontage of 32 Victoria Road (and another section on the Hornsey Street frontage). These interrupted sections are interspersed with concrete kerbing at the bus stop and corners. These stones should be salvaged and provided to Inner West Council.	
Impact Type	Demolition of a non-contributory building, setting, vibration and settlement	
Impact Ranking	Neutral	

Table 6-17 Heritage significance assessment and impact assessment for Whites Creek Stormwater Channel No 95

Name	Whites Creek Stormwater Channel No 95	
Address	Railway Parade to Parramatta Road Annandale	
Significance	Local – Sydney Water S170 (#4570343)	
Description	This channel drains an area of 262 hectares lying to the south of Rozelle Bay and is generally located between Balmain Road, Leichhardt and Johnston Street, Annandale. The catchment area of the channel is within the municipalities of Leichhardt and Marrickville. From the outlet in Rozelle Bay, the drain proceeds in a meandering course in a southerly direction crossing Brennan, Piper, Booth, Styles and Albion Streets before terminating at Parramatta Road. The channel is 3.92 km in length and is predominantly brick (56%) and concrete (42%) in fabric. The channel cross section is composed of the following; circular (38%), covered (30%) and open channel (27%). The main channel has the following Branches stemming from it; Piper Street, Moore Street, Styles Street and Parramatta Road. The size of the channel outlet is 7.4m x 1.3m. Part of the stormwater drain runs through Whites Creek Valley Park, a picturesque recreational area. Various bridges are built over the channel and they add to the historic and aesthetic values of the drain. In addition, the highly significant Whites Creek Aqueduct (Bondi sewer) passes overhead.	
Statement of Significance	The Whites Creek Stormwater Channel was constructed progressively during the period 1898 to 1938 (although most of the channel was completed before 1909). Prior to 1890, stormwater was carried by either combined sewers or natural water courses. This led to unsanitary public health conditions and in 1890 Bruce Smith, the then secretary of Public Works, proposed a separate system of stormwater drains be built to alleviate the problem. By 1900 numerous stormwater drains, including Whites Creek SWC, had been completed or were under construction. Consequently, Whites Creek SWC is of historical significance as it was one of the earliest purpose built stormwater drains to be constructed. In addition, the channel has added significance due to its connection with Whites Creek Sewer Aqueduct which passes over the channel. The aqueduct is historically significant as it was one of the first reinforced concrete aqueducts to be built (refer to Listing Card SHI 4570954 for more details). The operational curtilage of Whites Creek includes the channel bed, walls and coping. The visual curtilage of the channel will vary along the length of the channel depending on the surrounding land uses. To formulate a specific curtilage statement that includes details of surrounding land use and encroachment of various developments would require further investigations and is beyond the scope of this study. However, in general the visual curtilage can be described as follows: · The upper reaches of the channel, located south of Booth and Moore Streets Annandale, is an underground structure, and holds no cultural landscape value · The open sections of the channel stretches from Booth and Moore Streets to the discharge point at Rozelle Bay · At its lower reaches visual curtilage is limited to where the channel can be observed between the Rozelle Rail Yards and Railway Parade and from within the Whites Creek Valley Parkland. Source: Sydney Water, 2014, 'Whites Creek Stormwater Channel No 95', viewed 1	

Name	Whites Creek Stormwater Channel No 95
	November 2016 <http://www.sydneywater.com.au/SW/water-the-environment/what-we-re-doing/Heritage-search/heritage-detail/index.htm?heritageid=4570343&FromPage=searchresults>
Comparative analysis	Prior to 1842, there was no formal record of any stormwater drainage systems in Sydney. The Tank Stream, Sydney's first water supply had become polluted which lead to the spread of disease and realisation that combined sewers needed to be constructed to take the place of polluted surface streams. During the mid-nineteenth century, the construction of five combined sewers commenced in order to dispose of the city's stormwater and sewage into the Harbour. The five original combined sewers were Bennelong Stormwater Channel No 29, Blackwattle Bay Stormwater Channel No 17, Hay Street Stormwater Channel, Tank Stream and Woolloomooloo Stormwater Channel. These five sewers were responsible for greatly improving public health, hygiene and living standards for the city's residents and are historically and technologically significant as excellent examples of the engineering and construction techniques of the city's early infrastructure. A precedent was set in establishing separate stormwater channels around the suburbs of Sydney to better improve public health. Various channels were built around the 1900s including the Whites Creek Stormwater Channel, Johnstons Creek Stormwater Channel, Doody Street and Shea's Creek Stormwater Channel. These channels all represent a group of the earliest purpose-built stormwater drains constructed in Sydney following the 1890 direction of the Secretary for Public Works to build a stormwater system separate to the sewer. The Whites Creek Stormwater Channel No 95 is comparable to the channels constructed as part of the late nineteenth and early twentieth century including Hawthorne Canal, Long Cove Creek and Iron Cove Creek.

Name	Whites Creek Stormwater Channel No 95
Heritage Impact Assessment	The interchange modifications (including widening, re-alignment and creation of a new left turn lane onto the City West Link and new lanes into the (future) Western Harbour Tunnel) would necessitate the encroachment into Buruwan Park, removal of plantings and a new/extended bridge over the White Creek Stormwater Channel No 95. Although this would be a new or an extension of the existing bridge over the stormwater channel, the actual channel under the bridge (and its operation) would not be physically impacted. The works would also involve the increasing of the span over Whites Creek and reshaping the land immediately to the south of Whites Creek to increase the overland capacity of the channel and mitigate flooding impacts. The new/extended bridge and the reshaping of land to the south of the channel would involve the removal and replanting of vegetation, which would further alter the visual setting of the heritage item at this location. However, this vegetation does not have heritage values in itself, and the works would generally be in keeping with the works currently being proposed by Sydney Water for Whites Creek. Sydney Water is proposing a waterway rehabilitation and naturalisation project for an approximately 420m section of Whites Creek (about 200m west from the outlet at Rozelle Bay, however this would not include the section of Whites Creek immediately affected by the project). Investigations are being undertaken to determine which parts need to be repaired, and if it could be undertaken using natural materials (ie replacing concrete banks with ones made of rock and native plants). The ability to 'naturalise' would depend on available space, land conditions and other constraints. The M4-M5 Link project would undertake rehabilitation and naturalisation in the section of the Whites Creek channel east of the new bridge towards Rozelle Bay. This would likely include a sandstone wall to replace the northern channel wall and naturalisation on the south side. Details of this are yet to be finalised. Consultation would be undertaken with Sydney Water to ensure a compatible design. The pedestrian/cycle bridge would straddle White Creek to the east and west of the new/extended bridge and be a new piece of infrastructure in the landscape. While the design and support structure is yet to be finalised, it is unlikely that this would have a direct impact on the channel.
Impact Type	Partial demolition, reshaping, setting, vibrations
Impact Ranking	Moderate adverse

Table 6-18 Heritage significance assessment and impact assessment for Arched Bridge, Whites Creek

Name	Arched Bridge, Whites Creek	
Address	Whites Creek (adjacent to Railway Parade)	Not accessible for photo
Significance	Local – SREP 26 (Schedule 4, Part 3, #8)	
Description	No information available and inaccessible to make a description	
Statement of Significance	No information available	
Heritage Impact Assessment	This heritage item is outside of the project footprint. There would be no direct or indirect impacts owing to the physical separation from the project footprint, and as the item is surrounded by an embankment on the southern side (along Railway Parade) and the vegetated land between White Creek and the City West Link.	

Name	Arched Bridge, Whites Creek
Impact Type	Nil
Impact Ranking	Neutral

Table 6-19 Heritage significance assessment and impact assessment for Street trees – row of Palms

Name	Street trees – row of Palms	
Address	Railway Parade, Annandale	
Significance	Local – Leichhardt LEP 2013 (#I78)	
Description	From the southern end of Railway Parade to the northern end on the west side of the road near Whites Creek, a row of 14 mature Phoenix Canariensis palms are spaced out at regular intervals. The palms at the southern end are very tall and well established while those further north are a bit smaller and some are surrounded by garden beds.	
Statement of Significance	Railway Parade streetscape has local historic and aesthetic significance as the palms are associated with inter-war period plantings and the influence of J. H. Maiden. The palm trees are a uniform group that provide shade and beautify the street. The garden beds and other vegetation enhance the streetscape. Source: OEH, 2012, 'Street Trees', viewed 17 July 2017 <http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=1940011>	
Heritage Impact Assessment	According to the Urban Design Report and visualisations, the proposed pedestrian and cycle bridge is to be located to the west of the Whites Creek Stormwater Channel. Therefore, these street trees (located on the eastern side of the channel, along Railway Parade) would not be directly impacted. Other (non-listed) trees in the portion of land bounded by Brenan Street to the south, Whites Creek Channel to the east and the light rail line to the north, would be removed to accommodate the ramp and supports of the bridge.	
Impact Type	Setting, vibration	
Impact Ranking	Neutral	

Table 6-20 Heritage significance assessment and impact assessment for Avenue of *Phoenix canariensis*

Name	Avenue of *Phoenix canariensis*	
Address	Railway Parade, Annandale	
Significance	Local – Leichhardt LEP 2013 (#I79)	
Description	From the southern end of Railway Parade to the northern end on the west side of the road near Whites Creek, a row of 14 mature Phoenix Canariensis palms are spaced out in regular spaces. The palms at the southern end are very tall and well established while those further north are a bit smaller and some are surrounded by garden beds.	
Statement of Significance	Railway Parade streetscape has local historic and aesthetic significance as the palms are associated with inter-war period plantings and the influence of J. H. Maiden. The palm trees are a uniform group that provide shade and beautify the street. The garden beds and other vegetation enhance the streetscape. Source: OEH, 2012, 'Street Trees', viewed 17 July 2017 <http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=1940011>	
Heritage Impact Assessment	According to the Urban Design Report and visualisations, the proposed pedestrian and cycle bridge is to be located to the west of the Whites Creek Stormwater Channel. Therefore, these street trees (located on the eastern side of the channel, along Railway Parade) would not be directly impacted. Other (non-listed) trees in the portion of land bounded by Brenan Street to the south, Whites Creek Channel to the east and the light rail line to the north, would be removed to accommodate the ramp and supports of the bridge.	
Impact Type	Setting, vibration	
Impact Ranking	Neutral	

Table 6-21 Heritage significance assessment and impact assessment for White Bay Power Station

Name	White Bay Power Station	
Address	Victoria Road and Robert Street, Rozelle	
Significance	State – State Heritage Register (#01015) Sydney Regional Environmental Plan – City West REP No. 26 – Sch. 4, Part 3 (#11) Ausgrid S170 (#74)	

Name	White Bay Power Station	
		Source: Dictionary of Sydney
Description	White Bay Power Station is located approximately 4km west of the Sydney CBD. The site is bounded to the south by Victoria Road and to the west by Robert Street, Rozelle. It is situated adjacent to a small inlet of Sydney Harbour. The White Bay Complex is composed of the following principal elements: · Two **steel stacks** - the stacks are made of plate welded steel with guy wires and vibration dampeners at top and base. Only the northern-most stack remains, the other having been demolished · A **coal handling unit** serviced by a spur rail line - the coal handling unit has a dumping shed immediately behind the stacks where the rail coal trucks deposited their load. Here it was crushed and sized in jaw crushers and then conveyed by belt and bucket to overhead coal hoppers in the station Boiler House. The whole of the conveyor line is in steel section sheathed in corrugated steel. The whole of the coal handling system is of considerable heritage significance and of high industrial archaeological significance · **Turbine hall** building incorporating administrative offices, the old laboratory and a workshop - the turbine house (or hall) was built in two stages as demand for power increased. The massive rendered brick and reinforced concrete building housed not only the generating equipment but also extensive administrative offices and a laboratory at the southern end. Electrical and mechanical workshops and some of the station circuit breakers were located here. This structure contains the most significant system in the precinct. The power generating system consists of the headers, gauges, condensers, steam feed water pumps, electric feed water pumps, the two 50MW Parsons turbo alternators and their salt water steam condensers. The system is the oldest complete system in NSW. The hall also has a viewing platform in the annex, a large overhead crane and the engine beds of a smaller turbo alternator which was removed and scrapped some time ago. The turbines and their associated artefacts have high significance as a system. The Turbo Alternators, gauges and valves have high significance in their own right. This building is an example of confident industrial architecture, with overtones of the Arts and Crafts Design Movement in the continuous vertical piers of the northern facade. The original prominence of the facade had been somewhat reduced by the 1950s boiler house attached to the left, as well as the infill between the facade of the switch house to the right. However, the full impact would be restored if the later structures were removed. The volume of the turbine hall is an extremely impressive space. It is considerably longer, though narrower, than the Turbine Hall at Ultimo Power House. The construction of the first (southern) half is brickwork. It was always intended to extend the building, but by the 1920s concrete had replaced brick as the preferred material for buildings of this scale. The external walls of the northern part are of poured concrete. The machinery bases, and what were the internal walls to the second Boiler House (since demolished) are in unusual coke breeze blocks, of similar size to sandstone masonry. The lower galleries in the first stage are concrete over permanent corrugated steel formwork. Later additions are in precast concrete arched sections. The main steelwork is stamped with the names of British manufacturers · **Boiler house** - the boiler house is a massive brick and reinforced concrete structure. It is the third and final Boiler House constructed at the station and stands on the site of the first. The second, formerly located to the south, has been demolished. The boiler house is in fair condition considering the time it has been 'mothballed' (Godden 1989: 19). This structure once contained four Babcock and Wilcox pulverised fuel boilers, the Boiler Control Room, twelve massive ball mills for pulverising coal and coal and ash handling equipment. Very few of the relics in the Boiler House date from the first phase of development. The building itself is a brick and reinforced concrete masonry	

Name	White Bay Power Station
	structure in reasonably good condition although it is now showing the inevitable signs of age. The Boiler Control Room, which dates from the early 1950s is of high significance and is the most important item in the Boiler House. All relics within the Boiler House have high industrial archaeological importance · A **switch house** and **substation** · **Ancillary structures** including coal loading wharf and coal handling system.
Statement of Significance	White Bay Power Station was the longest serving Sydney power station and is the only one to retain a representative set of machinery and items associated with the generation of electricity in the early and mid-twentieth century. It retains within its fabric, and in the body of associated pictorial, written archives and reports and oral history recordings, evidence for the development of technology and work practices for the generation of electrical power from coal and water. This development of power generation at White Bay contributed to the expansion of the economy of Sydney and NSW. As a result of its remarkably intact survival, it retains the unique ability to demonstrate, by its location, massing, design, machinery and associated archives, the influence and dominance that early power-generating technology exerted on the lives and urban fabric of inner cities in the first half of the twentieth century. The extant items within the surviving operational systems are of an impressive scale and exhibit a high degree of creative and technical achievement in their design and configuration. They encompass all aspects of the generation of electrical power, and represent all phases from the inter-war period through to the more sophisticated technologies of the mid twentieth century. They are of exceptional technical significance with research potential to yield information not available from any other source. Aesthetically, White Bay Power Station contains internal and external spaces of exceptional significance. These spaces include raw industrial spaces of a scale, quality and configuration which is becoming increasingly rare and which inspire visitors and users alike. Externally, it is a widely recognised and highly visible landmark, marking the head of White Bay and the southern entry to the Balmain Peninsula and its industrial waterfront. It retains a powerful physical presence and industrial aesthetic and is the most important surviving industrial building in the area. White Bay Power Station has strong and special associations and meanings for the local community, for former power station workers and for others who have used the site, and is of high social significance. It is a potent symbol of the area's industrial origins and working traditions, aspects of community identity that are strongly valued today by both older and new residents. It is one of the few surviving features in the area that provide this symbolic connection. It is the only coal based industrial structure, dependent on a waterside location to survive adjacent to the harbour in the Sydney Region. It also forms part of a closely related group of large scale industrial structures and spaces (White Bay Container Terminal, Glebe Island Silos, Container Terminal and Anzac Bridge) which along with the former White Bay Hotel, define a major entry point to the city from the west. It is of exceptional structural significance to the State of NSW. Source: Office of Environment and Heritage, 2004, 'White Bay Power Station', viewed 1 November 2016 < http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=5001335>

Name	White Bay Power Station
Heritage Impact Assessment	The project temporarily encroaches into the south western boundary of the curtilage of the White Bay Power Station. The minor encroachment occurs during the construction phase of the project as a result of the alignment of the temporary Victoria Road bridge. However, the works would be some distance from the Power Station building itself and the building would not be physically impacted by the project The indicative cross section of the replacement of the Victoria Road bridge assessed as part of this HIA show that the concrete deck atop a concrete post and beam structure which is separated a fair (6-7m) distance from the sandstone cutting in order to accommodate a shared path. At this stage of the project, there is inadequate design information available to make a comprehensive assessment of the visual and physical impacts of the support structure for the new road bridge on the railway cutting and the White Bay Power Station. Further design consideration of the support structure for the new road bridge, impact on the railway cutting and its visibility from within the White Bay Power Station curtilage needs to be assessed during detailed design and construction planning. However, this is likely to be a minor adverse impact.
Impact Type	Setting, minor curtilage encroachment
Impact Ranking	Minor adverse

Table 6-22 Heritage significance assessment and impact assessment for Annandale (Railway Parade) Railway Bridge

Name	Annandale (Railway Parade) Railway Bridge	
Address	Railway Parade, Annandale	
Significance	Local – SREP 26 (Schedule 4, Part 3, #7) Railcorp S170 (#4803231)	
Description	Underbridge (1919) A single-span, riveted-steel half-through Pratt truss of 27.43 m (90 feet) span across the full width of Railway Parade. The span is supported by brick abutments. Overhead frames carry electric wires for the double-track light rail system which crosses the bridge.	

Name	Annandale (Railway Parade) Railway Bridge
Statement of Significance	The Annandale (Railway Parade) railway bridge has local significance as an integral part of a separate railway network built between 1910 and 1922 for freight trains to traverse the metropolitan area independent of the passenger train network. The independent freight train network was a highly effective solution to the competing demands of the freight and passenger services on an otherwise congested metropolitan system. The riveted steel half-through truss bridge is a heavy-duty structure in keeping with design policy to allow for future heavy traffic loads, locomotives and rolling stock. This type of half-through Pratt truss is comparatively rare in the NSW railway system. The bridge retains its original fabric and structure. Source: OEH, 2009, 'Annandale (Railway Parade) Railway Bridge', viewed 17 July 2017, <http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=4803231>
Heritage Impact Assessment	This heritage item is outside of the project footprint. Therefore, the works would not directly impact on the underbridge itself as it would be retained and continue to function during construction (for the Inner West light rail). However, the new/extended bridge over Whites Creek would result in encroachment of infrastructure towards the heritage item, changes in its visual setting (ie less trees and diminishing of its parkland setting) and also potentially some indirect impacts from vibrations from construction works.
Impact Type	Setting, vibration
Impact Ranking	Minor adverse

Table 6-23 Heritage significance assessment and impact assessment for Annandale (Johnston Street) Underbridge

Name	Annandale (Johnston Street) Underbridge	
Address	Johnston Street and The Crescent	
Significance	Local – SREP 26 (Schedule 4, Part 3, #9) Rail Corp S170 (#4803229)	
Description	Underbridge (1920) A two-span half-through (pony) Pratt truss bridge of riveted steel crossing Johnston Street and The Crescent. Each span is supported by brick piers and brick abutments. Overhead catenary frames carry electric wires for the double-track light rail system which crosses the bridge.	
Statement of Significance	The Annandale (Johnston Street) underbridge has local significance as an integral part of a separate railway network built between 1910 and 1922 for freight trains to traverse the metropolitan area independent of the passenger train network. The independent freight train network was a highly effective solution to the competing demands of the freight and passenger services on an otherwise congested metropolitan system. The riveted steel half-through Pratt truss bridge is significant as an example of a heavy-duty structure in keeping with NSW Railways design policy to allow for anticipated future heavy traffic loads, locomotives and rolling stock. This type of half-through Pratt truss is comparatively rare in the NSW railway system. The bridge retains its original fabric and structure. Source: OEH, 2009, 'Annandale (Johnston Street) Underbridge', viewed 17 July 2017, < http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=4803229>	
Heritage Impact Assessment	The addition of a right turn lane from The Crescent onto Johnston Street necessitates the widening of the road under the underbridge, adjacent to the bridge piers. This would result in the grassed verge being reduced, the footpath, kerb and guttering being closer and the associated signage/traffic lights being located closer to the bridge piers. There is sufficient room to accommodate the road widening without physical impact to the bridge piers. While the visual setting of this small area would change, it would not be dissimilar to the current context. Therefore, the works would not directly impact on either the underbridge, which would be retained and continue to function during construction (for the Inner West light rail), or on the retaining wall along The Crescent. However, some indirect impacts from vibrations could be experienced from the eastward road widening along The Crescent, and the southward road widening along Johnston Street.	
Impact Type	Setting, vibration	
Impact Ranking	Neutral	

Table 6-24 Heritage significance assessment and impact assessment for Stormwater Canal

Name	Stormwater Canal	
Address	Lilyfield Road, Rozelle	
Significance	Local – SREP 26 (Schedule 4, Part 3, #6)	
Description	The Lilyfield Stormwater Canal is exposed and extends under the study area. However, no physical inspection could be undertaken on this portion of the canal to enable an assessment of the elements present on the site and their relative heritage significance. It is likely that this concrete lined, brick topped canal was constructed to formalise and direct the overland flows from the residential areas to the north, and from the surrounding industrial areas, for discharge into Rozelle Bay.	
Statement of Significance	No information on this heritage item.	
Comparative analysis	There is little historical information regarding the Stormwater Canal at Lilyfield Road and establishing its date of construction is difficult. Generally, following the 1890 direction of the Secretary for Public Works to build a stormwater system separate to the sewer, multiple stormwater systems were constructed around Sydney locales. Other stormwater canals (though to a larger scale) that discharge into Rozelle Bay includes Johnstons Creek and Whites Creek canals.	
Heritage Impact Assessment	Demolition of the channel would result in the permanent loss of the heritage item. It would remove evidence of early stormwater management infrastructure associated with the industrialisation of this area.	
Impact Type	Full demolition	
Impact Ranking	Major adverse	

Table 6-25 Heritage significance assessment and impact assessment for 'Cadden Le Messurier'

Name	'Cadden Le Messurier'	
Address	84 Lilyfield Road, Rozelle	
Significance	Local – SREP 26 (Schedule 4, Part 3, #3)	
Description	Modified late nineteenth century commercial building, with significant changes to the façade and joinery. The awning/first floor verandah has been removed. The historic photograph of the Former Easton Park Hotel (below) shows the side of this verandah.	
Statement of Significance	No official statement of significance in the listing for this item. It is representative of the predominantly Victorian development of the area, which expanded in conjunction with industrialisation of the area.	
Comparative analysis	Commercial buildings were a common feature in Rozelle and Balmain due to the 1880s industrial growth of the area. Significant characteristics of these suburbs included one to two storey commercial premises and small industrial/warehouse buildings throughout the area. This building has similar architectural features as many other Victorian developments in the area (in particular with its decorative mouldings, urns and pediments along and above the parapet). This is not a noteworthy or distinctive example of its typology.	
Heritage Impact Assessment	Demolition of this commercial building would result in the permanent loss of the historic and aesthetic significance of this item. It is representative of the predominantly Victorian development of the area, which expanded in conjunction with industrialisation of the area.	
Impact Type	Full demolition	
Impact Ranking	Major adverse	

Table 6-26 Heritage significance assessment and impact assessment for Former Hotel

Name	Former Hotel	
Address	78 Lilyfield Road, Rozelle	  Photograph of Former Easton Park Hotel c1930. (Source: Australia Gday Pty Ltd)
Significance	Local – SREP 26 (Schedule 4, Part 3, #2)	
Description	Late nineteenth century building, in the Victorian regency style. This former hotel has had its first storey balconies, domical vault and awnings removed, and alterations to its ground floor as evident by the historic photo (above). Established in 1878 as Flood's Hotel, in 1908 William Hollin's took over the licence and the pub was known as Hollin's Hotel. The name was later changed to the Easton Park Hotel, named after a local alderman. The hotel closed in 1957. Source: Jon G courtesy of Australia Gday Pty Ltd, 'Former Easton Park Hotel in Rozelle (Sydney)' viewed 21 July 2017, <http://www.gdaypubs.com.au/NSW/sydney/rozelle/50305/former-easton-park-hotel.html>	
Statement of Significance	No official statement of significance in the listing for this item. It is representative of the predominantly Victorian development of the area, which expanded in conjunction with industrialisation of the area.	
Comparative analysis	During the late nineteenth century, Victorian regency style, corner hotel buildings were quite common in Rozelle and Balmain, as well as across Sydney. These were associated with the working-class areas and manufacturing/industrial sites. The first hotel in Balmain opened in 1842 and provided a basis for the social and political life of the growing suburb. There are many examples of this type of building within the LGA and elsewhere, which are still functioning as hotels, are more intact and retain more of their original features. Other similar examples in Rozelle include the 3 Weeds Hotel (at 193 Evans Street, formerly the Red Lion Hotel, established in 1881), and the Bald Rock Hotel (at 17 Mansfield Street, established in 1876).	

