SYDNEY LIGHT RAIL

REPORT – URBAN DESIGN & LANDSCAPE PLAN – SURRY HILLS

SLR-D&C-MD0-000-REP-000037 – REV F

March 2017

<table>
<thead>
<tr>
<th>Name</th>
<th>Role</th>
<th>Date</th>
<th>Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Author</td>
<td></td>
<td>31/01/2017</td>
<td>n/a</td>
</tr>
<tr>
<td>Reviewer</td>
<td>Environmental Manager</td>
<td>30/03/2017</td>
<td></td>
</tr>
<tr>
<td>Approver</td>
<td>Project Director</td>
<td>30/03/2017</td>
<td></td>
</tr>
<tr>
<td>Rev</td>
<td>Modifications Content</td>
<td>Writer</td>
<td>Date of Review</td>
</tr>
<tr>
<td>-----</td>
<td>--------------------------------------------------</td>
<td>--------</td>
<td>----------------</td>
</tr>
<tr>
<td>A</td>
<td>For submission to DPE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Updated with TfNSW comments for submission to DPE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Updated for submission to DPE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Updated with comments from DPE/Stakeholders</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>Issued for approval</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>Issued for approval</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Urban Design & Landscape Plan
Surry Hills
**Glossary**

For the purpose of clarity, the Glossary listed here defines most commonly used terms and abbreviations which are a combination of general and specific to this project.

**ATC**
Australian Turf Club (also referred to as Randwick Racecourse).

**CPMPT**
Centennial Park and Moore Park Trust (also referred to as the Trust).

**CPTED**
Crime Prevention Through Environmental Design.

**EIS**
The Project Environmental Impact Statement, publicly exhibited from 14 November to 16 December 2013.

**HCA**
Heritage Conservation Area.

**Heritage**
Encompasses both Aboriginal and historic heritage including sites that predate European settlement, and a shared history since European settlement such as a shared associations in pastoral landscapes as well as associations linked with the mission period.

**Heritage Item**
An item defined under the Heritage Act 1977, and assessed as being of local, State and/or National heritage significance, and/or an Aboriginal Object or Aboriginal Place as defined under the National Parks and Wildlife Act 1974.

**Interchange Stops**
Means the CSELR Stops where Customers change between CSELR and other public transport modes including bus, rail, IWL and ferry.

**LRV**
Light Rail Vehicle.

**the Plan**
This Urban Design and Landscape Plan.

**PLRC**
Permanent Light Rail Corridor.

**Public Domain**
Means the general publicly accessible areas not within Stops.

**Sensitive Receiver**
Residence, education institution (e.g. university, school, TAFE college), health care facility (e.g. nursing home, hospital) and religious facility (e.g. church), children’s day care facility, community centres and recreation areas.

**SSI**
Means the State significant infrastructure approved under Application No. SSI-6042.

**Wire-free**
Means the section of the line where the LRV operates without continuous overhead power supply.
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>4</td>
</tr>
<tr>
<td>Consultation</td>
<td>11</td>
</tr>
<tr>
<td>Principles and Objectives</td>
<td>14</td>
</tr>
<tr>
<td>Existing Contextual Analysis</td>
<td>17</td>
</tr>
<tr>
<td>Public Domain and Landscape Design</td>
<td>24</td>
</tr>
<tr>
<td>Visual Impact</td>
<td>62</td>
</tr>
<tr>
<td>Stops, Buildings and Bridges</td>
<td>75</td>
</tr>
<tr>
<td>Heritage Advice</td>
<td>82</td>
</tr>
<tr>
<td>Sustainability</td>
<td>96</td>
</tr>
<tr>
<td>Appendices</td>
<td>102</td>
</tr>
<tr>
<td>A - Briefing Note - Moore Park Substation</td>
<td></td>
</tr>
<tr>
<td>B - Heritage Impact Assessment</td>
<td></td>
</tr>
</tbody>
</table>
1 Introduction

1.1. Purpose of this Plan

1.2. Scope of Plan

1.3. Conditions of Approval

1.4. Design Standards and Guidelines
Purpose of this Plan

This Urban Design and Landscape Plan (UDLP) has been prepared to meet the requirements of Planning Condition B51 of the SSI-6042 Infrastructure Approval Conditions.

The UDLP describes the urban design and landscape principles for the proposed Central Business District (CBD) and South-East Light Rail Project (the Project), which comprises the construction and operation of a new light rail service in Sydney, including approximately 12 kilometers of new light rail track which extends from Circular Quay to Randwick and Kingsford via Surry Hills and Moore Park.

Due to the length and complexity of the urban situations into which the light rail route will be integrated, the UDLP is comprised of four reports that respond to the different precincts of the urban context that the light rail traverses. These precincts are:

- City (Zones C North & C South)
- Surry Hills and Moore Park (Zone S)
- Randwick (Zone R)
- Kingsford (Zone K)

The intent of this condition of approval is to ensure that the process of developing the urban design and landscape proposals for the project is conducted with appropriate consultation with stakeholders and regard for design objectives to achieve a high quality outcome for the community and the environment.

There are project wide design principles that are outlined in the UDLP; in conjunction with precinct specific principles that relate to the character of each of the neighbourhoods the light rail route passes through. The principles have been developed to outline the approach to managing impacts on heritage elements, existing visual character and to clarify guidelines for the public domain upgrades that will be delivered as part of the project.

Note

This document represents best available information as at the time of printing, design development is still in progress. This document has been prepared in line with the planning condition requiring approval of the UDLP prior to construction of permanent works commencing.

Scope of this Plan

This Plan focuses on the Surry Hills Precinct, as shown in the adjacent image, this part of the route includes:

1 — The public domain and light rail corridor along the southern side of Eddy Avenue adjoining Central Station
2 — The public domain, third track and stop on Chalmers Street know as Central Stop (event mode stop)
3 — The public domain, pocket parks and revised road arrangement along the western end of Devonshire Street
4 — The revised public domain including Ward Park frontage and stop on Devonshire Street (Surry Hills Stop)
5 — The public domain and revised road arrangement along Devonshire Street east
6 — The public domain and revised road intersection at Bourke street and extension to Olivia Gardens and Wimbo Park
7 — The new pedestrian bridge across South Dowling Street, western portal structure and Moore Park Substation
8 — The eastern portal structure and light rail corridor along the eastern side of the existing busway adjacent Moore Park
9 — Moore Park Stop, associated facilities buildings and pedestrian bridge at Moore Park, including termination of third track
10 — The light rail corridor to the eastern side of the existing busway adjacent Moore Park to Lang Road.
Introduction

1.

Conditions of Approval

This UDLP addresses the following Planning Condition of Approval: B51. Prior to the commencement of construction of permanent built works, the Proponent shall prepare an Urban Design and Landscape Plan for the SSI in consultation with the UDRG, City of Sydney, Randwick City Council and Centennial and Moore Park Trust and submit it to the Secretary for approval. The Plan may be submitted in stages to suit the staged construction of the SSI, however shall include, but not necessarily be limited to:

(a) identification of design objectives and standards based on local environmental and heritage values, urban design context, sustainable design and maintenance, transport and land use integration, passenger and community safety and security, community amenity and privacy, and consideration of relevant design standards and guidelines and Council guidelines including Randwick City Council Light Rail Urban Design Guidelines;

(b) details on the plans to provide, mitigate and/or augment landscaped areas and elements, with landscaping works to offset the removal of vegetation along the route;

(c) landscape screening of the SSI where receivers have been identified as likely to experience high residual visual impacts, in consultation with affected receivers and opportunities for providing at receiver landscaping to further screen views;

(d) design details of the built elements of the SSI and the measures to minimise the impact of these elements, particularly with respect to the impacts on adjoining residences, educational facilities, open space areas, heritage items and landscapes;

(e) specific plans proposed to enhance the public domain and integrate the proposal within its environment;

(f) details on pedestrian and cycle access elements and fixtures, including crossings, secure cycle facilities, and other fixtures such as seating, lighting, fencing, signage, etc., to enhance connectivity and the provision of a safe and secure environment;

(g) details on public art and heritage (indigenous and non-indigenous) interpretation installations;

(h) graphics such as sections, perspective views and sketches for key elements, but not limited to built elements;

(i) implementation, management and monitoring strategies to ensure the establishment and ongoing maintenance of built elements and landscaped areas (including weed control), including performance standards and contingency measures; and

(j) evidence of consultation with the above mentioned organisations on proposed materials palette, landscaping treatments and other urban design elements prior to its finalisation.

General compliance of the urban design and landscape is addressed on the following pages.

Related Documents

Condition of Approval B51
Urban Design and Landscape Plans

Condition of Approval B27
Stop Access and Design Plans

Tree Report

Rev egetation Compensation Package

Heritage Impact Assessment

CPTED Report

Bridge Aesthetics

CBD and South-East Light Rail | Urban Design and Landscape Plan | Surry Hills Zone | 6
1.1 Response to Planning Condition of Approval B51

For the purpose of clarity, the Planning Approval Conditions have been addressed as follows:

<table>
<thead>
<tr>
<th>Planning Condition of Approval</th>
<th>Document Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition B51: Prior to the commencement of construction of permanent built works, the Proponent shall prepare an Urban Design and Landscape Plan for the SSI in consultation with the UDRG, City of Sydney, Randwick City Council and Centennial Park and Moore Park Trust and submit it to the Secretary for approval. The Plan may be submitted in stages to suit the staged construction of the SSI; however shall include, but not necessarily be limited to:</td>
<td></td>
</tr>
</tbody>
</table>
| (a) identification of design objectives and standards based on local environmental and heritage values, urban design context, sustainable design and maintenance, transport and land use integration, passenger and community safety and security, community amenity and privacy, and consideration of relevant design standards and guidelines and Council guidelines including Randwick City Council Light Rail Urban Design Guidelines; | Section 3: Objectives & Principles  
Section 4: Contextual Analysis  
Section 9: Sustainability  
Section 11: Introduction |
| (b) details on the plans to provide, mitigate and/or augment landscaped areas and elements, with landscaping works to offset the removal of vegetation along the route; | Section 5: Public Domain Design |
| (c) landscape screening of the SSI where receivers have been identified as likely to experience high residual visual impacts, in consultation with affected receivers and opportunities for providing at-receiver landscaping to further screen views; | Section 2: Consultation  
Section 5: Public Domain Design  
Section 6: Visual Impact |
| (d) design details of the built elements of the SSI and the measures to minimise the impact of these elements, particularly with respect to the impacts on adjoining residences, educational facilities, open space areas, heritage items and landscapes; | Section 2: Consultation  
Section 5: Public Domain Design  
Section 6: Visual Impact  
Section 7: Stops & Buildings  
Section 8: Heritage Advice |
| (e) specific plans proposed to enhance the public domain and integrate the proposal within its environment; | Section 3: Objectives & Principles  
Section 5: Public Domain Design |
| (f) details on pedestrian and cycle access elements and fixtures, including crossings, secure cycle facilities, and other fixtures such as seating, lighting, fencing, signage etc, to enhance connectivity and the provision of a safe and secure environment; | Section 5: Public Domain Design |
| (g) details on public art and heritage (indigenous and non-indigenous) interpretation installations; | Section 4: Contextual Analysis  
Section 5: Public Domain Design  
Section 8: Heritage Advice  
Note: Project scope does not include delivery of any public art, however, does not preclude land owners installing art at a future date.  
A separate heritage interpretation plan is being prepared for the project. |
| (h) graphics such as sections, perspective views and sketches for key elements, but not limited to built elements; | Section 5: Public Domain Design  
Section 6: Visual Impact  
Section 7: Stops & Buildings |
| (i) implementation, management and monitoring strategies to ensure the establishment and ongoing maintenance of built elements and landscaped areas (including weed control), including performance standards and contingency measures; and | Section 5: Public Domain Design |
| (j) evidence of consultation with the above mentioned organisations on proposed materials palette, landscaping treatments and other urban design elements prior to its finalisation. | Section 2: Consultation  
Section 5: Public Domain Design |
## Condition with Project Conditions of Approval

<table>
<thead>
<tr>
<th>Condition</th>
<th>Description</th>
<th>Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>A17</td>
<td>Within three months of the date of this approval, or prior to the commencement of construction (whichever is earlier), the Proponent shall establish an Urban Domain Reference Group (UDRG) to provide input to the detailed design and construction of the SSI. The UDRG shall:</td>
<td>The public domain for DPK2.3 has been presented to the UDRG as required. UDRG presentations are issued to TfNSW for distribution to UDRG representatives and members. Minutes from UDRG meetings are prepared by TfNSW and circulated to members and Altrack. Minutes of all Urban Domain Reference Group meetings are available on line at the following link: <a href="http://sydneylighttrail.transport.nsw.gov.au/library#84/87">http://sydneylighttrail.transport.nsw.gov.au/library#84/87</a></td>
</tr>
<tr>
<td>B30</td>
<td>The Proponent shall maintain emergency vehicle access to Health Administration Corporation facilities on High Street, Randwick and the Langton Clinic at South Dowling Street, Surry Hills, 24 hours a day, 7 days a week, throughout the life of the SSI.</td>
<td>The design of kerbs on Nobbs Lane provides vehicular access to the southern side of the Langton Centre. Refer to Materials and Finishes Plans SLR-ASP-D40-URD-DWG-023113 to SLR-ASP-D40-URD-DWG-023114.</td>
</tr>
<tr>
<td>B31</td>
<td>Prior to any impact to existing parking, the Proponent shall, in cooperation with the relevant road authority, provide replacement parking dedicated to the Langton Centre in close proximity to the Health Administration Corporation facility with consideration of the Disability Discrimination Act 1992 (DDA) Public Transport Standards and the DDA Access Code 2010.</td>
<td>Parking has been provided on Nobbs Lane, refer to Stage 2 drawings SLR-ASP-D40-URD-DWG-023113 to SLR-ASP-D40-URD-DWG-023114.</td>
</tr>
<tr>
<td>B33</td>
<td>A Pedestrian and Cyclist Network and Facilities Strategy shall be prepared in consultation with Councils, RMS, Bicycle NSW, Centennial Park and Moore Park Trust and relevant Reference Groups. The Strategy shall identify alternative pedestrian and cycle paths, during construction and operation, including facilitation of future cycle paths and dedicated cycleways as identified in state and local government plans, with the objective of providing seamless, coherent, visible, and safe pedestrian and cycle access throughout and adjacent to the corridor. The Strategy shall consider:</td>
<td>GTA has been engaged by TfNSW to deliver a cycleway strategy. Cycleways within the project boundary will be delivered as part of the scope of works.</td>
</tr>
</tbody>
</table>
Introduction

