

## 5 Physical Analysis & Impact Assessment

### 5.1 Aboriginal Heritage

#### 5.1.1 Survey Methodology

The Aboriginal heritage field survey was undertaken on 19 August 2010 by AMBS archaeologist Jenna Weston, accompanied by Aboriginal community representatives Dallas Dodd (MLALC), Gordon Morton and Tim Wells (DACHA). The fieldwork methodology, the proposed development and available mapping information were discussed with the Aboriginal community representatives prior to beginning fieldwork, and copies of topographic maps, aerial photographs and historic parish maps were made available to guide the survey. The findings of the survey and recommendations were discussed with all representatives in the field, and their comments have been incorporated into this report, where appropriate.

The aims of the survey were to:

- employ the predictive model to guide the survey;
- undertake a pedestrian survey of the GreenWay and other parts of the project area where the ground surface was visible;
- record any Aboriginal sites/objects within the study area; and
- determine any areas of potential Aboriginal heritage sensitivity.

A pedestrian survey was undertaken of the GreenWay, in areas that have not been heavily developed by roads and urban/industrial development. The methodology for the survey was reviewed by the registered Aboriginal parties (see Section 1.3.1). As the proposed Light Rail corridor is within the former Rozelle Goods Line, it is considered that no Aboriginal heritage material will remain within this corridor; therefore, it was not surveyed. The proposed Light Rail stop locations, and sections of the GreenWay within the disturbed rail corridor, were viewed from outside the rail corridor (e.g. from road overbridges).

If any Aboriginal artefacts were encountered, notes were to be made regarding their type, size, and material, descriptions of the site were to be recorded including the environmental setting and details of any disturbance to archaeological material in the site's vicinity, and Australian Map Grid (AMG) coordinates were to be taken by a handheld Magellan Explorist 500LE GPS unit. Photographs of objects and their location were also to be taken. Photographs of the study area in general were taken using a Canon EOS 300D or Sony DSC-V3 digital camera.

#### 5.1.2 Survey Results

No Aboriginal sites, places or objects were identified during the survey. Further, no areas of potential archaeological deposit or Aboriginal sensitivity were identified for the study area. Therefore, the project will not have an impact on Aboriginal heritage.

The vast majority of the study area has been subject to previous disturbance for rail, roads, canal or residential/commercial construction, and parts have been reclaimed. The green areas/parks have also been disturbed by landscaping and the construction of facilities, including paths. As such, none of the original ground surface of the study area is visible, but there was some visibility of the disturbed ground surface, in the areas that were surveyed (approximately 1.66%; see Table 5.1).

Survey coverage data was gathered during the archaeological field survey to allow quantification of ground exposure and visibility, as adverse observation conditions can affect the detection of Aboriginal

sites and material. This data does not reflect the extent of the area that was physically surveyed, but represents an estimate of the area of ground surface examined, and presents an estimate of the effectiveness of the survey, given environmental conditions and ground visibility. Survey coverage data is presented in accordance with the Guidelines for Archaeological Survey Reporting section of DECCW's *Aboriginal Cultural Heritage Standards & Guidelines Kit* (NSW NPWS 1997). Survey coverage data for the current study is presented in Table 5.1.

Aboriginal occupation of the study area would most likely have been intense around the creeks (Long Cove Creek and the Cooks River) and the harbour at Long Cove. However, the land in the northern portion of the study area, in the vicinity of Long Cove, was reclaimed, and the former coastline has now been extensively developed. Long Cove Creek was formed into a canal, and the land adjacent to the Canal has been disturbed by residential development to the west, and the rail corridor to the east. The Cooks River may retain sites nears its banks, but the current study area extends along an established road in the vicinity of this River, and therefore none of the parkland adjacent to the River was surveyed. In summary, the lack of Aboriginal heritage sites identified during the survey is considered to reflect the major disturbance of the study area, following which no Aboriginal sites are likely to remain.

Table 5.1 Effective coverage

Landform of Transect	Description	Approx. Area (m <sup>2</sup> )	Approx. Surveyed Area (m <sup>2</sup> )	Visibility	Exposure	Effective Coverage (m <sup>2</sup> )	Sample Fraction (%)
Flat	<b>Western side of Canal, east of Hawthorne Parade</b> Partly reclaimed land (near Iron Cove), planted with grass and trees; some paths and sports courts and other facilities	13400	13400	0.85	0.005	56.95	0.425
Flat, built-up bridge	<b>Northern end of GreenWay (crossing under City West Link, and over Iron Cove along Lilyfield Road)</b> Paved paths, no vegetation along part, trees at Iron Cove, grass planted along Lilyfield Road bridge	4000	4000	1.0	0.01	40	1
Flat	<b>Eastern side of Canal, west of Canal Road and rail corridor</b> Partly reclaimed land (near Iron Cove), planted with grass and trees; path and cafe	26400	26400	0.9	0.1	237.6	0.9
Flat	<b>Blackmore Oval</b> Grassed oval, trees along edges and in north-east corner	9550	9550	0.95	0.005	45.3625	0.475
Flat	<b>Eastern side of rail corridor, west of Darley Road</b> Grassed and vegetated	7350	7350	0.2	0.005	7.35	0.1
Former creek flat/ gentle slope	<b>East of Canal, west of rail corridor; between Marion Street and Parramatta Road</b> Vegetated, paved path	6000	6000	0.1	0.005	3	0.05
Former creek flat/ slopes	<b>East of Canal, west of rail corridor; between Parramatta Road and Inner West Rail Line</b> Grassed and vegetated, informal walking track	1500	1500	0.85	0.4	510	34
Flat/gentle slope	<b>West of rail corridor, Johnson Park</b> Planted with grass and trees; some paths and other facilities	2250	2250	0.75	0.01	16.875	0.75
Slopes	<b>Between separation of rail lines, Jack Shanahan Park</b> Planted with grass and trees; skate park, paths and other facilities	11000	4560	0.95	0.1	433.2	3.94
<b>Total</b>		<b>81450</b>	<b>75010</b>			<b>1350.338</b>	<b>1.66</b>

## 5.2 Historic Heritage

There are 29 identified heritage items located in the vicinity of the study area, the historic Rozelle Goods Line. These items are discussed below in order of their location along the corridor and GreenWay, from Lilyfield in the northeast to Dulwich Hill in the southwest. The scale of the project is such that the study area has been divided into five manageable sections based on the project construction plans. See also Figures 1.2 – 1.6 above. The sections are as follows:

- Section 1: the area from the existing Lilyfield station to Leichhardt North.
- Section 2: the area from Leichhardt North to Marion Street.
- Section 3: the area from Marion Street to Lewisham West.
- Section 4: the area from Lewisham West to Arlington.
- Section 5: from Arlington to Dulwich Hill.



### 5.2.1 Section 1



Figure 5.1 Construction maps for Section 1 with locations of heritage items indicated (source: PB).



***Lilyfield (Catherine St) Overbridge*****Figure 5.2 Lilyfield (Catherine Street) Overbridge.**

The existing Lilyfield light rail station is located on the eastern side of the Catherine Street Overbridge, with the rail corridor beneath the bridge (Figure 5.2). The Catherine Street Overbridge is a concrete bridge supported by ten brick piers, with brick parapet walls, and was constructed in 1922 to provide road access over the newly constructed Rozelle Goods Line. The bridge continues to carry road traffic across the line at Catherine Street and is in good condition.

The project includes siting a construction compound on the east side of the bridge, and modifications to the existing Lilyfield station to accommodate a track on either side of the platform, as well as overhead wiring and upgrades to associated infrastructure along the rail alignment. A substation is to be located approximately 150m west of the bridge, and is to be accessed under the Overbridge.

These works are consistent with the continuing operation of the goods line for rail services, and as such there is unlikely to be significant impacts to the Rozelle Goods Line. However, care should be taken to avoid adverse impacts to the historic fabric of the bridge.

***SRA Stores Branch Building, former Tram Depot Office, Tramshed & Cable Store, and Street Tree - Moreton Bay Fig (Derbyshire Street)*****Figure 5.3 SRA buildings.**

The SRA buildings are located between Moore Street and the City West Link (Figure 5.3). The site covers some 6500m<sup>2</sup> and has a street frontage of 105 metres on Balmain Road. Moore Street West is closed to traffic and now comprises a combined pedestrian/cycleway providing access to the Leichhardt Secondary College and Derbyshire Road. Originally constructed as a storage depot for trams in the early twentieth century, it was subsequently used to house buses, and there are two extant tram/bus sheds within the site.

The field survey ascertained the location of the Moreton Bay Fig on Derbyshire Street as being approximately 80m from the City West Link (Figure 5.4). The rail corridor is separated from the SRA buildings and fig by the City West Link at this point, and there is also a wall at the end of Derbyshire Street shielding the buildings and fig from the City West Link.

The proposed works associated with the light rail in the vicinity of the former depot, will not have an impact on the former SRA Depot.



Figure 5.4 Moreton Bay Fig on Derbyshire Street.

*Street trees (Henry Street)*



Figure 5.5 Street trees on Henry Street. Note the wall separating the street from the City West Link.



The row of Brush Box and one *Ficus Hillii*, the street trees on Henry Street, stand along the northern and southern side of the rail corridor, which is underground at this point. The rail corridor and City West Link are also separated from these trees by walls on the northern and southern sides of the City West Link (Figure 5.5). Therefore, the works will not have an impact on the trees.

### *Two Adjacent Stone Houses (134-136 James Street)*



**Figure 5.6** Adjacent stone houses on James Street.

There is little available information concerning the two stone houses at 134 and 136 James Street. They are characteristic of the Victorian period, and should date to the second half of the nineteenth century. They are handsome examples, but are rare for the area in the use of sandstone as the primary construction material (Figure 5.6). They are separated from the rail corridor by the City West Link, from which they are buffered by a concrete noise wall (Figure 5.7). Although a construction site is proposed on the southern side of the rail corridor just to the west of James Street, with the Leichhardt North stop also proposed in this area, these are located at a suitable distance from the houses (c.60m). Therefore, the works should not have an adverse affect on the houses.