Name	Former Hotel
Heritage Impact Assessment	Demolition of this commercial building would result in the permanent loss of the historic and aesthetic significance of this item.
Impact Type	Full demolition
Impact Ranking	Major adverse

6.7.5 Potential heritage items

During the surveys, the Rozelle, Lilyfield and Annandale areas subject to this assessment were surveyed to identify items with potential heritage value that are not listed and may be impacted by the project. This was achieved via a pedestrian and vehicle survey of the project footprint.

The following structures described in **Table 6-27** and **Table 6-28** were identified as a potential heritage item from the assessment undertaken as part of the Rozelle Rail Yards site management works. Two additional structures were also identified as having potential heritage value based on their association with the State heritage listed White Bay Power Station, and are described in **Table 6-29** to **Table 6-30**.

Table 6-27 Heritage significance assessment and impact assessment for potential heritage item

Address	Victoria Road Bridge, Rozelle	
Assessment of Significance	The Victoria Road bridge has local significance as a representative example of brick overbridges constructed in the 1920s, as part of the roll out of the separate freight line across the Sydney rail network. The bridge is a noticeable landscape feature that provides evidence of the Rozelle Rail Yard's industrial and transport legacy.	
Assessed level of significance	Local for historical and representativeness	
Proposal	Full demolition	
Heritage impact assessment	Demolition of the Victoria Road Overbridge would result in the permanent loss of the potential historic and representative significance of this item, which would be a major adverse impact to this item.	
Impact type	Full demolition	
Impact ranking	Major adverse	

Table 6-28 Heritage significance assessment and impact assessment for potential heritage item

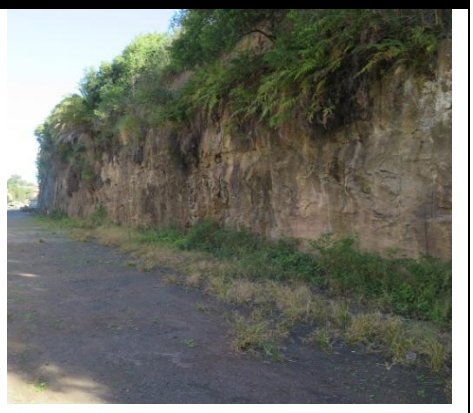
Address	Sandstone Cutting, Rozelle	
Assessment of Significance	The sandstone cutting has some local significance as a representation of the scale and nature of works undertaken for the construction and alignment of the goods rail line. The height and size of the cutting provides evidence of the early ambitions for the train marshalling yard to be a busy interchange. The cutting is a prominent landscape feature, defining the northern limit of the marshalling yard and more generally the topography of the twentieth-century industrial-maritime landscapes of White Bay and Rozelle Bay. There are potential links to quarrying activities on Glebe Island.	 
Assessed level of significance	Local for historical and technical/research	
Proposal	Partial demolition	
Heritage impact assessment	Driving of tunnels through the sandstone cutting and the partial obscuring of the sandstone cutting with landscaping (to grade up and cover the tunnel dive structure) would result in the permanent loss of the potential historic and technical significance of some sections of this item, which would be a moderate adverse impact to this item.	
Impact type	Partial demolition	
Impact ranking	Moderate adverse	

Table 6-29 Heritage significance assessment and impact assessment for potential heritage item

Address	White Bay Power Station Southern Penstock	
Assessment of Significance	The southern penstock is one of two within the broader White Bay Power Station complex. The penstocks are graded 'High Significance' in the White Bay Power Station 2013 CMP as an element of the substantially intact cooling water system, which was integral to the operation of the complex. They play an important role in contributing to the significance of the adjacent White Bay Power Station. According to the CMP, 'where these spaces or elements form part of a space of higher significance or contain machinery or equipment elements of higher significance, any action must respect the higher significance'.	 
Assessed level of significance	State	
Proposal	Vibration	
Heritage impact assessment	The project temporarily encroaches into the south western boundary of the curtilage of the White Bay Power Station which is a State Heritage Register (SHR) listed item. The minor encroachment occurs during the construction phase of the project as a result of the alignment of the temporary Victoria Road bridge. However, the works would be some distance from the Power Station building itself and the building would not be physically impacted by the project. This new temporary replacement bridge could physically and indirectly impact this heritage element and its associated water channels (locations unknown) and would need to be avoided if possible. A method for protecting the structure during works would need to be designed to protect the penstock, its associated water channels (current location and extent unknown), and to distribute the loads away from the heritage asset. Any cover or bridging structure must not be supported on the penstock itself.	
Impact type	Vibration	
Impact ranking	Neutral	

Table 6-30 Heritage significance assessment and impact assessment for potential heritage item

Address	Former White Bay Hotel site foundations (plinth and archaeology)	
Assessment of Significance	The former White Bay Hotel site foundations on Victoria Road, which is located adjacent to the south boundary of the White Bay Power Station, was constructed in 1916 by Tooth and Co. Brewers. This hotel was the second hotel built near the site following resumption of land and demolition of the first hotel in 1915 to build the Power Station. The former White Bay Hotel played an integral part of the landmark identity of the White Bay Power Station. The hotel has had a strongly working class tradition and had strong association with the workers of White Bay Power station dating from 1917, as well as other nearby industries dating from the 1860s. Following years of dereliction, the White Bay Hotel was destroyed by fire in September 2008. The site of the hotel was acquired by SHFA in June 2010 and debris cleared. The former White Bay Hotel site foundations contain little heritage significance following its destruction by fire and subsequent clearing of the site.	 
Assessed level of significance	Local	
Proposal	Full demolition	
Heritage impact assessment	The former White Bay Hotel site foundations (plinth and archaeology) is excluded from the SHR curtilage for the White Bay Power Station, however, it is identified in the 2013 CMP as being of Moderate significance. The site is now only a concrete slab as the hotel was destroyed by fire over a decade ago. Its 'demolition' as part of the road reconfiguration of Victoria Road would be a major adverse impact to this item.	
Impact type	Full demolition	
Impact ranking	Major adverse	

6.8 Area 4 – Iron Cove heritage study area (C8)

6.8.1 Overview

The study area for Iron Cove is shown on **Figure 6-7**.

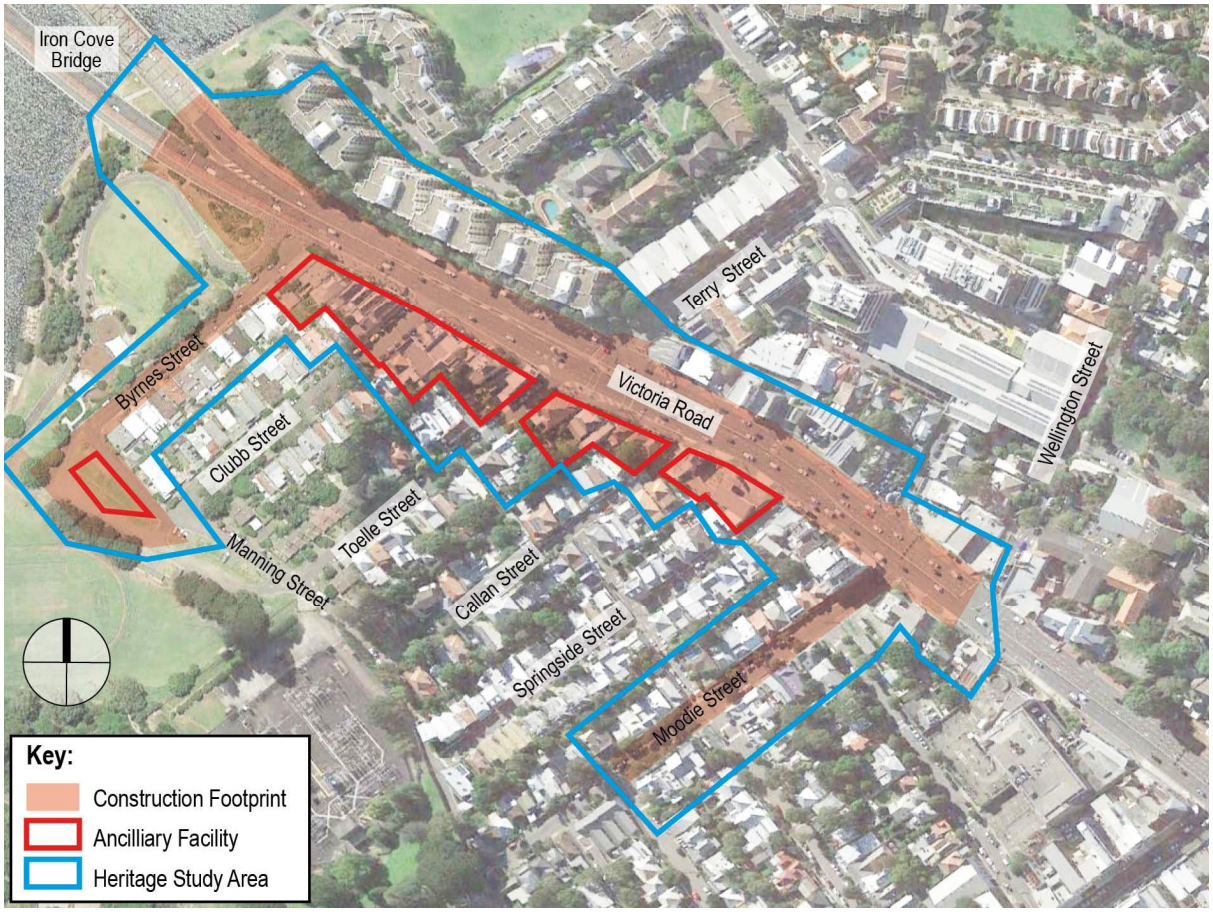


Figure 6-7 Iron Cove project footprint with heritage study area shown (Source: Google Maps with GML overlay)

Iron Cove Bridge links the suburb of Rozelle to the suburb of Drummoyne to its northwest. Area 4 (C8) is oriented along Victoria Road, a major thoroughfare located around four kilometres to the west of Sydney's CBD. The residential development, which fronts on to Victoria Road and occupies the adjacent cross streets, is predominantly late nineteenth century workers housing. To the north of Victoria Road, close to the bridge, is a multi-storey apartment complex.

The area to the south of Victoria Road is a small scale, irregular subdivision which demonstrates a variety of building types and construction methods including single-fronted cottages, two-storey terraces, free-standing timber and stone single storey cottages most with small front gardens.

6.8.2 Heritage items and conservation areas

Table 6-31 below sets out the listed heritage items and conservation areas in Area 4 – Iron Cove, and are also shown on **Figure 6-8**.

Table 6-31 Statutory heritage listings for heritage items in the Iron Cove heritage study area. Items with no shading may be subject to indirect impacts.

Item name	Address	Suburb	Significance	Listing	Impact Type
Iron Cove Bridge (aka RTA Bridge No. 65)	Victoria Road	Drummoyne	State	Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005 (#17) RTA S170 Register (#65)	Setting, vibration
Iron Cove Heritage Conservation Area		Drummoyne	Local	Leichhardt LEP 2013 (C6)	Setting, vibration

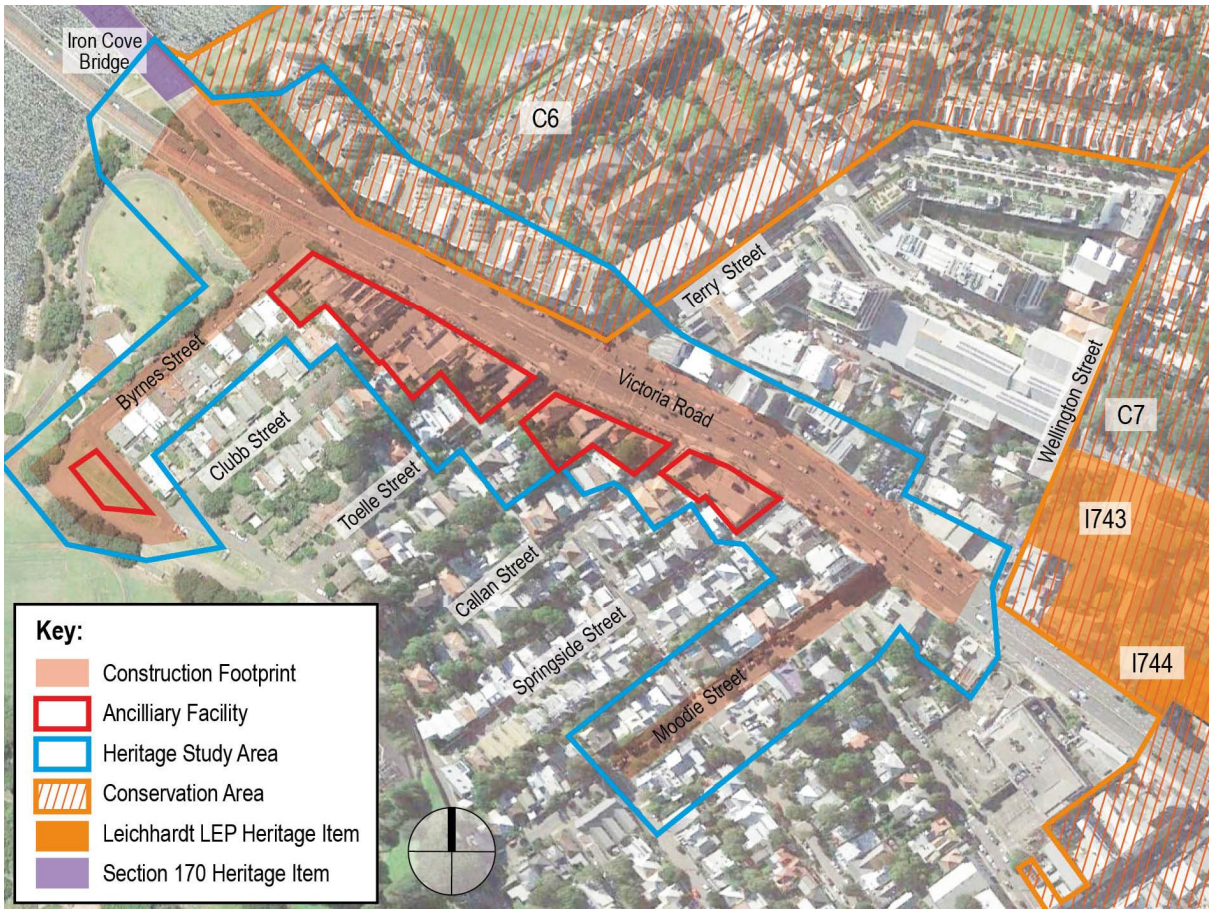


Figure 6-8 Iron Cove project footprint with heritage items shown

(Source: Leichhardt LEP 2013 Heritage maps, overlay by GML)

6.8.3 General heritage impact assessment

The Iron Cove Link civil site (C8) is not in the immediate vicinity of any individual heritage items, however it is in the wider vicinity of Iron Cove Bridge, Rozelle Public School, St Paul's Church and neighbourhood centre, The Valley HCA and is partially within the Iron Cove HCA. At Iron Cove, the

potential for heritage impacts would arise from impacts of the ventilation outlet on the visual setting, or potential vibration impacts as a result of road works along Victoria Road. Generally however, there are no substantial adverse heritage impacts resulting from the project.

6.8.4 Detailed heritage impact assessment

The following tables (**Table 6-32** to **Table 6-33**) provide an impact assessment for each statutory heritage item and HCA within the area with the potential to be directly or indirectly affected by the project. For these items and areas, a description and statements of significance (drawn from existing heritage citations) is provided, an assessment of the heritage impact of the proposed works on the heritage significance of each of the affected heritage items or HCAs is undertaken, and an overall ranking of the severity of the impact is identified.

Table 6-32 Heritage significance assessment and impact assessment for Iron Cove Bridge

Name	Iron Cove Bridge	
Address	Victoria Road, Drummoyne	
Significance	State – Sydney Regional Environmental Plan – City West REP No. 26 – Sch. 4 (#17)	
Description	Iron Cove Bridge is an impressive steel truss bridge. It consists of four 18m plate girder approach spans and seven 52m steel Pratt truss spans for a total length of 461.26m (1,535ft 10in). Four lanes of traffic are located within the truss spans and the overall width of the roadway is 13.70m between kerbs. The roadway consists of a 127mm reinforced concrete deck slab with an inset for tram tracks in the centre portion.	
Statement of Significance	Iron Cove Bridge is an outstanding steel truss bridge which forms a local landmark that has a 'gateway' quality for the suburbs of Balmain and Drummoyne due to its impressive size. The Bridge is comprised of aesthetically distinctive piers and abutments which reflect the Inter-War Art Deco style which was prevalent when it was first designed in 1942. Furthermore, it was the last steel truss bridge to be constructed in NSW in which rivets were used for field connections prior to the introduction of high strength bolts. Iron Cove Bridge has been assessed as being of State significance.	
Heritage Impact Assessment	This heritage item is outside of the project footprint and would not be physically or directly impacted by the Iron Cove Link works. Some visual impacts could result from the 20m tall ventilation outlet proposed – however, this is located a substantial distance from Iron Cove Bridge. Indirect impacts from vibration could result from the eastward road works along Victoria Road.	
Impact Type	Setting, vibration	
Impact Ranking	Minor adverse	

Table 6-33 Heritage significance assessment and impact assessment for Iron Cove HCA

Name	Iron Cove HCA	
Address		
Significance	Local – Leichhardt LEP 2013 (C6)	
Description	The Iron Cove Conservation Area is a northwest facing shoreline area, running from Victoria Road along the back of the Darling Street commercial zone and the Darling Street ridge to Rowntree Street and Cove Street. There are some relatively steep shoreline areas providing views to the Parramatta River, and a central flat plateau area around Turner Street.	
Statement of Significance	One of a number of conservation areas that collectively illustrate the nature of Sydney's early suburbs and Leichhardt's suburban growth particularly between 1871 and 1891, with pockets of infill up to the end of the 1930s (ie prior to World War II). This area is important for illustrating development particularly from 1870s–1910s, and this forms the major element of its identity, with later pockets of infill prior to World War II (ie pre-1939). Through the route of its main access roads, demonstrates the subdivision sections, closely related to the landform, drawn up by Surveyor Langley for the sale of Gilchrist's Balmain grant after 1852. Illustrates through its irregular small street layout, and varied allotment width and length (within a limited range), the many different groups of speculators and subdividers involved in the development of the area. Through the materials of its outer masonry walls, demonstrates the rapid advances in brick making in the Sydney area over the period 1870s–1910s. Through its now rare weatherboard buildings it continues to demonstrate the nature of that major construction material in the fabric of early Sydney suburbs.	
Heritage Impact Assessment	The 3-4 storey apartment buildings (Balmain Shores) which line the Victoria Road frontage to the HCA provide a physical and visual barrier to the Iron Cove Link works to be undertaken on Victoria Road. The proposed 20m tall ventilation outlet in the middle of Victoria Road (just south of Terry Street) while physically close to the HCA (~20m), is visually isolated from the HCA by the trees and buildings at the corner of Victoria Road and Terry Street, and the roadway The proposed substation (with an approximate footprint of 5m by 10m, and 4m high) and ventilation facility building (stretching from Callan Street to Springside Street) on either side of the intersection of Callan Street and Victoria Road is a substantial distance from the HCA. Therefore, there would be no impact on the heritage values of the HCA.	
Impact Type	Setting, vibration	
Impact Ranking	Neutral	

6.8.5 Potential heritage items

During the site investigations, the Iron Cove heritage study area was surveyed to identify items with potential heritage value that are not listed and may be impacted by the project. This was achieved via a pedestrian and vehicle survey of the study area.

The following buildings were identified on the site inspection to be of potential heritage significance, were subject to a heritage values assessment and impact assessment. These are outlined in **Table 6-34** to **Table 6-36**.

Table 6-34 Heritage significance assessment and impact assessment for potential heritage item

Address	**260-266 Victoria Road, Rozelle**	
Assessment of Significance	As a group of four these properties may have local significance as representative of a transitional early Federation style typical of their period. The houses have some historical interest as evidence of the late nineteenth century and early twentieth century development and subdivisions which occurred along Victoria Road.	  
Assessed level of significance	Local for aesthetic and representativeness	
Proposal	Full demolition	
Heritage impact assessment	The demolition of these four properties would result in a deterioration of streetscape of Victoria Road and the loss of their potential heritage significance.	
Impact type	Full demolition	
Impact ranking	Major adverse	

Table 6-35 Heritage significance assessment and impact assessment for potential heritage item

Address	**248-250 Victoria Road, Rozelle**	
Assessment of Significance	As a relatively intact example of a pair of early twentieth century residences the properties may have local significance as representative of Federation style. The houses have some historical interest as evidence early twentieth century development.	
Assessed level of significance	Local for aesthetic and representativeness	
Proposal	Full demolition	
Heritage impact assessment	The demolition of these two properties would result in a deterioration of streetscape of Victoria Road and the loss of their potential heritage significance.	
Impact type	Full demolition	
Impact ranking	Major adverse	

Table 6-36 Heritage significance assessment and impact assessment for potential heritage item

Address	8 Callan Street, Rozelle	
Assessment of Significance	The house at 8 Callan Street has aesthetic and representative significance at the local level as a good example of an interwar house with Arts and Craft Style details.	
Assessed level of significance	Local for aesthetic and representativeness (subject to further research)	
Proposal	Nil	
Heritage impact assessment	Owing to the physical separation between this property and the project footprint, there would be no physical impact. However, with the construction of the ventilation facility building (adjacent) and the substation (opposite and to the north) there would be a change in the setting of this property.	
Impact type	Vibration, setting	
Impact ranking	Neutral	

6.9 Area 5 – Annandale (around Pyrmont Bridge Road and Parramatta Road) heritage study area (C9)

6.9.1 Overview

The study area for Annandale (around Pyrmont Bridge Road and Parramatta Road) (C9) is shown on **Figure 6-9**.