Condition Description Evidence

B38 Prior to construction of the Anzac Parade Pedestrian Bridge, the Proponent shall prepare a detailed design for the bridge. The design of the bridge must be prepared in consultation with OEH (Heritage), RMS, the UDRG, CRG and City of Sydney and the Centennial Park and Moore Park Trust. If the design criteria, as outlined below, are not achieved, the Proponent shall submit the design of the bridge to the Secretary for approval accompanied by justification for any changes and evidence of consultation with the above mentioned organisations. The final design shall be implemented as part of the SSI. The design of the bridge must be sympathetic to the design of the adjacent Albert (Tibby) Cotter Walkway with the aim of minimising its visual impact and ensure:

(a) Identification of urban design principles and standards based on:
   i) local environmental and heritage values;
   ii) urban design context;
   iii) sustainable design and maintenance;
   iv) lighting;
   v) community amenity; and
   vi) consideration of relevant design standards such as Crime Prevention through Environmental Design Principles and Bridge Aesthetics: Design Guidelines to Improve the Appearance of Bridges in NSW (RTA, 2003).
(b) Provision of appropriate landscaping, including details on the location of existing and retained vegetation, the proposed removal of vegetation and proposed landscaping;
(c) Specific measures to limit visual impacts of the bridge on surrounding land uses and adjacent lands managed by the Centennial Park and Moore Park Trust;
(d) Consideration of direct access from the bridge to the Moore Park stop platform;
(e) Cumulative impacts are mitigated from the construction of the concurrent RMS pedestrian bridge over Anzac Parade at Moore Park;
(f) Graphics and design details of built elements to meet the following criteria;
   i) minimum height clearance over Anzac Parade roadway of 5.5 metres;
   ii) no support structures within the Anzac Parade median;
   iii) a total width across the Anzac Parade roadway of no more than 5 metres including deck, truss and safety screens;
   iv) no advertising structures or material to be affixed to the bridge;
   v) specific measures to avoid or minimise heritage impacts to the bear pit in the vicinity of Sydney Girls High School and the heritage value of Anzac Parade;
(g) In meeting the criteria listed above, the following is provided to the Department to document compliance:
   i) graphics such as sections, perspective views and sketches of the bridge and its accesses from various viewpoints;
   ii) plans outlining design details of materials and colours, screens and support structures;
   iii) how relevant design standards have been considered in the design; and
   iv) evidence of consultation in relation to the design of the facility.

Compliance with CoA B38 has been met. In meeting the criteria, the following is provided to DPE to document compliance CoA B38

i) Graphics refer to Section 5 section at Moore Park East, Section 6 viewpoint 3-4 and Section 7 Anzac Parade Pedestrian bridge overview
ii) Design details of materials and colours, screens and support structures; refer Section 5 Public Domain Elements and Maintenance which includes details of the Bronze finish and mesh detail (screens) for the bridge, Section 6 viewpoint 3-4 for visual representation of finishes, and Section 7 for support structure overview
iii) Relevant design standards; refer Section 1 and Section 7
iv) Consultation has been undertaken on the design of the bridge with OEH, UDRG, RMS, CRG, CoS and CPMPT, refer Section 2 Consultation
Introduction

Compliance with Project Conditions of Approval

<table>
<thead>
<tr>
<th>Condition</th>
<th>Description</th>
<th>Evidence</th>
</tr>
</thead>
</table>
| B39       | Prior to construction of the Moore Park Portals, bridge over the Eastern Distributor and the relocated Surry Hills substation, the Proponent shall prepare a detailed design for the structure(s). The design of the structure(s) must be prepared in consultation with the UDRG, CRG, City of Sydney and the Centennial Park and Moore Park Trust. If the design criteria, as outlined below, are not achieved, the design of the facility shall be submitted to the Secretary for approval accompanied by justification for any changes and evidence of consultation. The final design shall be implemented as part of the SSI. The design must ensure:  
(a) identification of urban design principles and standards based on:  
   i) urban design context;  
   ii) sustainable design and maintenance;  
   iii) lighting;  
   iv) community amenity; and  
   v) consideration of relevant design standards such as Crime Prevention through Environmental Design Principles and Bridge Aesthetics: Design Guidelines to Improve the Appearance of Bridges in NSW (RTA, 2003);  
(b) Provision of appropriate landscaping, including details on the location of existing and retained vegetation, the proposed removal of vegetation and proposed landscaping;  
(c) Specific measures to limit visual and ‘land-take’ impacts of the bridge, portals and substation on surrounding playing fields and adjacent heritage items. In relation to the substation, it must be located entirely underground with access and ventilation integrated with the tunnel structure. No component of the substation shall intrude into or impact on the use of the surface of Moore Park;  
(d) Safety measures to address:  
   i) Public access into the portals;  
   ii) Private vehicle or bike movements into the portals;  
   iii) Stray balls (anti-throw screening); and  
   iv) Sight distance/speed of light rail vehicles interacting with South Dowling Street footpath and road users;  
(e) In meeting the criteria listed above, the following is provided to the Department to document compliance:  
   i) Graphics such as sections, perspective views and sketches of the bridge and portals from various viewpoint(s);  
   ii) Plans outlining design details of materials and colours, screens and support structures;  
   iii) How relevant design standards have been considered in the design; and  
   iv) Evidence of consultation in relation to the design of the facility. | Generally compliance with CoA B39 has been achieved, however CoA B39 (c) has not been achieved and therefore the design of the facility requires the Secretary’s approval. Section 10 includes a briefing note which outlines the design development which has occurred since concept design and justifies the placement of the substation adjacent to the tunnel portal and access from South Dowling Street rather than from within the tunnel. In meeting the remaining requirements outlined in CoA B39, the following is provided to DPE to document compliance: B39 (a)  
   i) Graphics etc refer to Section 5 Public Domain plans and elevations, Section 6 viewpoint 2-7 and Section 7 Substations and Eastern Distributor bridge  
   ii) Design details of materials and colours, screens and support structures; refer Section 5 Public Domain Elements and Maintenance includes details of the Bronze finish for the bridge. Mesh detail is provided representing the screens and the support structures are described in Section 6 and 7  
   iii) Relevant design standards, refer Section 1 and Section 7 Substations and Eastern Distributor Bridge  
   iv) Consultation has been undertaken on the design of the bridge with UDRG, CRG, CoS and CPMPT, refer Section 2 Consultation for dates, topics and organisations consulted with. |
| B47       | The Proponent shall, to the greatest extent possible, minimise the removal of vegetation, including at Circular Quay, Moore Park and surrounds, Anzac Parade, Centennial Park and surrounds, Royal Randwick Racecourse (along Alison and Wansley Roads), High Cross Park, and within the UNSW lands. Where vegetation has been removed, reinstatement and supplemental landscaping shall be undertaken in accordance with the Re-vegetation Compensation Package required by condition B52. The two mature fig trees located on Centennial Park and Moore Park Trust lands at the end of the heritage listed perimeter fence on the corner of Alison Road and Darley Road shall not be impacted by the SSI. | Stage 1: Refer Tree Removal and Retention Plans  
Stage 2: Impacts to exiting trees not currently affected by the location of the PLRC have been minimised where possible. The current location of adjusted kerbs and poles requires further resolution to confirm that no further impacts to trees are proposed other than those nominated by the project arborist. Refer Tree Removal and Retention Plans |
Design Standards and Guidelines
The urban design and landscape works have been developed to incorporate the project requirements outlined in the contract and related design standards and guidelines.

Third Party Agreements
City of Sydney (CoS)
Centennial Park and Moore Park Trust (CPMPT)
Health NSW

Contract Sections
Appendix 2 — Customer Service / Experience
Appendix 7 — Sustainability
Appendix 13 — Stops
Appendix 14 — Public Domain

City of Sydney
Public Domain Manual
City of Sydney
Sydney Streets Code
City of Sydney
Sydney Streets Technical Specifications
City of Sydney
Sydney Lights Code
City of Sydney
Tree Management Policy
City of Sydney
Street Tree Master Plan
City of Sydney
Sydney DCP 2012
City of Sydney
Urban Forest Strategy
Centennial Park and Moore Park Trust
Tree Master plan for The Centennial Parklands
RMS D&C R174
Landscape Maintenance
RMS D&C R178
Vegetation
RMS D&C R179
Landscape Planting
RMS D&C R201
Fencing
RMS
Beyond the Pavement

RMS
Landscape Guidelines
RMS
NSW Bicycle Guidelines
Austroads
Part 6A - Pedestrian and Cyclist Paths
Ministry of Transport
Guidelines for the Development of Public Transport Interchange Facilities
NSW Government
Crime Prevention through Environmental Design
Centennial Park Moore Park Trust
Centennial Park Master Plan 2040
Consultation Objectives

Our objectives are:

- To be respectful of our stakeholders regarding their local domain;
- To give stakeholders a say;
- To confirm with stakeholders that we value their input;
- To develop positive relationships that will endure, for mutual benefit, throughout construction; and
- To fulfill contractual requirements.

Consultation with stakeholders and the wider community has been ongoing throughout the development of the public domain and stops design process to ensure the design meets the needs of the community and that they are kept informed of progress on the design as it evolves.

The consultation activities include:

- Community forums, held quarterly and open to the elected community representatives, held at ALTRAC offices;
- Community Reference Group (CRG) meetings, open to the elected community representatives, held at the ALTRAC offices;
- Business Reference Group (BRG) meetings, open to the elected community representatives, held at the ALTRAC offices;
- Stakeholder meetings, held as required, discussions with City of Sydney Council, CPMP, Sydney Trains and Health NSW to discuss particular issues;
- Presentations to OEH, and
- Urban Domain Reference Group (UDRG) meetings, held monthly, open to the members of the UDRG and representatives from each of the stakeholder groups.

Minutes of all Urban Domain Reference Group meetings are available on line at the following link:


Various types of Consultation to date

To date we have consulted with community members on the following:

- Local access requirements;
- Timing of outages proposed during construction;
- Communications methods;
- Tree retention and removal;
- Pocket park design and species selections; and
- Chalmers Street design;

Devonshire Street including Surry Hills stop

To date we have consulted with stakeholders including CoS, CPMP, UDRG, RMS and OEH on the following:

- Local access requirements;
- Timing of outages proposed during construction;
- Communications methods;
- Track alignment and grading around stops;
- Moore Park public domain and path systems;
- Eastern distributor bridge, western and eastern portal structures;
- Substation design;
- Tree retention and removal;
- Location and species of new tree planting;
- Options for tree transplanting;
- Devonshire Street design strategy;
- Tree and mass planting within Northcote Estate property boundary;
- Chalmers Street design;
- Design of Central Stop, Surry Hills Stop and Moore Park Stop;
- Finishes of trackform through Surry Hills;
- Anzac Parade Pedestrian bridge and Pocket Park, Ibero American Plaza, Ward Park and Wimbo Park design;
- Anzac Parade Pedestrian Bridge Consultation was held on the following dates and subjects:
  02/04/2015 - CoS - Alignment and DKE
  09/04/2015 - CPMP - Moore Park public domain
  16/04/2015 - Substations, Eddy Ave 3rd track, drainage and flooding
  23/04/2015 - Health NSW & CoS - Langton Centre and Dental hospital access
  23/04/2015 - CoS - Surry Hills precinct
  07/05/2015 - CoS - Stop equipment, integrated services cabinets, multipurpose totems, platform seating, fixtures and fittings. Design commitments items 17, 18, 20, 22. Visual impact of stop infrastructure.
  13/05/2015 - CoS - Central Track, Zone S site Analysis
  14/05/2015 - CPMP - Moore Park Portal and South Dowling St intersection; Visual impact of Moore Park Stop and Footbridge, Moore Park Public Domain design and venue linkages, Moore Park footbridge structural solution, geometry, ramp locations and materials selection, Moore Park Tunnel cladding and fencing, landscaping, land take and visual impacts and safety measures.
  28/05/2015 - CoS and SHRA - Street trees on Devonshire St and Trees within Northcote housing boundary, impact of Surry Hills stop on Ward Park and Position of Surry Hills Stop (move further east), delivery of pocket parks, scope, time frame and position of Clisseld St turning head and protection of mature Fig Tree at Langton Centre, Eastern Distributor, delivery of Wimbo Park/Olivia Gardens – scope and time frame.
  04/06/2015 - CoS - Devonshire St and Wimbo Park
  18/06/2015 - Dept of Education - Stakeholder update, background on consultation with schools, description of geotech works, design update focusing on Moore Park stop and Pedestrian bridge
  02/07/2015 - CPMP - Moore Park Staff Facilities, Moore Park Public Domain update
  30/07/2015 - CoS - Joint use (smart) poles and lighting
  30/07/2015 - Health NSW - Dental Hospital access and surrounding works
  06/08/2015 - CoS - Paving review with Access Consultant, tree selection for Devonshire Street
  20/08/2015 - CoS - Pedestrian and Cycle Strategy

Wayfinding, Sydney High School Site visit

27/08/2015 - CoS - Surry Hills pocket parks and ED Bridge
  03/09/2015 - CoS - Stops, Materials and Paving samples
  17/09/2015 - CoS - Re-vegetation Compensation Package
  08/10/2015 - CoS - Wayfinding
  12/11/2015 - CoS - Devonshire Street Trees
  19/11/2015 - CoS - Surry Hills pocket parks
  21/01/2016 - CoS - Chalmers Street
  28/01/2016 - CoS - Devonshire St Vegetation Plan

18/02/2016 - CoS - Wimbo Park earthworks, Olivia Gardens basement, access/ pedestrian movement across the tracks, lighting, vegetation offset strategy, Ward Park
  3/03/2016 - CoS - Coordination with ALTRAC - Poles and Trees, Stops, pedestrian area and trackform, Chalmers Street and Surry hills and end state access plans
  08/04/2016 - St Peter’s Church - forecourt works
Consultation

Objectives, Types, Findings and Actions

24/06/2016 - St Peter’s Church - forecourt works
26/06/2016 - CPMPT - Moore Park stop and Anzac Pde bridge
26/06/2016 - SGH & SBH - Moore Park stop and Anzac Pde bridge
05/07/2016 - OEH - Anzac Parade Pedestrian Bridge
07/07/2016 - CoS - Pocket Parks
07/07/2016 - CoS & CPMPT - Anzac parade Pedestrian bridge
05/08/2016 - St Peters Church - forecourt works
12/09/2016 - CoS & DoFCS - Northcott Estate frontage and footpath
22/11/2016 - COS - Pocket Parks
2/12/2016 - St Peters Church - Forecourt works

Consultation Findings

The main concerns raised by the community at community forums were:
• Local access once Pocket Park road closures are implemented;
• Requests to include a stop in Winombo Park; and
• Cycle routes and light rail routes

The main concerns raised at stakeholder meetings were:
• Maintaining access to existing facilities;
• Impact to existing trees;
• Visual impacts;
• Public domain integration;
• Continuity of cycleways and integration in larger cycleway strategy;
• Safety; and
• Lack of vertical separation between track and footpaths.