**Figure 5.7** View of the wall separating the City West Link from the rail corridor adjacent to the stone houses.



## 5.2.2 Section 2

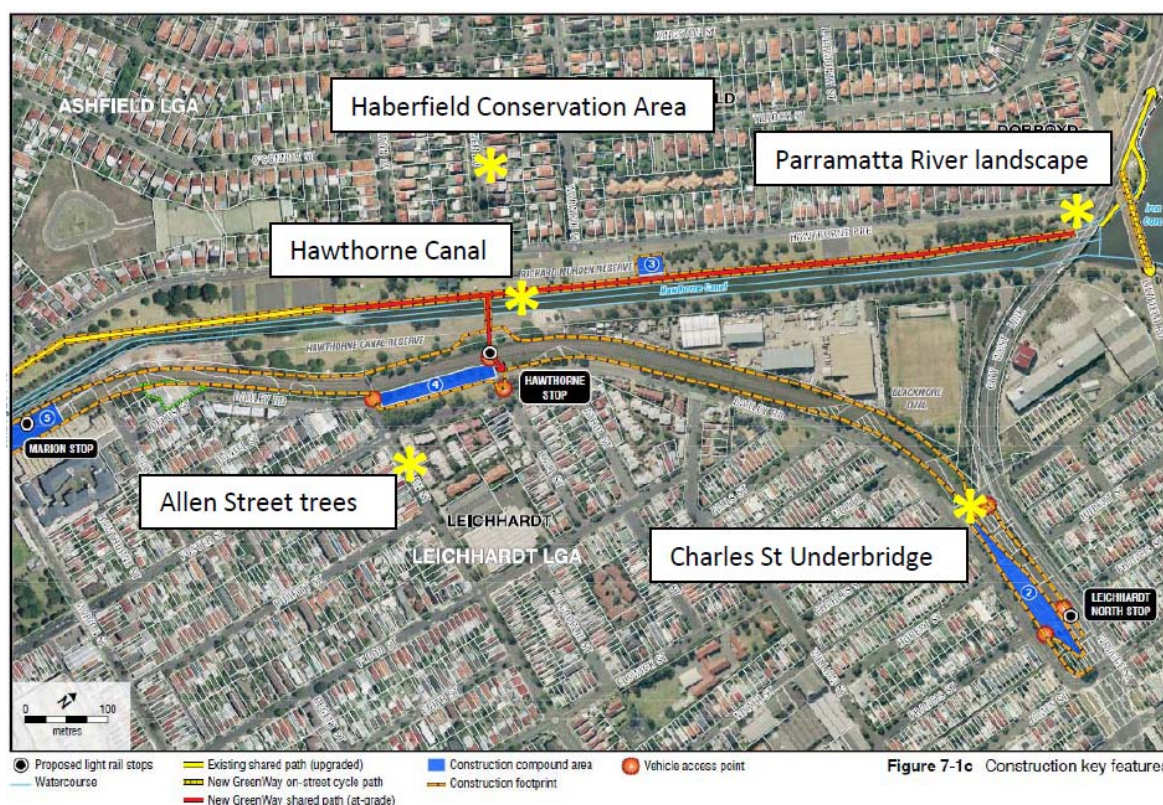


Figure 7-1c Construction key features

Figure 5.8 Construction map for Section 2 with locations of heritage items indicated (source: PB).

### Leichhardt (Charles St) Underbridge



Figure 5.9 Leichhardt (Charles Street) Underbridge.

The underbridge carries the goods line over Charles Street. The bridge was constructed between 1910 and 1922 and retains its original riveted plate girders, with new steel stringers (Figure 5.9). It is in good condition and operational.

The current project is for a construction site on the eastern side of the bridge, and Charles Street is to be used as an access point for vehicles. Upgrades to the overhead wiring and associated infrastructure



along the rail alignment are included in the project. These works are consistent with the continuing operation of the goods line for rail services, and as such there is unlikely to be significant impacts to the Rozelle Goods Line. However, care should be taken to avoid adverse impacts to the historic fabric of the bridge.

### *Parramatta and Lane Cove Rivers Landscapes, Sydney*



**Figure 5.10 Views of the Parramatta River north of the GreenWay.**

The northern end of the GreenWay extends to the mouth of Parramatta River at Iron Cove. There is an existing shared path at the mouth of the River, extending beneath the City West Link, along a section of the Cove, and across Lilyfield Road (Figure 5.10). As this path already exists, the proposed works will not have an adverse impact on this significant landscape.

### *Hawthorne Canal Stormwater Channel No. 62 (& Leichhardt Branch)*



**Figure 5.11 Two views of the Hawthorne Canal; on the left with sandstone block walls near Iron Cove, and on the right, at Parramatta Road.**

The Hawthorne Canal is a stormwater channel which extends from Dobroyd Point at Iron Cove to Canterbury Road at Lewisham, and was constructed by the Public Works Department in 1892 as one of the first nine stormwater/sewer channels in Sydney. The construction process included land reclamation along the Iron Cove foreshore. The section between Iron Cove and Marion Street was built as a navigable canal, but by 1895 the water was highly polluted. The walls of the section to the Parramatta Road crossing are lined with sandstone blocks, after which they are brick lined, and it has a concrete floor (Figure 5.11). There are several branches, constructed prior to 1900, which include: Leichhardt, Leichhardt Amplification, Petersham, Petersham Park, Smith Street, Henson Street, Victoria Street and Grove Street.

Some of the branch lines extend below the rail corridor (Figure 5.12). A new pedestrian/cycle bridge is proposed to cross Hawthorne Canal at the Hawthorne light rail stop. A construction site is



proposed to the south of the Hawthorne Canal Reserve; on land that is currently Council-leased, north of Marion Street, between the Canal and the rail corridor, with associated vehicle access. The proposed Hawthorne, Marion, Taverners Hill, Lewisham West and Waratah Mills stops are to be constructed along the rail corridor adjacent to the Canal.



**Figure 5.12** One of the Hawthorne Canal branch lines, north of Blackmore Oval. Below, the steel girder pedestrian bridge over the Canal near the proposed Hawthorne Stop site.



There is potential for direct and indirect impacts to the Hawthorne Canal. Construction of the Hawthorne Stop and associated new pedestrian/cycle bridge over the Canal may result in a loss of original fabric associated with the Canal. Excavations associated with the construction of the Hawthorne, Marion, Taverners Hill, Lewisham West and Waratah Mills stops have the potential to expose sub-surface Canal fabric or relics associated with its construction.

### ***Haberfield Conservation Area***



**Figure 5.13** Haberfield Conservation Area.

The Haberfield Conservation Area extends along the Hawthorne Canal from Iron Cove to Parramatta Road. The GreenWay is proposed to follow the current green area to the west side of the Canal, between it and Hawthorne Parade. The goods line is on the east side of the Canal, beyond an intervening green space along the Canal (Figure 5.13 and Figure 5.14). South of Marion Street, the Hawthorne Canal separates the GreenWay from the Conservation Area.

The proposed Hawthorne, Marion and Taverners Hill stops are to be constructed along the rail corridor in the vicinity of the Conservation Area, which may have an impact on the aesthetic and visual amenity of the Area. There would be a small increase in vehicle traffic along Marion Street and Parramatta Road in the vicinity of the Area, to service the construction activities; however, this will not have a direct impact on the Conservation Area. A reserve already exists along each side of the Canal with pedestrian/cycle paths and discrete activity areas. A proposed shared path is to be constructed in the northern part of the Reserve, which will make a positive contribution to the local amenity. An elevated pathway is proposed to be constructed near the southern end of the Conservation Area, to provide access to the Taverners Hill stop and to cross Parramatta Road. These works are unlikely to have a significant adverse affect on the Conservation Area.



Figure 5.14 View of Haberfield Conservation Area from Hawthorne Canal.



### Street Trees (Allen Street)



Figure 5.15 View towards rail corridor from street trees on Allen Street.

An avenue of Brush Box on Allen Street is located on the east side of the rail corridor (Figure 5.15). The trees are described as being a remnant of a more extensive Inter-War planting. It is proposed that the site access for vehicles will be at the end of Allen Street. This is unlikely to have a significant adverse affect on the trees; however, care should be taken to ensure against accidental damage.

### 5.2.3 Section 3

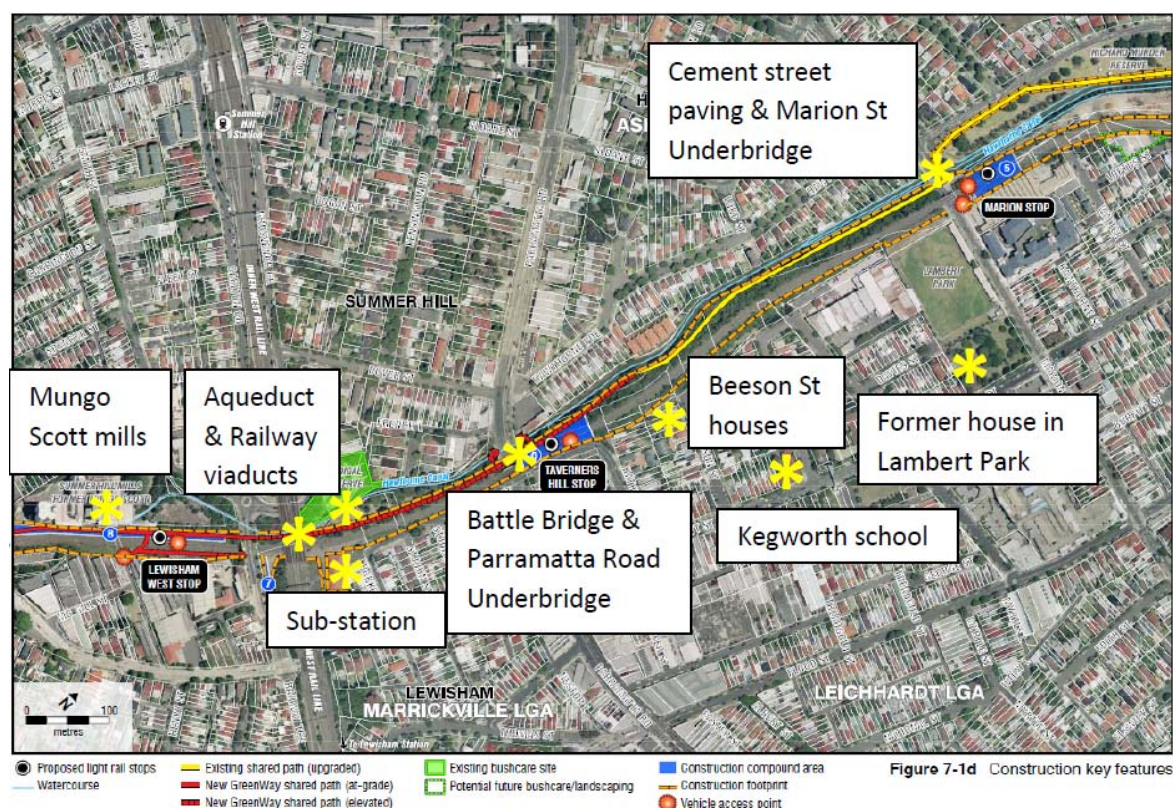


Figure 5.16 Construction map for Section 3 with locations of heritage items indicated (source: PB).