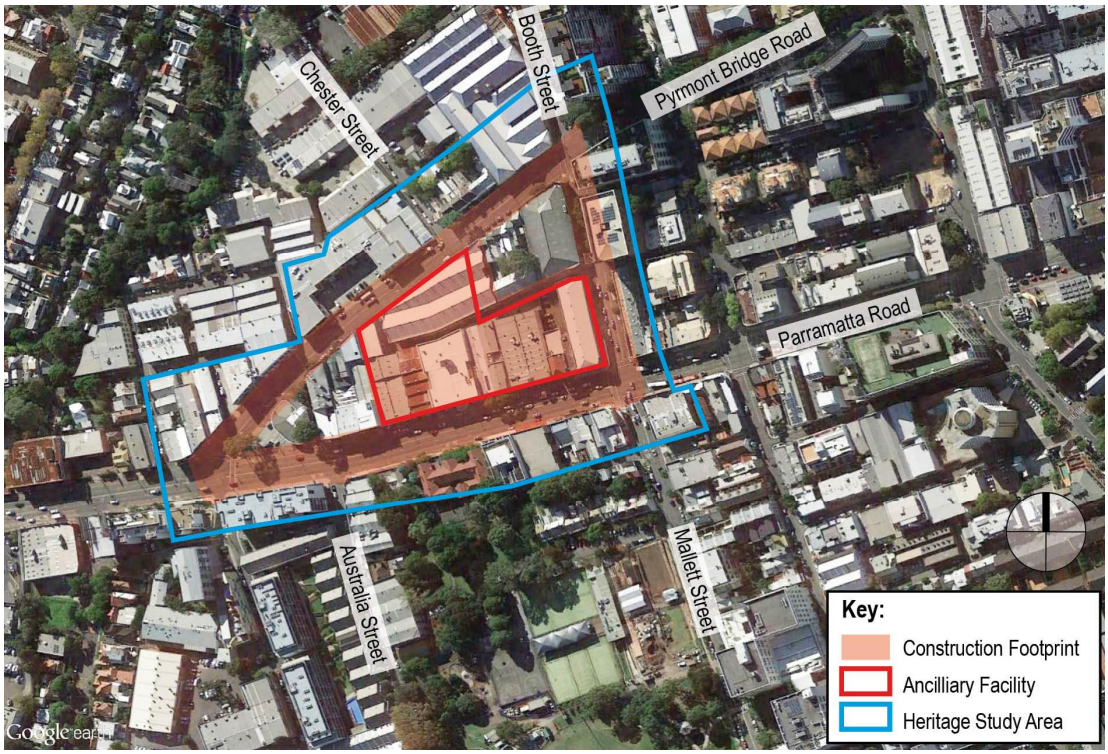


Figure 6-9 Project footprint at Annandale (around Pyrmont Bridge Road and Parramatta Road) with heritage study area shown

(Source: Google maps with GML overlay)

Annandale is located around three kilometres from Sydney's CBD and is characterised as a mixed use commercial/residential area oriented around Parramatta Road. The area is generally occupied by medium density development of predominantly industrial character. Buildings date primarily from the early to mid-twentieth century, but are increasingly being punctuated by contemporary apartment development.

Within Area 5 – Annandale (around Pyrmont Bridge Road and Parramatta Road), the project comprises the Pyrmont Bridge Road tunnel site (C9) (a construction ancillary facility) and associated tunnelling for the Inner West subsurface interchange. The project footprint is bound by Parramatta Road to the south, Pyrmont Bridge Road to the north and Bignell Lane and Mallett Street to the east.

6.9.2 Heritage items and conservation areas

Table 6-37 below sets out the listed heritage items and conservation areas in Area 5 – Annandale (around Pyrmont Bridge Road and Parramatta Road), and are also shown on **Figure 6-10**.

Table 6-37 Statutory heritage listings for heritage items in the Annandale (around Pyrmont Bridge Road and Parramatta Road) heritage study area. Items with no shading may be subject to indirect impacts

Item name	Address	Suburb	Significance	Listing	Impact Type
Kerb and gutter	Chester Street	Camperdown	Local	Leichhardt LEP 2013 (Item no. I613)	Setting, vibration
Warehouse, including interiors	52–54 Pyrmont Bridge Road	Camperdown	Local	Leichhardt LEP 2013 (Item no. I616)	Setting, vibration

Item name	Address	Suburb	Significance	Listing	Impact Type
Former Grace Bros Repository including interiors	6–10 Mallett Street	Camperdown	Local	Sydney LEP 2012 (Item no. I2242)	Setting, vibration
Bridge Road School (former Camperdown Public School), including interiors	127 Parramatta Road	Camperdown	Local	Marrickville LEP 2011 (Item no. I5)	Setting, vibration

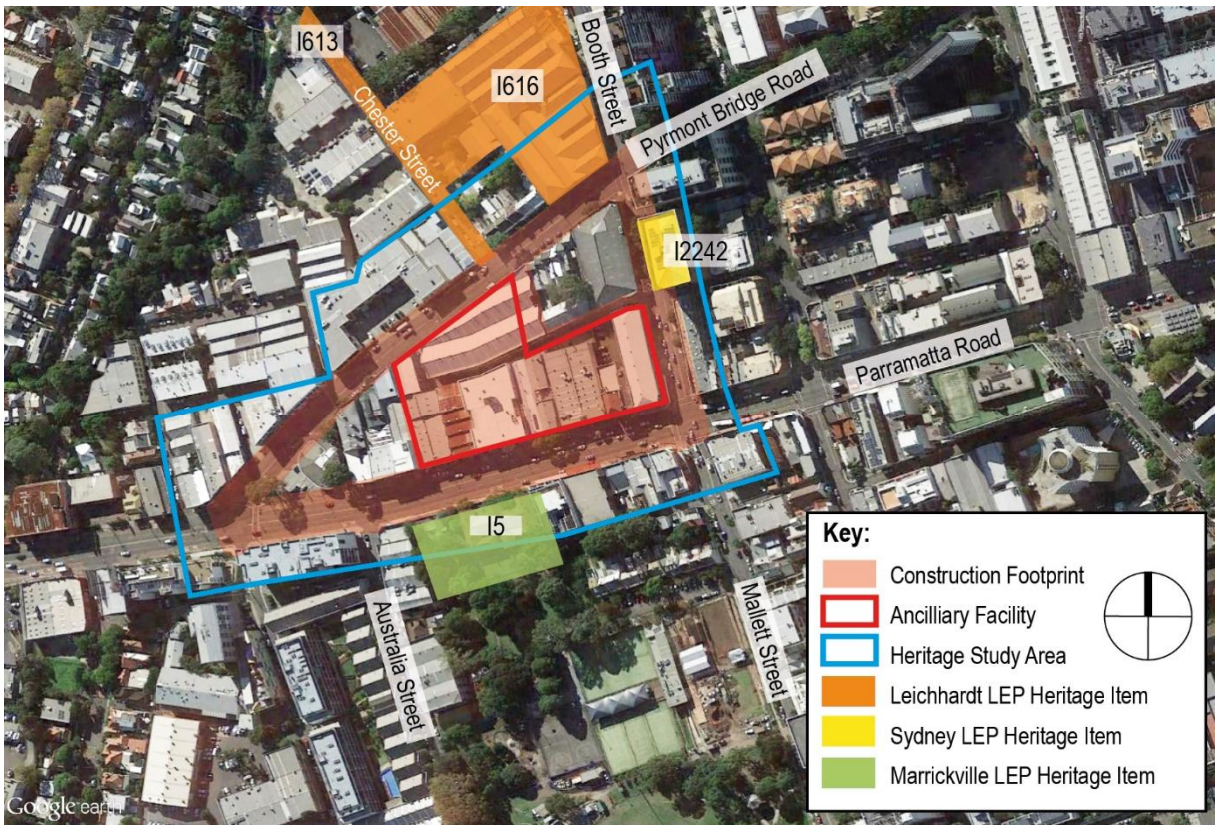


Figure 6-10 Statutory heritage listings for heritage items in the Annandale (around Pyrmont Bridge Road and Parramatta Road) study area.

Items with the potential to be directly affected by the M4-M5 Link are highlighted.

6.9.3 General heritage impact assessment

The potential for heritage impacts resulting from the project in the Annandale area would arise from the demolition of a potential heritage item and the construction of a civil and tunnel site in the vicinity of heritage items, and possible impacts from construction vibration and tunnelling activities.

The project would result in the loss of a number of early twentieth century warehouses which, despite not being heritage listed, nevertheless contribute to the character of the area and illustrate the precincts industrial past. There will be a permanent impact on the Parramatta Road streetscape as well as visual impacts from the installation of temporary construction sites, including site hoardings

and works, and new permanent infrastructure associated with the roadway including widened roadways, noise barriers and buildings and facilities.

Around 100 metres of Pyrmont Bridge Road, north of the Pyrmont Bridge Road tunnel site would be upgraded and resurfaced resulting in no further heritage impacts. The construction of a substation in the southwest corner of the tunnel site would also result in no/neutral heritage impacts as there is sufficient separation between the proposed substation and surrounding heritage items.

6.9.4 Detailed heritage impact assessment

The following tables (**Table 6-38** to **Table 6-41**) provide an impact assessment for each statutory heritage item and HCA within the area with the potential to be directly or indirectly affected by the project. For these items and areas, a description and statements of significance (drawn from existing heritage citations) is provided, an assessment of the heritage impact of the proposed works on the heritage significance of each of the affected heritage items or HCAs is undertaken, and an overall ranking of the severity of the impact is identified.

Table 6-38 Heritage significance assessment and impact assessment for Kerb and gutter

Name	Kerb and gutter	
Address	Chester Street, Annandale	
Significance	Local – Leichhardt LEP 2013 (Item no. I613)	
Description	Trachyte gutter located at the western end of Guihen Street and sandstone kerb extending along Chester Street.	
Statement of Significance	The trachyte and stone kerb and gutters in Chester Street and Guihen Street are of local historic and aesthetic and technological significance as relatively intact examples of late nineteenth century road construction and improvements. The integrity of the items, however, have been affected by the addition of concrete infill and elements and general wear and tear. Source: OEH, 2012, 'Kerb and gutter', viewed 17 July 2017, < http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=1940635>	
Heritage Impact Assessment	This heritage item is outside of the project footprint. Therefore, the works would not directly impact on the kerb and guttering. However, some indirect impacts from vibrations could be experienced from the construction site to the south and the tunnelling activities.	
Impact Type	Setting, vibration	
Impact Ranking	Neutral	

Table 6-39 Heritage significance assessment and impact assessment for Warehouse, including interiors

Name	Warehouse, including interiors	
Address	52–54 Pyrmont Bridge Road, Annandale	
Significance	Local – Leichhardt LEP 2013 (Item no. I616)	
Description	Single storey face brick Warehouse building constructed to the north eastern Booth Street and Pyrmont Bridge Road corner with high parapet which conceals the hipped and gabled roof forms clad in metal sheeting. The Pyrmont Bridge Road and Booth Street facades each comprise of three main sections each divided into bays with pilasters, recessed panels, timber framed windows and doors with brick arches over the openings. The façade is topped by a flat parapet with brick corbelling and dentilled details. The central bay features a gabled pediment and recessed bays framed by pilasters with brick detailing and corbelling and soldier course detail to the plinth. The northern end of the Booth Street façade also incorporates a two storey brick façade with recessed panels, contrasting brick details, timber framed double hung timber windows and doors and brick detailing to the flat and curved parapet and pilasters. The facades also feature steel roller doors and painted and fixed signage to the parapet.	
Statement of Significance	No. 52-54 Pyrmont Bridge Road is of local historic and aesthetic significance as a good and relatively intact representative example of a Federation period warehouse constructed in the early decades of the twentieth century that retains its original scale and distinctive face brick character and details. The building occupies a prominent corner site and makes a positive contribution to the Pyrmont Bridge Road and Booth Street corner and streetscapes. Source: OEH, 2012 'Warehouse', viewed 18 July 2017, < http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=1940638>	
Heritage Impact Assessment	This heritage item is outside of the project footprint and separated from the construction site by buildings. Therefore, the works would not directly impact on the warehouse. However, some indirect impacts from vibrations could be experienced from the construction site to the south and the tunnelling activities.	
Impact Type	Setting, vibration	
Impact Ranking	Minor adverse	

Table 6-40 Heritage significance assessment and impact assessment for Former Grace Bros Repository including interiors

Name	Former Grace Bros Repository including interiors	
Address	6–10 Mallett Street, Camperdown	
Significance	Local – Sydney LEP 2012 (Item no. I2242)	
Description	The building was constructed in approximately 1924 as a repository for Grace Bros. The site fronts Mallett Street and extends to Mason Street to the north and Isabella Street to the south. The repository comprises a five-storey brick building contained under a hipped roof concealed behind a parapet wall. The repository was constructed in the inter-war period. It exhibits typical features of this period applied to a utilitarian building including its heavy geometric massing, hipped roof concealed behind a parapet, symmetrical facades, face brick materials contrasting with rendered lintels, alternating square and rectangular openings, pilasters on the main street frontage and an emphatic cornice below the parapet. The brick rooftop tower on the south-west corner contains arched openings. This feature may have been designed to accommodate a water tower. Loading docks are still visible on the Isabella Street elevation. The building name 'Grace Bros Repository' is inscribed on the Mallett Street parapet. The former repository was adaptively reused for offices in the 1980s and the window frames replaced. This conversion maintained the external integrity of the building.	
Statement of Significance	Built in approximately 1924 as a furniture repository for major Sydney retailers, Grace Bros, this building represents the industrial development of Camperdown during the first half of the twentieth century. It is historically significant for its connection to the twentieth century growth of Sydney's retail industry, in particular relating to furniture. As the most intact of two former Grace Bros repositories on Mallett Street, the building provides evidence of the success, scale and expansion of the Grace Bros retail empire during the 1920s, one of Sydney's earliest major department stores. Architecturally, the building demonstrates a representative example of a purpose-designed warehouse from the inter-war period. It exhibits typical features of this period applied to a utilitarian building including the heavy geometric massing, symmetrical facades, face brick materials, rendered lintels, regular pattern of window openings, pilasters on the main street frontage, emphatic cornice, hipped roof concealed behind a parapet wall, and prominent rooftop tower. The imposing form of the building extending across the full width of the block and the prominent corner tower add to the building's landmark qualities in the local neighbourhood. The building makes an important contribution to the streetscapes of Mallett, Isabella and Mason Streets and is visible in the round from a number of near and distant vantage points in surrounding streets. The building design also likely represents the work of architects, D.T. Morrow & Gordon, who designed the adjoining furniture repository at 47-71 Pyrmont Road and a number of buildings for Grace Bros including the Grace Bros Emporium on Broadway and Grace Hotel in central Sydney. The adaptive reuse of the building as offices during the 1980s retained the external	

Name	Former Grace Bros Repository including interiors
	integrity of the building. It survives as the most intact of two buildings originally constructed as furniture repositories for Grace Bros during the 1920s on Mallett Street. For its association with the significant employer of the time, Grace Bros, the building may have value to the community of former Grace Bros workers involved in its furniture removals and storage operations from the 1920s to the 1960s. The former Grace Bros Repository is of local heritage significance in terms of its historical, aesthetic, associations, and representative value. Source: OEH, 2016, 'Former Grace Bros Repository including interiors', viewed 18 July 2017, <http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=5062454>
Heritage Impact Assessment	This heritage item is outside of the project footprint. Therefore, the works would not directly impact on the warehouse building. However, some indirect impacts from vibrations could be experienced from the construction site to the southwest and the tunnelling activities.
Impact Type	Setting, vibration
Impact Ranking	Minor adverse

Table 6-41 Heritage significance assessment and impact assessment for Bridge Road School (former), including interiors

Name	Bridge Road School (former), including interiors	
Address	127 Parramatta Road, Camperdown	
Significance	Local – Marrickville LEP 2011 (Item no. I5)	
Description	This large brick building has three projecting bays facing Parramatta Road, the central gable bearing the inscription 'Public School 1882'. Built of English bond brickwork with simple rendered detailing, the building features a simple moulded entablature over the flat arched windows to each projecting bay, plain rendered string and sills, and rock faced sandstone foundations. There is also a building to the west of the main building which was probably the headmaster's residence.	
Statement of Significance	This is one of a number of large public schools built in the district in response to the increased enrolments caused by the NSW Public Instruction Act of 1880. It illustrates the large suburban population which had been established in this area by the early 1880s. Source: OEH, 2011, 'Camperdown Public School', viewed 18 July 2017, <http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=2030069>	
Heritage Impact Assessment	This heritage item is outside of the project footprint and a fair distance from the construction site. Therefore, the works would not directly impact on the school building. However, some indirect impacts from vibrations could be experienced from the construction site to the north and the tunnelling activities along Parramatta Road.	
Impact Type	Setting, vibration and settlement	
Impact Ranking	Minor adverse	

6.9.5 Potential heritage items

During the surveys, areas of potential heritage value were investigated to look for items with heritage value that are not listed and may be impacted by the project. This was achieved via a pedestrian and vehicle survey of the study area.

The following building in **Table 6-42** was identified on the site inspection to be of potential heritage significance, was subject to a heritage values assessment and impact assessment.

Table 6-42 Heritage significance assessment and impact assessment for heritage item.

Address	164 Parramatta Road, Annandale (Former Bank of NSW)	
Assessment of Significance	The former Bank of NSW building has historic and aesthetic significance as a typical example of an inter-war commercial building purpose built as a bank, a typology rare in the context of Parramatta Road.	
Assessed level of significance	Local for historical, aesthetic and representativeness	
Proposal	Full demolition	
Heritage impact assessment	This would result in the loss of a potential item of historic and aesthetic significance from the Parramatta Road streetscape and would be a major adverse heritage impact for the item.	
Impact type	Full demolition	
Impact ranking	Major adverse	

6.10 Area 6 – St Peters Heritage Study Area (C10)

6.10.1 Overview

St Peters is located around seven kilometres from the Sydney CBD. The heritage study area (shown on **Figure 6-11**) is located to the south of Campbell Street and south of Sydney Park (a 40-hectare parkland which was formerly a brickworks, rubbish tip and other industrial uses including gas storage, manufacturing and warehousing). Prior to the construction of the New M5, the area was characterised by a largely open expanse of industrial land adjacent to the Alexandra Canal, the banks of which were generally occupied by large scale industrial buildings.

The St Peters heritage study area that forms part of the M4-M5 Link project coincides with the project footprint that was assessed as part of the New M5 project, extending to the east to encompass the terrace group at 2-34 Campbell Road, St Peters. Given the nature of the works to be undertaken in the St Peters project footprint as part of this project (installation of ventilation shafts), the heritage study area has not been broadened beyond the M4-M5 Link project footprint.

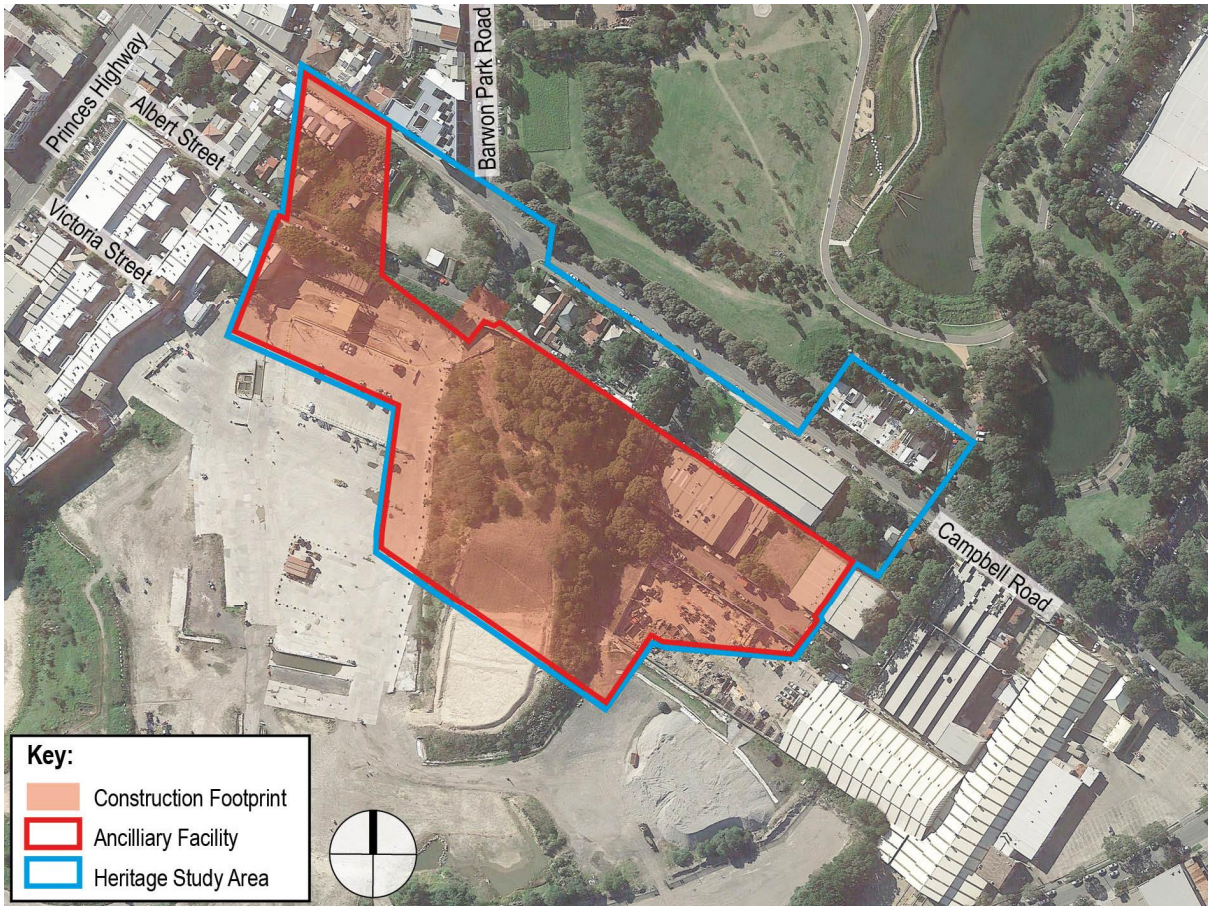


Figure 6-11 St Peters project footprint with heritage study area shown (Source: Google maps with GML overlay)

6.10.2 Heritage items and conservation areas

Table 6-43 sets out the listed heritage items and conservation areas in Area 6 – St Peters, and are also shown on **Figure 6-12**.

Table 6-43 Statutory heritage listings for heritage items in the St Peters heritage study area.

Items with the potential to be directly affected by the M4-M5 Link project are shaded. Items with no shading may be subject to indirect impacts.

Item name	Address	Suburb	Significance	Listing	Impact Type
Terrace group including interiors	2–34 Campbell Road	Alexandria	Local	Marrickville LEP 2011 (Item no. I12)	Setting

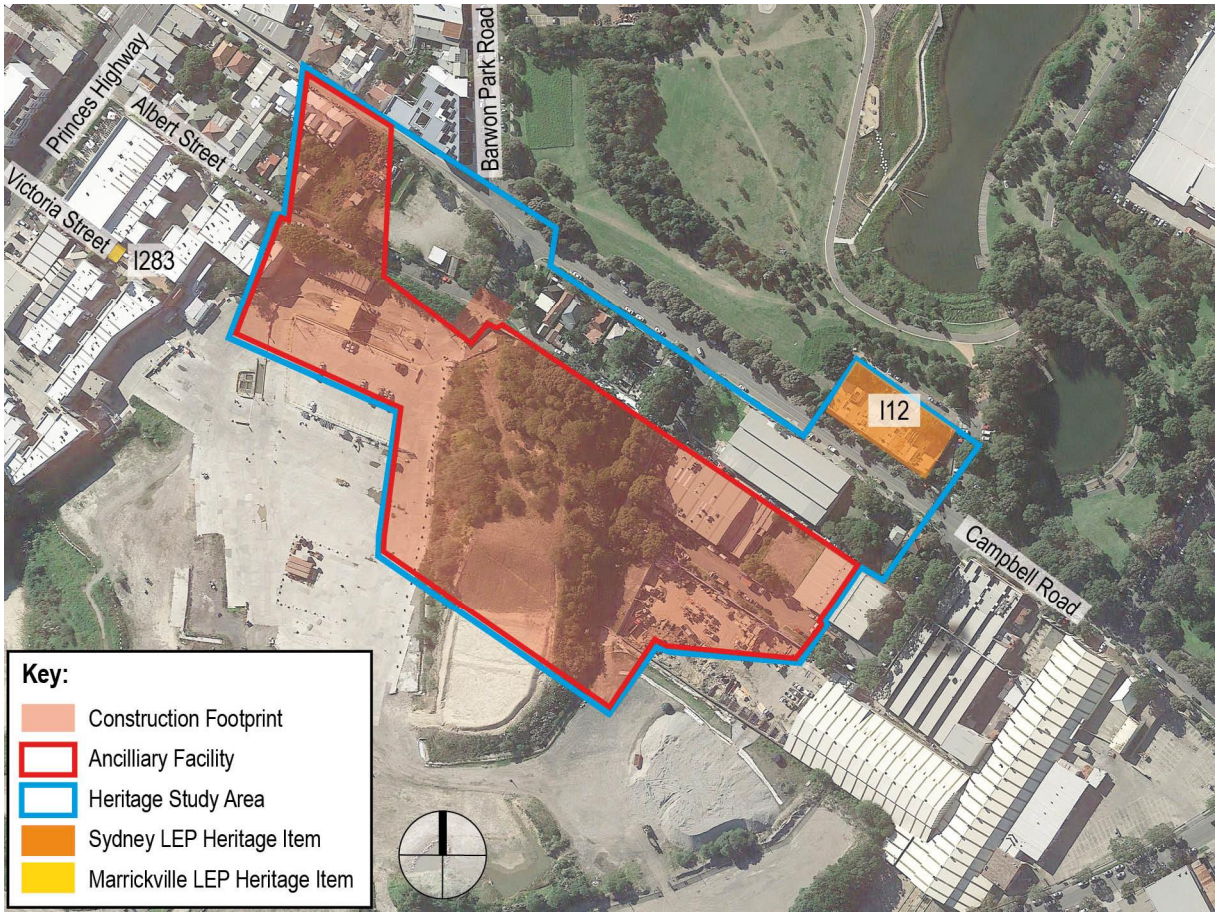


Figure 6-12 Statutory heritage listings for heritage items in the St Peters study area.