The main concerns raised at UDRG meetings were:
• Visual Impacts
• Public Domain response to new transport activation

- Material quality and long term lifespan
- Access to stops
- Safety

These concerns were addressed as the design developed in the following ways:
- Light rail design amended to locate third track on Chalmers Street rather than Eddy Avenue;
- Separated cycleway provided where feasible along Chalmers Street between Belmore Park and Prince Alfred Park;
- Access to Dental Hospital loading dock maintained on Chalmers Street;
- Pedestrian storage areas maximised at exits from Central Station;
- Planting introduced to trackzone edge to discourage pedestrian access in busy locations surrounding Central Station;
- Minimal traffic lane width applied to Devonshire Street design to minimise impacts on existing trees;
- Introduction of planting strip to southern kerb on Devonshire Street to provide separation to trackzone;
- Development of pocket park and Ward Park design in line with CoS concept designs;
- Introduction of raised kerb to Devonshire Street southern footpath in front of Northcott Estate and St Peters Church;
- New tree planting species and locations developed in response to feedback from CoS through Surry Hills;
- Design of Eastern Distributor bridge developed in line with feedback from UDRG, with amendments including symmetrical bridge screening, changes to chamfer to the girder profile, removal of the concrete triangle on the south side of the bridge and integrating lighting with handrail.
- Substation structure at Moore Park west integrated with portal structure to minimise impact on Moore Park in line with feedback from UDRG, CPMPT and CoS;
- Tree and mass planting incorporated into substation hardstand as recommended by UDRG;
- Development of western portal design and associated screening in line with feedback from UDRG, including aluminium batters on substation facade extended into portal entry to reduce visual impact of both structures;
- Modification to shared path design through Moore Park west in line with feedback from CPMPT;
- Materials, colours and form of the stops, including the roof canopies, equipment enclosures and posts were amended in response to feedback from the UDRG to be more muted and contextually sympathetic. This included changing the canopies from a deep red-coloured aluminium material, to a bronze alloy; and
- Location and design of OCC building at Moore Park Stop reduced in size and location modified in line with feedback from CPMPT (ongoing, under grounding of facility under review).
3 Objectives & Principles
The CBD and South-East Light Rail will deliver improved urban spaces and high quality streetscapes that enhance the precincts through which the route passes. Streets will be transformed from bus dominated corridors, to environments with improved facilities for pedestrians and cyclists, in addition to a quiet and efficient light rail system.

The CBD and South-East Light Rail will contribute to delivering an exemplar high quality light rail system. The designs have been developed based on principles of modern, minimal, elegant, functional and sustainable design. These principles have been used as a guiding philosophy that underpins the vision for CBD and South-East Light Rail – to design a transport system that enhances the passenger experience.

This linear public space upgrade will facilitate opportunities for adjacent land owners to follow the benchmarks set by the Project and generate further public domain upgrades in response, adding an overlay of outdoor dining and enlivened retail trading activities to each precinct.
1. Create a high quality urban domain, implemented through the delivery of the light rail system.

2. Provide a comfortable travel experience, including the access to the stop from footways or other modes of public transport, waiting at the stop and traveling on the light rail vehicles.

3. Maintain existing views and visual connections.

4. Incorporate accessible design principles and enable pedestrian connections directly and safely to the local network of walkways and destinations.

5. Integrate with, protect and enhance the existing urban context of the CBD and South-East precincts of Sydney.

6. Create safe access to stops and minimise conflicts between LRVs, pedestrians and cyclists.

7. Implement sustainable design that maximises benefits to the environment and the community.

**Principles**

The following principles have been developed to guide the development of the urban and public domain design of the Project:

**Create a high quality urban domain**

Establish high quality benchmark for light rail public domain in NSW

Create an enduring and engaging public domain through choice of materials, spatial arrangement and careful integration of the corridor into the existing fabric of the city. Carefully consider the location, scale, character, massing and materiality of new light rail elements to complement and uplift the quality of the existing public domain.

**Ensure comfort of light rail users and the whole community is prioritised**

Ensure legible and coherent environments

Provide comfortable environments that provide shade, shelter and resting points, options for accessible seating, and protection from rain. Design stops and surrounds to ensure ease of access to and from the platforms and light rail vehicles. Provide easy to use environments that are clutter free, safe and maximise the consistent use of materials and components.

**Create legible and coherent environments**

Create public domain areas including stops that are safe, highly visible, legible and easy to navigate through. Ensure legible and visible connections to surrounding footways are provided. Utilise wayfinding signage to guide the movement of users and enable them to navigate their way to their destinations and to the stops.

**Provide equal access for all users**

Provide equal access for all users throughout the public domain and light rail stops. Ensure that all stops are accessible to all, that movement on and off vehicles is seamless and that all users are aware of the edge of the light rail vehicle zone (or DKE).

**Lasting simplicity and coherence**

Lasting simplicity and coherence

Ensure a consistent identity and coherence through modern, minimal, elegant and functional design. Enhance existing character through new tree and under-story planting. Choose hard public domain materials to relate to surrounding context.

**Ensure safety of all users within the light rail corridor**

Ensure safety of all users within the light rail corridor

Design the light rail corridor and public domain works to maximise safety of all users. Provide clear delineation of hazardous areas or elements and design to mitigate safety risks. Provide safe crossings for pedestrians, cyclists and motorists with routes for each mode of transport clearly identifiable. Ensure sight lines of light rail drivers, pedestrians, cyclists and motorists have been considered in the design of the public domain.

**Provide a sustainable public domain**

Provide a sustainable public domain

Demonstrate best practice in sustainable design and construction outcomes and achieve both TfNSW’s sustainability requirements and the ISCA requirements for sustainable urban and landscape design integrated with public transport systems. Consider demolition, construction and maintenance activities that will minimise impacts on the environment.

**Integrate with, protect and enhance the existing urban context**

Integrate with, protect and enhance the existing urban context

Integrate Light Rail Infrastructure into existing parklands via mounding, screening and planting to minimise adverse visual impacts, whilst providing connected, accessible shared paths through the park along key pedestrian desire lines.

**Create legible and coherent environments**

Create legible and coherent environments

Provide comfortable environments that provide shade, shelter and resting points, options for accessible seating, and protection from rain. Design stops and surrounds to ensure ease of access to and from the platforms and light rail vehicles. Provide easy to use environments that are clutter free, safe and maximise the consistent use of materials and components.

**Provide equal access for all users**

Provide equal access for all users throughout the public domain and light rail stops. Ensure that all stops are accessible to all, that movement on and off vehicles is seamless and that all users are aware of the edge of the light rail vehicle zone (or DKE).

**Lasting simplicity and coherence**

Lasting simplicity and coherence

Ensure a consistent identity and coherence through modern, minimal, elegant and functional design. Enhance existing character through new tree and under-story planting. Choose hard public domain materials to relate to surrounding context.

**Ensure safety of all users within the light rail corridor**

Ensure safety of all users within the light rail corridor

Design the light rail corridor and public domain works to maximise safety of all users. Provide clear delineation of hazardous areas or elements and design to mitigate safety risks. Provide safe crossings for pedestrians, cyclists and motorists with routes for each mode of transport clearly identifiable. Ensure sight lines of light rail drivers, pedestrians, cyclists and motorists have been considered in the design of the public domain.

**Provide a sustainable public domain**

Provide a sustainable public domain

Demonstrate best practice in sustainable design and construction outcomes and achieve both TfNSW’s sustainability requirements and the ISCA requirements for sustainable urban and landscape design integrated with public transport systems. Consider demolition, construction and maintenance activities that will minimise impacts on the environment.

**Integrate with, protect and enhance the existing urban context**

Integrate with, protect and enhance the existing urban context

Integrate Light Rail Infrastructure into existing parklands via mounding, screening and planting to minimise adverse visual impacts, whilst providing connected, accessible shared paths through the park along key pedestrian desire lines.

**Create legible and coherent environments**

Create legible and coherent environments

Provide comfortable environments that provide shade, shelter and resting points, options for accessible seating, and protection from rain. Design stops and surrounds to ensure ease of access to and from the platforms and light rail vehicles. Provide easy to use environments that are clutter free, safe and maximise the consistent use of materials and components.

**Provide equal access for all users**

Provide equal access for all users throughout the public domain and light rail stops. Ensure that all stops are accessible to all, that movement on and off vehicles is seamless and that all users are aware of the edge of the light rail vehicle zone (or DKE).

**Lasting simplicity and coherence**

Lasting simplicity and coherence

Ensure a consistent identity and coherence through modern, minimal, elegant and functional design. Enhance existing character through new tree and under-story planting. Choose hard public domain materials to relate to surrounding context.

**Ensure safety of all users within the light rail corridor**

Ensure safety of all users within the light rail corridor

Design the light rail corridor and public domain works to maximise safety of all users. Provide clear delineation of hazardous areas or elements and design to mitigate safety risks. Provide safe crossings for pedestrians, cyclists and motorists with routes for each mode of transport clearly identifiable. Ensure sight lines of light rail drivers, pedestrians, cyclists and motorists have been considered in the design of the public domain.

**Provide a sustainable public domain**

Provide a sustainable public domain

Demonstrate best practice in sustainable design and construction outcomes and achieve both TfNSW’s sustainability requirements and the ISCA requirements for sustainable urban and landscape design integrated with public transport systems. Consider demolition, construction and maintenance activities that will minimise impacts on the environment.

**Integrate with, protect and enhance the existing urban context**

Integrate with, protect and enhance the existing urban context

Integrate Light Rail Infrastructure into existing parklands via mounding, screening and planting to minimise adverse visual impacts, whilst providing connected, accessible shared paths through the park along key pedestrian desire lines.

**Create legible and coherent environments**

Create legible and coherent environments

Provide comfortable environments that provide shade, shelter and resting points, options for accessible seating, and protection from rain. Design stops and surrounds to ensure ease of access to and from the platforms and light rail vehicles. Provide easy to use environments that are clutter free, safe and maximise the consistent use of materials and components.

**Provide equal access for all users**

Provide equal access for all users throughout the public domain and light rail stops. Ensure that all stops are accessible to all, that movement on and off vehicles is seamless and that all users are aware of the edge of the light rail vehicle zone (or DKE).

**Lasting simplicity and coherence**

Lasting simplicity and coherence

Ensure a consistent identity and coherence through modern, minimal, elegant and functional design. Enhance existing character through new tree and under-story planting. Choose hard public domain materials to relate to surrounding context.

**Ensure safety of all users within the light rail corridor**

Ensure safety of all users within the light rail corridor

Design the light rail corridor and public domain works to maximise safety of all users. Provide clear delineation of hazardous areas or elements and design to mitigate safety risks. Provide safe crossings for pedestrians, cyclists and motorists with routes for each mode of transport clearly identifiable. Ensure sight lines of light rail drivers, pedestrians, cyclists and motorists have been considered in the design of the public domain.

**Provide a sustainable public domain**

Provide a sustainable public domain

Demonstrate best practice in sustainable design and construction outcomes and achieve both TfNSW’s sustainability requirements and the ISCA requirements for sustainable urban and landscape design integrated with public transport systems. Consider demolition, construction and maintenance activities that will minimise impacts on the environment.
4 Contextual Analysis
Land Use and Zoning

The Surry Hills Precinct comprises of two key zones. The western zone between Central Station and South Dowling Street characterised by a combination of low - high density residential neighbourhoods and mixed use / commercial areas, with small to medium areas of public and private recreational space. And the eastern zone, between South Dowling Street and Lang Road, comprising of large areas of public recreation and key infrastructure and entertainment facilities.

The CSELR has direct interface with Central Station, a key transport hub, Moore Park, a significant publicly accessible parkland (zoned RE1 Public Recreation) and the facilities within Moore Park including the Sydney Cricket Ground, Allianz Stadium, Fox Studios, The Hordern Pavilion, The Royal Hall of Industries and the Entertainment Quarter.

The CSELR also interfaces with institutions along Anzac Parade, including Sydney Boys High and Sydney Girls High. The CSELR will provide service to a large number of commuters to and from Central Station to Moore Park facilities as well as to school students.
Transport Connections and Routes

The Surry Hills Precinct offers a large range of transport opportunities and connections. The hub surrounding Central Station connects public transport modes including train, bus, coach and light rail services from all over Sydney plus regional and interstate services.

A network of local streets connect to the significant vehicular routes of Anzac Parade, South Dowling Street, Cleveland Street and Moore Park Road which feed much of the vehicular traffic between the CBD and Sydney's south-eastern suburbs and provide key connections to larger cross-city road networks.