***Leichhardt (Marion St) Underbridge***

**Figure 5.17 Leichhardt (Marion Street) Underbridge.**

The goods line crosses Marion Street via a single span underbridge constructed as part of the double track goods line 1910–1922. The bridge is a steel half-through riveted plate web girder with a 22.71m span between brick abutments and perpendicular wing walls (Figure 5.17). It is proposed for the Marion stop to be on the north side of Marion Street with vehicle access adjacent to the Underbridge, and a new signalised pedestrian crossing on Marion Street, adjacent to the Underbridge. Upgrades are also to include overhead wiring and associated infrastructure along the rail corridor.

Siting the Marion Street stop will need to take into account the potential for impacts to the abutments of the underbridge. The bridge carrying Marion Street over the Hawthorne Canal is a handsome example of its type (Figure 5.18).



**Figure 5.18 View to the south of the Canal, bridge and underbridge.**



### ***Former House in Lambert Park***



**Figure 5.19** The house in Lambert Park, now a childcare centre.

The single storey stone house with slate roof and corrugated steel verandah roof supported by timber posts and brackets at 22 Foster Street is now an integral part of Lambert Park as a childcare centre (Figure 5.19). It stands at the eastern side of the Park, and as the rail corridor is approximately 190m from the house, and vehicle access will be along Marion Street (c.70m from the house), there will be no impacts.

### ***Kegworth Primary School***



**Figure 5.20** Kegworth Primary School.

Kegworth Primary School comprises two late nineteenth century educational buildings on the corner of Foster Street, Kegworth Street and Lords Road (Figure 5.20). The single story building was constructed in 1887, and the two storey in 1896; they are fine examples of their type. The goods line is located approximately 120m from the school, and therefore, the proposed works will not have an impact.



### ***Houses (18 & 20 Beeson Street)***



**Figure 5.21 Houses at 18-20 Beeson Street with the rail corridor to the right.**

The two single storey timber cottages at 18 and 20 Beeson Street are good examples of early twentieth century workers cottages, in good condition. They are unusual in the arrangement of a pair of asymmetrical houses composed as a symmetrical composition (Figure 5.21). They are approximately 30m from the rail corridor. The works should not have an adverse affect on the houses.

### ***Lewisham (Parramatta Road) Underbridge and Battle Bridge Over Hawthorne Canal***



**Figure 5.22 View east to the Parramatta Road underbridge.**

The Parramatta Road Underbridge was constructed in 1912, on the Dulwich Hill to Rozelle section of the Metropolitan Goods Line. Due to the length of the span over such a major road the half-through Warren Truss was selected as the most efficient design. The brick abutments are in good condition (Figure 5.22). The bridge carries road traffic on Brown Street to the east of the goods line.

The Parramatta Road crossing over the Hawthorne Canal is the Battle Bridge, which was constructed in c.1873, as a sandstone arch bridge (Figure 5.23). Although the bridge was widened in c.1937 with steel beams supporting a reinforced concrete deck laid to facilitate widening Parramatta Road, the bridge retains its original barrel vaulted stone arch, which is however, now hidden from view.



The Taverners Hill stop is to be located to the north of the underbridge and a new elevated and shared pathway is to cross Parramatta Road (Figure 5.24). Upgrades are to include overhead wiring and associated infrastructure along the rail corridor, raising of the Underbridge and provision of vehicle access from Brown Street.



Figure 5.23 Battle Bridge and the Lewisham Underbridge at Parramatta Road.



Figure 5.24 Views of the cycleway over the underbridge at Parramatta Road; the cycleway access with sandstone blocks set in the pavement and bollards on the west side (left), and the pathway along the east side of Brown Street to Parramatta Road (right).

The bridge has a clearance over Parramatta Road of approximately 4.6 m, and has a history of being damaged by over-height vehicles; therefore, it will need to be raised by approximately 500mm to provide sufficient clearance as part of the project. Additional work may include assessment of its condition, minor repairs to the superstructure, maintenance and/or replacement of bridge bearings and possibly repainting. Raising the bridge would involve the installation of new reinforced concrete pedestals or sill beam under the bearings. Permanent rock anchors may be required through the abutment or sill beam to ensure structure stability. Alternatively, small approach spans of approximately 8-10m, could be constructed at each abutment to limit the additional lateral load on the abutments. This may require partial or full closure of Parramatta Road to allow for this work to be undertaken. Raising the track either side of the bridge would also require the construction of retaining walls up to 0.5m in height for approximately 50m either side of the bridge. It is expected that this would be achieved using reinforced concrete gravity (L-shaped) retaining walls.

This work will have a significant impact on the historic, technical and aesthetic significance of the underbridge. There is also potential for adverse impacts to the historic and technical significance of

Hawthorne Canal and Battle Bridge arising from the impact to the changed environment and the potential for damage to these items.

### *Lewisham Railway Sub-Station*



**Figure 5.25** Lewisham Railway Sub-Station.

The Lewisham Railway Sub-Station, built in 1928, is one of 15 electrical substations built in the Sydney Metropolitan area between 1926 and 1932. The substation is characteristic of its type; an Inter-War Stripped Classical face-brick building, that reflects the prevailing urban architecture, and features a hipped, tiled roof with a gabled clerestory. It has clearly been modified, with infill brickwork windows, but is otherwise in good condition. It stands adjacent to the rail corridor, at the end of Alfred Street (Figure 5.25). The current plans propose a new, elevated shared path within the rail corridor, and vehicle access at Alfred Street. Upgrades are to include overhead wiring and associated infrastructure along the rail corridor. It is unlikely that the substation will be adversely affected by the project.



### *Lewisham Sewage Aqueduct*



**Figure 5.26** Lewisham Sewage Aqueduct, over the Hawthorne Canal, note relatively narrow interval between sandstone piers.

The Lewisham Sewage Aqueduct was completed in 1900 for the Dobroyd Branch of the Southern and Western Suburbs Ocean Outfall Sewer (SWSOOS no.1). The aqueduct comprises the riveted steel oviform pipeline supported on concrete piers faced in sandstone rusticated blocks, with worked decorative bases and capitals. The aqueduct, and its structural elements, is in good condition. It rises above ground to be carried on sandstone pillars to the west of Cadigal Reserve, crosses Hawthorne Canal and dives beneath the goods line rail corridor (Figure 5.26). Upgrades are to include overhead wiring and associated infrastructure along the rail corridor. Although there is currently a cycle-path on the west side of Hawthorne Canal, the current plans include a new, elevated shared pathway within the rail corridor (Figure 5.27).



**Figure 5.27** Existing cycle-path between the Aqueduct sandstone piers.



Construction of the new pathway has the potential to have an adverse affect on the sandstone piers supporting the aqueduct. Care will be required to ensure that the original and significant fabric of the piers is not impacted directly or indirectly, during the construction period, in particular.

***Lewisham Railway Viaducts over Long Cove Creek***



**Figure 5.28 Lewisham Railway Viaducts over Long Cove Creek.**

The original railway viaduct at Lewisham was an 8-span stone arch viaduct, constructed as part of the 1850s Great Western Railway. By the 1880s, the viaduct had deteriorated to such an extent that it was replaced by 3 pairs of 90-foot wrought iron, pin-jointed deck Whipple trusses. It is one of only two bridges in NSW to employ the Whipple Truss. In 1925/27, two additional tracks were added as part of the process of sextuplication, on the north side of the viaduct, for which three pairs of riveted steel, deck Warren trusses were erected. In 1993, these were replaced by welded, deck plate web girders. Two of the Whipple trusses are displayed to the south of the later viaduct (Figure 5.28 and Figure 5.29).





**Figure 5.29 View beneath the extant viaduct to the displayed remnant Whipple trusses**

A new, elevated shared path within the rail corridor, crossing under the rail bridge through the existing structure is included in the current project. Vehicle access to a construction is to be located on the southern side of the railway viaducts. Upgrades are to include overhead wiring and associated infrastructure along the rail corridor.

The Hawthorn Canal, in this area, is a deep cut brick-lined channel, which lies below the level of the goods line immediately to its east, and the extant shared path, also immediately to its west. The remnant Whipple trusses, immediately to the south of, and parallel with the Great Western Railway extend from Grosvenor Crescent to the goods line corridor. The area is overgrown and appears to be heavily weed infested, inhibiting close examination of the Whipple trusses, which are also protected by a chain-wire security fence. The proximity of the remnant Whipple trusses to the goods line is such that construction and siting of the elevated shared path, between the goods line and Hawthorn Canal, has the potential to damage original fabric. The options for accommodating the shared path is likely to be confined, whether to the east or between the Whipple trusses. Construction of the shared path will have an adverse affect on the historic and technical significance of the Viaducts.

### 5.2.4 Section 4

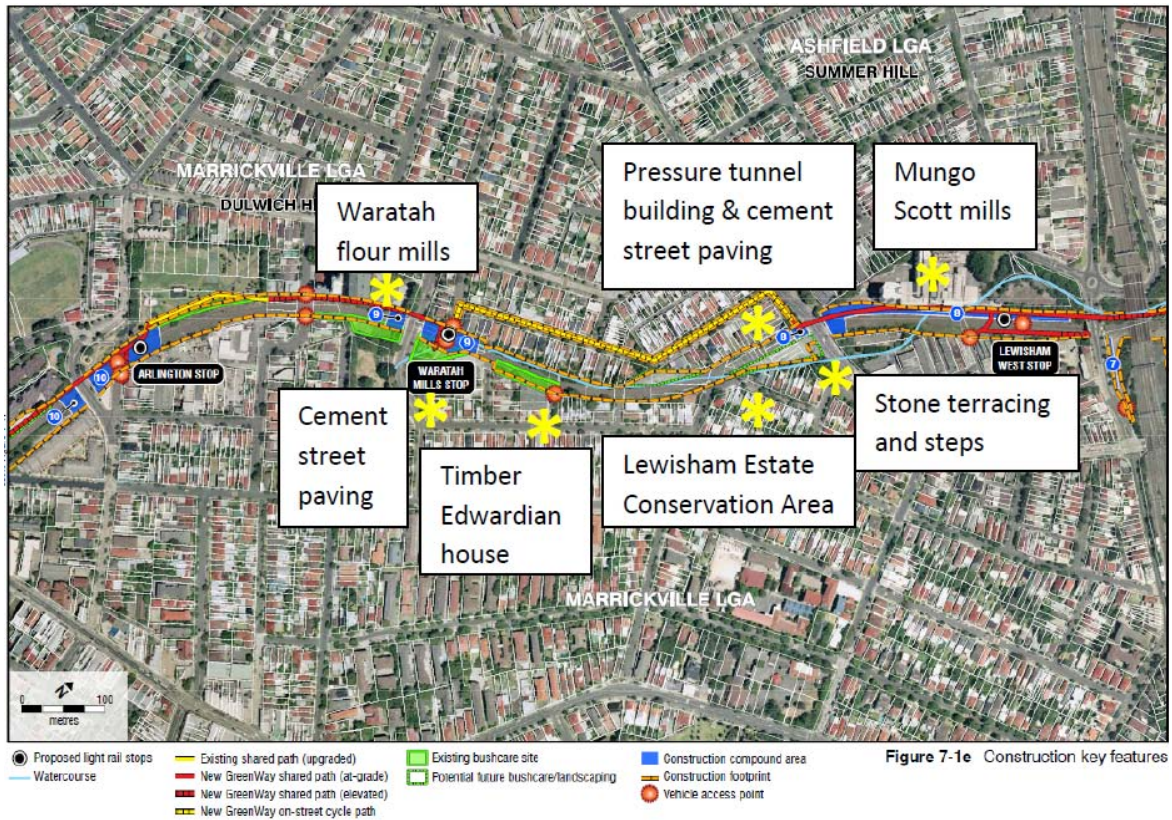


Figure 5.30 Construction map for Section 4 with locations of heritage items indicated (source: PB).