Items with the potential to be directly affected by the M4-M5 Link are highlighted.

6.10.3 General heritage impact assessment

Construction for the New M5 project has already resulted in the demolition of buildings within the M4-M5 Link project footprint. This included demolition of a heritage item (Rudders Bond Store at 53–57 Campbell Road). A photographic archival recording of the Rudders Bond Store (also known as the former Ralph Symonds Factory) was undertaken in September 2016 prior to its demolition. This report records the features and condition of the place prior to its demolition, and provides a discussion of its history and significance.

These direct and visual heritage impacts from construction of the new motorway infrastructure have already been assessed in the New M5 Non-Aboriginal HIA (AECOM 2015). The construction of the motorway operations complex, including a new ventilation facility at the St Peters interchange, near Albert Street and Campbell Lane at the centre of the Campbell Road civil and tunnel site would form a permanent addition to the built environment of this area.

6.10.4 Detailed heritage impact assessment

Table 6-44 provides an impact assessment for the statutory heritage item within the study area with the potential to be directly or indirectly affected by the project. For this items, a description and statement of significance (drawn from existing heritage citations) is provided, an assessment of the heritage impact of the proposed works on the heritage significance of the affected heritage item is undertaken, and an overall ranking of the severity of the impact is identified.

Table 6-44 Heritage significance assessment and impact assessment for Terrace group including interiors

Name	Terrace group including interiors	
Address	2–34 Campbell Road, Alexandria	
Significance	Local – Sydney LEP 2012 (Item no. I12)	
Description	Two storey Victorian Regency style terrace house group. Continuous front parapet, and continuous front galvanised iron roof for balconies, face brick front wall (painted over) and timber vertical slat balcony balustrade.	
Statement of Significance	The terrace group are historically significant as they represent early housing associated with the nearby brick making and potting works. They are located on the hill away from the former swampy areas in Waterloo and Alexandria area. Prior to the 1890s group housing is rare within the southern industrial suburbs in the City of Sydney.	
Heritage Impact Assessment	Assessment of the impacts of the New M5 project on these terraces has previously been assessed in the New M5 Non-Aboriginal HIA. The M4-M5 Link project would involve the construction of the motorway operations complex, including a ventilation facility and outlets at the St Peters interchange, located approximately 230 metres to the northwest of these heritage items. Owing to the physical separation of this site from the project footprint, and the proposed landscaping in between, it is not anticipated that the ventilation facility and outlets would have any adverse heritage impacts on the terrace row.	
Impact Type	Setting	
Impact Ranking	Neutral	

6.10.5 Potential heritage items

There were no buildings within this study area which warranted additional heritage assessment. Potential for vibration and settlement

6.11 Potential vibration impacts

Heritage items, potential heritage items and HCAs along the tunnel alignment and in the vicinity of construction works may be subject to ground movement (predominantly settlement and vibration). Areas most likely to be affected by settlement are usually where tunnelling is closest to the ground surface (shallowest).

The alignment of the tunnels and the locations of tunnel portals have given regard to maximising the use of the best possible geotechnical conditions. As the driven tunnels would be generally located from 20 metres to greater than 65 metres below the ground these works would not have an impact on historical archaeological remains and have therefore not been considered further.

Potential vibration impacts to heritage items have been assessed; with 11 listed heritage items located within safe working distances of the project that may experience vibration impacts (refer **Table 6-45**). The noise and vibration assessment (**Appendix J** (Technical working paper: Noise and vibration) identifies vibration criteria and impact assessment for sensitive receivers. The report identifies that the minimum 'safe limit' of peak vibration velocity at low frequencies for structures which may be particularly sensitive to ground vibration, such as historic buildings, is three millimetres per second. This minimum 'safe limit' is determined by the vibration guidelines adopted for the project, DIN 4150: Part 3-1999 *Structural vibration – Effects of vibration on structures* (Deutsches Institute fur Normung (DIN) 1999). This criterion could also be applied to buried archaeological artefacts. A summary of heritage listed buildings that are located within safe working distances of the project and may experience vibration impacts are identified in **Table 6-45**.

Operational ground-borne noise and vibration due to the movement of cars and trucks inside the tunnel is considered to be negligible and would not be expected to cause any noticeable impact at the surface level properties. As such, this noise and vibration source has not been considered further in this report. However, two listed heritage items (State listed Pressure Tunnel and Shafts, and S170 listed City Tunnel) are located underground and are in the vicinity of the mainline tunnels. Further assessment of these two items has been undertaken in **section 6.12** with regard to potential vibration impacts during construction.

These items would be managed in accordance with the recommendations of the noise and vibration assessment (**Appendix J** (Technical working paper: Noise and vibration). Appropriate monitoring and protection of the physical fabric of heritage items to be retained would be provided during construction of the project.

Table 6-45 Heritage items subject to potential vibration impacts

Heritage study area	Item name	Address	Construction type
Area 2	Leichhardt (Charles St) Underbridge	Dulwich Hill to Rozelle Goods Line 12.405km, Leichhardt	Steel bridge structure
Area 3	Whites Creek Stormwater Channel No 95	Railway Parade to Parramatta Road, Annandale	Stonework/concrete
Area 3	Annandale (Railway Parade) Railway Bridge	Railway Parade, Annandale	Steel structure
Area 3	Annandale (Johnston Street) Underbridge	Johnston Street, Annandale	Steel structure
Area 3	Easton Park	Denison Street, Rozelle	n/a
Area 3	Sewage Pumping Station No 6 (SP0006)	Lilyfield Road, Rozelle	Brickwork
Area 3	White Bay Power Station	Victoria Road, Rozelle	Brickwork, steelwork, concrete
Area 5	Kerb and gutter	Chester Street, Camperdown	Stonework/concrete
Area 5	Warehouse, including interiors	52-54 Pyrmont Bridge Road, Camperdown	Brickwork
Area 5	Bridge Road School (former Camperdown Public School), including interiors	127 Parramatta Road, Camperdown	Stonework/brickwork
Area 5	Former Grace Bros Repository, including interiors	6-10 Mallett Street, Camperdown	Brickwork

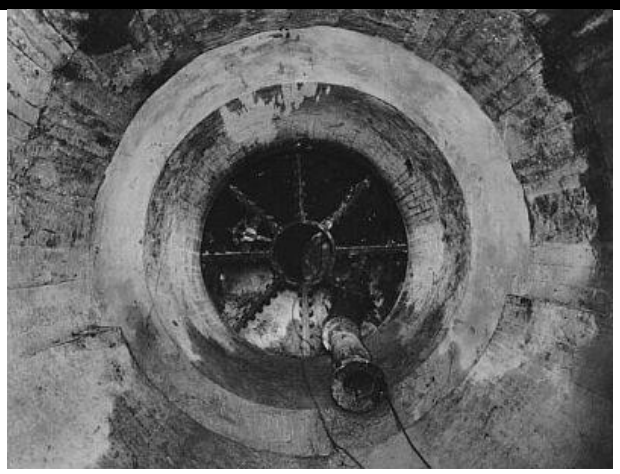
The noise and vibration assessment **Appendix J** (Technical working paper: Noise and vibration) of the EIS identifies listed heritage items only and represents a screening test applicable where a historic item is deemed to be sensitive to damage from vibration (following inspection) to be confirmed during detailed design.

No sensitive receivers (including heritage listed or potential heritage items) are located within the minimum working distances for road-headers during tunnelling works for the mainline tunnel alignment. The Construction Noise and Vibration Management Plan for the project would include relevant protocols for identifying and managing potential impacts to heritage items due to vibration intensive activities.

6.12 Detailed heritage impact assessment

Two listed heritage items are located in the vicinity of the mainline tunnels and have been assessed for potential heritage impacts. These are provided in **Table 6-46** and **Table 6-47** below.

Table 6-46 Heritage impact assessment for heritage item

Name	Pressure Tunnel and Shafts	
Address	Potts Hill Road to Waterloo Pumping Station Potts Hill to Waterloo, NSW	
Significance	State – State Heritage Register (#01630) and Sydney Water S170 (#4570942)	
Description	The pressure tunnel's maximum grade is 1 in 100, and its minimum is 1 in 2000. Its total length is approximately 16 kilometres. The pipes are lined with sand-cement mortar and the space between the liners and walls of the tunnel is filled with concrete to support the liner against deformation from internal pressures and as a protection against corrosion. Shafts were constructed along the Pressure Tunnel. The shaft structures or Pressure Tunnel buildings provide for access to each of the shafts and internal components. The shafts are metal lined and there are 11 Pressure Tunnel buildings, the first located at Potts Hill and the final one being the central workshops. The bitumen lining was replaced cement lining between 1961 and 1963.	
Curtilage	The curtilage of the Pressure Tunnel is to be taken as a distance of three metres around the existing infrastructure. The curtilage shaft buildings are defined by the property boundaries.	
Statement of Significance	The Pressure Tunnel is of high historical and technical significance as it represents a successful engineering response to the difficulties of increasing the volume of water from the Potts Hill Reservoir to the Pumping Station at Waterloo, a historically critical link in the water supply of Sydney. It is the third largest pressure tunnel in the world, representing a significant achievement in the provision of a dependable water supply by the Government and Water Board during the inter-war period.	
Heritage Impact Assessment	The heritage impact assessment is based on advice and assessment undertaken by AECOM's design team which is summarised as: *The M4-M5 mainline carriageway tunnels are expected to pass over the Sydney Water Pressure Tunnel.* *Based on the available information, a modelling study has demonstrated that the pressure tunnel is indicated to heave by 2mm and deflect by 1:5000.* *If the movement and deflection is transferred to the steel liner that form the pressure tunnel, these movement values are not expected to adversely affect the function of the Sydney Water tunnel and therefore should be acceptable to Sydney Water.* *Based on the results of the modelling, the pressure tunnel will experience minimal movement due to the excavation of the M4-M5 Link tunnels.* Further, **Appendix J** (Technical working paper: Noise and vibration) of the EIS includes a vibration assessment of the Sydney Water Pressure Tunnel and the Sydney Water City Tunnel with regard to vibration guideline values (DIN 4150 Guidelines). The assessment concluded that due to the proposed minimum distances between the Sydney Water pressure tunnel and the works (11 metre minimum offset	

Name	Pressure Tunnel and Shafts
	distance), adverse impacts from the effects of direct vibration is deemed unlikely. Therefore, the heritage assessment concludes that the tunnelling works for the M4-M5 Link project should not directly impact on the pressure tunnel.
Impact Type	Nil
Impact Ranking	Neutral

Table 6-47 Heritage impact assessment for heritage item

Name	City Tunnel	
Address	Potts Hill Reservoir to Dowling St Pumping Station Potts Hill to Waterloo, NSW	
Significance	Local – Sydney Water S170 (#4574202)	
Description	The tunnel begins at Potts Hill and passes under Chullora, Bankstown, Enfield, Canterbury, Ashfield, Petersham, Marrickville, Erskineville and Waterloo at depths varying between 15 and 67 metres. There are cross connections between the City Tunnel and the Pressure Tunnel. The tunnel is 2400mm and 3100mm in height, steel lined and 14 km in length. The City Tunnel was constructed by digging a tunnel, laying fully joint welded steel pipes, with the annular spaced filled with blue metal concrete. The pipes were internally cement lined during manufacture. It represented the latest in tunnelling technology of the time. The physical curtilage of the City Tunnel is to be taken as a distance of three metres around the existing infrastructure. The infrastructure associated with this item includes the tunnel, vertical shafts and the buildings attached to the shafts.	
Curtilage	The physical and operational curtilage is limited to the tunnel and any access chambers and supporting or associated structures from its original construction. The physical curtilage of the City Tunnel is to be taken as a distance of three metres around the existing infrastructure. The infrastructure associated with this item includes the tunnel, vertical shafts and the buildings attached to the shafts.	
Statement of Significance	The City Tunnel in its function largely is a duplicate of the Pressure Tunnel. It supplies water from Potts Hill to the city. The need for an additional pipeline was recognised in the early 1940s and it has been used in conjunction with the original Pressure Tunnel. The City Tunnel has made maintenance of the supply easier due to Sydney Water's ability to close sections of either tunnel for inspection and maintenance. It has increased the supply of water to the eastern and southern suburbs of Sydney. The City Tunnel has little cultural landscape value as it is located entirely below ground. The physical and operational curtilage is limited to the tunnel and any access chambers and supporting or associated structures from its original construction. The physical curtilage of the City Tunnel is to be taken as a distance of 3 m around the existing infrastructure. The infrastructure associated with this item includes the tunnel, vertical shafts and the buildings attached to the shafts.	
Heritage Impact Assessment	The heritage impact assessment is based on advice and assessment undertaken by AECOM's design team which is summarised as: *The M4-M5 mainline carriageway tunnels are expected to pass under the Sydney Water City Tunnel.* *Based on the available information, a modelling study has demonstrated that the city tunnel is indicated to settle by 4.5mm and deflect by 1:4500.* *If the movement and deflection is transferred to the steel liner that form the city tunnel, these movement values are not expected to adversely affect the function of the Sydney Water tunnel and therefore should be acceptable to Sydney Water.*	

Name	City Tunnel
	Based on the results of the modelling, the pressure tunnel will experience minimal movement due to the excavation of the M4-M5 Link tunnels. Further, **Appendix J** (Technical working paper: Noise and vibration) of the EIS includes a vibration assessment of the Sydney Water Pressure Tunnel and the Sydney Water City Tunnel with regard to vibration guideline values (DIN 4150 Guidelines). The assessment concluded that due to the proposed minimum distances between the Sydney Water pressure tunnel and the works, adverse impacts from the effects of direct vibration is deemed unlikely. Therefore, the heritage assessment concludes that the tunnelling works for the M4-M5 Link project should not directly impact on the city tunnel.
Impact Type	Nil
Impact Ranking	Neutral

6.13 Ground movement

Ground movement may occur in some areas along the tunnel alignment induced by tunnel excavation. The ground movement anticipated is predominantly settlement, which is downward (also termed subsidence). Upward movement may also occur and is known as heave.

There are two causes of ground movement. They are:

- Tunnel excavation induced ground movement, which is the movement of the soil and rock into the tunnel excavation. This is a short term effect, which happens as soon as the tunnel is excavated and can cause heave and/or settlement
- Soil consolidation (soil shrinkage), which is the dissipation of water from the soil as the groundwater draws down, such as due to inflow into underlying tunnels. This is a longer term effect, which may take some time to occur and causes settlement only.

Areas most likely to be affected by settlement are usually where tunnelling is closest to the ground surface (shallowest), around the tunnel portals and entry and exit ramps, and where soils are more likely to be compressible and thus have more voids which can compress. This would include the estuarine and alluvial soils and fill within the palaeochannel underneath the Rozelle Rail Yards.

An assessment has been carried out that indicates that settlement would be less than 20 millimetres over the majority of the tunnel alignment and in the range of 20 millimetres to 35 millimetres in some locations in the vicinity of the Rozelle interchange and at Lord Street in Newtown close to St Peters railway station.

Strict limits on the degree of settlement permitted would be imposed on the project. Surveys of building condition would be undertaken in the zone of tunnel influence prior to construction and a settlement monitoring plan developed for construction and operation.

6.14 Other heritage items and HCAs along the route

The following figures (**Figure 6-13** to **Figure 6-20**) illustrate the listed heritage items and conservation areas listed on local, State and S170 Registers located within a 100 metres buffer of the project tunnelling alignment. Potential for vibration associated with tunnelling has been described in **section 6.11**, and settlement impacts for the project have been identified a negligible as described in **section 6.13.** Based on these assessments, **Table 6-48** contains details of those heritage items and HCAs located above and directly intersecting with the project tunnelling alignment only. These items have generally been collated along the route moving from Haberfield to St Peters via Rozelle.

Table 6-48 Heritage items and HCAs on local, State and S170 Registers

Item Name	Address	Significance	Listing	Depth	Impact Type	Impact Ranking
Haberfield HCA	Haberfield	Local	Ashfield LEP 2013 C42	All depths	Refer to detailed impact assessment in **Chapter 6**	
Pioneers Memorial Park	217–219 Norton Street, Leichhardt	Local	Leichhardt LEP 2013 #I683	35m to 65m below ground	Unlikely to be impacted	Neutral
Whites Creek Aqueduct	Piper Street, Leichhardt	State	SHR (#01354) Sydney Water S170 (#4570954)	35m to 65m below ground	Unlikely to be impacted	Neutral
Street trees – Brush Box plantation	Leys Avenue, Leichhardt	Local	Leichhardt LEP 2013 #I660	10m to 35m below ground	Potential settlement and vibration	Neutral
Corner shop and residence – including interiors	42 Emma Street, Leichhardt	Local	Leichhardt LEP 2013 #I653	35m to 65m below ground	Unlikely to be impacted	Neutral
Leichhardt Street/Stanley Street HCA		Local	Leichhardt LEP 2013 C11	35m to 65m below ground	Unlikely to be impacted	Neutral
Street trees – row of Port Jackson Figs	Catherine Street, Leichhardt	Local	Leichhardt LEP 2013 #I638	35m to 65m below ground	Unlikely to be impacted	Neutral
Scarvell Estate HCA		Local	Leichhardt LEP 2013 C12	35m to 65m below ground	Unlikely to be impacted	Neutral
House – including	5 Coulon Street,	Local	Leichhardt LEP 2013 #I733	Greater than 65m	Unlikely to be	Neutral

Item Name	Address	Significance	Listing	Depth	Impact Type	Impact Ranking
interiors	Rozelle			below ground	impacted	
House – including interiors	7 Coulon Street, Rozelle	Local	Leichhardt LEP 2013 #I734	Greater than 65m below ground	Unlikely to be impacted	Neutral
House – including interiors	9 Coulon Street, Rozelle	Local	Leichhardt LEP 2013 #I735	Greater than 65m below ground	Unlikely to be impacted	Neutral
House – including interiors	11 Coulon Street, Rozelle	Local	Leichhardt LEP 2013 #I736	Greater than 65m below ground	Unlikely to be impacted	Neutral
House – including interiors	13 Coulon Street, Rozelle	Local	Leichhardt LEP 2013 #I737	Greater than 65m below ground	Unlikely to be impacted	Neutral
House – including interiors	15 Coulon Street, Rozelle	Local	Leichhardt LEP 2013 #I738	Greater than 65m below ground	Unlikely to be impacted	Neutral
House – including interiors	17 Coulon Street, Rozelle	Local	Leichhardt LEP 2013 #I739	Greater than 65m below ground	Unlikely to be impacted	Neutral
House – including interiors	21 Coulon Street, Rozelle	Local	Leichhardt LEP 2013 #I740	Greater than 65m below ground	Unlikely to be impacted	Neutral
St Thomas' Church group including interiors	668 Darling Street, Rozelle	Local	Leichhardt LEP 2013 #I745	35m to 65m below ground	Unlikely to be impacted	Neutral
Stone building – including interiors	75 Evans Street, Rozelle	Local	Leichhardt LEP 2013 #I758	35m to 65m below ground	Unlikely to be impacted	Neutral
Semi-detached house – including interiors	77 Evans Street, Rozelle	Local	Leichhardt LEP 2013 #I759	35m to 65m below ground	Unlikely to be impacted	Neutral
Semi-detached house – including interiors	79 Evans Street, Rozelle	Local	Leichhardt LEP 2013 #I760	35m to 65m below ground	Unlikely to be impacted	Neutral
Terrace – including interiors	101 Evans Street, Rozelle	Local	Leichhardt LEP 2013 #I762	35m to 65m below ground	Unlikely to be impacted	Neutral

Item Name	Address	Significance	Listing	Depth	Impact Type	Impact Ranking
Terrace – including interiors	103 Evans Street, Rozelle	Local	Leichhardt LEP 2013 #I763	35m to 65m below ground	Unlikely to be impacted	Neutral
Former Mechanics Institute – including interiors	114 Victoria Road, Rozelle	Local	Leichhardt LEP 2013 #I806	35m to greater than 65m below ground	Unlikely to be impacted	Neutral
Former tramway stables and substation garage – including interiors	10A Hancock Street, Rozelle	Local	Leichhardt LEP 2013 #I770	35m to greater than 65m below ground	Unlikely to be impacted	Neutral
Single storey shops – including interiors	731–735 Darling Street, Rozelle	Local	Leichhardt LEP 2013 #I748	35m to 65m below ground	Unlikely to be impacted	Neutral
Single storey commercial building – including interiors	736 Darling Street, Rozelle	Local	Leichhardt LEP 2013 #I749	35m to 65m below ground	Unlikely to be impacted	Neutral
Corner building – including interiors	22 Belmore Street, Rozelle	Local	Leichhardt LEP 2013 #I729	Greater than 65m below ground	Unlikely to be impacted	Neutral
Semi-detached house – including interiors	122 Foucart Street, Rozelle	Local	Leichhardt LEP 2013 #I766	35m to 65m below ground	Unlikely to be impacted	Neutral
Semi-detached house – including interiors	120A Foucart Street, Rozelle	Local	Leichhardt LEP 2013 #I767	35m to 65m below ground	Unlikely to be impacted	Neutral
Easton Park HCA		Local	Leichhardt LEP 2013 C18	Ground to 65m below ground	Refer to detailed impact assessment in **Chapter 6**	
Easton Park	Denison Street, Rozelle	Local	Leichhardt LEP 2013 #I752	Ground to 65m below ground	Refer to detailed impact assessment in **Chapter 6**	
Sewage Pumping Station No 6 (SP0006)	Lilyfield Road, Rozelle	Local	Sydney Water S170 # 4571704	Ground to 65m below ground	Refer to detailed impact assessment in **Chapter 6**	

Item Name	Address	Significance	Listing	Depth	Impact Type	Impact Ranking
Semi-detached house – including interiors	15 Burt Street, Rozelle	Local	Leichhardt LEP 2013 #I730	10m to 35m below ground	Potential settlement and vibration	Minor adverse
Semi-detached house, including interiors	17 Burt Street, Rozelle	Local	Leichhardt LEP 2013 #I731	10m to 35m below ground	Potential settlement and vibration	Minor adverse
Smith's Hall including interiors	56 Burt Street, Rozelle	Local	Leichhardt LEP 2013 #I732	10m to 35m below ground	Potential settlement and vibration	Minor adverse
Corner shop and residence – including interiors	67 Denison Street, Rozelle	Local	Leichhardt LEP 2013 #I753	10m to 35m below ground	Potential settlement and vibration	Minor adverse
Shop and residence including interiors	69 Denison Street, Rozelle	Local	Leichhardt LEP 2013 #I754	10m to 35m below ground	Potential settlement and vibration	Minor adverse
House 'Rotherhithe Cottage' including interiors	73 Denison Street, Rozelle	Local	Leichhardt LEP 2013 #I755	10m to 35m below ground	Potential settlement and vibration	Minor adverse
Cottage and former broom factory including interiors	84 Foucart Street, Rozelle	Local	Leichhardt LEP 2013 #I765,	35m to 65m below ground	Unlikely to be impacted	Neutral
Brennan's Estate HCA		Local	Leichhardt LEP 2013 C16	10m to greater than 65m below ground	Refer to detailed impact assessment in **Chapter 6**	
Former shop and residence including interiors	62 Ryan Street, Lilyfield	Local	Leichhardt LEP 2013 #I723	Great than 65m below ground	Unlikely to be impacted	Neutral
Lilyfield (Catherine St) Overbridge	Catherine Street, Lilyfield		RailCorp S170 #4800245 SREP 26 #12	10m to 35m below ground	Potential settlement and vibration	Minor adverse
Street trees	Annandale Street,	Local	Leichhardt LEP 2013 #I9	10m to 65m below	Potential settlement	Neutral