There are a range of cycling opportunities, via on-road, separated shared zones or dedicated cycle lanes throughout the precinct.

The proposed pedestrian bridge across South Dowling Street will facilitate more direct access from Surry Hills to the Moore Park area and will cater to pedestrian movement from Central Station to Allianz Stadium and surrounding venues.
Heritage Items

The following listed State and local heritage items along or in the immediate vicinity of the CSELR in Surry Hills have been identified by GML Heritage:

State Heritage Items
- Sydney Terminal and Central Railway Station Group
- Railway Institute Building
- Centennial Parklands, Moore Park and Queens Park

Heritage Conservation Areas

The following Heritage Conservation Areas along or in the immediate vicinity of the CSELR in Surry Hills have been identified by GML Heritage:
- Cleveland Gardens
- Brumby Street
- Little Riley Street
- High Holborn Street
- Bourke Street south
- Moore Park

Public Art

The following existing public art is located within close proximity to the current proposed CSELR route:
1. Painted Murals on existing wall to heavy rail tracks on Chalmers Street
2. Bronze Statues, Ibero American Plaza
3. Mosaic mural in Wimbo Park
4. Sandstone monument in Wimbo Park

Refer to section 8 for Heritage Impact Assessment.
Existing and Proposed Street Trees

Tree species and location mapping in the diagram opposite is informed by the City of Sydney Street Tree Masterplan. Zone S is covered by the Street Tree Masterplan for the entirety of the alignment. The majority of existing street trees within the zone align with the species mapping as shown on the diagram opposite. Existing trees are being retained wherever feasible. Proposed street tree species similarly align with the requirements of the Street Tree Masterplan. Additional species are proposed in Pocket Parks and existing parks along the route to increase diversity and meet specific site requirements. These species have been discussed and agreed with the City of Sydney.
The western side of the Surry Hills precinct has a hilly topography, with a central north-south ridge running along Riley Street. The CSELR route climbs steadily heading south from Central Station. Once the CSELR turns east the steepness of the land form heading to the top of the ridge impacted on the final CSLER route. Once over the ridge the land form slopes down towards South Dowling Street and Moore Park.

The topography is of Moor Park is gently undulating with mounding breaking up the area between South Dowling Street and Anzac Parade. At this point the CSLER route descends into a tunnel, minimising impacts on the park lands.

Further south east, along Anzac Parade the topography remains low lying and gently undulating.
The Surry Hills precinct is defined by four geological types: Hawkesbury Sandstone, Rwa Ashfield Shale, Qhd and Qha.

The Hawkesbury Sandstone Group (Triassic) is comprised of Hawkesbury Sandstone bedrock, a sedimentary rock. The group produces nutrient-poor sandy soils that historically have supported distinct plant communities.

At the western extreme of the precinct the CSELR route travels along the edge of such a zone, bounded by a zone of Ashfield Shale and Qha. Ashfield Shale, part of the Wiannamatta group, produces similarly nutrient-poor soil to Hawkesbury Sandstone. Qha made up of quaternary alluvium is associated with low-lying floodplain areas and river beds. Small areas are located in the west of the precinct.

The Qhd group, also made up of quaternary alluvium, is defined by sand, being remnants of large sand dunes which parts of CoS LGA has been built on. The majority of the CSELR route runs through this group in Zone S.
5 Public Domain Design
The Surry Hills Zone is comprised of three core public domain precincts:

- CBD Traffic Precinct (Eddy Avenue to Chalmers Street intersection);
- Surry Hills Precinct (Chalmers Street / Devonshire Street intersection to the western side of South Dowling Street); and
- Moore Park Precinct (western side of South Dowling Street to Federation Plaza near Lang Road).
1. PLRC with concrete trackform pavement
2. Signalised pedestrian crossings
3. Separated signalised bicycle crossing
4. Planting strip to PLRC edge
5. Existing trees to be retained and protected
6. Elizabeth Street Garden
7. PLRC with concrete unit paver trackform pavement
8. Central Station pedestrian exit - Foveaux Street
9. New coach set-down
10. OCS poles positioned to align with Central Station colonnade as recommended by GML
11. Separated cycleway
CBD Traffic Precinct - Eddy Avenue to Chalmers Street

The CBD Traffic Precinct commences at the intersection of Rawson Place and Pitt Street. At this point the track alignment transitions from the centre of the road to the south to run adjacent to the colonnade of Central Station on Eddy Avenue. Traffic lanes are maintained to the north, with amendments to allow for relocation of the coach stop. The track alignment continues to run adjacent to Central on the southern side of Eddy Avenue, separate from traffic lanes, passing under three existing rail bridges before turning the corner onto Chalmers Street. Chalmers Street has been closed to general traffic, enabling light rail vehicular shunting movements to service daily peak and event use of the island platform at Central Stop. The CBD Traffic Precinct ends at the intersection of Chalmers Street and Devonshire Street at track chainage 20km600.

The precinct is characterised at its western end by heritage listed Central Station and associated infrastructure, the public open space of Belmore Park and busy traffic lanes. On the southern side of Eddy Avenue the trackform is separated from the colonnade in the current design, meaning the glass balustrade proposed in the EIS and Scope and Performance Requirements is no longer required. This area is a transport hub, comprising of bus stops, access to local and regional trains and coach services. High pedestrian volumes are typical throughout the precinct. The public domain is generally quite constrained, with limited street tree planting and pedestrian amenity.

The southern end of the precinct, comprising of Chalmers Street is constrained at each end by the two major entrances to Central Station. This southern area generally comprises of more generous footpath widths, greater numbers of street trees and public spaces adjoining footpath areas. As the track zone turns the corner from Eddy Avenue to Chalmers Street the third event mode track splits from the main up and down lines.

The CBD palette of the City of Sydney Design Code has been applied to the CBD Traffic Precinct. Works generally comprise of upgrade of footpath pavement to granite paving (where impacted by light rail works), retention of existing trachyte kerb and installation of new granite kerb as required. The dark grey granite paving to footpaths will provide colour contrast to the concrete and light grey concrete unit pavers on the...
1. PLRC with concrete trackform pavement
2. Signalised pedestrian crossings
3. Unsignalised pedestrian crossing to stop
4. Mass planting to edge of PLRC
5. Existing trees to be retained and protected
6. Elizabeth Street Garden
7. PLRC with concrete unit paver trackform pavement
8. Central Station pedestrian exit - Foveaux Street
9. Separated cycleway
10. Proposed new trees
11. Ibero-American Plaza
12. Shared zone for authorised access to Dental Hospital
13. Central Stop

All new street trees are proposed to be Platanus acerifolia
Two-Way Bicycle Path Track Zone
Footpath
Park at Corner of Eddy Avenue and Elizabeth Street

track zone. Street furniture is selected from the new City of Sydney range. Resin bonded porous paving is proposed to be installed around existing street trees and tree grates and guards to new trees. All poles will be smartpoles in CBD stainless steel finish, with lighting, catenary wire structures and traffic signals consolidated where possible.

A dedicated cycle crossing connects Belmore Park and the existing shared path on Elizabeth Street to the separated cycle way on the southern side of Eddy Avenue.

Existing street trees (largely *Platanus acerifolia*) have been retained wherever feasible. Opportunities for new street trees are limited due to footpath width constraints and competing uses and requirements. Proposed street trees, *Platanus acerifolia* have been located on the western footpath of Chalmers Street.

A 600mm wide planting strip has been introduced along the corner of Eddy Avenue and Chalmers Street between the footpath and the track zone. In addition to the kerb, the planting strip improves separation between footpath and track zone and assists in deterring pedestrian access to areas surrounding the heavy rail bridge, where restricted LRV sight-lines have been identified.

The horizontal alignment of the track encroaches on the existing turf area and brick wall on the corner of Eddy Avenue and Chalmers Street. This wall is to be realigned in order to maintain existing footpath widths and pedestrian amenity. A new wall is to be constructed to match retained sections of the existing brick wall, with materials to be salvaged and reused where feasible.

The area surrounding the northern exit to Central Station and crossing to Elizabeth Street receives high volumes of pedestrian traffic. The track zone in this area is delineated by a 300mm wide stone kerb, with wide kerb ramps provided at the signalised track crossing point to improve pedestrian amenity. The pedestrian crossing to Elizabeth Street is offset from the light rail track crossing to increase pedestrian storage space on the pavement and decrease conflict between pedestrians and cyclists.

In addition to the planting strip on the western side of the track zone, a fence has been introduced to the median between Elisabeth Street and the separated cycleway. The fence improves cyclist safety, deters pedestrians from entering the track zone and decreases the risk of pedestrians crossing Elizabeth Street in unauthorised locations.
Chalmers Street, previously envisaged as a shared zone is closed to through traffic. Buses and vehicles will be diverted to Randle Street, with limited local vehicle access to a short section of the southern end of Chalmers Street. Modifications are proposed to the existing lift access ramp on the western side of Chalmers Street to reduce the pinch point between ramp and the light rail track alignment. Pedestrian overflow is mitigated by a set of stairs on the northern side of the lift access platform.

Sections of separated cycleway have been incorporated where feasible on the eastern side of Chalmers Street. The cycleway will be delineated by a kerb, separating the path from the surrounding footpath and track zone. Breaks in the separated cycleway occur as required to allow for pedestrian access to the Central Stop and for vehicle access required to the existing Dental Hospital loading bay.

The southern end of Chalmers Street comprises of Ibero-American Plaza, pedestrian footpaths, trackzone and a shared zone. Vehicle access to the shared zone from Elizabeth Street is proposed to be limited to local vehicles only, for access to local businesses and the Dental Hospital. Access for emergency and approved hospital vehicles is proposed from the northern end of the shared zone, along the third track to the existing Dental Hospital loading bay. During event mode it is envisaged that access will not be available to the loading bay.

Ibero-American Plaza is encroached on by the track zone. It is therefore proposed to realign the sandstone plinths and bronze statues in a similar arrangement to existing, set back from the track zone. The plaza will continue to function as a public space. The low height granite wall will be reduced in length to maintain suitable pedestrian circulation space between the plaza and the track zone.

The southern exit from Central Station is also an area of high pedestrian volumes. The public domain has been designed to maximise pedestrian amenity and safety. Kerbs have been introduced along the footpath to improve separation from the track zone. Wide pram ramps are proposed at the signalised crossing to the track to facilitate pedestrian movement. A new signalised crossing to the southern corner of Chalmers Street and Devonshire Street will also improve pedestrian circulation.

Central Stop
Central Stop is located on Chalmers Street and comprises of one side platform (up main) and one island platform (down main and through track). The precinct provides modal interchange between buses, trains and light rail. Both platforms will have canopies. Access to the side platform is provided via a walkway of 1:21 from the north, with flush transition between the rear and the south of the stop and the surrounding public domain. The island platform is accessed at both ends by 1:14 ramps.
1. PLRC with concrete trackform pavement
2. Signalised pedestrian crossings
3. Shared path - pedestrian and cycle access
4. Planting strip to PLRC edge
5. Existing trees to be retained and protected
6. Buckingham Street Pocket Park
7. Devonshire Street Reserve
8. Holt Street Pocket Park
9. Revised vehicular movement on Clisdell Street allows for continuous pedestrian footpath on Devonshire Street and new planting areas
10. Chalmers Lane closure with continuous footpath on Devonshire Street
11. Bike parking within pocket parks

All new street trees are proposed to be Liriodendron tulipifera
Surry Hills Precinct

The Surry Hills Precinct commences at the intersection of Chalmers Street and Devonshire Street at track chainage 20km600 and continues to the western side of South Dowling Street at track chainage 21km650. The precinct is largely characterised by the terraces of Devonshire Street, giving a village character. The streetscape is narrow and in parts steep, however functions as a key desire line connecting Central Station to Moore Park.

From the intersection with Chalmers Street, Devonshire Street will become a traffic-calmed environment, with the light rail track zone on the southern side of the street, and a single eastbound traffic lane on the northern side. Existing side streets have been closed to create pocket parks or are modified to allow for continuous footpath arrangements improving the existing streetscape and pedestrian amenity. The road arrangement changes at the Crown Street intersection, where the track alignment moves into the middle of the road reserve to allow for one eastbound traffic lane and one westbound traffic lane.

Where traffic on Devonshire Street is restricted to one eastbound lane OHWs will be supported by a cantilever Smartpole system, running along the southern side of Devonshire Street. Once past the Crown Street intersection pairs of Smartpoles will be located opposite each other on the footpath. All existing Ausgrid OHWs in Devonshire Street will be under grounded as part of the works. Bronze SC3 Smartpoles will be used in the Surry Hills Precinct.

Public Domain

The village palette of the City of Sydney Design Code has been applied to the Surry Hills Precinct. Works generally comprise of upgrade of footpath pavement to concrete unit pavers along Devonshire Street and reinstatement of existing pavement finishes in side streets (where impacted by light rail works). Existing trachyte and sandstone kerbs are to be retained and reinstated, with infill of new bluestone kerb as required. The dark grey concrete unit paving to the footpaths will provide colour contrast to the light grey concrete of the track zone. Street furniture is selected from the City of Sydney (village) range.

Due to narrow footpath widths, track alignment and offset required to the DKE, all existing street trees are to be removed along the southern kerb of Devonshire Street between Chalmers and Crown Street.

Section 20+700
1:200 @A3

Section 20+820
1:200 @A3

Notes

Proposed trees shown at expected mature size
new pole specifications yet to be determined
1 Central PLRC with concrete trackform pavement
2 Signalised pedestrian crossings
3 Waterloo Street Pocket Park
4 Planting strip to PLRC edge
5 Existing trees to be retained and protected
6 Tree and mass planting to Northcott Estate frontage
7 Revised vehicular crossovers to Devonshire Street allow for continuous pedestrian footpaths
8 Shared path connecting to Ward Park
9 Unsignalised pedestrian crossing
10 Surry Hills Stop
11 Raised Shared Zone
12 Bike Parking

All new street trees are proposed to be Liriodendron tulipifera.
Streets. These same requirements mean that new street trees cannot be planted on the southern side of the street. In order to mitigate the loss of trees, reduce heat island effect and improve separation between the footpath and track zone a 600mm wide planting strip has been introduced along the southern footpath. Options for this planting strip to act as a rain garden are under review.