#### Mungo Scott Flour Mill



Figure 5.31 The former Mungo Scott Flour Mills and the siding on the goods line.

The original mill complex was built in 1916 by Mungo Scott Ltd and comprised the brick mill, a building housing the grain bins, and associated workshops and stables. Subsequent additions have



been concrete silos and storage bins, offices and associated buildings. The property was later acquired by Goodman Fielder Wattle Ltd and is now owned by Allied Flour Mills. The railway siding on the goods line, which is an integral element in the historic and technical significance of the mill site, is extant (Figure 5.31). The current plans note that this is a future urban renewal site, and propose the Lewisham West stop; a new shared path within the rail corridor, crossing under Longport Street and Old Canterbury Road, with a connection to Longport Street and Lewisham West stop; vehicle access; and a construction compound on the western side of the rail corridor. Upgrades are to include overhead wiring and associated infrastructure along the rail corridor. Although there is unlikely to be any adverse affects on the mill site and its associated buildings, the siding and any associated sub-surface storage bins, if they are present within the rail corridor, should be avoided during construction.

### *Stone Terracing and Steps*



**Figure 5.32** Stone terracing and steps (rail corridor at centre left).

To the south of Old Canterbury Road and north of Summerhill Street, is a landscaped area of stone terracing and steps, which is an example of civic works undertaken during the Depression-era, as a relief work project (Figure 5.32). The stone terracing has been laid out on a steep embankment facing Summerhill Street and comprises rusticated sandstone edging forming garden terraces with integrated stone seats and steps leading up to Canterbury Road.

A bushcare site is proposed for the area between the landscaped terrace and the rail corridor. There will be vehicle access along Old Canterbury Road; however, it is unlikely that there will be an impact on this important landscape area. Care should be taken to avoid indirect or accidental impacts to the stone terracing and steps and their local environment.

***Lewisham Estate Heritage Conservation Area***

**Figure 5.33** Part of Lewisham Estate Heritage Conservation Area.

The Lewisham Estate Heritage Conservation Area is a substantial late nineteenth to early twentieth century residential area, subdivided as part of the land boom of the 1870s and 1880s, and the 1920s. The area is characterised by long streets following the line of the ridges with shorter, steeper cross streets, lined with a mix of one and two storey housing (Figure 5.33).

A bushcare site is proposed to be inserted between the rail corridor and some housing. Local vehicle access is to be along Old Canterbury Road. It is unlikely that these works will have an adverse affect on the aesthetic significance and visual amenity of the Lewisham Estate Heritage Conservation Area.

***Pressure Tunnel and Shafts (Pressure Tunnel Building)***

**Figure 5.34** Rear of Pressure Tunnel Building on Weston Street; rail corridor at left of picture.



The Pressure Tunnel, constructed between 1921 and 1935 carries potable water from the Potts Hill Reservoir to the Waterloo Water Pumping Station (WP0008) on the corner of Bourke and McEvoy Streets, Waterloo. Along the line of the Pressure Tunnel is a series of buildings attached to the vertical maintenance shafts, of which there is one at 1-9 Weston Street (Figure 5.34). The building is characteristic of the Public Works Department's approach in designing functional buildings to blend with the local residential style. Although it is a simple face-brick building with roller shutter entry, there is subtle decorative detailing of the engaged brick piers at the corners and rusticated brickwork framing the windows. A new on-street cycle path is to be constructed along Weston Street, and upgrades will include overhead wiring and associated infrastructure along the rail corridor. Although there is unlikely to be a direct impact on the building housing the vertical maintenance shafts, extreme care should be exercised should there be any excavations in the area. The alignment and curtilage of the Pressure Tunnel should be confirmed prior to any excavation.

#### *Timber Federation period house*



**Figure 5.35 Timber Edwardian house, showing rail corridor behind (centre right of picture).**

The house at 122 Victoria Street, described as a timber Edwardian house in the current LEP, is characteristic of the Federation period architectural style with timber detailing to the verandah and gable. It is in good condition and appears to retain its original features intact. Standing at the corner with Little Street, it is located approximately 40m from the rail corridor, and a distance of c.120m from the proposed Waratah Mills stop (Figure 5.35). There is an existing bushcare site between the rail corridor and the houses on Little Street. Upgrades are to include overhead wiring and associated infrastructure along the rail corridor. The proposed works should not adversely affect the house.

### **Waratah Flour Mills**



**Figure 5.36 Waratah Flour Mills apartment buildings.**

The Waratah Flour Mills were constructed in c.1914 adjacent to the goods line with a siding for loading and unloading grain and flour. Although the industrial structures, concrete silos and buildings housing the operational facilities and grain bins are largely extant, they have been modified and adapted to apartments (Figure 5.36). The current project includes construction of a new, elevated shared pathway within the rail corridor, adjacent to the Mills, and a construction site is to be located on the opposite side of the rail corridor. Upgrades are to include overhead wiring and associated infrastructure along the rail corridor. The proposed works should not adversely affect the former flour mill site.



## 5.2.5 Section 5

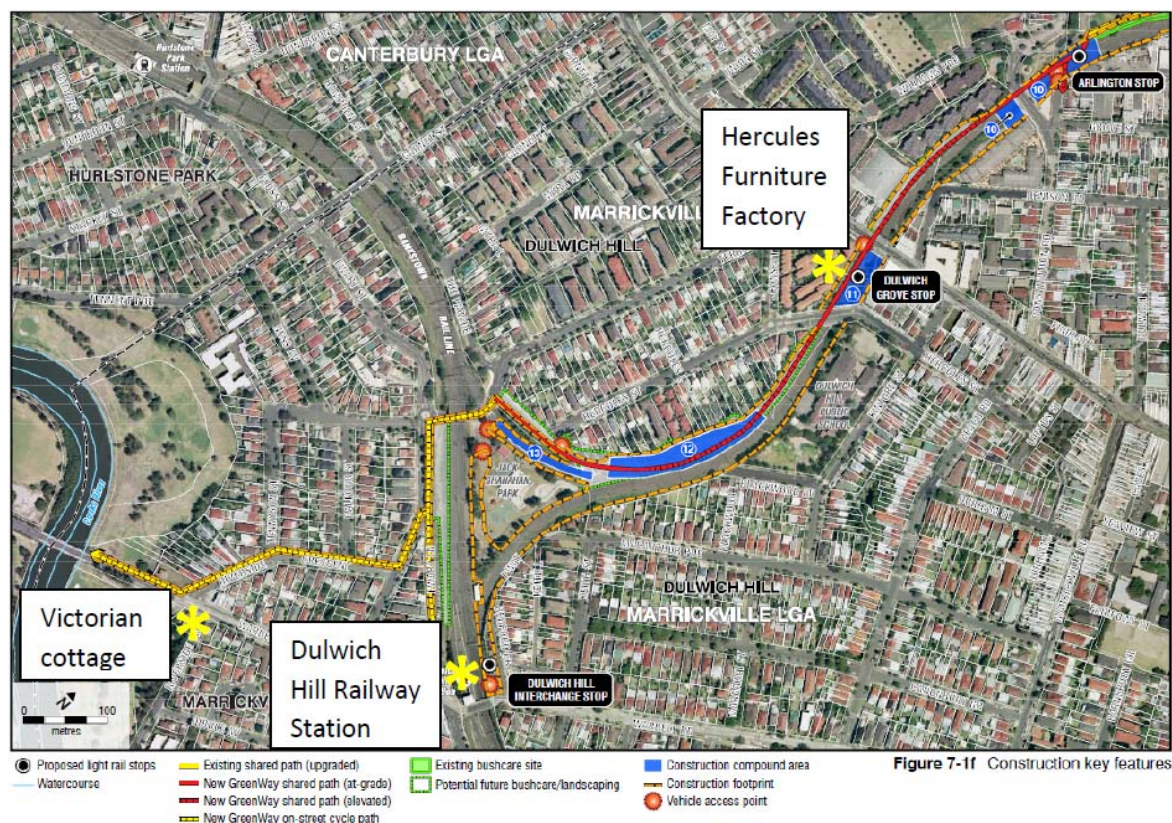


Figure 5.37 Construction map for Section 5 with locations of heritage items indicated (source: PB).

### *Hercules Furniture Factory*

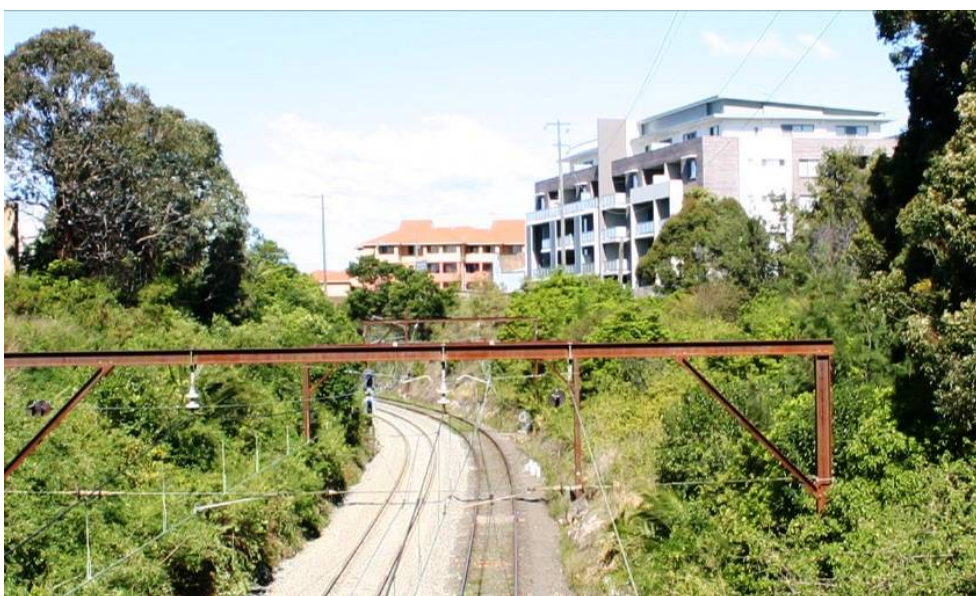


Figure 5.38 Location of Hercules Furniture Factory (now apartments with peach-coloured roofs).