Item Name	Address	Significance	Listing	Depth	Impact Type	Impact Ranking
	Annandale			ground	and vibration	
Street trees-Brush Box	Johnston Street, Annandale	Local	Leichhardt LEP 2013 #I66	35m to 65m below ground	Unlikely to be impacted	Neutral
Annandale Public School – including interiors	25 Johnston Street, Annandale	Local	Leichhardt LEP 2013 #I34	35m to 65m below ground	Unlikely to be impacted	Neutral
Annandale House gates	25 Johnston Street, Annandale	Local	Leichhardt LEP 2013 #I35	35m to 65m below ground	Unlikely to be impacted	Neutral
'Norton House' – including interiors	33 Johnston Street, Annandale	Local	Leichhardt LEP 2013 #I36	35m to 65m below ground	Unlikely to be impacted	Neutral
Annandale HCA		Local	Leichhardt LEP 2013 C1	10m to 65m below ground	Potential settlement and vibration	Neutral
Cardigan Street Conservation Area		Local	Marrickville LEP 2011 C8	10m to 35m below ground	Potential settlement and vibration	Neutral
Corner shop – including interiors	88 Chelmsford Street, Newtown	Local	Marrickville LEP 2011 #I141	35m to 65m below ground	Unlikely to be impacted	Neutral
Victorian Georgian house and stables – including interiors	38 and 54 Albermarle Street, Newtown	Local	Marrickville LEP 2011 #I130	35m to 65m below ground	Unlikely to be impacted	Neutral
Group of Victorian Style Terraces – including interiors	92–98 Chelmsford Street, Newtown	Local	Marrickville LEP 2011 #I142	35m to 65m below ground	Unlikely to be impacted	Neutral
Former electricity substation	134 Lennox Street, Newtown	Local	Marrickville LEP 2011 #I163	35m to 65m below ground	Unlikely to be impacted	Neutral
St Joseph's Boys School – including	93 Chelmsford Street, Newtown	Local	Marrickville LEP 2011 #I309	35m to 65m below ground	Unlikely to be impacted	Neutral

Item Name	Address	Significance	Listing	Depth	Impact Type	Impact Ranking
interiors						
Bedford Street Retail Group – including interiors	15, 27 and 37 Bedford Street and 167 Probert Street, Newtown	Local	Marrickville LEP 2011 #I138	35m to 65m below ground	Unlikely to be impacted	Neutral
North Kingston Estate		Local	Marrickville LEP 2011 C11	35m to 65m below ground	Unlikely to be impacted	Neutral
Pressure Tunnel and Shafts	Potts Hill Road to Waterloo Pumping Station Potts Hill to Waterloo	State	SHR #01630 Sydney Water S170 4570942	35m to 65m below ground	Refer to detailed impact assessment in **section 6.12**	
Community building 'St George's Hall' (352 King Street) including interior	344–358 King Street, Newtown	Local	Sydney LEP 2012 #I1014,	35m to 65m below ground	Unlikely to be impacted	Neutral
Saints Constantine and Helen Greek Orthodox Church including buildings and their interiors, front fence and grounds	366–378 King Street, Newtown	Local	Sydney LEP 2012 #I1015,	35m to 65m below ground	Unlikely to be impacted	Neutral
Service station 'Rising Sun' (426 King Street) including interior and front forecourt	424–430 King Street, Newtown	Local	Sydney LEP 2012 #I1016,	35m to 65m below ground	Unlikely to be impacted	Neutral
Commercial building including interior	482–496 King Street, Newtown	Local	Sydney LEP 2012 #I1017	35m to 65m below ground	Unlikely to be impacted	Neutral
Commercial building including interior	522–524A King Street, Newtown	Local	Sydney LEP 2012 #I1018	35m to 65m below ground	Unlikely to be impacted	Neutral

Item Name	Address	Significance	Listing	Depth	Impact Type	Impact Ranking
City Tunnel	Potts Hill Reservoir to Dowling St Pumping Station	Local	Sydney Water S170 # 4574202	35m to 65m below ground	Refer to detailed impact assessment in **section 6.12**	
Formerly 'Molloys' shop – including interiors	539 King Street, Newtown	Local	Marrickville LEP 2011 #I156	35m to 65m below ground	Unlikely to be impacted	Neutral
Shop counters – including interiors	555 King Street, Newtown	Local	Marrickville LEP 2011 #I157	35m to 65m below ground	Unlikely to be impacted	Neutral
Holmwood Estate		Local	Marrickville LEP 2011 C15	35m to 65m below ground	Unlikely to be impacted	Neutral
Newtown/Erskineville	King Street	Local	Sydney LEP 2012 C47	35m to 65m below ground	Unlikely to be impacted	Neutral
King Street and Enmore Road		Local	Marrickville LEP 2011 C2	35m to 65m below ground	Unlikely to be impacted	Neutral
St Peters Railway Station Group – including interiors	King Street, St Peters	State	SHR #5012222 Marrickville LEP 2011 #I272	10m to 35m below ground 35m to 65m below ground	Potential settlement and vibration	Minor adverse
St Peters Public School – including interiors	93A Church Street, St Peters	Local	Marrickville LEP 2011 #I271	35m to 65m below ground	Unlikely to be impacted	Neutral

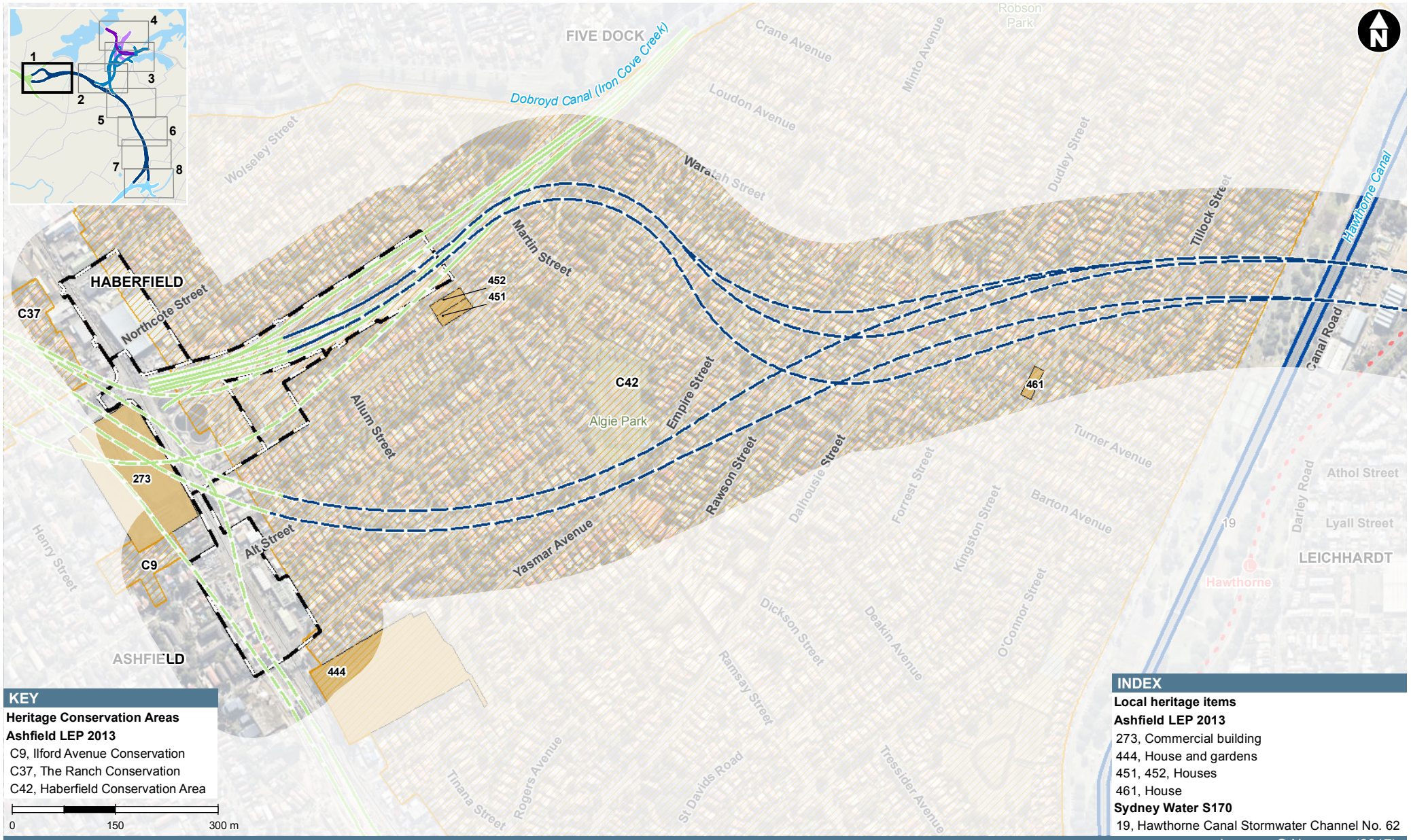
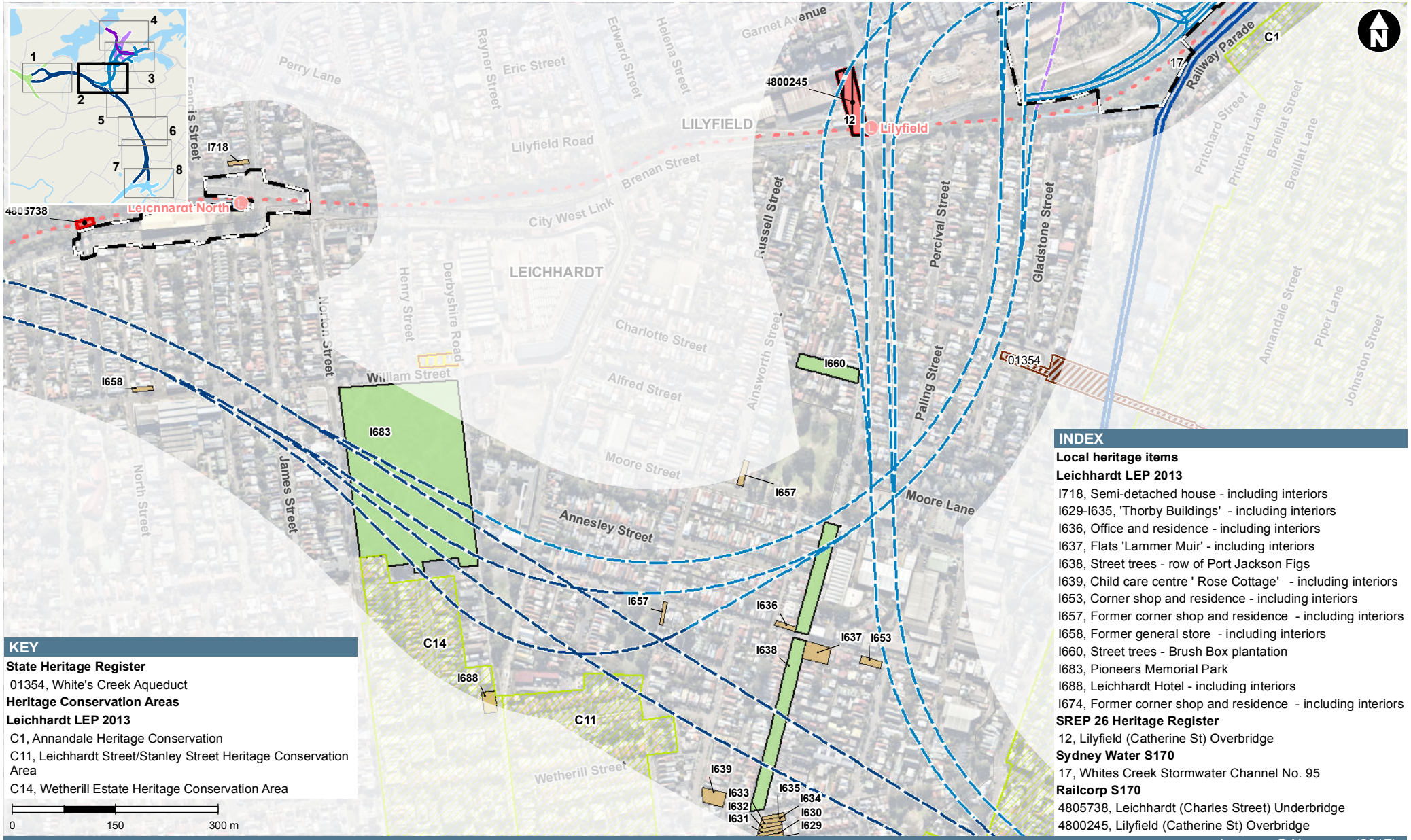


Figure 6-13 Statutory heritage listings for heritage items and conservation areas located above the tunnel alignment – Map 1



KEY

State Heritage Register

01354, White's Creek Aqueduct

Heritage Conservation Areas

Leichhardt LEP 2013

C1, Annandale Heritage Conservation

C11, Leichhardt Street/Stanley Street Heritage Conservation Area

C14, Wetherill Estate Heritage Conservation Area

0 150 300 m

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Local heritage items

Leichhardt LEP 2013

I718, Semi-detached house - including interiors
I629-I635, 'Thorby Buildings' - including interiors
I636, Office and residence - including interiors
I637, Flats 'Lammer Muir' - including interiors
I638, Street trees - row of Port Jackson Figs
I639, Child care centre ' Rose Cottage' - including interiors
I653, Corner shop and residence - including interiors
I657, Former corner shop and residence - including interiors
I658, Former general store - including interiors
I660, Street trees - Brush Box plantation
I683, Pioneers Memorial Park
I688, Leichhardt Hotel - including interiors
I674, Former corner shop and residence - including interiors

SREP 26 Heritage Register

12, Lilyfield (Catherine St) Overbridge

Sydney Water S170

17, Whites Creek Stormwater Channel No. 95

Railcorp S170

4805738, Leichhardt (Charles Street) Underbridge
4800245, Lilyfield (Catherine St) Overbridge

Imagery © Nearmap (2017)

LEGEND

Existing features
- Light rail
- Light rail stop

M4-M5 Link Mainline tunnel
- Tunnel

M4-M5 Link Rozelle interchange
- Surface road
- Tunnel
- Project footprint

Proposed future WHTBL connections (civil construction only)
- Surface road
- Tunnel

State Heritage Register
- Item

SREP 26 Heritage Register
- Item

Leichhardt LEP 2013
- Heritage Conservation Area
- Heritage item
- Landscape heritage item

S170 Agency Heritage Register
- S170 Sydney Water
- S170 RailCorp item

Potential heritage item
- Item

Figure 6-14 Statutory heritage listings for heritage items and conservation areas located above the tunnel alignment – Map 2

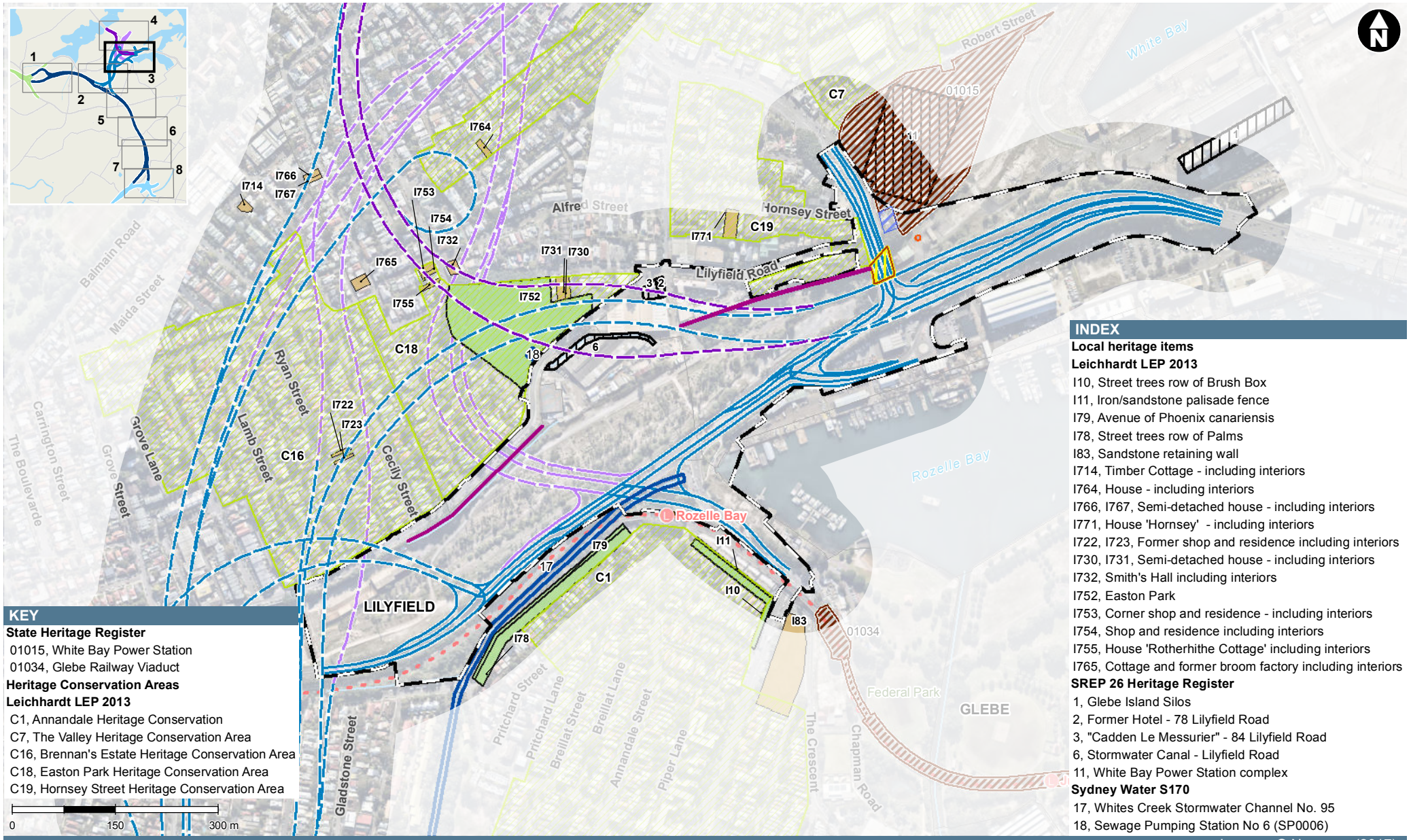


Figure 6-15 Statutory heritage listings for heritage items and conservation areas located above the tunnel alignment – Map 3

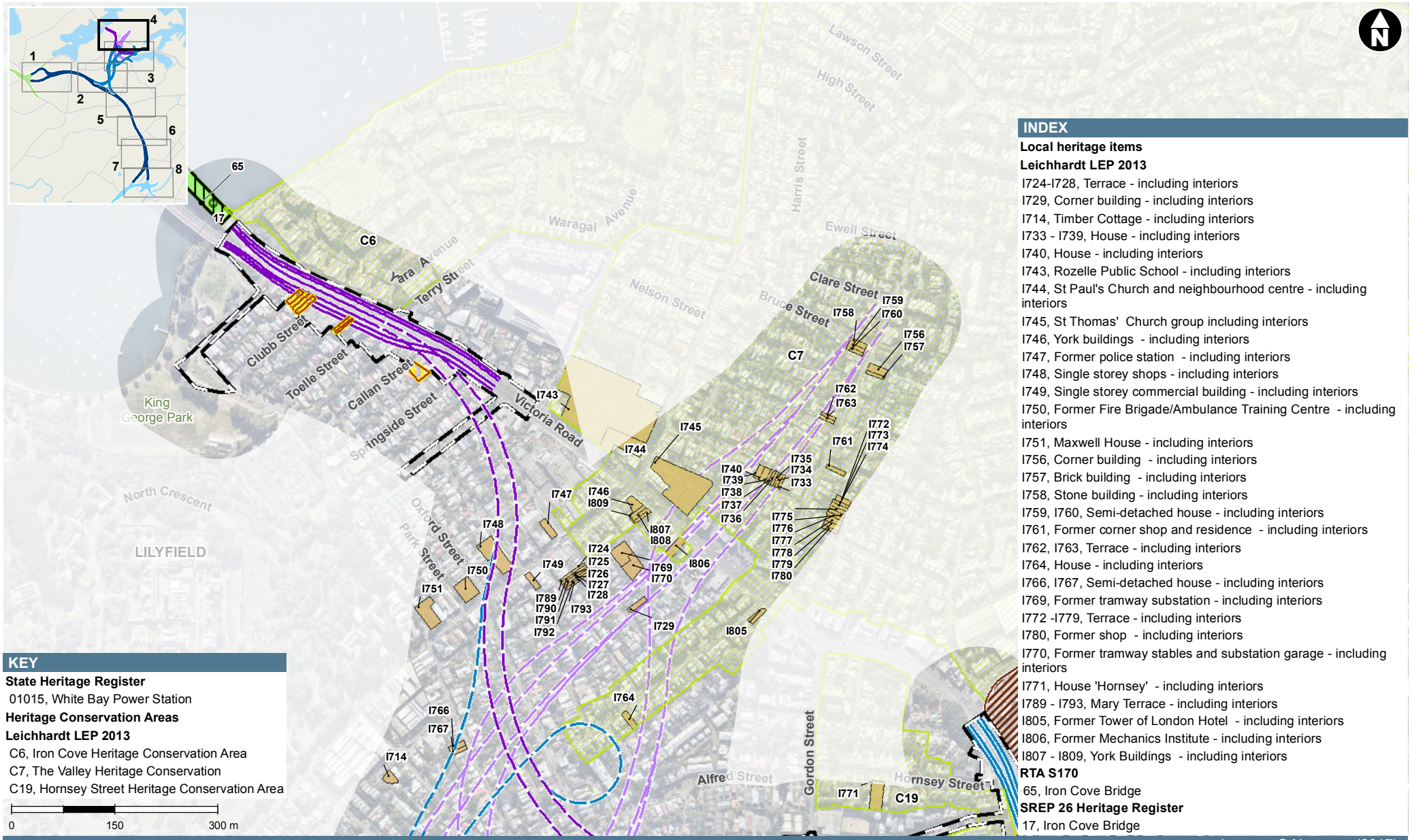
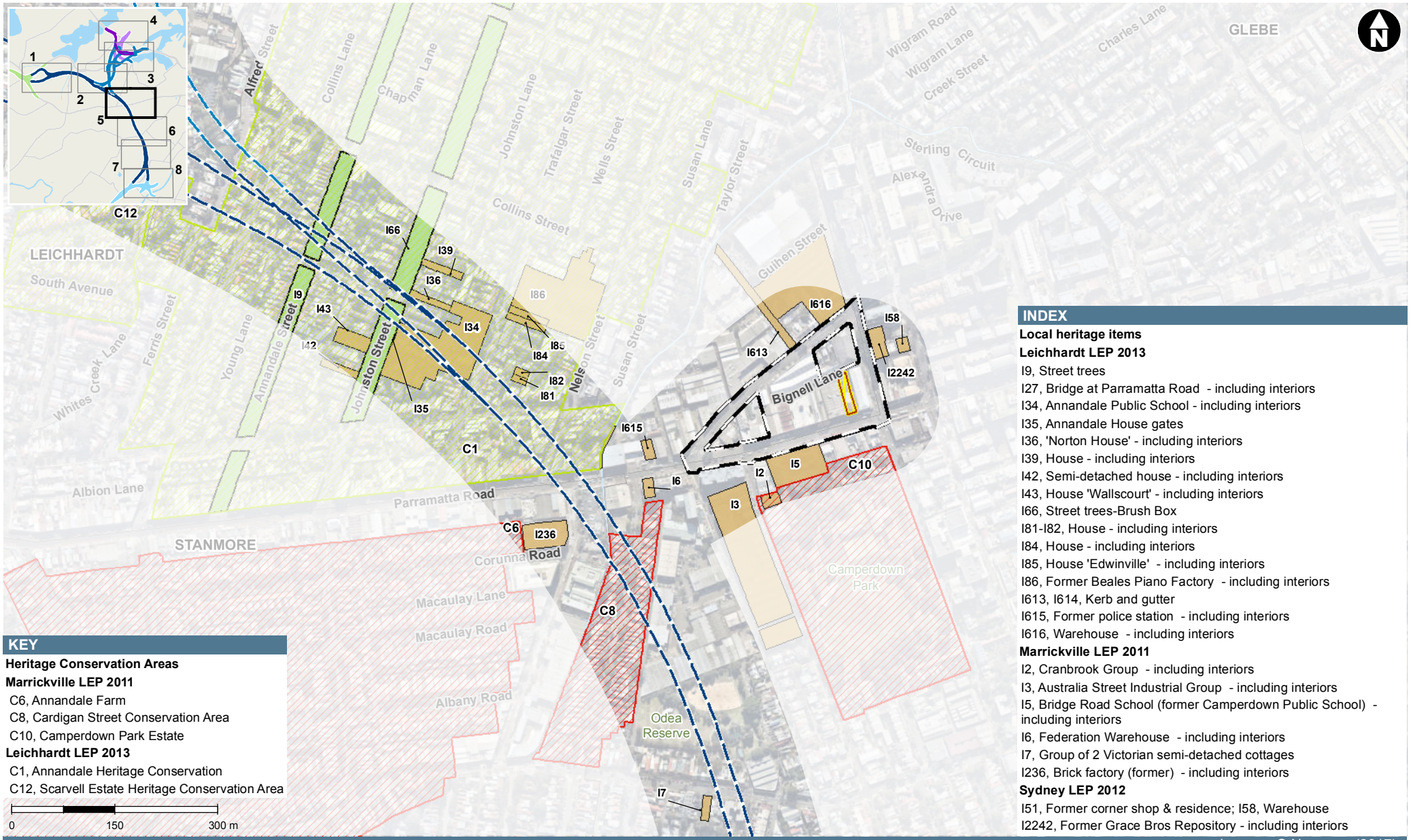