Existing street trees on the northern side of Devonshire Street are being retained wherever feasible. New street trees, *Liriodendron tulipifera* are proposed where possible along the northern footpath. Discussions with utility providers to confirm minimum requirements have been held in relation to trees in the CBD. The tree planting details and utility protection mechanisms developed as a result of these meetings will be adopted in the Surry Hills precinct.

A suite of pocket parks have been developed along Devonshire Street. All pocket parks (other than Edgely Reserve) act as small urban plazas and provide spaces that are unified by similar materials and distinguished by unique tree species and planting palettes. Each park generally contains paved areas to facilitate numerous uses, encourage social interaction and maintain the community feel of Surry Hills. Some parks will include benches from the CoS furniture range, in addition to informal seating provided by low height walls and steps. It is envisaged that these spaces will develop over time, in response to community uses. As such bespoke furniture and lighting has not been proposed for pocket parks.

Screen planting has been introduced into Waterloo Street pocket park to improve the privacy of the adjoining residence.

Clisdell Street was intended to be converted to a pocket park, however existing steep grades and required traffic movement resulted in this space providing little amenity for pedestrians. Buckingham Street pocket park has been increased in size to compensate for the park area originally intended to be located on Clisdell Street.

Edgely Reserve is an existing public space on Devonshire Street. The park layout remains similar, with minor realignment of the footpath to suit road design. New low planting is proposed under the existing trees to revitalise the area and improve privacy for adjacent residents.

In addition to the planting strip on Devonshire Street, new trees are proposed in the Northcott Estate frontage, as a way to introduce trees to the southern side of the street. Works proposed inside the estate boundary include demolition of existing low brick edge and replacement with low height seating wall with fence behind, replacement of existing lettering.
1. PLRC with concrete trackform pavement
2. Signalised pedestrian crossings
3. High Holborn Street Pocket Park
4. Planting strip to edge of Crown Street
5. Existing trees to be retained and protected - TBC
6. Edgely Reserve Pocket Park
7. Modifications to side street entries allow for continuous pedestrian footpaths to Devonshire Street
8. New street trees
9. Separated Cycleway
10. Raised intersection at Bourke Street
11. PLRC with concrete unit paver finish
12. Shared zone through Wimbo Park
13. Existing stone plinth and mural to be protected / removed during construction and reinstated

All new street trees are proposed to be Lophostemon confertus
Design development of Ward Park has focused on reducing the impact of the Surry Hills Stop on the park frontage. Existing trees have been retained where feasible. Similarly, existing paths have been maintained where possible and regrading works kept to a minimum.

**Surry Hills Stop**
Surry Hills Stop is located on Devonshire Street and comprises of two (2) side platforms. The southern platform (up main) is integrated into the footpath adjoining Ward Park, a 1:25 walkway provides access from the west, and a 1:21 walkway provides access from the east. The rear of the stop is flush with surrounding footpath levels for the length of the platform. The northern platform (down main), bound by the eastbound traffic lane is accessible at each end by 1:14 ramps.

Road and track levels have been revised since stage 1 and a raised intersection surrounds the stop. This allows for at grade access from the northern footpath across the calmed east bound traffic lane, to the northern platform. Grade separation is reintroduced on the southern side of the track zone, creating separation between the footpath and the track.

Due to the restricted width of Devonshire Street the Surry Hills platforms have been reduced to three (3) meters wide. This allows for realignment of the road lane to the south, increases the width of the northern footpath and may allow for retention of additional trees.

Despite this reduction in platform width the area available for pedestrian crossings is limited. A staggered crossing layout has been developed to maximise pedestrian circulation space.

**Devonshire Street East**
Hearse access to St Peter’s Catholic Church forecourt has been provided from Marlborough Street. Amendments to existing walls and garden beds are required to facilitate the new vehicular access. Pedestrian access is maintained to the Presbytery building and new parking areas via a ramp and a separate stair from Devonshire Street.

At the narrowest point in front of St Peters Church, footpath width is 1787mm from face of kerb to the existing brick wall. Pole placement along this section of Devonshire Street is under review, with set out targeting to achieve maximum footpath widths within project design requirements. The vertical kerb alignment along the southern footpath has been reviewed and lifted during Stage 2 design development, ensuring grade separation between footpath and track.
Due to required track and road levels at the intersection of Crown and Devonshire Street the footpath level is lower than the proposed road level. Planting strips have been introduced to mitigate level changes as far as possible.

Existing street trees east of Crown Street will be retained unless impacted by OHW pole locations or required kerb realignment works. New trees (Lophostemon confertus) will be planted where feasible. Tree numbers are to be confirmed during Stage 3.

The vertical track alignment at the intersection of Devonshire Street and Bourke Street has been revised during stage 2 and lifted to mitigate flooding issues in Wimbo Park and Olivia Gardens. The intersection at Bourke Street is now a flush, traffic calmed environment.

Significant trees in Wimbo Park identified to be removed in the Arboricultural Impact Assessment are under review, with the aim of retaining if feasible. Construction methodology and location of vehicle access at the entry to the shared zone is similarly undergoing review to assist with tree retention.

A 5m wide shared path links the plaza space at Bourke Street to South Dowling Street. Low planting next to the path provides separation to the track zone. Turf will be installed over deep soil areas for the remainder of the Olivia Gardens site. The design and construction of additional elements in Wimbo Park will be carried out by the City of Sydney.

At the eastern end of the park, a retaining wall and fence will be installed to the Langton Centre boundary to mitigate level changes as the track grades to meet South Dowling Street. The large fig tree within the Langton Centre cannot be retained due to its proximity to the track zone and location in relation to the proposed shared path and pedestrian crossing connecting to the Eastern Distributer Bridge.

Twenty-five (25) parking spaces have been provided on Nobbs Lane in line with project requirements.
1. PLRC with concrete trackform pavement
2. Signalised pedestrian crossings
3. Wimbo Park
4. Shared path connecting Surry Hills to Eastern Distributer bridge
5. Existing trees to be retained and protected
6. Buffer planting to track zone edges
7. Eastern Distributer Bridge
8. New trees (species TBC)
9. Asphalt shared path through Moore Park, connecting to Tibby Cotter Bridge
10. Western Portal
11. Moore Park Substation
12. Mounding and mass planting around substation to minimise visual impact on park and discourage pedestrian access
13. Existing amenities block to be retained
14. Indicative new Ficus macrophylla as per CPMFT preferred planting locations.
Section Moore Park West
1:200 @A3

Elevation Moore Park West
1:200 @A3

Notes
- Proposed trees shown at expected mature size
- New pole specifications yet to be determined
Moore Park Precinct

The Moore Park Precinct commences at the western side of South Dowling Street and continues to the eastern side of Anzac Parade, including the western tunnel portal, pathway to Albert Tibby Cotter footbridge and adjacent playing fields. The Eastern Distributor Bridge comprises of trackzone and shared path which is significantly wider than other bridging structures over the Eastern Distributor. This width at ground level will strengthen the visual and physical connections between Surry Hills and Moore Park. The shared path over the bridge links into the path to Albert Tibby Cotter Bridge on the eastern side and to Devonshire Street (through Wimbo Park) on the western side, creating a direct pedestrian connection from Central Station to the Entertainment precinct.

Public Domain

The Moore Park Precinct is dominated by open parkland settings with the sports stadia and the Entertainment Quarter set back from the light rail alignment. Moore Park, Centennial Parklands and the Entertainment Quarter provide amenity for social activities, sporting events, training, and entertainment.

Moore Park West

Moore Park West is defined as the area between South Dowling Street and the western side of Anzac Parade, including the western tunnel portal, pathway to Albert Tibby Cotter footbridge and adjacent playing fields. The Eastern Distributor Bridge comprises of trackzone and a shared path which is significantly wider than other bridging structures over the Eastern Distributor. This width at ground level will strengthen the visual and physical connections between Surry Hills and Moore Park. The shared path over the bridge links into the path to Albert Tibby Cotter Bridge on the eastern side and to Devonshire Street (through Wimbo Park) on the western side, creating a direct pedestrian connection from Central Station to the Entertainment precinct.

At EIS stage the scale of substations was unconfirmed and it was expected that the Moore Park Substation would be located in Wimbo Park. Design development has resulted in the substations being larger structures, with the Moore Park substation being located adjacent to and integrated with the tunnel portal. As part of this process, infrastructure previously proposed at the Eastern Portal has been consolidated to the western side to reduce the overall impact on the parklands and Tramway Oval.

The substation is located on the northern edge of the portal structure, integrated into the landscape with mounding. A planted roof and substantial surrounding planting softens the elevation to South Dowling Street. Aluminium battens in a bronze finish clad the facade of the substation building and wrap into the portal entry. The battens further reduce the visual impact of both the substation and tunnel structures and tie into the materials and finishes palette used on the Eastern Distributor Bridge and surrounding light rail infrastructure. Hardstand access for maintenance and emergency vehicles is provided off South Dowling Street southbound lanes.

Work is underway to integrate OHW poles and throw screens with the battens and portal structure.
1. Moore Park tunnel
2. Eastern portal
3. Mass planting around eastern portal
4. PLRC with concrete trackform pavement
5. Asphalt shared path through Moore Park, connecting to Albert Tibby Cotter Bridge
6. Existing trees to be retained and protected
7. Existing busway
8. Existing shared path along Anzac Parade retained
9. Indicative new Ficus as per CPNPT preferred planting locations.
1. Eastern portal with safety screen
2. Mass planting around eastern portal
3. PLRC with concrete trackform pavement
4. Existing busway
5. Existing trees to be retained and protected
6. Moore Park Stop
7. Unsignalised pedestrian crossing
8. Anzac Parade Pedestrian bridge
9. Existing shared path along Anzac parade retained
10. Existing signalised crossing removed
11. Shared path (asphalt) connecting Moore-Park Stop to Stadium Precinct
12. Event mode marshalling area
13. Existing amenities block to be retained
14. Indicative new Ficus as per CPMPT preferred planting locations.
15. Bike parking

A. Area currently under review for relocation and under-grounding of OCC and Staff Facilities Building
A single DDA compliant, 6m wide asphalt shared path connects South Dowling Street to Albert Tiley Cotter footbridge, passing through Moore Park West between existing playing fields. The existing toilet facilities in Moore Park West are retained and accessible from this path. Pole top lighting lines one side of the path. Lights and poles are proposed to be black to minimise visual impact.

Proposed planting around the substation and along the shared path is sensitive to the parkland character and acts as a deterrent to pedestrians trying to access the top of the portal and substation structure. Existing sandstone retaining walls along the perimeter edge of South Dowling Street are retained where possible, with new sections of wall proposed to match existing.

Moore Park East

Moore Park East is defined as the corridor between the eastern side of Anzac Parade (including the eastern tunnel portal), Tramway Oval and Moore Park Stop. Zone S extends to Federation Place to the south of Lang Road, before transitioning to Zone R for the remainder of CPMPT land.

The eastern tunnel portal sits in close proximity to Tramway Oval. Permanent works do not impact on the training oval, where turf will be made good to match existing.

In order to facilitate tunnel construction a diversion is required to Anzac Parade. Some existing fig trees have been removed to facilitate this diversion. Once Anzac Parade has been returned to its alignment new trees will be planted in the resulting spaces in the Avenue. Exact locations are to be agreed with CPMPT.

The public domain design around Moore Park Stop has evolved in consultation with CPMPT and provides one 6m wide path from the marshalling area at the back of the stop, through the park to meet the existing plaza outside the SCG. Path material will be asphaltic concrete to match existing paths.

Existing trees have been retained as a priority. Lighting will be provided along the path, with path connection to existing amenities maintained. A path is also provided from the eastern end of the stop, connecting to Lang Road.

Existing porphyry cobbles in Federation Place is to be retained and reinstated in areas disturbed by the works. Similarly the existing fence on the eastern side of the plaza is to be retained and reinstated in alignment with the light rail track.
5 Public Domain Design

1 Moore Park Stop
2 PLRC with concrete trackform pavement
3 Existing busway
4 Existing trees to be retained and protected
5 Underpass for use during event mode
6 Event mode marshalling area
7 Proposed new trees Araucaria heterophylla
8 Asphalt path connecting Moore Park Stop to Lang Road
9 Signalised pedestrian crossing
10 Bus set-down
11 Bike Parking
A pedestrian bridge links the western footpath of Anzac Parade to the island platform of Moore Park Stop and the marshalling area. The bridge includes two lifts, one servicing the western footpath of Anzac Parade and one servicing the marshalling area adjoining the stop. The introduction of lifts removed the need for large ramping structures, significantly reducing the visual impact of the bridge. Proposed bridge materials match those of other elements along the light rail alignment, including mesh throw screens and bronze framing elements.

The location of the bridge requires one additional fig tree to be removed on Anzac Parade.

The OCC building has been relocated since the stage 2 submission, and is proposed to be located underground, under the pedestrian bridge at the northern end of the stop.

Existing safety fencing along the busway will be retained and reinstated where impacted on. The existing mid-block signalised pedestrian crossing on Anzac Parade will be removed following construction of the bridge, with infill fencing installed to the busway edge.

Moore Park Stop

The stop comprises of one island platform, accessible via 1:14 ramp and pedestrian bridge stair at the northern end and via underpass at the southern end (during event mode only). A large marshalling space is allocated to the east of the stop to facilitate pedestrian numbers during event mode. The marshalling area is separated from the track zone by a fence, running from the northern crossing point to the southern entry to the underpass. During normal operations passengers access the stop by crossing the tracks at the northern end of the marshalling area. During event mode gates at the northern crossing will be closed, restricting general access to the track zone. General access to the platform will be via the underpass at the southern end of the stop. Marshalls will provide controlled disabled and pram access across the track zone at the northern end in this mode.