The Hercules Furniture Factory has been replaced by a group of modern apartments (Figure 5.38). A local resident informed AMBS that the factory was demolished when the apartments were built, and a recording was to have been made at that time; however, she was uncertain whether the recording has occurred (B. Holland, pers. comm. 19/8/10). As such, the Factory no longer remains, and there will be no impact arising from the project.



### *Dulwich Hill Railway Station Group*



**Figure 5.39** Dulwich Hill Railway Station.

Dulwich Hill Station is a single island platform and was opened as Wardell Road in 1895; renamed Dulwich Hill in 1920 (Figure 5.39). The original timber platform building was demolished and replaced by the current building in 1935. The original 1930s overbridge was replaced in 1975 by the current concrete and steel overbridge. The proposed Dulwich Hill interchange is to be located within the curtilage of the Dulwich Hill Railway Station. This will include a construction compound, with associated vehicle access, and modification to existing car parking at Bedford Crescent. Upgrades are to include overhead wiring and associated infrastructure along the rail corridor. The proposed works would not adversely affect the Dulwich Hill Railway Station.

### *Victorian Cottage*



**Figure 5.40** Victorian cottage on Wardell Road.

There is no available information concerning the single storey Victorian cottage at 286 Wardell Road, opposite the end of Riverside Crescent (Figure 5.40). However, it appears to be in good condition



with original features intact; rendered finish and window mouldings, despite having been re-roofed with terra-cotta Marseilles-type tiles. A new on-street cycle path is proposed along Riverside Crescent and Wardell Road, within the existing road corridor, which will not have an adverse affect on the cottage.

### *Street Names Set in Cement Paving*



**Figure 5.41** Cement paving identifying Weston St (right), and on Marion Street bridge over Hawthorne Canal (right).

There are a number of street and municipality names in cement paving on various streets located in the former Municipality of St Peters, now Marrickville. The locations of three such markings have been identified during the survey: the Marion Street bridge over the Hawthorne Canal, Municipality of Ashfield; the corner of Davis and Victoria Streets, Lewisham; and Weston Street near its intersection with Old Canterbury Road (Figure 5.41). There is no specific locational information on the cement pavings in the Marrickville LEP, and as the historic field survey only targeted known locations of identified heritage items, it is possible that other instances of cement paving are located in the vicinity of the study area.

A new on-street cycle path is proposed along Weston Street, in the vicinity of the signed cement paving. The proposed cycleway is located on street and will be stencilled. Therefore, the cement paving should not be impacted at this location; however, stencilling should not over-paint the signed pavements. The Waratah Mills stop is to be constructed in the vicinity of Davis and Victoria Streets; however, the signed cement paving is at an adequate distance from the stop (c.100m). Therefore, the works should not have an impact on these small discrete areas.

The GreenWay crosses Marion Street at the bridge over the Canal, following the opposite side of the Canal to the existing pathway, with a new signalised pedestrian crossing on Marion Street, just to the east of the signed cement paving; as such, care should also be taken to ensure that the cement paving is not affected during construction of the new pedestrian crossing.

Although the proposed works do not, at this stage, entail specific impacts to existing footpaths, should there be upgrades for the GreenWay that may impact the cement paving identifying streets or localities, or where construction areas or vehicle use have the potential to cause damage to these signs in the paving, their specific locations should be confirmed.

### 5.3 Summary of Historic Heritage Impacts

The scope of works identified for the project has the potential to affect the significance of historic items and places within the vicinity of and within the rail corridor. There will be a short-term effect on heritage items adjacent to and within the rail corridor during the construction period, including potential impacts on heritage structures arising from the effects of vibration, and inadvertent impacts during this period. Table 5.2 identifies these items and places, their identified level of significance and the impacts and mitigation

**Table 5.2 Heritage items within the vicinity of the project**

Item & LGA	Listing	Significance	Impacts
Lilyfield (Catherine St) Overbridge (Leichhardt)	S.170 REP/SEPP	Local	<b>No Impact</b>
SRA Stores Branch Building, former Tram Depot Office, Tramshed, Cable Store (Leichhardt)	LEP National Trust	Local	<b>No impact</b>
Street tree – Moreton Bay Fig (Leichhardt)	LEP	Local	<b>No impact</b>
Street trees – row of Brush Box and one Ficus Hillii (Leichhardt)	LEP	Local	<b>No impact</b>
Two adjacent stone houses, 134–136 James Street (Leichhardt)	LEP	Local	<b>No impact</b>
Leichhardt (Charles St) Underbridge (Leichhardt)	S.170	Local	<b>Indirect</b> Construction compound east of bridge Charles Street vehicle access point Upgrade wiring/infrastructure along rail alignment.
Parramatta and Lane Cove Rivers Landscapes, Sydney (Leichhardt)	RNE (Indicative place)	Regional	<b>No impact</b>
Hawthorne Canal Stormwater Channel No. 62 (& Leichhardt Branch) (Leichhardt, Ashfield)	S.170	Local	<b>Direct</b> Construction of new shared path adjacent to Lewisham Railway Viaducts Bridge over Canal at Hawthorne Stop <b>Indirect</b> Construction of Hawthorne, Marion, Taverners Hill and Lewisham West stops.
Haberfield Conservation Area (Ashfield)	LEP RNE National Trust	Local	<b>Indirect</b> Construction of Hawthorne, Marion, Taverners Hill and Lewisham West stops; Increased vehicle traffic along Marion Street and Parramatta Road.
Street trees – avenue of Brush Box, Allen Street (Leichhardt)	LEP	Local	<b>Indirect</b> Vehicle access at end of Allen Street.
Leichhardt (Marion St) Underbridge (Leichhardt)	S.170	Local	<b>Direct</b> Construction Marion stop Vehicle access. <b>Indirect</b> New signalised pedestrian crossing on Marion Street; Upgrade wiring/infrastructure along rail alignment.



Former House in Lambert Park (now a childcare centre) (Leichhardt)	LEP	Local	<b>No impact</b>
Kegworth Primary School (Leichhardt)	LEP S.170	Local	<b>No impact</b>
Houses, 18–20 Beeson Street (Leichhardt)	LEP	Local	<b>No impact</b>
Lewisham (Parramatta Road) Underbridge (Marrickville)	S.170	Local	<b>Direct</b> Raising rail bridge. <b>Indirect</b> Construction Taverners Hill stop New, elevated, shared path crossing over Parramatta Road Upgrade wiring/infrastructure along rail alignment Vehicle access along Parramatta Road and Brown Street.
Battle Bridge Over Hawthorne Canal (Marrickville)	LEP S.170	Local	<b>Indirect</b> Construction Taverners Hill stop Raising rail bridge New, elevated, shared path crossing over Parramatta Road Vehicle access along Parramatta Road.
Lewisham Railway Sub-Station (Marrickville)	S.170	Local	<b>No impact</b>
Lewisham Sewage Aqueduct (Marrickville)	SHR LEP S.170 National Trust	State	<b>Direct</b> New, elevated shared path within rail corridor.
Lewisham Railway Viaducts over Long Cove Creek (Marrickville)	SHR LEP S.170 National Trust	State	<b>Direct</b> New, elevated shared path within rail corridor crossing under rail bridge through existing structure <b>Indirect</b> Construction site and site office, with associated vehicle access, on south side of railway viaducts.
Former Mungo Scott Flour Mills, 2–32 Smith Street, Summer Hill (Marrickville)	LEP	Local	<b>Indirect</b> Construction Lewisham West stop New shared path within rail corridor Upgrade wiring/infrastructure along rail alignment Vehicle access and stockpile area on west side of rail corridor and path.
Stone terracing and steps, 101– 109 Old Canterbury Road, Lewisham (Marrickville)	LEP	Local	<b>No impact</b> Care to be taken during works
Lewisham Estate Heritage Conservation Area (Marrickville)	Draft LEP	Local	<b>No impact</b>
Pressure Tunnel and Shafts (Pressure Tunnel Building), 1–9 Weston Street (Marrickville)	SHR S.170 Draft LEP RNE (Indicative place)	State	<b>No impact</b> Unless works include excavation in the area
Timber Edwardian house, 122 Victoria Street, Dulwich Hill (Marrickville)	LEP	Local	<b>No impact</b>

Waratah Flour Mills (Marrickville)	LEP	Local	<b>No impact</b>
Hercules Furniture Factory (replaced by modern apartments), 3 Terrace Road, Dulwich Hill (Marrickville)	National Trust	Local	<b>No impact</b>
Dulwich Hill Railway Station Group (Marrickville)	S.170	Local	<b>No impact</b>
Victorian cottage, 286 Wardell Road (Marrickville)	LEP	Local	<b>No impact</b>
All street names marked in cement paving (Marrickville)	LEP	Local	<b>Indirect</b> New signalised pedestrian crossing on Marion Street, east of signed cement paving.



## 6 Mitigation

### 6.1 Aboriginal Heritage

No Aboriginal archaeological sites, objects or places, or areas of archaeological potential or Aboriginal sensitivity, were identified within the study area. It is considered unlikely that evidence of previous occupation by Aboriginal people remains within the study area, given the extensive disturbance.

#### *Recommendation 1*

*Aboriginal objects are unlikely to remain within the study area; however, should any Aboriginal objects be exposed during construction works, excavation or disturbance of the area should cease and advice should be sought from the registered Aboriginal parties and Cultural Heritage Division of DECCW.*

#### *Recommendation 2*

*This draft Aboriginal heritage assessment report should be provided to each registered Aboriginal stakeholder group for review and comment, prior to finalisation.*

### 6.2 Historic Heritage

The aim of the SLRE Stage 1 is to extend the Light Rail from Lilyfield to Dulwich Hill. The project ensures the on-going use of the former Rozelle Goods Line, and associated infrastructure, including rail bridges, and as such makes a contribution to the historic significance of the railway system. The construction activities associated with the project will have an impact on the railway corridor and adjacent lands. Upgrades to the rail infrastructure, construction of stops, GreenWay, shared paths, construction compounds and associated infrastructure, vehicle access and stockpiling will generally have a short term adverse affect on the historic values of the local residential and industrial environment. Detailed project construction designs associated with the reuse of the goods line, siting of proposed stops and associated infrastructure and the GreenWay, have not yet been determined. A Heritage Management Plan (HMP) is to form part of the Construction Environmental Management Plan (CEMP) for the project. Consultation with the Heritage Branch will be undertaken, where appropriate.