Figure 6-16 Statutory heritage listings for heritage items and conservation areas located above the tunnel alignment – Map 4



INDEX

Local heritage items

Leichhardt LEP 2013

I9, Street trees
I27, Bridge at Parramatta Road - including interiors
I34, Annandale Public School - including interiors
I35, Annandale House gates
I36, 'Norton House' - including interiors
I39, House - including interiors
I42, Semi-detached house - including interiors
I43, House 'Wallscourt' - including interiors
I66, Street trees-Brush Box
I81-I82, House - including interiors
I84, House - including interiors
I85, House 'Edwinville' - including interiors
I86, Former Beales Piano Factory - including interiors
I613, I614, Kerb and gutter
I615, Former police station - including interiors
I616, Warehouse - including interiors

Marrickville LEP 2011

I2, Cranbrook Group - including interiors
I3, Australia Street Industrial Group - including interiors
I5, Bridge Road School (former Camperdown Public School) - including interiors
I6, Federation Warehouse - including interiors
I7, Group of 2 Victorian semi-detached cottages
I236, Brick factory (former) - including interiors

Sydney LEP 2012

I51, Former corner shop & residence; I58, Warehouse
I2242, Former Grace Bros Repository - including interiors

KEY

Heritage Conservation Areas

Marrickville LEP 2011

C6, Annandale Farm
C8, Cardigan Street Conservation Area
C10, Camperdown Park Estate

Leichhardt LEP 2013

C1, Annandale Heritage Conservation
C12, Scarvell Estate Heritage Conservation Area

0 150 300 m

LEGEND

M4-M5 Link Mainline tunnel
Tunnel

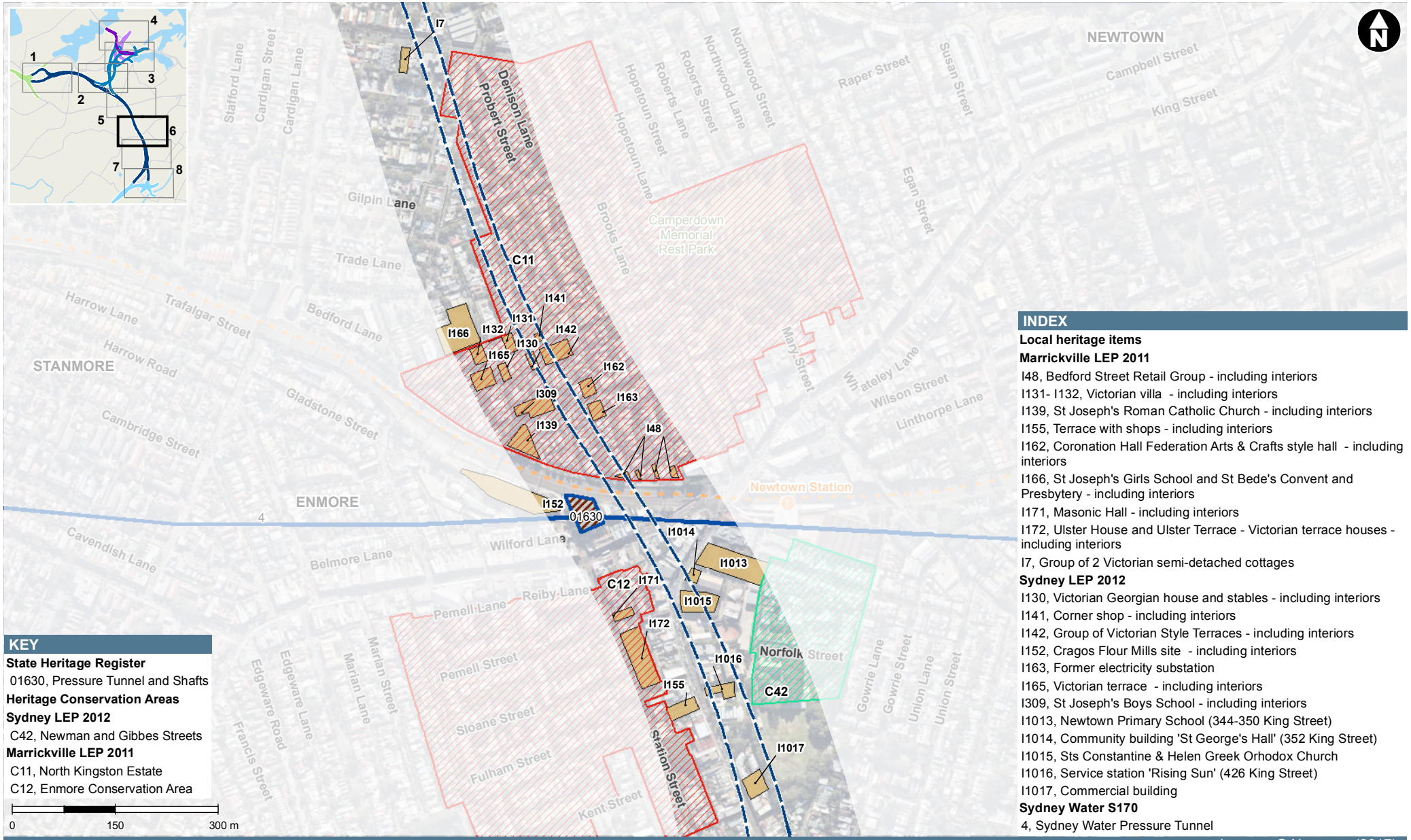
M4-M5 Link Rozelle interchange
Tunnel
Project footprint

Leichhardt LEP 2013
Heritage Conservation Area

Marrickville LEP 2011
Heritage Conservation Area
Heritage item
Landscape heritage item

Potential heritage item
Item

Figure 6-17 Statutory heritage listings for heritage items and conservation areas located above the tunnel alignment – Map 5



KEY

State Heritage Register

01630, Pressure Tunnel and Shafts

Heritage Conservation Areas

Sydney LEP 2012

C42, Newman and Gibbes Streets

Marrickville LEP 2011

C11, North Kingston Estate

C12, Enmore Conservation Area

INDEX

Local heritage items

Marrickville LEP 2011

I48, Bedford Street Retail Group - including interiors

I131- I132, Victorian villa - including interiors

I139, St Joseph's Roman Catholic Church - including interiors

I155, Terrace with shops - including interiors

I162, Coronation Hall Federation Arts & Crafts style hall - including interiors

I166, St Joseph's Girls School and St Bede's Convent and Presbytery - including interiors

I171, Masonic Hall - including interiors

I172, Ulster House and Ulster Terrace - Victorian terrace houses - including interiors

I7, Group of 2 Victorian semi-detached cottages

Sydney LEP 2012

I130, Victorian Georgian house and stables - including interiors

I141, Corner shop - including interiors

I142, Group of Victorian Style Terraces - including interiors

I152, Cragos Flour Mills site - including interiors

I163, Former electricity substation

I165, Victorian terrace - including interiors

I309, St Joseph's Boys School - including interiors

I1013, Newtown Primary School (344-350 King Street)

I1014, Community building 'St George's Hall' (352 King Street)

I1015, Sts Constantine & Helen Greek Orhodox Church

I1016, Service station 'Rising Sun' (426 King Street)

I1017, Commercial building

Sydney Water S170

4, Sydney Water Pressure Tunnel

LEGEND

Existing features
- Railway
- Railway station

M4-M5 Link
- **Mainline tunnel**
- Tunnel

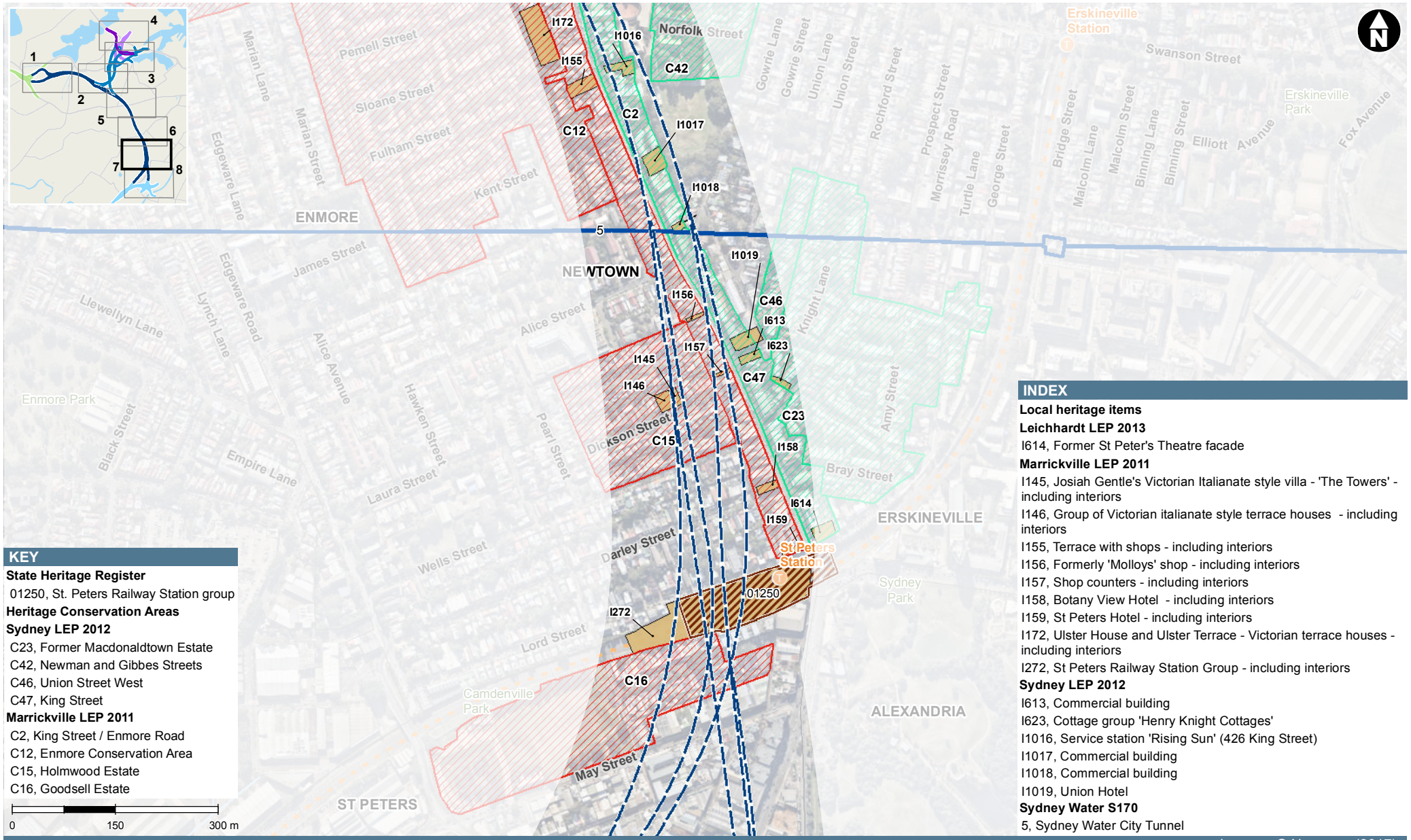
State Heritage Register
- Item

Marrickville LEP 2011
- Heritage Conservation Area

Sydney LEP 2012
- Heritage Conservation Area
- Heritage item

S170 Agency Heritage Register
- S170 Sydney Water

Figure 6-18 Statutory heritage listings for heritage items and conservation areas located above the tunnel alignment – Map 6



KEY

State Heritage Register

01250, St. Peters Railway Station group

Heritage Conservation Areas

Sydney LEP 2012

C23, Former Macdonaldtown Estate
C42, Newman and Gibbes Streets
C46, Union Street West
C47, King Street

Marrickville LEP 2011

C2, King Street / Enmore Road
C12, Enmore Conservation Area
C15, Holmwood Estate
C16, Goodsell Estate

INDEX

Local heritage items

Leichhardt LEP 2013

I614, Former St Peter's Theatre facade

Marrickville LEP 2011

I145, Josiah Gentle's Victorian Italianate style villa - 'The Towers' - including interiors
I146, Group of Victorian italianate style terrace houses - including interiors
I155, Terrace with shops - including interiors
I156, Formerly 'Molloys' shop - including interiors
I157, Shop counters - including interiors
I158, Botany View Hotel - including interiors
I159, St Peters Hotel - including interiors
I172, Ulster House and Ulster Terrace - Victorian terrace houses - including interiors
I272, St Peters Railway Station Group - including interiors

Sydney LEP 2012

I613, Commercial building
I623, Cottage group 'Henry Knight Cottages'
I1016, Service station 'Rising Sun' (426 King Street)
I1017, Commercial building
I1018, Commercial building
I1019, Union Hotel

Sydney Water S170

5, Sydney Water City Tunnel

LEGEND

Imagery © Nearmap (2017)

Existing features
Railway
Railway station

M4-M5 Link
Mainline tunnel
Tunnel

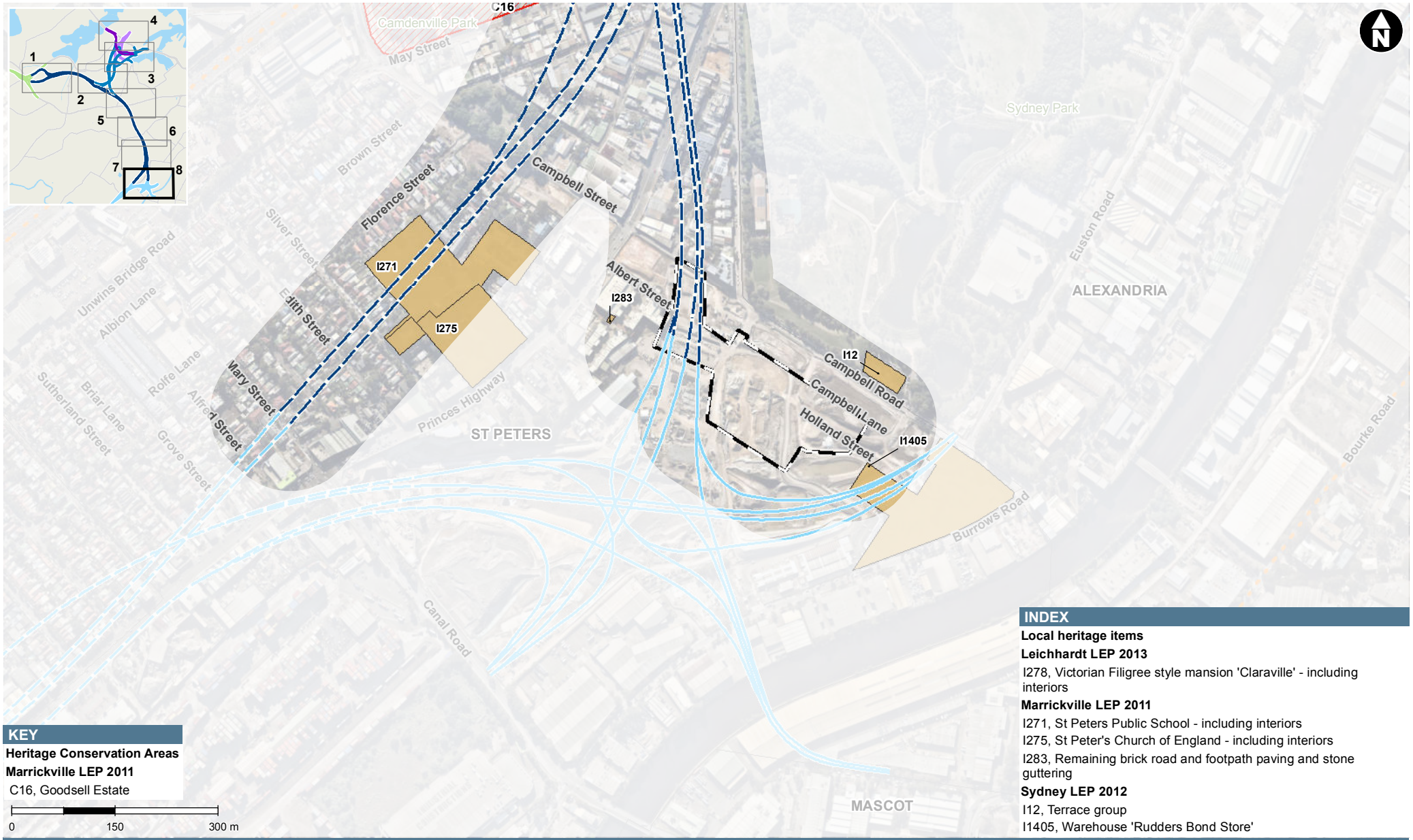
State Heritage Register
Item

Marrickville LEP 2011
Heritage Conservation Area

Sydney LEP 2012
Heritage Conservation Area
Heritage item

S170 Agency Heritage Register
S170 Sydney Water

Figure 6-19 Statutory heritage listings for heritage items and conservation areas located above the tunnel alignment – Map 7



KEY

Heritage Conservation Areas

Marrickville LEP 2011

C16, Goodsell Estate

INDEX

Local heritage items

Leichhardt LEP 2013

I278, Victorian Filigree style mansion 'Claraville' - including interiors

Marrickville LEP 2011

I271, St Peters Public School - including interiors

I275, St Peter's Church of England - including interiors

I283, Remaining brick road and footpath paving and stone guttering

Sydney LEP 2012

I12, Terrace group

I1405, Warehouse 'Rudders Bond Store'

LEGEND

Existing features
- Railway

New M5
- Surface road
- Tunnel

M4-M5 Link

Mainline tunnel
- Tunnel
- Project footprint

Marrickville LEP 2011
- Heritage Conservation Area
- Heritage item

Figure 6-20 Statutory heritage listings for heritage items and conservation areas located above the tunnel alignment – Map 8

7 Assessment of cumulative impacts

7.1 Introduction

The M4-M5 Link project is part of the WestConnex program of works which, as a whole, has resulted in wide reaching impacts on the urban fabric of greater metropolitan Sydney, including on items and areas of heritage significance. A review of each WestConnex project's heritage impacts has been carried out and an assessment of the overlaps undertaken to determine the overall impacts of the WestConnex projects to date.

Other major infrastructure projects such as CBD and South East Light Rail and Sydney Metro City and Southwest Metro overlap with the project at Lilyfield and St Peters. Therefore, this assessment also considers the whole WestConnex project in the context of other current or planned infrastructure projects across Sydney. Proposed future projects that interface with the M4-M5 Link, including the Western Harbour Tunnel and Beaches Link and the Sydney Gateway projects are subject to separate environmental assessments and are not included in the assessment below.

The following section provides a summary of the approved projects that comprise the WestConnex program of works and separate interfacing projects which are considered to be relevant to understanding and assessing the cumulative heritage impacts of the project as a whole (including the Rozelle Rail Yards site management works). The summaries below include an explanation of the heritage assessments undertaken for each project, the residual heritage impacts and any mitigation or legacy measures that have been employed. Each project's timing and geographical relationship to M4-M5 Link are also explained.

7.2 WestConnex projects

7.2.1 New M5

The New M5 comprises a new, multi-lane road link between the existing M5 East motorway east of King Georges Road and St Peters. The project will also include an interchange at St Peters and connections to the existing road network. The New M5 precedes the M4-M5 Link and is currently under construction. The project will overlap with the M4-M5 Link at the St Peters interchange and these two projects share the same civil and tunnel site at Campbell Road.

The New M5 was assessed for State and local non-Aboriginal landscape and built heritage as well as historic archaeology. The project directly and/or indirectly impacted 58 heritage items, with major adverse impacts brought about by the demolition of three heritage items; being the Rudders Bond Store, the terrace group at 28-44 Campbell Street and a house at 82 Campbell Street. Extensive mitigation measures were identified including the development of heritage interpretation plans, monitoring, archival recording, as well as salvage and reuse of architectural elements and original features where possible. Minimal impacts to historic archaeology were recorded.

Overall, the heritage impact of the New M5 project was found to be moderate.

For the area of overlap between the New M5 and the M4-M5 Link projects, no additional property acquisitions or demolitions would be required, and owing to the physical separation and the existing and proposed intermediary buildings/structures/landscaping between the motorway operations complex (including a new ventilation facility and outlet) and the heritage items in the vicinity (ie terrace group on Campbell Road and brick road and stone guttering on Victoria Street), negligible indirect visual setting impacts would be encountered.

7.2.2 King Georges Road Interchange Upgrade

Construction was completed on the WestConnex King Georges Road Interchange Upgrade in December 2016. The upgrade included the installation of a new interchange at ground level in preparation for the New M5 and resulted in significant alteration to this area/streetscape. The EIS for the King Georges Road Interchange Upgrade found that there would be no direct heritage impacts as a result of the project.

7.2.3 M4 Widening

WestConnex M4 Widening construction was completed in mid-2017. Works comprised the creation of an additional lane in each direction between Homebush and Parramatta. These works have only a proximal spatial relationship with the M4-M5 Link being located approximately 3.5km from the Wattle Street interchange.

The M4 Widening project was assessed for impacts on non-Aboriginal built and landscape heritage and historic archaeology. 22 heritage listed items were identified in the immediate vicinity, including two items listed on the State Heritage Register however, none were physically or visually impacted by the project. Only potential vibration impacts to these items were recorded. The potential for the works to have impacts on intact non-Aboriginal archaeological resources was deemed minimal.

The report identified scope to mitigate any indirect heritage impacts through careful limitation of any possibilities of structural/cosmetic damage to listed buildings and through the employment of an approved unexpected finds policy. The EIS for the M4 Widening found that there would be no direct physical impacts on adjacent heritage items and no visual impacts on those items. The type of impact that could occur to the heritage items was from vibratory works in close proximity to the structures.