New tree plantings are proposed to the eastern side of the marshalling area, with final location and species to be agreed with CPMPT.

As per project requirements five (5) bicycle hoops, providing ten (10) bike parking spaces have been provided to the eastern side of the marshalling area adjoining the path to Lang Road.
Public Domain Elements and Maintenance

Public domain elements have been selected in accordance with SPR Appendix 14 and meet the required design criteria. All elements have been selected in accordance with the project specific design life requirements as outlined in SPR Appendix 47. Street furniture selected is consistent with the City of Sydney's Sydney Streets Code. Materials have also been selected and assessed with the following considerations:

Paving and hardscape materiality must:
- Be high quality, achieving appropriate aesthetics for the project and precinct
- Vary in scale, texture and/or tone to assist with definition of spaces
- Be robust, and able to withstand vigorous cleaning
- Comply with slip resistance standards
- Be in sizes and patterns that facilitate ease of laying and replacement

Street furniture must:
- Incorporate DDA requirements
- Be robust and able to withstand vigorous cleaning

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Use</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PV2</td>
<td>In-situ Concrete</td>
<td>Light Rail corridor trackzone slab</td>
<td>Vehicular grade</td>
</tr>
<tr>
<td>PV3</td>
<td>In-situ Concrete</td>
<td>Pedestrian footpaths and shared cycle paths</td>
<td>Pedestrian grade</td>
</tr>
<tr>
<td>PV7</td>
<td>Asphaltic Concrete</td>
<td>Footpaths in Moore Park area</td>
<td>Pedestrian grade</td>
</tr>
<tr>
<td>PV25</td>
<td>Concrete Unit Pavers</td>
<td>Pedestrian Crossings</td>
<td>Interlocking – Vehicular Grade</td>
</tr>
<tr>
<td>PV24</td>
<td>Cos Concrete Unit Pavers</td>
<td>Surry Hills footways</td>
<td>Pedestrian Grade</td>
</tr>
<tr>
<td>PV26</td>
<td>Brick Paving</td>
<td>To match existing Ward Park On Grade. Recycled.</td>
<td></td>
</tr>
<tr>
<td>PV12</td>
<td>Cos Granite Paving - Austral Black</td>
<td>Eddy Avenue + Chalmers Street Footpaths</td>
<td>Pedestrian Grade</td>
</tr>
<tr>
<td>PV21</td>
<td>Asphaltic Concrete</td>
<td>Shared Paths Moore Park</td>
<td>Vehicular Grade</td>
</tr>
<tr>
<td>PV20</td>
<td>Cycleway Finish</td>
<td>Chalmers Street separated cycleway</td>
<td>Green Paint</td>
</tr>
<tr>
<td>PV10</td>
<td>CoS Concrete Unit Pavers</td>
<td>Surry Hills footways</td>
<td>Vehicular Grade</td>
</tr>
</tbody>
</table>

CBD and South-East Light Rail | Urban Design and Landscape Plan | Surry Hills Zone | 47
<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Use</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BL2.2</td>
<td>Bollard Type 2.2</td>
<td>Throughout public domain</td>
<td>Bronze fixed bollard, subsurface fixing (CoS Standard)</td>
</tr>
<tr>
<td>BL3</td>
<td>Bollard Type 3</td>
<td>Central station entry</td>
<td>300mm diameter Stainless steel LEDA SP1200 or approved equivalent</td>
</tr>
<tr>
<td>TG1</td>
<td>Tree Grate and Guard</td>
<td>CBD traffic zone</td>
<td>Stainless steel grate with silver powdercoated tree guard</td>
</tr>
<tr>
<td>B2.2</td>
<td>Bench Type 2.2</td>
<td>Surry Hills</td>
<td>Timber bench with backrest, bronze powdercoated armrests and frame</td>
</tr>
<tr>
<td>RB2.1</td>
<td>Rubbish Bin Type 2.1</td>
<td>Throughout public domain</td>
<td>Bronze powdercoated finish with polished stainless steel hood</td>
</tr>
<tr>
<td>FE1</td>
<td>Fence Type 1</td>
<td>Safety fence to busways to match existing in Moore Park</td>
<td>1.5m height aluminium fence, black finish</td>
</tr>
<tr>
<td>FE2</td>
<td>Fence Type 2</td>
<td>RMS standard safety fence to median/roadway</td>
<td>1.2 - 1.5m height, galvanised steel</td>
</tr>
<tr>
<td>FE6</td>
<td>Fence Type 6</td>
<td></td>
<td>1.2m Height Stainless Steel Fence</td>
</tr>
<tr>
<td>FE9</td>
<td>Fence Type 9</td>
<td>Northcott Estate</td>
<td>Stainless Steel handrail to ramps as required</td>
</tr>
<tr>
<td>HR1</td>
<td>Handrail Type 1</td>
<td></td>
<td>Stainless Steel Handrail</td>
</tr>
<tr>
<td>W6</td>
<td>Brick retaining wall</td>
<td>Ward Park</td>
<td>To match existing</td>
</tr>
<tr>
<td>W7</td>
<td>Sandstone Wall</td>
<td>Moore Park West</td>
<td>Sandstone wall to match existing</td>
</tr>
</tbody>
</table>

Public Domain Elements and Maintenance
### Performance Levels

As per Schedule 5 of the City of Sydney Third Party Agreement, cleaning of the Permanent Light Rail Corridor must:
(a) at all Stops meet Performance Level 3; and
(b) in all other areas meet Performance Level 2,

at 5am each morning, or at the commencement of Light Rail operations for the day, whichever is earlier, unless stated otherwise in this Schedule.

All stops must meet Performance Level 2 at all other times.

The requirements for performance levels 2 and 3 are set out in the adjacent table.

---

#### Cleaning Actions

**Flushing**

Stops must be flushed or hosed at least once every week.

**Steam Cleaning**

Stops must be steam cleaned at least twice per year.

**Trackway Stormwater Gullies**

TfNSW must conduct six monthly educating and cleaning of gullies in the Permanent Light Rail Corridor, including the removal of debris from around pit covers, grates and lintels to ensure clear flow of stormwater from the Permanent Light Rail Corridor, roadways and footpaths.

**Special Events**

After daytime events, including Anzac Day marches, St Patrick’s Day, Chinese New Year and the like, TfNSW must clean streets utilised by the events within 2 hours of the passing of the last part of the parade, if applicable, or conclusion of the event.

---

#### Performance Levels

<table>
<thead>
<tr>
<th>Litter</th>
<th>Performance Level 3</th>
<th>Performance Level 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>- A build-up of no more than one day’s estimated leaf fall;</td>
<td>- A build-up of no more than one day’s estimated leaf fall;</td>
<td></td>
</tr>
<tr>
<td>- No broken glass;</td>
<td>- No broken glass;</td>
<td></td>
</tr>
<tr>
<td>- No build-up of silt, grit, gravel or similar material along building alignments or gutters;</td>
<td>- No build-up of silt, grit, gravel or similar material along building alignments or gutters; and</td>
<td></td>
</tr>
<tr>
<td>- No more than 2 items of litter within 10 lineal metres of Permanent Light Rail Corridor, excluding Stops; and</td>
<td>- No more than 4 items of litter within 10 lineal metres of Permanent Light Rail Corridor, excluding Stops.</td>
<td></td>
</tr>
<tr>
<td>- No items of litter at Stops.</td>
<td>- No items of litter at Stops.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Steam Cleaning</th>
<th>Performance Level 3</th>
<th>Performance Level 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>- No residual build-up of litter at Stops.</td>
<td>- Not applicable.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Posters</th>
<th>Performance Level 3</th>
<th>Performance Level 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>- None at Stops.</td>
<td>- Not applicable.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Graffiti</th>
<th>Performance Level 3</th>
<th>Performance Level 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>- No graffiti that is more than 24 hours old that in TfNSW’s and the City’s opinion is able to be removed by use of high pressure steam cleaning.</td>
<td>- No graffiti that is more than 24 hours old that in TfNSW’s and the City’s opinion is able to be removed by use of high pressure steam cleaning.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stormwater gullies in Permanent Light Rail Corridor</th>
<th>Performance Level 3</th>
<th>Performance Level 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>- The level of litter and other material not to exceed more than half the depth of the gully.</td>
<td>- The level of litter and other material not to exceed more than half the depth of the gully.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Litter bins / recycling bins / cigarette ash cylinders</th>
<th>Performance Level 3</th>
<th>Performance Level 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Not applicable.</td>
<td>- Not applicable.</td>
<td></td>
</tr>
</tbody>
</table>
### 1.2 Maintenance Intervention Levels

The following table summarises general maintenance actions required along the PLRC.

<table>
<thead>
<tr>
<th>Asset</th>
<th>Type</th>
<th>Issue</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pavements</td>
<td>Cracks/Gaps</td>
<td>Cracks/Gaps exceed 20mm width</td>
<td></td>
</tr>
<tr>
<td>Pavements</td>
<td>Depressions</td>
<td>Depressions present a hazard to pedestrians, cyclists or motorists</td>
<td></td>
</tr>
<tr>
<td>Pavements</td>
<td>Potholes</td>
<td>Potholes</td>
<td></td>
</tr>
<tr>
<td>Pavements</td>
<td>Pavers</td>
<td>Loose/rocking pavers</td>
<td></td>
</tr>
<tr>
<td>Pavements</td>
<td>Tree root heaving</td>
<td>Trip hazard</td>
<td></td>
</tr>
<tr>
<td>Handrails</td>
<td>Safety</td>
<td>Jagged Edges</td>
<td></td>
</tr>
<tr>
<td>Handrails</td>
<td>Safety</td>
<td>Missing Pieces</td>
<td></td>
</tr>
<tr>
<td>Handrails</td>
<td>Stability</td>
<td>Lateral Movement</td>
<td></td>
</tr>
<tr>
<td>Pavements</td>
<td>Cracks/Gaps</td>
<td>Cracks/Gaps exceed 20mm width</td>
<td></td>
</tr>
<tr>
<td>Pavements</td>
<td>Depressions</td>
<td>Depressions present a hazard to pedestrians, cyclists or motorists</td>
<td></td>
</tr>
<tr>
<td>Pavements</td>
<td>Pavers</td>
<td>Loose/rocking pavers</td>
<td></td>
</tr>
<tr>
<td>All</td>
<td>Cracks/Gaps</td>
<td>Cracks indicative of road failure</td>
<td></td>
</tr>
<tr>
<td>All</td>
<td>De-lamination</td>
<td>De-lamination indicative of road failure</td>
<td></td>
</tr>
<tr>
<td>All</td>
<td>Depressions</td>
<td>Depressions present a hazard to pedestrians, cyclists or motorists</td>
<td></td>
</tr>
<tr>
<td>All</td>
<td>Misalignment</td>
<td>Slab settlement of &gt;20mm</td>
<td></td>
</tr>
<tr>
<td>All</td>
<td>Potholes</td>
<td>Potholes</td>
<td></td>
</tr>
<tr>
<td>Stems</td>
<td>Bent</td>
<td>Bent</td>
<td></td>
</tr>
<tr>
<td>Stems</td>
<td>Stability</td>
<td>Unstable</td>
<td></td>
</tr>
<tr>
<td>Signplates</td>
<td>Wording</td>
<td>Out-of Date of Incomplete</td>
<td></td>
</tr>
<tr>
<td>Signplates</td>
<td>Legible</td>
<td>Fails to convey intended message</td>
<td></td>
</tr>
<tr>
<td>Signplates</td>
<td>Street Signs</td>
<td>Missing</td>
<td></td>
</tr>
<tr>
<td>Signplates</td>
<td>Traffic Signs</td>
<td>Missing</td>
<td></td>
</tr>
</tbody>
</table>
### Rectification Times

The following table outlines the Project’s required rectification times:

<table>
<thead>
<tr>
<th>Category</th>
<th>Definition</th>
<th>Rectification Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urgent</td>
<td>Damaged / Missing Asset Presenting Immediate Danger</td>
<td>1 working day</td>
</tr>
<tr>
<td>High</td>
<td>Damaged / Missing Asset Creating a Hazard in a High Use Area</td>
<td>5 working days</td>
</tr>
<tr>
<td>Medium</td>
<td>Damaged / Missing Asset Creating a Hazard in a Low Use Area</td>
<td>20 working days</td>
</tr>
<tr>
<td>Low</td>
<td>Damaged / Missing Asset NOT Creating a Hazard</td>
<td>60 working days</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Asset</th>
<th>Type</th>
<th>Issue</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signage</td>
<td>Signplates</td>
<td>Damage</td>
<td>Damaged</td>
</tr>
<tr>
<td>Permanent Light Rail Corridor Stormwater</td>
<td>Covers and Grates</td>
<td>Safety</td>
<td>Cover/Grate is missing</td>
</tr>
<tr>
<td>Permanent Light Rail Corridor Stormwater</td>
<td>Grates</td>
<td>Vertical Displacement</td>
<td>Displacement presents a hazard to pedestrians, cyclists or motorists</td>
</tr>
<tr>
<td>Permanent Light Rail Corridor Stormwater</td>
<td>Covers</td>
<td>Vertical Displacement</td>
<td>Displacement presents a hazard to pedestrians, cyclists or motorists</td>
</tr>
<tr>
<td>Permanent Light Rail Corridor Stormwater</td>
<td>Trap Gully</td>
<td>Education</td>
<td>Water trap no longer visible</td>
</tr>
<tr>
<td>Permanent Light Rail Corridor Stormwater</td>
<td>Untrap Gully</td>
<td>Education</td>
<td>Outlet no longer visible</td>
</tr>
</tbody>
</table>
### 1.4 Cleaning & Maintenance Actions

The following table summarises general cleaning actions required along the PLRC. Detailed maintenance requirements are to be included in a Project Maintenance Plan.