The following recommendations have been developed to inform the detailed design and will be modified and adapted, as required during the preparation of the HMP, which will include detailed assessment and mitigation for specific heritage items. The results of this assessment will be incorporated into the HMP. The following recommendations have been developed to provide guidance to the project with regard to the protection of heritage significance, and will inform the development of mitigation measures for the HMP. The following recommendations should be included in the Environmental Assessment, Statement of Commitments.

#### *Recommendation 3*

*A HMP, as part of the CEMP will include assessment of the heritage impact mitigation and management requirements once detailed designs have been finalised. In particular impacts caused by raising Parramatta Road Underbridge, and the potential for resultant impacts on Hawthorne Canal and Battle Bridge, and works in the vicinity of the Lewisham Railway Viaducts, the Lewisham Sewage Aqueduct and Hawthorne Canal, will be addressed. Appropriate measures for mitigating, minimising and managing impacts to these heritage items and places will be developed.*

#### Recommendation 4

*Contractors should be briefed on the heritage provisions and the significance of the identified heritage items adjacent to, and within the vicinity of the rail corridor and the stops to ensure that short-term impacts during the construction phase are minimised and avoided.*

##### 6.2.1 Hawthorne Canal, Battle Bridge and Parramatta Road Underbridge, Lewisham

Works associated with the project at the Taverners Hill stop are extensive and have the potential to have a significant impact on the underbridge, Hawthorne Canal and Battle Bridge over the Canal. Detail designs and engineering plans will be required before final assessment of impacts can be made.

The siting and construction of the stop, access, and associated infrastructure upgrades have the potential to have an adverse impact on the fabric of the Underbridge. The proposal to raise the rail bridge would have a significant impact on the fabric and historic significance of the Underbridge. The works should minimise, as far as is possible causing significant damage to existing historic fabric, new fabric and materials should be clearly differentiated from existing historic fabric, the proportions of the mass and scale of the bridge should be maintained as far as is possible.

A construction site to the east of the Hawthorne Canal with associated vehicle access, construction of a bridge over the Canal at Hawthorne stop, and the construction of the light rail stops at Hawthorne, Marion, Taverners Hill and Lewisham West, have the potential to have an adverse impact on the fabric and historic significance of the Hawthorne Canal. The construction of a shared path bridge over the Canal should reflect the low scale and simplicity of the local environment and the Haberfield Urban Conservation Area

#### Recommendation 5

*Final designs and engineering plans for the Taverners Hill Stop and GreenWay should respect the original fabric and historic significance of the Parramatta Road Underbridge, Battle Bridge and Hawthorne Canal. Final design details and engineering plans will be required to inform the extent of potential impacts; however, in accordance with heritage best practice, impacts on the original fabric of the Hawthorn Canal and Battle Bridge should be avoided or minimised.*

#### Recommendation 6

*Raising the Parramatta Road Underbridge should be undertaken in accordance with heritage best practice guidelines; minimisation of impact to original historic fabric, clear delineation between extant and new fabric and materials, maintain existing proportions of the bridge and its relationship to its environment.*

##### 6.2.2 Lewisham Railway Viaducts over Long Cove Creek and Lewisham Sewage Aqueduct

The Lewisham Railway Viaducts and Lewisham Sewage Aqueduct are State Heritage Register items. Works in the vicinity of the Lewisham Railway Viaducts and Lewisham Sewage Aqueduct, adjacent to Hawthorn Canal, Grosvenor Crescent and Longport Street, have the potential to have an adverse affect on their original fabric and historic and technical significance. The shared path is to be constructed within the rail corridor adjacent to these items. Construction details will be required before a final assessment of the potential for direct and indirect impacts can be fully assessed. However, the area is constrained by Hawthorn Canal which passes between the goods line and the existing shared path, the remnant Whipple trusses to the south of the Railway Viaduct carrying the



western line, and the Sewage Aqueduct which is carried on sandstone faced concrete piers set at 50ft (15.24m) intervals, which run at a tangent across the Canal and goods line, thus reducing the intervals between piers.

Avoidance of impacts to these items is preferred. Mitigation measures should be developed in consultation with the Heritage Council and Sydney Water.

#### ***Recommendation 7***

***Avoidance of impacts to State Heritage Items should guide design principles associated with construction of the shared path within the rail corridor. Mitigation measures should be developed in consultation with the Heritage Council and Sydney Water.***

### ***6.2.3 Rail Stops, Bridges and Landscaping***

Detailed designs, including plans and elevations for the light rail stops have not yet been determined. However, the light rail stops will be at-grade, with low-scale ticketing and amenities. This will minimise visual impacts on the historic and aesthetic significance of adjacent heritage items and environments.

The project is within the vicinity of two Urban Conservation Areas; Haberfield and Lewisham, each of which is a distinctive urban development with early twentieth century Federation-period houses set in well established gardens. In addition, some streetscapes within the study area include established street trees and gardens. Screening plantings of trees have also been established along those sections of the rail corridor where there is no adjacent housing. The project includes provisions for landscaping, weeding and general bushcare activities. Retention of extant, non-weed, plantings and landscaping along the rail corridor to provide a consistent visual and aesthetic screening will have a positive effect on the aesthetic values of adjacent heritage items and places.

#### ***Catherine St Overbridge, Lilyfield***

Detailed designs for modifications to the existing Lilyfield station, to accommodate a track on either side of the platform, have not yet been determined. These modifications, as well as the upgrades and infrastructure associated with the project, and the establishment of a construction compound on the western side of the Overbridge, have the potential to have an adverse impact on the fabric of the Overbridge.

#### ***Charles St Underbridge, Leichhardt***

The establishment of a construction compound on both the eastern and the western sides of the Underbridge, and the use of Charles Street as an access point for vehicles during the construction phase of the works have the potential to have an adverse impact on the fabric of the Underbridge.

#### ***Marion St Underbridge, Leichhardt***

Detailed designs for the light rail stops have not yet been determined. The construction of the Marion light rail stop, overhead wiring and associated infrastructure along the rail corridor, vehicle access and a new signalised pedestrian crossing on Marion Street, have the potential to have an adverse impact on the fabric of the Underbridge.

#### ***Recommendation 8***

***Detail design and engineering adjacent to the three heritage-listed bridges should ensure that impacts to their original fabric are minimised, if not avoided.***

### **Former Mungo Scott Flour Mills**

The project includes a new shared path and a construction compound area between the rail corridor and the Mungo Scott Flour Mills. The construction of the Lewisham West stop, access, and associated upgrades to infrastructure along the rail alignment, may have an impact on the siding, dispatch area and awning at the Mungo Scott Flour Mills. The preferred heritage option is to retain the siding intact and incorporate it into the project design. This would be consistent with its original function and would ensure that the relationship between the operational mill and the goods line is not lost.

#### **Recommendation 9**

*The former Mungo Scott Flour Mills' siding should be retained and integrated into the project design to ensure that the relationship between the operational mill and the goods line is not lost. The siding is an integral part of the historic and technical significance of the former mills site.*

### **Street Names marked in Cement Paving, and Stone Terracing and Steps**

The proposed works do not entail specific impacts to existing footpaths. However, should there be upgrades to existing footpaths for the GreenWay, or impacts to footpaths arising from siting and access associated with construction areas or vehicle use, measures should be implemented to protect the signed pavements. Care should be taken to ensure that the cement paving on Marion Street is not impacted when constructing the new signalised pedestrian crossing.

#### **Recommendation 10**

*Where there may be impacts to signed pavements by activities associated with construction works protective measures should be implemented. Construction of the new signalised pedestrian crossing should avoid impacting the cement paving on Marion Street.*

No impacts are proposed in the vicinity of the stone terracing and steps (south of Old Canterbury Road and north of Summerhill Street). Nevertheless, care should be taken to avoid damaging the stone terracing and steps during the construction activities associated with the project and establishment of the proposed adjacent bushcare site between this landscaped area and the rail corridor.

#### **Recommendation 11**

*The stone terracing and steps should be protected during construction activities to minimise impacts, if not avoid damage.*

### **6.2.4 Excavations**

Excavations associated with the project have the potential to expose original fabric or archaeological relics associated with the construction of Lewisham Sewage Aqueduct, Lewisham Railway Viaducts, Battle Bridge, the Pressure Tunnel, Hawthorne Canal and within the rail corridor adjacent to the Flour Mills. Although excavation permits would generally be required, permits and approvals under the Heritage Act are not required under Part 3A of the EP&A Act; however, archaeological supervision and recording of excavations within the vicinity of these significant items should be undertaken in accordance with heritage best practice and Heritage Branch guidelines.

There is potential for sub-surface original fabric or relics associated with the construction of Lewisham Sewage Aqueduct, Lewisham Railway Viaducts, Battle Bridge, the Pressure Tunnel and Hawthorne Canal to be exposed during works for the project, particularly excavations within their vicinity. Relics associated with the construction of these structures have the potential to enhance an understanding of



methods and materials of construction. It is unknown whether grain bins associated with the two flour mills are likely to be within the rail corridor; however, to ensure that works are not delayed should grain bins be exposed, an archaeologist, who complies with Heritage Branch requirements should be appointed.

#### **Recommendation 12**

*Archaeological supervision and recording of excavations within the vicinity of these significant items would be in accordance with heritage best practice and Heritage Branch guidelines to ensure that details regarding significant fabric, works or relics with the ability to provide an insight into the historical construction of the Lewisham Aqueduct, Lewisham Viaducts, Battle Bridge, the Pressure Tunnel, Hawthorne Canal and Flour Mills are not damaged or lost.*

#### **6.2.5 Effects of Vibration**

Although the effects of vibration can have an adverse effect on historic structures, recent studies indicate that vibration effects are no more significant to heritage structures than to other contemporary structures. It is unlikely that there will be any adverse effects on heritage items during the operational period; however, vibration caused by construction activities for the project and associated increases in traffic movements, particularly adjacent to construction sites and compounds has the potential to adversely affect adjacent historic items. The proposed raising of the Parramatta Road underbridge, in particular, is likely to have a significant impact on the local heritage environment.

During the construction period, Hawthorne Canal, Lewisham Sewage Aqueduct and the Lewisham Viaducts should be monitored for any adverse effects arising from vibration caused by construction works in the near vicinity.

#### **Recommendation 13**

*Monitoring the effects of vibration on historic buildings and structures within the vicinity of the project, during the construction period, to ensure against adverse affects, should be undertaken in accordance with heritage best practice standards. If measured vibration levels are found to have the potential to cause structural damage, construction equipment and methodologies should be modified so that vibration levels are reduced to safe levels.*

#### **6.2.6 Interpretation**

Interpretation is a means of conveying an understanding of the heritage significance of an item or place to the community. The historic and technical significance of the study area, and its value to the local community, is such that it warrants heritage interpretation so that the story of its industrial past is not lost to the local and wider community. A meaningful interpretation of the goods line and the development of industries along the alignment, and the associated urban growth could be achieved through the use of interpretive signage with appropriate text and images, which should be placed at appropriate locations within the project corridor. Appropriate locations would be the Light Rail stops at Hawthorne, Marion, Taverners Hill and Lewisham West.