7.2.4 M4 East

WestConnex M4 East has preceded the M4-M5 Link and the two projects overlap via the mainline tunnels at the Wattle Street interchange, Wattle Street civil and tunnel site, Haberfield civil and tunnel site and ventilation facility and Northcote Street civil site – for Option A. These two projects could also overlap at the Parramatta Road interchange and the Haberfield civil site – for Option B. Construction of the M4 East is currently underway and involves the construction of three lanes travelling in each direction through two new mainline tunnels including dive structures, cut-and-cover tunnels, and noise barriers around the Wattle Street interchange, Parramatta Road interchange, a ventilation facility and ancillary facility near Parramatta Road, as well as other associated construction facilities.

The M4 East project was assessed for impacts on built and landscape heritage as well as historical archaeology. The HIA recorded major adverse impacts in particular to the Haberfield HCA brought about by the demolition of 11 heritage listed houses and 29 contributory houses within the garden suburb subdivision. At Homebush, minor visual impacts on three heritage items were identified. At North Strathfield and Concord, 14 heritage items and one HCA of local significance (Canada Bay LEP 2013) were affected by the project with three of the heritage items demolished, four partially demolished and seven affected by visual impacts. At Cintra Park, impacts on landscape heritage items were considered minor and reversible. The project impacted on some potential historical archaeological resources of a local level of significance however this was considered manageable via avoidance and mitigation.

The HIA concluded that the M4 East project represents major adverse levels of heritage impacts. The HIA report identified the inability to mitigate irreversible adverse heritage impacts. Mitigation recommendations were extensive and included development of interpretation plans, archaeological monitoring and unexpected finds policies, archival recording as well as salvage and incorporation of items of historic and aesthetic values into the urban design of new public spaces.

For the area of overlap between the M4 East and the M4-M5 Link projects, no additional property acquisitions or demolitions were required for Option A, and only a couple of property acquisitions and demolitions of non-significant buildings would be required for Option B. No direct physical impacts would be encountered for the Haberfield HCA, but there would be cumulative impacts from the continuation of use of construction compounds for Option A, and extension of visual impacts on the Haberfield HCA associated with the new construction compounds for Option B.

Below is a summary table of the assessed overall heritage impacts of each stage of the WestConnex program of works.

WestConnex project	Overall heritage impact ranking
New M5	Moderate adverse
King Georges Road Interchange Upgrade	Nil
M4 Widening	Nil
M4 East	Major adverse
M4-M5 Link	Moderate adverse

7.3 Major Roads and Maritime and other transport projects

7.3.1 CBD and South East Light Rail

The CBD and South East Light Rail (CSELR) links the CBD to the city's southeast via the construction of new light rail lines including associated infrastructure, bridges, tunnels, substations, stabling and maintenance facilities and construction works depots.

As part of CSELR, a new depot is being constructed adjacent (to the west) to the M4-M5 Link Rozelle interchange site. The non-Aboriginal heritage impacts of the CSELR were assessed in a HIA which found, for the Rozelle area, that there was some Aboriginal archaeological resource potential, some potential impacts on potential historical archaeology and no adverse impacts on built and landscape heritage.

The combination of these two infrastructure projects to be constructed on immediately adjoining sites in the Rozelle area represents a substantial transformation of the area's character and urban form. However, the topography at the western end of the Rozelle Rail Yards (ie lower than Lilyfield Road and the Brennan's Estate HCA), provides substantial visual and spatial separation and keeps both projects visually contained. While some of the infrastructure may extend above the road level of Lilyfield Road, the retention of street trees along Lilyfield Road would help to minimise the visual impact of both projects on the HCA. This would minimise but does not ameliorate the intrusion in the curtilage of the Brennan's Estate HCA.

7.3.2 Sydney Metro – City and Southwest Metro

The M4-M5 Link mainline tunnels are proposed to cross under the Sydney Metro City and South West line near Angel Street at Newtown. Owing to the underground location of the Sydney Metro tunnel to the north of St Peters interchange and the construction site for the Sydney Metro being to the northeast of Sydenham train station, there would be no perceivable overlap or direct heritage impacts as a result of the construction of these two projects.

7.3.3 Rozelle Rail Yards site management works REF

The Rozelle Rail Yards were assessed for built and landscape heritage items as well as for historical (non-aboriginal) archaeological potential by GML in 2016. The Rozelle Rail Yards themselves are not heritage listed however the site contains a number of relics, industrial remnants and pieces of redundant rail infrastructure that warranted further investigation and heritage assessment. This involved a site inspection, reference to aerial photographs and maps, consideration of the history of the area and the assessment of heritage values for a number of items followed by impact assessment.

No listed heritage items are being demolished as part of the site management works. However, the REF HIA identified a number of items of potential local heritage significance in and around the Rozelle Rail Yards site. Some of these potential local heritage items are being demolished as part of the site management works; being a lighting tower and Port Authority building. Mitigation measures including archival recordings of these items and salvage and storage of the lighting tower and rail gantries for potential reuse in future development of the Rozelle Rail Yards were recommended in the REF. The site management works are expected to be complete prior to construction of the M4-M5 Link project

commencing. Overall, the heritage impact of the Rozelle Rail Yards site management works project was found to be minor.

Subsequent/additional to the REF works, the M4-M5 Link project will demolish the Victoria Road bridge, tunnel through sections of the sandstone cutting, and demolish the Stormwater Canal (aka Easton Park drain). These will have a cumulative impact of demolishing more listed and potential local heritage items at the Rozelle Rail Yards.

7.4 Conclusion

Importantly, the M4-M5 Link project has been assessed to have an overall moderate heritage impact, due to the subterranean nature of the majority of the interventions. The aboveground motorway infrastructure (eg ventilation facilities and outlets, substations, water treatment plants, etc) have been located and designed with to reduce heritage impacts. At Haberfield, for Option A, construction compounds from the M4 East phase of work have been reused and their footprint reduced, and for Option B or new construction compounds, they have been selected to have minimal heritage impact.

The overall cumulative impacts of the WestConnex program of works to date on heritage items can be described as major and irreversible given the scale of the construction project. It has had a substantial impact by severing and eroding the legibility of a large part of the Haberfield conservation area (which was identified as being of State significance); it has removed evidence of subdivision layouts, modest Federation domestic architecture and estate landscaping (gardens, fences and tree lined streets). Elsewhere, the demolition of locally significant heritage items (including the Rudders Bond Store) incrementally diminishes the early and mid-twentieth century industrial building stock from the southern and inner west suburbs of Sydney.

The WestConnex project comprises one of the most comprehensive upheavals to the road network that the city has experienced in recent years, for example since the construction of the Warringah Freeway, and in particular the impacts to the built fabric of the inner west suburbs are substantial. However, it should also be recognised that the cumulative impact to heritage has been dramatically reduced by tunnelling and through the site selection process for construction areas.

Further impacts to heritage from the M4-M5 Link project have also been avoided through:

- Design and refinement of the Rozelle interchange
- Avoiding heritage items such as Easton Park, the Sewage Pumping Station No.6, the former State Rail Authority (SRA) cable store and traffic office at Leichhardt
- Retaining important elements of the White Bay Power Station site
- Avoiding impacts to heritage items and HCAs at Camperdown.

The site management works and main works in the Rozelle Rail Yards would permanently remove evidence of a significant period of rail infrastructure within a broader network of Sydney industrial and freight sites, known as the goods lines, as well as the distinct industrial landscape. However, the M4-M5 Link project would reuse and incorporate heritage elements from some of the items removed during the site management works in the urban design and landscape plan for Rozelle, acknowledging heritage themes and interpretation of impacted sites.

Sydney is currently experiencing an unprecedented level of investment in large-scale road infrastructure and major public transportation projects, resulting in extensive changes to the character of the urban, suburban and foreshore landscapes across the city. As a result, the heritage fabric, features and values of the items and areas which these projects are located are being subjected to increased development pressures. While these projects will be transformative, place-making and creating the next layering of history in an area, it must be acknowledged that it is sometimes leads to impacts on heritage items and areas which has cultural and social value that enhances the liveability of urban areas.

The heritage impacts from the project are being addressed and managed through the implementation of a range of environmental mitigation measures including archival recording, heritage interpretation and urban design and landscape initiatives.

8 Management of impacts

The detailed design and construction of the M4-M5 Link project would be managed to ensure that, as far as possible, the identified potential heritage and archaeological impacts are minimised and/or avoided by implementation of a range of general and specific measures. These measures do not include operational management measures as impacts on items of heritage and archaeological significance are limited to construction activities (other than vibration).

The management measures provided in **Table 8-1** have been developed to avoid, reduce and manage identified potential impacts to non-Aboriginal heritage. These measures would be further developed on a case by case basis during detailed design. The final management measures would be documented in the Construction Heritage Management Plan (CHMP).

Table 8-1 Environmental management measures – non-Aboriginal heritage

Impact	No.	Environmental management measure	Timing
Impacts on heritage items	NAH01	Construction Heritage Management Plan (CHMP) will be prepared and implemented as part of the Construction Environmental Management Plan. The CHMP would include: · Measures that will be implemented to manage potential impacts to items of heritage significance · Inclusion of heritage awareness and management training for relevant personnel involved in site works. · Details regarding the conservation and curation of any historical artefacts recovered during works.	Construction
	NAH02	An Interpretation Strategy will be developed and implemented to identify and interpret the key heritage values and stories of the heritage areas affected by the project and inform the development of the Urban Design and Landscape Plan for the project, in accordance with NSW Heritage Office *Interpreting Heritage Places and Items Guideline August 2005*. The Interpretation Strategy will: · Build on themes, stories and initiatives proposed as part of other stages of WestConnex to ensure a consistent approach to heritage interpretation for the project. · Include themes and stories including the Rozelle railways historic functions, trains and trams transport, industrialisation and The Rozelle-Darling Harbour Goods Line. · Identify how the rail related infrastructure salvaged from the Rozelle Rail Yards will be reused.	Construction
	NAH03	Photographic recording will be undertaken of: · Infrastructure associated with the White Bay Power Station site that could be affected by the project. · Whites Creek Stormwater Channel No 95 (in the area to be impacted) · Stormwater Canal at Lilyfield Road · 'Cadden Le Messurier' at 84 Lilyfield Road · Former Hotel at 78 Lilyfield Road · Victoria Road bridge · Each house at 260–266 Victoria Road	Construction

Impact	No.	Environmental management measure	Timing
		· Each house at 248–250 Victoria Road · Former Bank of NSW (164 Parramatta Road). It will be undertaken in accordance with the NSW Heritage Office guidelines *Photographic Recording of Heritage Items Using Film or Digital Capture* (2006). The photographic recording will occur prior to any works that have the potential to impact upon the items and the report development process will include the identification of appropriate stakeholders to receive copies of the documentation.	
	NAH04	As part of the CHMP, a Historical Archaeological Research Design (HARD) will be prepared before the start of proposed works within each of the following Historical Archaeological Management Units (HAMUs): HAMU 3,HAMU 6, HAMU 7, HAMU 9, HAMU 10, and HAMU 11. The HARD will be prepared by a qualified archaeologist in consultation with the NSW Heritage Council and would include: · Descriptions of clear significance thresholds for possible archaeological items that may be uncovered during works · A methodology and scope for a program of archaeological excavation, investigation, and recording of any historical archaeological remains that will be impacted by the project · Requirement for post-excavation reporting, including artefact analysis and additional historical research, where necessary, and long term management of records · Details of what will happen with any artefacts uncovered and associated reports.	Construction
	NAH05	Before excavation of archaeological management sites, a suitably qualified Excavation Director who complies with *Criteria for Assessment of Excavation Directors* (Heritage Council of NSW 2011) will be engaged to advise on matters associated with historic archaeology. Where archaeological excavation is required, the Excavation Director will oversee excavation and advise on archaeological matters.	Construction
Heritage impacts due to vibration	NAH06	Potential vibration impacts to features of heritage significance will be managed in accordance with the Construction Noise and Vibration Management Plan prepared for the project.	Construction
Heritage impacts due to settlement	NAH07	Potential heritage impacts due to settlement and ground movement caused by the project will be managed in accordance with the relevant measures identified in **Chapter 12** (Land use and property) of the EIS and monitored in accordance with the Settlement Monitoring Plan.	Construction
Impacts to unexpected items of potential heritage conservation significance or human remains	NAH08	Any items of potential heritage conservation significance or human remains discovered during construction will be managed in accordance with an Unexpected Heritage Finds and Humans Remains Procedure developed for the project in accordance with relevant guidance provided by the Heritage Council of NSW, the NSW Heritage Division of the Office of Environment and Heritage and *Unexpected Archaeological Finds* (Roads and Maritime 2015a). The procedure will detail requirements regarding notification of relevant agencies and	Construction

Impact	No.	Environmental management measure	Timing
		the NSW Police and will be implemented for the duration of construction.	
Impacts on potential salvageable items	NAH09	A Heritage Salvage Strategy will be prepared to identify the salvage potential of the fabric and features from heritage items and potential heritage items that will be demolished to facilitate the project. This could include timber joinery, fireplaces, stained glass, stairs, decorative tiles, bricks, steel truss structures, windows etc. The strategy will also identify options and a process for dissemination of salvaged items to owners, community groups and interested parties.	Construction
	NAH10	Sandstone kerbing in the vicinity of 32 and 34 Victoria Road, Rozelle that will be removed to facilitate the project will be salvaged and provided to Inner West Council.	Construction
Loss of heritage where items are required to be demolished	NAH11	The railway cutting on the eastern side of Victoria Road, associated with the White Bay Power Station, will be considered during the development of the detailed design for the realigned Victoria Road and associated bridge. The final design will seek to avoid impact to the railway cutting and maintain the visual relationship between the cutting and the White Bay Power Station site. Landscaping sympathetic to the relationship, developed in consultation with a heritage specialist, will be included in the Urban Design and Landscape Plan for the project.	Construction
	NAH12	A condition assessment of the southern penstock (and its associated water channels) will be carried out by a heritage specialist and a structural engineer prior to any works in the vicinity with the potential impact upon the item. If required any conservation works required to limit potential impacts on deteriorated fabric (loose bricks, corroded steel) will be identified and implemented prior to construction.	Construction
	NAH13	The southern penstock and its associated water channels (location and extent unknown) will be protected during works associated with the reconstruction of the Victoria Road Bridge.	Construction
Potential impact to Whites Creek Stormwater Channel No. 95	NAH14	The new bridge over the Whites Creek Stormwater Channel must not impact the extant significant heritage fabric of the channel and should be a solely independent structure.	Construction
Potential impacts to Leichhardt (Darley Road)	NAH15	Landscaping, following the construction of the substation, should consider screening the substation and water treatment plant, from the Leichardt (Charles Street) Underbridge. The design and location of the landscaping will be informed by a heritage specialist and should seek to create a visual separation between the new structure and the heritage item.	Construction

Annexures

Annexure A – WestConnex M4-M5 Link – Buildings subject to heritage assessment

The project brief for this HIA requires the identification and assessment of places with potential heritage values not recognised on heritage registers. This annexure sets out the methodology for and identification of potential heritage items.

Those areas that would be demolished for surface works and those within the heritage study areas were surveyed for their potential heritage values. Properties located above the tunnels are unlikely to be directly impacted (other than possible damage from settlement and vibration) by the project works and the value of assessing their potential significance would be limited.

The following methodology was used to identify potential heritage items:

- Field surveys (limited to the street) to identify properties with potential aesthetic and representative significance and to assess integrity of the external form, details and associated landscapes
- Review of non-statutory registers to identify whether the heritage significance of the property had been recognised
- Review of relevant Local Environmental Plans, Development Control Plans and the State Heritage Inventory to identify whether the property is included within a heritage conservation area
- Review of the State Heritage Inventory and relevant heritage studies to assess whether the property could be considered rare in the Local Government Area
- Historical research into the development of the area to identify properties that may have historical heritage values.

Once potential heritage items had been identified, preliminary heritage inventory sheets have been prepared for each item, which include:

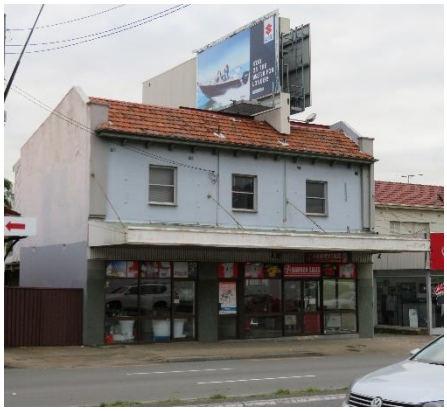
- A brief overview history
- A description of the item
- Assessment of item's heritage significance against the NSW heritage criteria
- An assessment of the item's integrity and intactness, based on inspection from the street only
- A summary statement of significance
- Photographs of the item.

Preliminary heritage assessments of buildings subject to heritage assessment

The tables below set out the properties which were determined to warrant heritage assessment by the GML team. Assessments were restricted to a visual analysis from the street and limited historical research and were therefore predominantly bases on potential aesthetic and representative significance. Inaccessible or obscured buildings were not assessed.

Area 1 – Haberfield/Ashfield (Option B)

Address	**242-246 Parramatta Road, Ashfield**		
Construction Date	Corner building—1922		  
Description	'Simpsons Corner' is a two-storey corner building with dual frontages and an awning to the street. The building is constructed of brick (painted) with a decorative stepped parapet and signage on the front facade. Early shop windows have been overhauled and the awning modified/replaced completely overtime Adjacent buildings comprise a two storey and single storey brick buildings with modern glass shopfronts to the street.		
Condition	Fair/Poor- interiors not inspected.		
Assessment of Significance	The site does not demonstrate heritage significance to a level that warrants listing on any statutory register.		
Modifications	Very few original features exist at the property internally (as viewed from the street) and externally and the site has been substantially altered over time.		
Heritage Criteria	**Historical**	-	
	Historical Association	**-**	
	Aesthetic	**-**	
	Social	-	
	Technical/Research	-	
	Rarity	-	
	Representativeness	-	
	Integrity	-	

Address	**248-250 Parramatta Road, Ashfield**	
Construction Date	Pre-1943	
Description	Two storey brick shop building with residences/rooms above possibly dating from the early 20th Century. The buildings are set under an altered roof form with contemporary terracotta tiles and exposed rafters visible beneath the eaves. A billboard structure has been fixed within the roof planes. Modernised shop windows and entrances are located at the ground floor, sheltered by an awning which has been stripped of any signage. At the upper level three contemporary double hung windows open south.	
Condition	Fair/Poor- interiors not inspected.	
Assessment of Significance	The site does not demonstrate heritage significance to a level that warrants listing on any statutory register.	

Address	248-250 Parramatta Road, Ashfield		
Modifications	The rear of the site has been subject to a number of later additions. Very few original features exist at the property with the front façade updated and altered over time.		
Heritage Criteria	**Historical**	-	
	Historical Association	**-**	
	Aesthetic	**-**	
	Social	-	
	Technical/Research	-	
	Rarity	-	
	Representativeness	-	
	Integrity	-	

Address	252 Parramatta Road, Ashfield		
Construction Date	1915-1920s		
Description	Two-storey building encapsulated within the car dealership showroom building. A modern car showroom structure has been built around the earlier building, enclosing it with contemporary elements including glass and modern signage.		
Condition	Unable to assess.		
Assessment of Significance	The site does not demonstrate heritage significance to a level that warrants listing on any statutory register.		
Modifications	Heavily modified. The earlier building's setting has been lost and its character is unable to be interpreted from any publicly accessible area along Parramatta Road.		
Heritage Criteria	**Historical**	-	
	Historical Association	**-**	
	Aesthetic	**-**	
	Social	-	
	Technical/Research	-	
	Rarity	-	
	Representativeness	-	
	Integrity	-	

Address	119 Alt Street, Ashfield		
Construction Date	c1915 (Federation)		
Description	Single-storey red brick Federation bungalow set under a main hipped roof with a single gable portion projecting to the front and a covered porch to the entryway. The front façade features simple timber barge boards, timber battening beneath the front gable end, timber framed casement windows with simple lead lights and matching half glazed front door. The building retains its original envelope and form however individual materials appear to have been altered/replaced over time.		
Condition	Good		
Assessment of Significance	The site does not demonstrate heritage significance to a level that warrants listing on any statutory register.		
Modifications	Some timber and joinery appears to be replacement.		
Heritage Criteria	**Historical**	-	
	Historical Association	**-**	
	Aesthetic	**-**	
	Social	-	
	Technical/Research	-	
	Rarity	-	
	Representativeness	-	
	Integrity	-	

Address	136 Bland Street, Haberfield		
Construction Date	c1901 (Federation)		
Description	Single storey brick Federation cottage with hipped roof over the main house and projecting gable portion with timber detailing to the gable end. The front porch is sheltered leading to the entry and features timber posts and matching timber valance detailing beneath the eaves. Windows are timber framed casement with simple lead lights, with a timber or shingled base to the bay window that opens to the front porch.		
Condition	Good		
Assessment of Significance	The site demonstrates local heritage significance as a contributory item to the broader Haberfield CA.		
Modifications	Some joinery appears to have been replaced/overhauled. Other modifications unknown.		
Heritage Criteria	**Historical**	**Local**	
	Historical Association	**-**	

Address	136 Bland Street, Haberfield		
	Aesthetic	**Local**	
	Social	-	
	Technical/Research	-	
	Rarity	-	
	Representativeness	**Local**	
	Integrity	-	

Address	138 Bland Street, Haberfield		
Construction Date	c1901 (Federation)		
Description	Single storey brick Federation cottage with hipped roof over the main house extending to shelter the front porch. The house has a projecting gable portion with timber detailing and rendered panel beneath the gable end. The property features other typical Federation details such as exposed rafters to the eaves, terracotta ridge tiles and finials, timber framed casement windows with small lead light panes and two rough cast chimney stacks with terracotta chimney pots.		
Condition	Good		
Assessment of Significance	The site demonstrates local heritage significance as a contributory item to the broader Haberfield CA.		
Modifications	Some joinery and features are likely to have been replaced/overhauled. There is a later skillion roofed extension to the rear of the house. The low brick wall to the front boundary of the property is a later addition.		
Heritage Criteria	**Historical**	**Local**	
	Historical Association	**-**	
	Aesthetic	**Local**	
	Social	-	
	Technical/Research	-	
	Rarity	-	
	Representativeness	**Local**	
	Integrity	-	

Address	195 Parramatta Road, Haberfield		
Construction Date	Late Twentieth Century		
Description	Single storey utilitarian commercial building with glass shop frontage.		
Condition	N/A		
Assessment of Significance	The site does not demonstrate heritage significance to a level that warrants listing on any statutory register.		
Modifications	N/A		
Heritage Criteria	**Historical**	-	
	Historical Association	**-**	
	Aesthetic	**-**	
	Social	-	
	Technical/Research	-	
	Rarity	-	
	Representativeness	-	
	Integrity	-	

Address	135 Bland Street, Haberfield		
Construction Date	C1901 (Federation)		
Description	Single storey brick Federation cottage with hipped roof over the main house extending to shelter the front porch. The projecting gable roofed portion features a rough cast render and timber shingled awning over the front windows The property features other typical Federation details such as exposed rafters to the eaves, terracotta ridge tiles and finials, timber framed casement windows with small coloured panes and two rough cast chimney stacks with terracotta chimney pots.		
Condition	Good		
Assessment of Significance	The site demonstrates local heritage significance as a contributory item to the broader Haberfield CA.		
Modifications	Some joinery and features are likely to have been replaced/overhauled.		
Heritage Criteria	**Historical**	**Local**	
	Historical Association	**-**	
	Aesthetic	**Local**	
	Social	-	
	Technical/Research	-	
	Rarity	-	
	Representativeness	**Local**	
	Integrity	-	