<table>
<thead>
<tr>
<th>Cleaning &amp; Maintenance Actions</th>
<th>Tasks</th>
<th>Daily</th>
<th>Weekly</th>
<th>Monthly</th>
<th>Seasonal</th>
<th>As Specified Below</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>Provide required notice to the City of Sydney of any operations that will affect public access or amenity.</td>
<td></td>
<td>As required</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Litter</td>
<td>Remove rubbish and debris</td>
<td>Daily, as required to achieve Performance Levels specified in the CoS Third Party Agreement.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trackway Stormwater Gullies</td>
<td>Inspect and clean gullies, remove debris around pit covers, grates and lintels</td>
<td>As required to achieve Performance Levels specified in the CoS Third Party Agreement.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Special Events</td>
<td>Clean street within two hours of the passing of the last parade or at event conclusion</td>
<td>Within two hours of the passing of the last parade or at event conclusion.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weed Control</td>
<td>Weed as required for all areas (including but not limited to garden beds and pavement areas) to be weed free when observed at monthly intervals.</td>
<td>As required to be weed free at monthly intervals.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mowing &amp; Trimming</td>
<td>Mow and trim lawns to be maintained at 50-70mm height throughout the year</td>
<td>November - March.</td>
<td>Bi-weekly April - October inclusive.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Raking</td>
<td>Rake before mowing, on alternative mowings adopt a north-south and east-west pattern</td>
<td>November - March.</td>
<td>Bi-weekly April - October inclusive.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plants, Trees &amp; Street Trees</td>
<td>Provide required notice to the City of Sydney of the following operations: - Application of herbicides - Application of fertilisers - Watering - Each maintenance visit</td>
<td>As required.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Conduct maintenance visits.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tree pit soil and garden beds shall be fertilised to address any nutrient deficiencies of the existing site soil and/or imported soil mixes, and to promote vigorous growth and rapid establishment.</td>
<td>As per program included in Stage 3 Design Documentation Specification.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A program is to be established as part of the Stage 3 Design Documentation Specification.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Watering and/or monitoring of an irrigation shall be incorporated into the regular maintenance schedule, with the soil moisture content of the tree pits to be maintained at a level to support optimal tree establishment and growth.</td>
<td>As per program included in Stage 3 Design Documentation Specification.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Watering and/or monitoring of an irrigation program is to be established as part of the Stage 3 Design Documentation Specification.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Remove all mulch materials off paved areas, maintaining a clean and tidy appearance daily to achieve Project Performance Levels.</td>
<td>Daily, as required to achieve Performance Levels specified in the CoS Third Party Agreement.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Cleaning & Maintenance Actions

<table>
<thead>
<tr>
<th>Tasks</th>
<th>Timeframes / Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Plants, Trees &amp; Street Trees</strong></td>
<td></td>
</tr>
<tr>
<td>Maintain Project design levels and minimum mulch depths by topping up regularly as required.</td>
<td>As required.</td>
</tr>
<tr>
<td>Remove dead flowers and leaves.</td>
<td>As required.</td>
</tr>
<tr>
<td>Prune shrubs to reflect the natural growth flowering and regrowth habit of the individual species. Prune after flowering.</td>
<td>As required. As required.</td>
</tr>
<tr>
<td>Apply approved pest and disease control, and wash adjacent paving on completion of any herbicide application.</td>
<td>As required.</td>
</tr>
<tr>
<td>Provide inspection results and maintenance procedures through two-monthly reports. Ensure on-going maintenance practices are carried out to the satisfaction of City of Sydney.</td>
<td>Every two months.</td>
</tr>
<tr>
<td>Prune limbs to achieve required operational setbacks for the CSELR.</td>
<td>As required, at least annually.</td>
</tr>
<tr>
<td>Where trees are damaged by TfNSW, or die or fail to maintain vigorous growth typical of the species due to neglect or inadequate maintenance by TfNSW prior to or during the establishment period, TfNSW shall replace, replant and maintain trees of the same species, size and quality. For clarity, TfNSW is not required to replace trees which are damaged or destroyed by third parties, including by vandalism, after planting. TfNSW shall provide 7 days’ notice to City of Sydney of any works to replace trees as part of planting establishment.</td>
<td>As required.</td>
</tr>
<tr>
<td>Replace shrubs, understory plants and grasses that have died or lost 50% of their normal foliage cover.</td>
<td>As required.</td>
</tr>
<tr>
<td><strong>Materials &amp; Finishes</strong></td>
<td></td>
</tr>
<tr>
<td>Repair dips, hollows and irregularities</td>
<td>As required by Project Rectification Times.</td>
</tr>
<tr>
<td>Remove stains and graffiti</td>
<td>As required by Project Rectification Times.</td>
</tr>
<tr>
<td>Replace sections of uplift</td>
<td>As required by Project Rectification Times.</td>
</tr>
<tr>
<td>Clear main pathway drains of debris</td>
<td>As required by Project Rectification Times.</td>
</tr>
<tr>
<td>Test against AS4663</td>
<td>As required by Project Rectification Times.</td>
</tr>
<tr>
<td><strong>Furniture &amp; Fixtures</strong></td>
<td></td>
</tr>
<tr>
<td>Repair or replace damaged items.</td>
<td>As required by Project Rectification Times.</td>
</tr>
<tr>
<td>Repair fencing</td>
<td>As required by Project Rectification Times.</td>
</tr>
<tr>
<td>Apply stains and/or decking oils to timber work, as required by Project Maintenance Manual or manufacturer’s specifications.</td>
<td>As required.</td>
</tr>
<tr>
<td>Repair dips, hollows, irregularities and splinters</td>
<td>As required by Project Rectification Times.</td>
</tr>
<tr>
<td>Plant Name</td>
<td>Location</td>
</tr>
<tr>
<td>----------------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>Ficus macrophylla</td>
<td>Moore Park West</td>
</tr>
<tr>
<td>Corymbia maculata</td>
<td>South Dowling Street</td>
</tr>
<tr>
<td>Tristaniopsis laurina 'Luscious'</td>
<td>Moore Park West (substation hardstand)</td>
</tr>
<tr>
<td>Robinia pseudacacia 'Frisia'</td>
<td>Holt Street Pocket Park</td>
</tr>
<tr>
<td>Syzygium australe</td>
<td>Waterloo Street Pocket Park</td>
</tr>
</tbody>
</table>
**Street Tree Planting**

**Buckinghamia celsissima**

*Ivory Curl Tree*

**Locations:** Northcott Estate

**Notes:**
Native evergreen tree to 10m in height. Dark green glossy leaves, lobed when juvenile, elliptical when mature. Large white to cream flower spikes over summer and autumn.

It requires a reasonably well drained, moist soil and a sunny position.

**Eucalyptus punctata**

*Grey Gum*

**Locations:** Ward Park

**Notes:**
Large native tree growing up to 30m. Bark is of various shades of grey, white and orange, with large sheets shedding to give a patchy appearance. Flowers are white and appear in summer. Very well suited to poor Sydney sandstone soils.

**Harpephyllum caffrum**

*South African Wild Plum*

**Locations:** More Park Stop

**Notes:**
Medium evergreen tree to 10m. The bark is smooth when young, becoming rough, dark grey-brown as it grows older. Branches are curved upwards, with shiny dark green leaves crowded towards the ends, forming a thick crown at the top of the tree. Whitish green flowers throughout summer with plum-like fruits ripening from green to red in autumn.

**Fraxinus pennsylvanica ‘Urbanite’**

*Urbanite Ash*

**Locations:** Northcott Estate

**Notes:**
Medium sized fast growing deciduous tree to 12m tall. Dense green foliage turns deep bronze in autumn. Tolerates a wide range of soil types and conditions including low levels of drought, compaction and urban conditions including air pollution.

**Ulmus parvifolia**

*Chinese Elm*

**Locations:** Devonshire Street Reserve Pocket Park

**Notes:**
A small to medium deciduous, semi-deciduous tree growing to 10m. Leathery, lustrous, small, green single-toothed leaves form a wide canopy. Inconspicuous flowers are produced in early autumn. The trunk has handsome, flaking bark of mottled greys with tans and reds, making it an elegant tree. Hardy landscape tree suitable for plazas, streetscapes and parking lots.
**Street Tree Planting**

- **Jacaranda mimosifolia**
  - Locations: Waterloo Street Pocket Park
  - Notes: Fast growing medium tree to 10m. Sometimes deciduous. Broad canopy with large compound leaves on zigzag branches. Profuse bell shaped lavender flowers in spring and summer, followed by woody seed pods. Prefers most soils in a full sun position, can handle periods of drought.

- **Harpullia pendula**
  - Locations: Buckingham Street Pocket Park
  - Notes: Small to medium native tree to about 6m. Tree has a pleasant form with shapely crown. Bark is grey and scaly, with trunk often irregular in shape. Yellowish green flowers in summer with attractive yellow or red fruit in spring. Enjoys a wide range of conditions, but thrives best in well-draining soils that are also moisture retentive. Drought resistant once established.

- **Lagerstroemia indica ’Natchez’**
  - Locations: Buckingham Street Pocket Park, High Holborn Street Pocket Park
  - Notes: Small deciduous tree to 8m. Vase shaped habit with multi stemmed trunk of exfoliating bark. White flowers in large terminal panicles from mid-summer to autumn. Extremities of branches become pendulous giving a slight weeping effect accentuated by the flowers. Best in moist, well drained soils in full sun.

- **Liriodendron tulipifera**
  - Locations: Devonshire Street west
  - Notes: Fast growing, medium tree to 15m. Ornamental species with unique flowers and foliage. Mid-green leaves are four lobed and up to 20 cm long, with flowers fragrant, greenish-yellow and tulip shaped with orange centres. Flowers in late spring to early summer. Performs best in deep, well drained but moist loam soils in full sun. Tolerates air pollution.

- **Lophostemon confertus**
  - Locations: Devonshire Street east
  - Notes: Native evergreen tree growing to a height and width of 25m x 10m (pyramidal form). The tree tolerates a wide range of soils and is tolerant of drought, frosts and air pollution. Responds well to pruning and is generally free of any serious pests or diseases. Good street tree or modest sized tree for parks. Fast growth rate.
Trees will be installed at sizes of 200L, in accordance with Clause 8.7.2 (d) of SPR Appendix 14.

**Typical Tree Growth**

*Angophora costata* and *Populus simonii*

---

**June 2014 - 200L size at installation**

Installed at 200L size in Glebe.

**August 2015**

Growth during the first 12 months following installation occurs mostly in the root ball, with moderate canopy growth.

**March 2016**

Growth during the following 12 months is more vigorous, with both the canopy and root ball growing significantly.

**Proposed Street Trees**

Examples of 200L specimens

- *Ficus sp.*
  - Proposed for South Dowling Street and Moore Park
- *Platanus sp.*
  - Proposed for Chalmers Street
Asplenium australasicum
Crow's Nest Fern

Large growing fern with a rosette of large yellow-green fronds. Prefers full sun to light shade with damp soil and good drainage.
Native - 0.9 - 1.5mH x 2.0 - 3.5mW

Duranta repens ‘Sheena’s Gold’

Fast growing large evergreen shrub with dense golden foliage in full sun. Good as screen or wind break. Will tolerate enriched sandy soils and is drought tolerant once established.
Exotic - 0.6 - 0.75mH x 0.6 - 0.9mW

Coleonema pulchrum ‘Sunset Gold’

Spreading evergreen shrub with needle-like soft yellowish-green foliage and pale-pink flowers that appear from winter to spring. Grows in full sun to light shade and requires good drainage.
Exotic - 10.6 - 0.75mH x 0.6 - 0.9mW

Hedera helix
English Ivy

Woody climbing or creeping vine with aerial roots along the stems. Leaves are pear-shaped, dark green, waxy/leathery and hairless. The upper surface of each leaf is darker than the lower and leaves are variable in shape. Flowers are small and greenish. Fruit is a drupe, 5-10mm in diameter and dull blue to black when ripe.
Exotic - vine to 20m

Lomandra longifolia ‘Tanika’

Extremely hardy evergreen shrub with slender green foliage which develops to an arching to weeping habit with age. Full sun to moderate shade. Tolerates frost and drought. Low maintenance. Suits sandy, sandy loam to clay soils.
Native - 0.6mH x 0.6mW

Phormium tenax
New Zealand Flax

Large evergreen shrub with striking fans of strap-like olive green leaves. Produces panicles of flowers on tall branched flower stems in summer.
Exotic - 1.5 - 3mH x 1.2 - 2.0mW

Cordyline australis

An erect, palm-like plant with long, green, sword-like leaves and large heads of scented, creamy white flowers in spring. Fast growing, hardy plant forming a multi branched crown.
Exotic - 5-10mH x 2.0 - 3.5mW

Clivia miniata
New Zealand Flax

Dark green strap-like leaves with vibrant orange trumpet flowers in Spring. Extremely tough in dry conditions once established. Exotic, low maintenance.
Exotic - 0.5m H x 0.5m W.