The DGRs for the project include provision for the *preparation of an Interpretation Strategy, including an analysis of the former use and history of the rail corridor as a goods line, and the preparation of a Heritage Management Plan to manage impacts at all stages of the project.* The strategy should take into account the guidelines in the NSW Heritage Manual and field survey and assessment undertaken by a qualified practitioner with historic sites experience, and as such an interpretation strategy should be developed as part of the HMP.

#### **Recommendation 14**

*An interpretation strategy that recognises the historical and technical significance of the Rozelle Goods Line and its role in the development of industries and urban growth should be developed as part of the HMP. The strategy should identify relevant stories and images that will enhance an understanding of the goods line for users of the Sydney Light Rail.*

### **6.3 Conclusion**

This HIA has identified that the project will have an effect on the heritage values of the local environment. The above recommendations are designed to provide guidance on appropriate management of heritage issues and to reduce impacts on identified heritage significance.

In accordance with the DGRs, this Heritage Impact Assessment has reviewed the impacts to heritage items and places and has identified measures to minimise impacts. These include appropriate landscaping adjacent to the rail corridor, requirements for monitoring the effects of vibration in the vicinity of heritage structures and preliminary design requirements. The above recommendations will inform the development of an HMP which will form part of the CEMP for the project, following the finalisation of design and engineering details.



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# Appendix A

## Aboriginal Consultation Log and Feedback

Date	Organisation	Contact Person	Details
27/07/2010	DECCW	Miranda Morton	Tried to contact about who to give request for consultation; no answer.
27/07/2010	DECCW	Miranda Morton	Asked who to contact about request for consultation, and she said she would be the person. She said I could email her a request.
27/07/2010	Leichhardt Municipal Council	Christopher Reeves	Asked who to contact about request for consultation, and was put on to Chris. He said they have an Aboriginal community person involved with Council, but not necessarily in heritage, and that they generally contact MLALC in these matters. He said I could email him a request and he could look into it this week.
27/07/2010	Ashfield Council	Anthea	Asked who to contact about request for consultation. Was told that there wasn't a specific heritage/Aboriginal liaison officer in the Council, but that Anthea may be able to help, in community services. Anthea took my contact details and said she would get back to me.
27/07/2010	Marrickville Council	Rebecca Carroll	Asked who to contact about request for consultation. Was put through to Rebecca Carroll, but she is on leave until 6 September. Voicemail message indicated that Deana Petracus could be contacted for urgent matters.
27/07/2010	Marrickville Council	Deana Petracus	Tried to call; no answer.
27/07/2010	NNTT	Website	Searched Marrickville, Leichhardt and Ashfield LGAs. DTAC NC97/8 is the only active claimant application, in all 3 LGAs.
27/07/2010	Inner West Courier	N/A	Asked where to send a request for a public notice in this week's paper. Was given an email address.
27/07/2010	Inner West Courier	N/A	Sent text for ad, to be placed 29 July 2010; response date 12 August 2010.
27/07/2010	Inner West Courier	N/A	Automatically-generated email saying they'd received my email.
27/07/2010	DECCW	Miranda Morton	Notification of project and request for contact details of Aboriginal groups.
27/07/2010	ORALRA	N/A	Notification of project and request for contact details of Aboriginal groups.
27/07/2010	NNTT	Kashana Cohen-McMeekin	Notification of project and request for contact details of Aboriginal groups.
27/07/2010	Leichhardt Municipal Council	Christopher Reeves	Notification of project and request for contact details of Aboriginal groups.
27/07/2010	MLALC	Rebecca McHugh	Notification of project and request for contact details of Aboriginal groups. Requested notification if MLALC would like to be consulted.
27/07/2010	Marrickville Council	Deana Petracus	Tried to call; no answer.
27/07/2010	Marrickville Council	N/A	Notification of project and request for contact details of Aboriginal groups.
27/07/2010	Marrickville Council	N/A	Automatically-generated email saying they'd received my email.
27/07/2010	DACHA	Gordon Morton	Notification of project and request for notification if they would like to be consulted.
27/07/2010	DTAC	Sandra Lee	Notification of project and request for notification if they would like to be consulted.
27/07/2010	Inner West Courier	Wendy Hopley	Provision of ad proof.
27/07/2010	Inner West Courier	N/A	Confirmed ad proof.
27/07/2010	MLALC	Rebecca McHugh	Email registration of interest in the project. Said that there are no registered traditional owners within their boundaries, under the Aboriginal Land Rights Act, so they're unable to provide a list of known local Aboriginal parties.
27/07/2010	MLALC	Paul Morris	Phone call to touch base and register interest. Said they took a custodian role for Aboriginal heritage in the area.
27/07/2010	MLALC	Paul Morris	Email confirmation from Paul to touch base.
28/07/2010	ORALRA	Courtney Field	Identified that there are no registered Aboriginal owners for the area, and recommended that we contact MLALC for further contacts.
28/07/2010	Ashfield Council	Anthea	Rang to say that she'd spoken with her supervisor,



			who said that MLALC should be contacted.
29/07/2010	Marrickville Council	Deana Petracus	Tried to call; no answer.
29/07/2010	Marrickville Council	Kate Napier	Rang Reception and was directed to Kate, as I hadn't been able to speak with Rebecca or Deana. Kate said that Council had their own consultative committee (Marrickville Aboriginal Consultative Committee - MACC), and that Sharon would be the best person to talk to about that, in Rebecca's absence.
29/07/2010	Marrickville Council	Sharon Coughlan	Told Sharon about the project. She said that MACC only meets every 2 months, and asked me to send an email with the timing of what we're doing. I said I'd sent an email to the main Council address, and she asked if I could forward it to her.
29/07/2010	Marrickville Council	Sharon Coughlan	Forwarded email with notification about project and request for groups to consult; also outlined the timing of the consultation process.
29/07/2010	Leichhardt Municipal Council	Christopher Reeves	Chris said he'd spoken with his supervisor, who said that Booma(l)li Aboriginal Art Gallery may be interested in being consulted.
29/07/2010	Boomalli Aboriginal Art Gallery	N/A	Said that they might be interested, but that she'd talk with people on the Board and check. Took my contact details and said she'd try and get back to me before 10 August.
30/07/2010	DACHA	Celestine Everingham	Phone call to register their interest in the project. Asked if they needed to send me anything in writing. I said that it would be good if they could send a fax through.
30/07/2010	DACHA	Gordon Morton	Fax registering interest in the project.
3/08/2010	DECCW	Lou Ewins	Letter dated 28/7/10, received 3/8/10, identified that MLALC and Yarrawalk may be interested in being consulted on the project.
3/08/2010	Marrickville Council	Sharon Coughlan	Said that MACC wouldn't meet for a few weeks so we should continue consulting with MLALC, but said that we may also find it useful to talk to Jenny Thomsen, a member of MACC, who has good local knowledge and history.
3/08/2010	Yarrawalk/Tocomwall	Scott Franks	Notification of project and request for notification if they would like to be consulted, by 12 August.
6/08/2010	NNIT	Kashana Cohen-McMeekin	Identified "DTAC" native title claim - Gordon Morton (now DACHA), Colin Gale and Angela Martin.
10/08/2010	Yarrawalk/Tocomwall	Scott Franks	Email registering interest in the project.
12/08/2010	MLALC	Paul Morris	Methodology and request for response by 19 August.
12/08/2010	DACHA	Gordon Morton	Methodology and request for response by 19 August.
12/08/2010	Yarrawalk/Tocomwall	Scott Franks	Methodology and request for response by 19 August.
13/08/2010	Yarrawalk/Tocomwall	Scott Franks	Response to methodology, saying that we aren't complying with the new consultation guidelines [however, this is not required under the DGRs which were issued on 11/8/10]. Also said that the Hawthorne Canal may have once been a creek, and so there may be sites in the area.
16/08/2010	DLO	Gordon Workman	Registration of interest in the project.
16/08/2010	MACC	Jenny Thomsen	Tried to call to ask whether she knew of any cultural issues in the study area, or wanted to be consulted. No answer.
16/08/2010	Boomalli Aboriginal Art Gallery	N/A	Tried to call to confirm whether they wanted to be consulted, or knew of any cultural issues in the study area. No answer.
16/08/2010	DLO	Gordon Workman	Methodology and request for response by 19 August.
17/08/2010	Boomalli Aboriginal Art Gallery	N/A	Tried to call to confirm whether they wanted to be consulted, or knew of any cultural issues in the study area. No answer. As they took my contact details and said they would get back to me if they wanted to be consulted, I will provide them with the methodology/report if they do respond.
17/08/2010	MACC	N/A	Tried to call to ask whether she knew of any cultural issues in the study area, or wanted to be consulted.

			She was in a meeting so I left a message for her to call me back.
18/08/2010	MACC	Jenny Thomsen	Jenny returned my call and I explained about the project and asked whether there are any cultural issues that I should be aware of. I explained about the tight timeframe and Jenny said she thought it was a shame that Aboriginal consultation has been left to the last minute. I said that the assessment is being done under Part 3A and there are no specifications to follow an Aboriginal consultation process, which is why it's following a tight timeframe. She asked me to send her the details by email and she'd get back to me.
18/08/2010	MACC	Jenny Thomsen	Methodology and request for response by 19 August.
19/08/2010	MLALC	Rebecca McHugh	Agreement with methodology.
25/08/2010	Marrickville Council	Steve	Rang about the email he'd received, to see if I needed him to give me the names of any organisations, but I said I'd already spoken with Sharon from Council.
31/08/2010	Metropolitan LALC	Paul Morris	Draft report, requesting feedback by 7 September 2010. Got an undeliverable message.
31/08/2010	MACC	Jenny Thomsen	Draft report, requesting feedback by 7 September 2010.
31/08/2010	DLO	Gordon Workman	Draft report, requesting feedback by 7 September 2010.
31/08/2010	Yarrawalk/Tocomwall	Scott Franks	Draft report, requesting feedback by 7 September 2010.
31/08/2010	DACHA	Gordon Morton	Draft report, requesting feedback by 7 September 2010.
31/08/2010	Yarrawalk/Tocomwall	Scott Franks	Said that they'd reviewed the methodology and asked who from their organisation had been invited to attend the survey.
31/08/2010	DLO	Gordon Workman	Asked who from their organisation attended the survey.
31/08/2010	DLO	Gordon Workman	Asked for the invoicing details.
1/09/2010	Metropolitan LALC	Rebecca McHugh	Said that I'd received an undeliverable message after sending the draft report, and asked if they had a limit on the size of emails they could receive.
1/09/2010	Metropolitan LALC	Rebecca McHugh	Said that she'd received the report and feedback form yesterday, so the email had been delivered.
1/09/2010	DLO	Gordon Workman	Email explaining the consultation process and noting that it was outside the project scope to invite a representative from their organisation on a field survey, but we had consulted outside the project scope so that they had an opportunity to provide comments on any concerns they have about the project/area.
1/09/2010	Yarrawalk/Tocomwall	Scott Franks	Email explaining the consultation process and noting that it was outside the project scope to invite a representative from their organisation on a field survey, but we had consulted outside the project scope so that they had an opportunity to provide comments on any concerns they have about the project/area.
1/09/2010	DLO	Gordon Workman	Thanked us for getting back to him, and asked to be kept informed of any work that was coming up.