Address	137 Bland Street, Haberfield		
Construction Date	Possibly c1901		
Description	Single storey brick house, possibly a Federation cottage which has been stripped and re-skinned with modern brick or brick veneer. It features a hipped roof form, sheltered front entrance porch with baroque-style balusters, aluminium framed windows and a tiled pathway leading from the front entrance.		
Condition	N/A		
Assessment of Significance	The site is highly compromised and does not demonstrate heritage significance to a level that warrants listing on any statutory register.		
Modifications	Heavily stripped and modified. No original external detailing remains in situ. Intactness of interior fabric/layout is unknown		
Heritage Criteria	**Historical**	-	
	Historical Association	**-**	
	Aesthetic	**-**	
	Social	-	
	Technical/Research	-	
	Rarity	-	
	Representativeness	-	
	Integrity	-	

Address	139 Bland Street, Haberfield		
Construction Date	Mid to Late 20th Century		
Description	Single storey brick residence with arched brick openings to front porch and tiled entrance path through an open front yard. Front façade features aluminium framed windows and other generic modern finishes.		
Condition	N/A		
Assessment of Significance	The site does not demonstrate heritage significance to a level that warrants listing on any statutory register.		
Modifications	N/A		
Heritage Criteria	**Historical**	-	
	Historical Association	**-**	
	Aesthetic	**-**	
	Social	-	
	Technical/Research	-	
	Rarity	-	
	Representativeness	-	
	Integrity	-	

Address	124 Bland Street, Haberfield		
Construction Date	Mid to Late 20th Century		
Description	3-storey brick walk-up flat building serviced by small front garden and driveway running down the north-east boundary of the property. Flat building features standard aluminium windows, sliding doors opening to balconies and minimal detailing.		
Condition	N/A		
Assessment of Significance	None, property is typical of 1960s-1970s residential flat development ubiquitous to greater metropolitan Sydney.		
Modifications	N/A		
Heritage Criteria	**Historical**	-	
	Historical Association	**-**	
	Aesthetic	**-**	
	Social	-	
	Technical/Research	-	
	Rarity	-	
	Representativeness	-	
	Integrity	-	

Address	142 Alt Street, Ashfield		
Construction Date	Late 19th Century		
Description	Single storey late 19th Century cottage with main house set under gable roof form and front façade featuring centred entrance door framed by two double hung sash windows.		
Condition	Fair		
Assessment of Significance	The site does not demonstrate heritage significance to a level that warrants listing on any statutory register.		
Modifications	Some features are likely to have been replaced/overhauled.		
Heritage Criteria	**Historical**	-	
	Historical Association	**-**	
	Aesthetic	**-**	
	Social	-	
	Technical/Research	-	
	Rarity	-	
	Representativeness	-	
	Integrity	-	

Address	144 Alt Street, Ashfield		
Construction Date	c1900 (Federation)		
Description	Single storey brick Federation cottage with hipped roof over the main house extending to shelter the front porch. The property features other typical Federation details such as exposed rafters to the eaves, terracotta ridge tiles and finials, timber framed casement windows with small coloured panes and rough cast chimney stack with terracotta chimney pots.		
Condition	Good		
Assessment of Significance	The site demonstrates local heritage significance as a contributory item to the streetscape.		
Modifications	Some joinery and features are likely to have been replaced/overhauled.		
Heritage Criteria	**Historical**	Local	
	Historical Association	**-**	
	Aesthetic	Local	
	Social	-	
	Technical/Research	-	
	Rarity	-	
	Representativeness	-	
	Integrity	-	

Address	137 Alt Street, Ashfield		
Construction Date	**c1900 (Federation)**		
D**escription**	Single storey brick Federation cottage with hipped roof over the main house extending to shelter the front porch. Many original features lost.		
Condition	Good		
Assessment of Significance	The site does not demonstrate heritage significance to a level that warrants listing on any statutory register.		
Modifications	The property has been modified and stripped over time.		
Heritage Criteria	**Historical**	-	
	Historical Association	**-**	
	Aesthetic	-	
	Social	-	
	Technical/Research	-	
	Rarity	-	
	Representativeness	-	
	Integrity	-	

Address	139 Alt Street, Ashfield		
Construction Date	c1900 (Federation)		
Description	Single storey brick Federation cottage set on a rough cast sandstone base featuring typical details such as exposed rafters to the eaves, terracotta ridge tiles and finials, timber framed casement windows with small coloured panes and rough cast chimney stack with terracotta chimney pots.		
Condition	Good		
Assessment of Significance	The site demonstrates local heritage significance as a contributory item to the broader Haberfield CA.		
Modifications	No major modifications evident externally.		
Heritage Criteria	**Historical**	Local	
	Historical Association	**-**	
	Aesthetic	Local	
	Social	-	
	Technical/Research	-	
	Rarity	-	
	Representativeness	Local	
	Integrity	-	

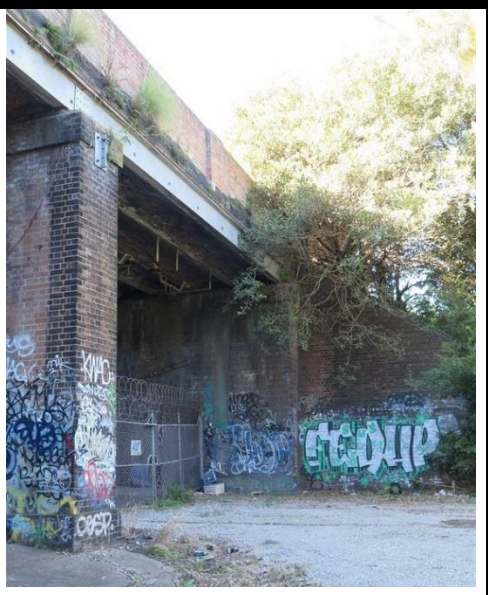
Address	298 Parramatta Road, Ashfield		
Construction Date	Mid to Late 20th Century		
Description	Two storey contemporary brick commercial building featuring contemporary finishes and minimal detailing.		
Condition	Fair		
Assessment of Significance	The site does not demonstrate heritage significance to a level that warrants listing on any statutory register.		
Modifications	Unknown		
Heritage Criteria	**Historical**	-	
	Historical Association	**-**	
	Aesthetic	**-**	
	Social	-	
	Technical/Research	-	
	Rarity	-	
	Representativeness	-	
	Integrity	-	

Address	207-213 Parramatta Road, Haberfield		
Construction Date	c1915		
Description	Row of modest single storey Federation bungalows with double gabled frontages.		
Condition	Fair – Good		
Assessment of Significance	The site does not demonstrate heritage significance to a level that warrants listing on any statutory register.		
Modifications	Most of the properties have been highly modified with very few original features intact within the row.		
Heritage Criteria	**Historical**	-	
	Historical Association	**-**	
	Aesthetic	**-**	
	Social	-	
	Technical/Research	-	
	Rarity	-	
	Representativeness	-	
	Integrity	-	

Area 2 – Leichhardt

No buildings within the study area were identified as potential heritage items therefore no heritage assessments were required.

Area 3 – Rozelle, Lilyfield and Annandale (Rozelle Rail Yards, The Crescent, Rozelle Bay and Victoria Road)

Address	Victoria Road Bridge, Rozelle	
Construction Date	c1922	
Description	The Victoria Road bridge dates from the 1920s, the same era as its Catherine Street counterpart. The Catherine Street overbridge is listed as a local heritage item on the Leichhardt LEP as 'a good representative example of a large brick overbridge constructed in the 1920s as part of the NSW railway network'. The Victoria Road bridge is constructed of concrete on brick piers, which carries Victoria Road across the former rail yard, with the brick piers forming bays below. The piers are subject to graffiti damage. The bridge was likely constructed using bricks from the State Brickworks at Homebush Bay, which made bricks for use by the Department of Public Works and other state government departments. The bridge continues to function as a road bridge today.	

Address	Victoria Road Bridge, Rozelle		
Condition	Fair–vegetation overgrowth and graffiti.		
Summary of Significance	The Victoria Road bridge has local significance as a representative example of brick overbridges constructed in the 1920s, as part of the roll out of the separate freight line across the Sydney rail network. The bridge is a noticeable landscape feature that provides evidence of the Rozelle Rail Yard's industrial and transport legacy.		
Modifications	Not known		
Heritage criteria	**Historical**	Local	
	Historical association	-	
	Aesthetic	-	
	Social	-	
	Technical/research	-	
	Rarity	-	
	Representativeness	Local	
	Integrity		

Address	Sandstone Cutting, Rozelle	
Construction Date	c1916	
Description	The sandstone cutting which runs along the northern boundary of the Site dates from the early twentieth century and remains a prominent landscape feature of the Rozelle Rail Yards. Tool marks and drill holes for blasting or manual splitting are visible along the rock face and vegetation grows out of the rock face.	
Condition	Condition varies. Parts of the cuttings are obscured by vegetation or other engineering structures. Drill marks at the eastern and western ends of the cuttings indicate that some sandstone may have been extracted in blocks rather than blasted out, which may suggest the use of stone from the area for ballast or engineering works, or conceivably for building.	
Summary of Significance	The sandstone cutting has some local significance as a representation of the scale and nature of works undertaken for the construction and alignment of the goods rail line. The height and size of the cutting provides evidence of the early ambitions for the train marshalling yard to be a busy interchange. The cutting is a prominent landscape feature, defining the northern limit of the marshalling yard and more generally the topography of the twentieth-century industrial-maritime landscapes of White Bay and Rozelle Bay. There are potential links to quarrying activities on Glebe Island.	
Modifications	It is not clear whether extraction occurred in a single phase during construction of the yards or whether some stone was extracted previously from the area. Modifications appear to have occurred in some sectors to stabilise the rock and/or enable construction under or against the rock.	
Heritage criteria	**Historical**	Local
	Historical association	-
	Aesthetic	-
	Social	-
	Technical/research	Local
	Rarity	-
	Representativeness	-
	Integrity	Good

Area 4 – Iron Cove

Address	260-266 Victoria Road, Rozelle	
Construction Date	c1909	
Description	Row of four detached single storey early Federation-era houses staggered according to both the alignment and gradient of Victoria Road from east to west. Nos 260 and 262 have had their front yards enclosed with modern fences and their entrances are at ground level through a small front yard while Nos 264 and 266 maintain their original transverse steps up leading up to a small entry porch sheltered by a bullnose profile corrugated iron awning. The houses are of brick construction with rendered front facades and hipped roofs in painted corrugated iron. In all four houses a front room steps forward under a projecting gable (rough cast gable end detail remaining at 260 and 262) beneath which are two double hung sash windows with small coloured glass panes and a decorative tile insert between.	
Condition	Fair/good	
Assessment of Significance	As a group of four these properties may have local significance as representative of a transitional early Federation style typical of their period. The houses have some historical interest as evidence of the late nineteenth century and early twentieth century development and subdivisions which occurred along Victoria Road.	
Modifications	The properties have been substantially modified. The houses have lost their decorative timber detailing from the front façade including barge boards and capping, gable decorations, finials and timber brackets to front entry porch. Nos 264 and 266 have lost their rough cast gable end panels and 260 has lost its rendered label course. 266 is highly modified, and has lost its decorative wrought iron balustrade, the front steps have been altered/overclad in modern travertine (?) and the original bullnose front porch awning has been replaced with a modern skillion roof form. Nos 260 and 262 were unable to be observed in full due to high boundary walls.	
Heritage Criteria	**Historical**	Local
	Historical Association	**-**
	Aesthetic	**-**
	Social	-

Address	260-266 Victoria Road, Rozelle		
	Technical/Research	-	
	Rarity	-	
	Representativeness	Local	
	Integrity	-	

Address	4 Clubb Street, Rozelle		
Construction Date	c1890		
Description	Highly modified single-storey Victorian worker's cottage with bullnose profile veranda roof extending across the width of the house supported by timber veranda posts. Construction is timber with weatherboard cladding which may be original. There is a small front yard entrance yard which has been recently landscaped enclosed by a wooden picket fence. A recent attic conversion has led to a highly modified roof form with a dormer window projecting out from the front roof plane and a gabled extension form adjoining the rear of the original cottage form. The front elevation of the property has two pairs of casement windows with small paned coloured glass fan lights above and a front entrance door directly in between. All joinery appears to be new/21st century.		
Condition	Good – recently renovated.		
Assessment of Significance	Despite the cottage at 4 Clubb Street having some historic interest it appears highly modified and does not meet the threshold for local listing.		
Modifications	Externally the house retains very little of its original detailing and minimal evidence of its early construction techniques. The roof form and fabric is new and associated rainwater disposal system (gutters and downpipes) are modern Colorbond. All weatherboard cladding, window and front door joinery, veranda posts, glazing and front fencing appears to date from the 21st century with possible intervention in the original configuration of these elements. The bullnose form of the veranda roof may be original; however, roof fabric is new corrugated steel.		
Heritage Criteria	**Historical**	-	

Address	4 Clubb Street, Rozelle		
	Historical Association	-	
	Aesthetic	-	
	Social	-	
	Technical/Research	-	
	Rarity	-	
	Representativeness	-	
	Integrity	-	

Address	6 Byrnes Street, Rozelle		
Construction Date	c1910		 
Description	A Federation Queen Anne style residence with an asymmetrical form. The house is face brick with a skillion roofed veranda with decorative posts and joinery. The gabled wing features a bay window with corrugated iron roof. The gable is brick with decorative carved timber fretwork to the edge of the gable roof. The modified skillion and gabled roof is corrugated metal. The garden slopes slightly away from the house at the front and is enclosed with a face brick fence, covered in some areas with vegetation.		
Condition	Good		
Assessment of Significance	The house at 6 Byrnes Street has some interest aesthetically however does not meet the threshold for listing at a local level.		
Modifications	Original form of the building has been modified at the rear with a second story addition. Fretwork and bargeboard on the gable end have been replaced.		
Heritage Criteria	**Historical**	-	
	Historical Association	-	
	Aesthetic	-	
	Social	-	
	Technical/Research	-	
	Rarity	-	
	Representativeness	-	
	Integrity	-	

Address	256 Victoria Road, Rozelle		
Construction Date	C1895		
Description	Extensively modified timber late nineteenth century worker's cottage with a corrugated iron hipped roof. The properties narrow frontage is sheltered by a flat veranda roof, supported by square timber posts with timber valance above. The front elevation has an asymmetric front door and pair of timber double hung sash windows open to the yard. The front yard has been covered with a concrete slab and pavers and converted to a driveway. There is a timber fence across the street front and narrow garden bed along the southern boundary. Development abuts the property closely on both north and south sides.		
Condition	External condition good.		
Assessment of Significance	Although the original building is of interest in the development of the area, it is highly modified and does not meet the threshold for local listing.		
Modifications	All external finishes including cladding, roofing, guttering, timber joinery, external landscaping and fencing date from the 21st century.		
Heritage Criteria	**Historical**	-	
	Historical Association	-	
	Aesthetic	-	
	Social	-	
	Technical/Research	-	
	Rarity	-	
	Representativeness	-	
	Integrity	-	

Address	248-250 Victoria Road, Rozelle		
Construction Date	c1909		
Description	A pair of two storey Federation-era terraces with a central pediment, chimney with corbelled brick top and painted brickwork. Part of the original face brickwork remains on one of the pair. There is a decorative cast iron balustrade to the first floor veranda as well as timber valance and corner brackets (age unknown). The roof of the first floor verandas is corrugated iron in a bullnose form. Each of the pair have timber sash windows (Venetian) to the ground floor and glazed doors to the top floor veranda. The cast cement urns to side parapets remain. The front yards to the pair are accessed through gates in the decorative iron fence. The floor of the veranda is paved with small garden bed along the fence line.		
Condition	Exterior condition good.		
Assessment of Significance	As a relatively intact example of a pair of early twentieth century residences the properties may have local significance as representative of Federation style. The houses have some historical interest as evidence early twentieth century development.		
Modifications	Modification to top floor windows. Possible modification to timber valance and corner brackets to veranda		
Heritage Criteria	**Historical**	Local	
	Historical Association	-	
	Aesthetic	-	
	Social	-	
	Technical/Research	-	
	Rarity	-	
	Representativeness	Local	
	Integrity	-	

Address	6, 8, 10 Toelle Street, Rozelle		
Construction Date	C1890		
Description	Semi-detached, single storey cottage in the Federation style, that is divided into three houses. The hipped roof is covered with terracotta tiles and rendered cement chimneys with corbelled tops. The walls are dressed sandstone covered by a skillion corrugated iron veranda roof. The veranda roof is supported by a variety of timber and metal poles and the veranda floor is tiled. The street slopes to the west with numbers 8 and 10 accessed by steps up from street level. All three houses have a sandstone retaining wall across the street front, topped with a timber picket fence.		
Condition	Fair condition externally.		
Assessment of Significance	The houses at 6,8 and 10 Toelle Street do not meet the threshold for local listing.		
Modifications	Section of veranda roof replaced. Mismatched supports to the veranda suggests they have been replaced at an unknown date.		
Heritage Criteria	**Historical**	-	
	Historical Association	-	
	Aesthetic	-	
	Social	-	
	Technical/Research	-	
	Rarity	-	
	Representativeness	-	
	Integrity	-	

Address	236 Victoria Road, Rozelle		
Construction Date	C1933		 
Description	A single storey, face brick Inter-war house with face brick pilasters to the front façade and chamfered brick window sills. The hipped roof is terracotta tiled with some replacement tiles. The front yard is enclosed by a low face brick fence with a small yard planted to the wall of the building. Timber fencing encloses the rear of the building on the western boundary.		
Condition	Good condition externally.		
Assessment of Significance	The house at 236 Victoria Road does not meet the threshold for local listing.		
Modifications	Significant modification to the front and rear of the property.		
Heritage Criteria	**Historical**	-	
	Historical Association	-	
	Aesthetic	-	
	Social	-	
	Technical/Research	-	
	Rarity	-	
	Representativeness	-	
	Integrity	-	

Address	234 Victoria Road, Rozelle		
Construction Date	C1909		 
Description	A single storey house in the Federation style. The house is face brick with a bullnose roofed veranda with decorative timber posts and corner brackets. One wall of the house has painted bricks. The roof of the house is a steep sloped hipped roof in corrugated iron. Access to the side and rear of the building is via an unpaved driveway. The front yard is enclosed by a low brick fence with decorative ironwork between piers. Mature trees and grass make up the front garden, with a concrete path giving access to the covered veranda and front door.		
Condition	Fair conditional externally.		
Assessment of Significance	The house at 234 Victoria Road does not meet the threshold for local listing.		
Modifications	Replacement of the roof, potential modification to the rear of the building.		
Heritage Criteria	**Historical**	-	
	Historical Association	-	

Address	234 Victoria Road, Rozelle		
	Aesthetic	-	
	Social	-	
	Technical/Research	-	
	Rarity	-	
	Representativeness	-	
	Integrity	-	

Address	232 Victoria Road, Rozelle		
Construction Date	C1890		
Description	A late nineteenth century single storey row house with rendered walls, and raised motif and bracket to the moulded parapet. The tiled veranda is covered by a skillion corrugated metal roof with cast iron corner brackets. The front garden is both pathed and tiled with areas of raised garden beds. The yard is enclosed with a decorative metal fence.		
Condition	External condition good.		
Assessment of Significance	The house at 232 Victoria Road does not meet the threshold for local listing.		
Modifications	Façade and veranda extensively modified, potential modification to the rear of the building.		
Heritage Criteria	**Historical**	-	
	Historical Association	-	
	Aesthetic	-	
	Social	-	
	Technical/Research	-	
	Rarity	-	
	Representativeness	-	
	Integrity	-	

Address	8 Callan Street, Rozelle		
Construction Date	C1922		
Description	A single storey interwar face-brick house in the Arts and Craft style with an asymmetrical form. The roof is hipped and gabled with terracotta tiles and exposed eaves. The house has brick chimneys with terracotta pots. The gable wing features a three-casement bay window with a pressed metal hood and shingle awning. The gable ends are roughcast with simple shaped timber bargeboards. The veranda to the front of the house has been enclosed with timber windows added behind the timber fretwork to the original veranda roof. The yard is enclosed by a face-brick and bullnose retaining wall topped with metal fence, behind which sits a raised garden bed.		
Condition	External condition is good.		
Assessment of Significance	The house at 8 Callan Street has aesthetic and representative significance at the local level as a good example of an interwar house with Arts and Craft Style details.		
Modifications	Modification to the form and fabric of the house.		
Heritage Criteria	**Historical**	-	
	Historical Association	-	
	Aesthetic	Local	
	Social	-	
	Technical/Research	-	
	Rarity	-	
	Representativeness	Local	
	Integrity	-	

Area 5 – Annandale (around Pyrmont Bridge Road and Parramatta Road)

Address	164 Parramatta Road, Annandale (Former Bank of NSW)		
Construction Date	1936- 1937		
Description	Two storey inter-war stripped classical former Bank of NSW building with sandstone pilasters to the front façade and simple red brick parapet concealing a hipped roof. The building is symmetrical in form and massing and consistent with other purpose built banks of its era. It is set on a simple sandstone base with an emphatic square portal leading to the entrance. Above the doorway on the frieze it is possible to make out where the bronze lettering reading 'Bank of NSW' once was. The building has three smaller multi pane double hung sash windows above two larger ones at ground level and conforms to the prevailing setback of this particular stretch of Parramatta Road.		
Condition	Good/fair externally.		
Assessment of Significance	The former Bank of NSW building has historic and aesthetic significance as a typical example of an inter-war commercial building purpose built as a bank, a typology rare in the context of Parramatta Road.		
Modifications	The building has lost some of its finer details including its original brass lettering, front door and usual utilitarian bank items such as night safes/deposit boxes. The brickwork around the middle window at the upper level appears to have been altered.		
Heritage Criteria	**Historical**	Local	
	Historical Association	-	
	Aesthetic	Local	
	Social	-	
	Technical/Research	-	
	Rarity	-	
	Representativeness	Local	
	Integrity	-	

Address	99 Pyrmont Bridge Road, Annandale (James Squire Brewery)		
Construction Date	c1930		
Description	Former furniture factory. Currently used as a brewery (since 1988). Exposed face brick		
Condition	Good		
Assessment of Significance	While the site does retain some social/historical significance as a local landmark, it does not meet the threshold for listing at the local level due to its high levels of alteration and modification.		
Modifications	External façade heavily modified. Significant changes to accommodate current use of site since the 1980s.		
Heritage Criteria	**Historical**	-	
	Historical Association	-	
	Aesthetic	-	
	Social	-	
	Technical/Research	-	
	Rarity	-	
	Representativeness	-	
	Integrity	-	

Address	79 Pyrmont Bridge Road, Annandale (Storage King)	
Construction Date	c1930	
Description	Large purpose built two-storey industrial complex occupying entire block. Repeating framed masonry bays to front façade inset with steel windows. Decorative brick corbelling to the parapet.	
Condition	Good	
Assessment of Significance	Property makes some contribution to the industrial character of the streetscape however the high level of modifications necessitated by the conversion of the building to a self-storage function means that it is unlikely to meet the threshold for listing at a local level.	
Modifications	Exterior brickwork painted and all industrial signage/livery removed. Substantial internal modification and strip out likely to have occurred.	

Address	79 Pyrmont Bridge Road, Annandale (Storage King)		
Heritage Criteria	**Historical**	-	
	Historical Association	-	
	Aesthetic	-	
	Social	-	
	Technical/Research	-	
	Rarity	-	
	Representativeness	-	
	Integrity	-	

Address	67-77 Pyrmont Bridge Road, Annandale (terraces)		
Construction Date	Pre-1890		
Description	Five heavily modified two-storey Victorian terraces of the same era with staggered arrangement to the street frontage. Site specific response of the terrace typology adapted to site topography and orientation.		
Condition	Fair/Poor- interiors not inspected.		
Assessment of Significance	These terraces do not meet the threshold for listing at the local level due to their high levels of alteration and modification.		
Modifications	All verandas have been infilled, new fencing installed and roofs replaced. Loss of original joinery and detailing throughout.		
Heritage Criteria	**Historical**	-	
	Historical Association	-	
	Aesthetic	-	
	Social	-	
	Technical/Research	-	
	Rarity	-	
	Representativeness	-	
	Integrity	-	

Area 6 – St Peters

There were no buildings within this study area which warranted additional heritage assessment.

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