Tocomwall  
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PO Box 76  
CARINGBAH NSW 1495  
yarrawalk@tpg.com.au

13<sup>th</sup> August 2010

Attn: Jenna Weston  
Australian Museum Business Services  
6 College Street, Sydney NSW 2010

[jenna.weston@austmus.gov.au](mailto:jenna.weston@austmus.gov.au)

## **Proposed Sydney Light Rail Extension and GreenWay Aboriginal heritage assessment**

### **Methodology Comments**

**would like to make the following comments** about the proposed methodology in the AMBS correspondence (dated 12 August 2010) regarding the Aboriginal Heritage Assessment for the proposed Sydney Light Rail Extension and GreenWay, Lilyfield to Dulwich Hill, NSW, or provide the following information regarding the cultural heritage values of the study area (cross out if not applicable):

Dear Jenna,

Thank you for the methodology relating to the former Rozelle Goods Line. Are you aware that the Department of Environment, Climate Change and Water (DECCW) have released a new series of consultation guidelines?

These guidelines require a range of tasks and timeframes, which the methodology you have provided does not include. As required in Section 4.2 of these guidelines, you are required to present Yarrawalk with information on the project, including the developer, the reason for the project, timeframes, and a range of other communication protocols.

You are then required to provide Yarrawalk with a methodology, which now emphasizes obtaining cultural knowledge and the protocols surrounding this, rather than site survey information. We are required to have 28 days to comment on this methodology. I would also draw your attention to Section 4.3.6 and 4.4 of the guidelines, which require you to develop project recommendations with Yarrawalk and, again, provide a 28 day period of comment on the report.

In relation to information, as you know this area has been extensively developed, but, several projects in the City that we have been involved with have revealed the remains of Aboriginal use in the past despite this.

We note the site is located close to Iron Cove and has a canal, running next to it, possibly originally a creek.

We believe that there is high possibility for Aboriginal objects to occur in this area that may relate to our people's activities around Iron Cove.

Yours faithfully

Scott Franks  
Director & Aboriginal Heritage Manager

Tocomwall  
Creating Quantum Change

**PURPOSE OF THIS FORM**

This form is intended to make it easier for registered Aboriginal parties to provide comments and feedback on the proposed Sydney Light Rail Extension and GreenWay Aboriginal heritage assessment. It is not obligatory to provide feedback in this way, however if you would like to use this form, please fill out, sign and return to AMBS as a scanned document emailed to [jenna.weston@austmus.gov.au](mailto:jenna.weston@austmus.gov.au), by fax to (02) 9320 6428, or post the original to:

Attn: Jenna Weston  
Australian Museum Business Services  
6 College Street, Sydney NSW 2010

**ABORIGINAL FEEDBACK**

I, Rebecca McHugh (your name)

of METRO LOCAL ABORIGINAL LAND COUNCIL (Aboriginal group name)

☒ **agree** with the proposed methodology in the AMBS correspondence (dated 12 August 2010) regarding the Aboriginal Heritage Assessment for the proposed Sydney Light Rail Extension and GreenWay, Lilyfield to Dulwich Hill, NSW **and/or**

**would like to make the following comments** about the proposed methodology in the AMBS correspondence (dated 12 August 2010) regarding the Aboriginal Heritage Assessment for the proposed Sydney Light Rail Extension and GreenWay, Lilyfield to Dulwich Hill, NSW, or provide the following information regarding the cultural heritage values of the study area (cross out if not applicable):

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Signature R. McHugh

Date 19/8/10

Position within Aboriginal group: Administration officer

## Appendix B

### Aboriginal Site Types



Site Type	Details
Open Camp Sites/ Stone Artefact Scatters/ Isolated Finds	<p>Open camp sites represent past Aboriginal subsistence and stone knapping activities, and include archaeological remains such as stone artefacts and hearths. This site type usually appears as surface scatters of stone artefacts in areas where vegetation is limited and ground surface visibility increases. Such scatters of artefacts are also often exposed by erosion, agricultural events such as ploughing, and the creation of informal, unsealed vehicle access tracks and walking paths. These types of sites are often located dry, relatively flat land along or adjacent to rivers and creeks. Camp sites containing surface or subsurface deposit from repeated or continued occupation are more likely to occur on elevated ground near the most permanent, reliable water sources. Flat, open areas associated with creeks and their resource-rich surrounds would have offered ideal camping areas to the Aboriginal inhabitants of the local area.</p> <p>Isolated finds may represent a single item discard event, or be the result of limited stone knapping activity. The presence of such isolated artefacts may indicate the presence of a more extensive, in situ buried archaeological deposit, or a larger deposit obscured by low ground visibility. Isolated artefacts are likely to be located on landforms associated with past Aboriginal activities, such as ridgelines that would have provided ease of movement through the area, and level areas with access to water, particularly creeks and rivers.</p>
Middens	<p>Shell middens result from Aboriginal exploitation and consumption of shellfish, in marine, estuarine or freshwater contexts. Middens may also include faunal remains such as fish or mammal bone, stone artefacts, hearths, charcoal and occasionally, burials. They are usually located on elevated dry ground close to the aquatic environment from which the shellfish has been exploited and where fresh water resources are available. Deeper, more compacted, midden sites are often found in areas containing the greatest diversity of resources, such as river estuaries and coastal lagoons.</p>
Scarred Trees	<p>Tree bark was utilised by Aboriginal people for various purposes, including the construction of shelters (huts), canoes, paddles, shields, baskets and bowls, fishing lines, cloaks, torches and bedding, as well as being beaten into fibre for string bags or ornaments. The removal of bark exposes the heart wood of the tree, resulting in a scar. Over time the outer bark of the tree grows across the scar (overgrowth), producing a bulging protrusion around the edges of the scar. Trees may also have been scarred in order to gain access to food resources (eg. cutting toe-holds so as to climb the tree and catch possums or birds), or to mark locations such as tribal territories. The locations of recorded scarred trees most likely reflect historical clearance of vegetation rather than the actual pattern of scarred trees. Unless the tree is over 150 years old, scarring is not likely to be of Aboriginal cultural origin; therefore, these sites most often occur in areas with mature, remnant native vegetation.</p>
Axe Grinding Grooves	<p>Grinding grooves are the physical evidence of tool making or food processing activities undertaken by Aboriginal people. The manual rubbing of stones against each other creates grooves in the rock, which are usually found on flat areas of soft rock such as sandstone, in areas of creek beds and other water sources. They are often associated with rock pools in creek beds and on platforms to enable the wet-grinding technique.</p>
Rock Engravings	<p>Rock engravings are often located on high vantage points along ridge lines at the headwaters of creeks, but can be located on any suitable fine grained stone surface.</p>
Shelter Sites with Art (Engraving, Painting or Drawing) or Occupation Deposit	<p>These types of sites are located in areas where suitable rock outcrops and surfaces occur, where weathering has resulted in suitable overhangs or recesses in boulder outcrops or cliff-lines.</p>

Quarries	Aboriginal quarry sites are sources of raw materials, primarily for the manufacture of stone tools, but also for ochre procurement. They are only found where raw materials (stone or ochre) occur within the landscape, and where these have been exploited in the past. Such sites are often associated with stone tool artefact scatters and stone knapping areas. Loose or surface exposures of stone or cobbles may be coarsely flaked for removal of portable cores. Raw materials can be sourced to these sites and provide evidence for Aboriginal movement and/or exchange.
Carved Trees	Carved trees generally marked areas for ceremonial purposes, or the locations of graves. Carvings may include animals, weapons such as boomerangs and waddies, and geometric patterns.
Stone Arrangements	Stone arrangements usually consist of geometric arrangements of portable stone on prominent rock outcrops, such as vantage points along escarpments where other key landmarks are visible. Some stone arrangements also include circles and pathways. They are thought to be ceremonial in nature, and may have also sometimes been used for corroborees (dances), fights or judicial meetings, although this may have only occurred in the Contact period. Stone arrangements are often isolated from known camp site areas.
Natural Mythological (Ritual) Sites	These types of sites are usually identified by the local Aboriginal community as locations of cultural significance, and they may not necessarily contain material evidence of Aboriginal associations with the place.
Bora/Ceremonial	Aboriginal ceremonial sites are locations that have spiritual or ceremonial values to Aboriginal people. Aboriginal ceremonial sites may comprise natural landforms and, in some cases, will also have archaeological material. Bora grounds are a ceremonial site type, usually consisting of a cleared area around one or more raised earth circles, and often comprised two circles of different sizes, connected by a pathway, and accompanied by ground drawings or mouldings of people, animals or deities, and geometrically carved designs on the surrounding trees. Bora grounds are most often cited as being used for male initiation ceremonies (eg. W Gardner, McPherson, R H Mathews and A W Howitt). They may have also sometimes been used for corroborees (dances), fights or judicial meetings, although this may have only occurred in the Contact period. Unfortunately, the raised earth features are easily destroyed by agricultural and pastoral activities, vegetation growth and exposure to weather.
Burial Sites	Aboriginal burial of the dead often took place relatively close to camp site locations. This is due to the fact that most people tended to die in or close to camp (unless killed in warfare or hunting accidents), and it is difficult to move a body long distances. Soft, sandy soils on, or close to, rivers and creeks allowed for easier movement of earth for burial; and burials may also occur within rockshelters or middens. Aboriginal burial sites may be marked by stone cairns, carved trees or a natural landmark. Burial sites may also be identified through historic records, or oral histories. Burial grounds are sometimes marked by mounds and carved trees.
Contact/ Historical Sites	These types of sites are most likely to occur in locations of Aboriginal and settler interaction, such as on the edge of pastoral properties or towns. Artefacts located at such sites may involve the use of introduced materials such as glass or ceramics by Aboriginal people, or be sites of Aboriginal occupation in the historical period.
Water Hole/Well	These sites may be natural or man-made holes in a natural stone outcrop surface, where water collects. These sites may also have cultural significance.