Viola hederacea
Native Violet

Creeping, evergreen perennial groundcover which spreads widely by means of trailing stolons that root at the nodes. The leaves are kidney shaped and bright green in colour. The purple and white flowers appear mainly in the summer, with spot flowering throughout the year. Prefers a cool, shady position with moist soil.
Native - 0.3mH x 1.2 - 2.0mW

Arthropodium cirratum

Renga Renga Lily

Herbaceous perennial plant with long strap-like leaves and flower stalks bearing masses of white small star shaped flowers. Clump forming plant which thrives in filtered sun to part shade and is very tolerant of dry conditions.
Exotic - 0.90 - 1.50mH x 0.3 - 0.6mW
### Understory Planting

<table>
<thead>
<tr>
<th>Name</th>
<th>Variety/Mix</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doryanthes excelsa</td>
<td>Gymea Lily, Giant Lily</td>
<td>Large clumping plant with numerous sword-like fibrous leaves. Red, trumpet-like flowers are borne in a compact terminal head on a leafy flowering stem 2-4 m high in spring. Requires well-drained, deep soil, in full sun or partial shade. Native - 1.5 - 3mH x 1.2 - 2.0mW</td>
</tr>
<tr>
<td>Fatsia japonica</td>
<td>Japanese Aralia</td>
<td>Medium sized evergreen shrub with shiny, spirally arranged large lobed leaves. Flowers are small and white in late autumn or early winter, followed by small black fruit. Prefers full sun to partial shade. Exotic - 1.5 - 3mH x 0.9 - 1.2mW</td>
</tr>
<tr>
<td>Imperata cylindrica</td>
<td>Blady Grass</td>
<td>Perennial rhizomatous grass. Leaves are about 2 cm wide near the base of the plant and narrow to a sharp point at the top. Erect habit with white fluffy inflorescence mainly during summer. Native - 0.9 - 1.5mH x 0.3 - 0.6mW</td>
</tr>
<tr>
<td>Goodenia ovata ‘Gold Cover’</td>
<td>Gold Cover</td>
<td>Evergreen densely foliaged perennial ground cover which forms compact mounds. Fast growing with yellow flowers in spring summer and autumn. Full sun to part shade in well drained soil. Drought tolerant. Native - 0.45 - 0.60mH x 1.2 - 2.0mW</td>
</tr>
<tr>
<td>Dianella revoluta</td>
<td>Spreading Flax Lily</td>
<td>Erect, hairless, perennial herb, forming clumps and growing from rhizomes underground. Flowers from spring to summer and has deep blue to purple inflorescences. The flowers stalks rise on wiry stems from the foliage, followed by blue to purple fruit. Prefers part to full shade. Hardy. Native - 0.75 - 0.9mH x 0.3 - 0.6mW</td>
</tr>
<tr>
<td>Lomandra Hystrix ‘LHCOM’</td>
<td>Tropic Belle</td>
<td>Hardy, semi compact cultivar of Lomandra hystrix with upright to slightly arching lime green foliage. Cream flowers in spring and summer. Will grow in full sun to 90% shade and is tolerant of wet and dry conditions. Native - 0.7m - 1mH x 0.8 - 0.9mW</td>
</tr>
<tr>
<td>Dianella caerulea ‘DC101’ Little jess</td>
<td>Little Jess</td>
<td>Dwarf, clumping growth habit with short upright canes. Purple flowers in spring. Full sun to heavy shade in a variety of soils. Very drought tolerant. Native - 0.7mH x 0.4mW</td>
</tr>
<tr>
<td>Agapanthus orientalis ‘Blue’</td>
<td>African Lily</td>
<td>Long, strap-like, fleshy leaved shrub that forms dense clumps. Heads of blue bell-shaped tubular flowers on tall stems appear in summer and throughout warmer months. Drought and poor soil tolerant best suited to sunny or part shade positions with well drained soil. Exotic - 0.75 - 0.9mH x 0.3 - 0.6mW</td>
</tr>
<tr>
<td>Agapanthus orientalis ‘White’</td>
<td>African Lily</td>
<td>Long, strap-like, fleshy leaved shrub that forms dense clumps. Heads of white bell-shaped tubular flowers on tall stems appear in summer and throughout warmer months. Drought and poor soil tolerant best suited to sunny or part shade positions with well drained soil. Exotic - 0.75 - 0.9mH x 0.3 - 0.6mW</td>
</tr>
<tr>
<td>Rhaphiolepis indica</td>
<td>Oriental Pearl</td>
<td>Tough glossy dark green foliaged shrub with a rounded habit. Masses of white flowers appear in Spring through to Autumn. Low growing, tolerates heat, frost and salt spray. Low water requirements and low maintenance. Full sun - part shade. Exotic - 0.75mH x 0.5mW</td>
</tr>
<tr>
<td>Callistemon viminalis ‘LJ23’</td>
<td>Green John</td>
<td>Small red brushes above fresh lime-green new growth which matures to rich green shades. Establishes quickly. Height is dependent on growing conditions. Plants will remain more compact in dry climates. Prefers a full sun to part shade position. Low water and low to moderate maintenance requirements. Native - 0.75mH x 0.5mW</td>
</tr>
</tbody>
</table>
**Understory Planting**

**Westringia mundi**
*Coastal Rosemary*

Low growing ground cover with masses of white flowers in spring and summer. Leaves are small and grey-green, growing in whorls around stems. Tough, low maintenance plant, suits full sun to part shade in sandy to well drained clay soils. Tolerates cold and drought once established.

Native - 0.4mH x 0.7mW

---

**Carissa ‘Desert Star’**
*Natal Plum*

Attractive and neat in habit with dense thick foliage with small thorns. Tough, evergreen leaves and arching habit gives it an attractive, graceful appeal. Snowy white flowers spikes in spring and autumn. Tolerant of high heat and dry spells, heavy frost, salt-laden air, and occasional flooding.

Native - 0.75mH x 0.9mW

---

**Callistemon ‘Better John’**
*Dwarf Callistemon*

Small shrub with blue-green mature foliage. New foliage has silver tones due to soft hairy texture. Small red flowers in spring. Full sun to part shade. Suits sandy to well drained soils. Tolerates drought and cold.

Native - 1.2mH x 0.6mW

---

**Eriostemon australasius**
*Pink Wax-flower*

Small shrub with fairly stiff and upright habit of growth. The leaves are narrow, oblong in shape and greyish-green in colour. Waxy, pale to mid pink flowers from late winter through to late spring. Flowering is usually profuse and often spectacular. Best grown in a semi shaded position in well drained sandy to sandy loam soils.

Native - 0.9 - 1.5mH x 0.6 - 0.9mW

---

**Euryops pectinatus**
*Golden Daisy Bush*

Vigorous evergreen shrub, with silvery green, hairy leaves and yellow, daisy-like composite flowers on long stems. Flowering occurs from early summer through to autumn. Hardy plant best grow in full sun and well drained soil.

Native - 0.3mH x 0.7mW

---

**Callistemon ‘Better John’**
*Dwarf Callistemon*

Small shrub with blue-green mature foliage. New foliage has silver tones due to soft hairy texture. Small red flowers in spring. Full sun to part shade. Suits sandy to well drained soils. Tolerates drought and cold.

Native - 1.2mH x 0.6mW

---

**Carissa ‘Desert Star’**
*Natal Plum*

Attractive and neat in habit with dense thick foliage with small thorns. Tough, evergreen leaves and arching habit gives it an attractive, graceful appeal. Snowy white flowers spikes in spring and autumn. Tolerant of high heat and dry spells, heavy frost, salt-laden air, and occasional flooding.

Native - 0.75mH x 0.9mW

---

**Alternanthera ‘Purple Splash’**
*Alternanthera Purple Splash*

A fast growing perennial ground cover displaying beautiful colour throughout the year. Foliage ranges from green to rich burgundy shades with soft pink flecks. Prefers well drained soil in a full sun to part shade position.

Exotic - 0.3 - 0.45mH x 0.3 - 0.6mW

---

**Alternanthera ‘Purple Splash’**
*Alternanthera Purple Splash*

A fast growing perennial ground cover displaying beautiful colour throughout the year. Foliage ranges from green to rich burgundy shades with soft pink flecks. Prefers well drained soil in a full sun to part shade position.

Exotic - 0.3 - 0.45mH x 0.3 - 0.6mW

---

**Euryops pectinatus**
*Golden Daisy Bush*

Vigorous evergreen shrub, with silvery green, hairy leaves and yellow, daisy-like composite flowers on long stems. Flowering occurs from early summer through to autumn. Hardy plant best grow in full sun and well drained soil.

Native - 0.3mH x 0.7mW

---

**Alternanthera ‘Purple Splash’**
*Alternanthera Purple Splash*

A fast growing perennial ground cover displaying beautiful colour throughout the year. Foliage ranges from green to rich burgundy shades with soft pink flecks. Prefers well drained soil in a full sun to part shade position.

Exotic - 0.3 - 0.45mH x 0.3 - 0.6mW

---

**Lomandra ‘Katie Belles’**
*Katie Belles Lomandra*

Highly versatile plant which performs in both wet and dry conditions. Masses of perfumed flowers in spring, sometimes repeat flowering in autumn. Suitable for raingardens. Full sun to heavy shade. Tolerates drought, cold, and coastal conditions.

Native - 1.5mH x 1.2mW

---

**Lomandra verday**
*Lomandra*

A compact, fine leaved, fast growing, very hardy and long-lived form of Lomandra. Soft, evergreen leaves and arching habit gives it an attractive, graceful appeal. Snowy, yellow flower spikes in spring and autumn. Tolerant of high heat and dry spells, heavy frost, salt-laden air, and occasional flooding.

Native - 0.6mH x 0.6mW

---

**Alternanthera ‘Purple Splash’**
*Alternanthera Purple Splash*

A fast growing perennial ground cover displaying beautiful colour throughout the year. Foliage ranges from green to rich burgundy shades with soft pink flecks. Prefers well drained soil in a full sun to part shade position.

Exotic - 0.3 - 0.45mH x 0.3 - 0.6mW

---

**Hemerocallis ‘Orange Blaze’**
*Orange Daylily*

Perennial clumping plant with long linear leaves. Large bright orange flowers with a yellow orange star burst throat appear during summer. Prefers a full sun to part shade position, drought and frost resistant.

Exotic - 0.75 - 0.9mH x 0.6 - 0.9mW

---

**Lomandra ‘Katie Belles’**
*Katie Belles Lomandra*

Highly versatile plant which performs in both wet and dry conditions. Masses of perfumed flowers in spring, sometimes repeat flowering in autumn. Suitable for raingardens. Full sun to heavy shade. Tolerates drought, cold, and coastal conditions.

Native - 1.5mH x 1.2mW

---

**Lomandra verday**
*Lomandra*

A compact, fine leaved, fast growing, very hardy and long-lived form of Lomandra. Soft, evergreen leaves and arching habit gives it an attractive, graceful appeal. Snowy, yellow flower spikes in spring and autumn. Tolerant of high heat and dry spells, heavy frost, salt-laden air, and occasional flooding.

Native - 0.6mH x 0.6mW

---

**Hemerocallis ‘Orange Blaze’**
*Orange Daylily*

Perennial clumping plant with long linear leaves. Large bright orange flowers with a yellow orange star burst throat appear during summer. Prefers a full sun to part shade position, drought and frost resistant.

Exotic - 0.75 - 0.9mH x 0.6 - 0.9mW

---

**Melaleuca thymifolia**
*Thyme Honey-myrtle*

Medium shrub with delicate reddish young stems and blue-green foliage, both spicily aromatic when bruised. Small clusters of stemless flowers make this plant a feature, rich mauve in spring and summer and blush-purple in early winter. Long-lived and recovers well from drought and other setbacks.

Native - 0.75 - 0.9mH x 0.6 - 0.9mW

---

**Pelargonium crispum**
*Rose Geranium*

Medium shrub with wide, green, fan shaped leaves with wrinkled edges. Leaves and stems are hairy, with a strong lemon scent. Pink flowers appear in summer. Prefers a full sun position with well drained soil.

Exotic - 0.6mH x 0.6mW
Philodendron 'Xanadu'
Philodendron

Evergreen low shrub with a compact, tidy growth habit and attractive lobed leaves. Prefers a full sun to partly shaded position with free draining soil.
Exotic - 1mH x 1mW

Philotheca 'Bournda Beauty'
Bournda Beauty

Medium shrub with small green leaves. Growth habit is naturally tidy and bun shaped. Flowering is from autumn to spring, with pretty pink buds that open to starry white flowers that cover the plant. Prefers full sun to part shade in well drained soil.
Native - 1mH x 1mW

Rosmarinus officinalis 'Blue Lagoon'
Blue Rosemary

Upright bush at first, with branches arching with age. Leaves are dark green and needle like and flowers are a rich mid blue, covering the plant from early spring to summer. Hardy plant requiring minimal maintenance best suited to full sun or part shade in well drained soil.
Exotic - 0.5-1mH x 1-2mW

Westringia fruticosa
Coastal Rosemary

Large shrub of simple and neat appearance. Growth is naturally stiff and bushy with dark green leaves growing in whorls around stems. Flowers are white to palest mauve with reddish and yellow brown spots near the throat during spring and summer.
Native - 0.9-1.5mH x 0.9-1.2mW

Brachyscome angustifolia
'Brasco Violet'
Stiff daisy, Grassland daisy

Compact perennial forming neat mounds. Leaves are green and furry, violet-purple daisy flowers with a contrasting yellow centre appear through warmer months. Flowers best in full sun, but will grow in light shade. Prefers moist, well drained soil.
Native - 0.3mH x 0.3-0.6mW

Convolvulus sabatius sp. mauritanicus
Ground Morning Glory

Small perennial ground cover with trailing branches bearing very small, hairy, roundish leaves. Trumpet-shaped, morning glory flowers are violet-blue and appear through warmer months. Prefers loose, gravelly, well-drained soil and full sun, but is reliable in many conditions and is drought tolerant.
Exotic - 0.3mH x 2-3mW

Dichondra repens
Kidney Weed

Creeping ground cover with bright green kidney shaped leaves, roots form at nodes. Very small yellow green flowers in summer. Prefers part shade positions with moist, well drained soil.
Native - 0.1mH x 0.9-1.2mW

Liriope muscari 'Royal Purple'
Royal Purple Lily Turf

Evergreen perennial with strappy, green leaves and erect stems of bell-shaped, dark purple flowers from early summer to autumn. Hardy and suitable to a range of positions, preferring well-drained soil and a position in part shade to full sun.
Exotic - 0.3-0.45mH x 0.3-0.6m W
6 Visual Impact
Considerable effort has been made throughout the detailed design stage (post EIS) to minimise impacts on existing trees. The key visual impacts during operation of the CSELR within the Surry Hills Zone includes generally:

- light rail tracks and infrastructure along Eddy Avenue, Chalmers Street, Devonshire Street, across South Dowling Street and along the currently grassed area adjacent to the busway and across the intersection of Lang Road
- provision of a light rail stop and associated concourse for Central Station Stop, Surry Hills Stop, and Moore Park Stop
- overhead wiring and associated support poles along the length of the route
- removal of a number of trees along Elizabeth Street, Chalmers Street, Devonshire Street and Anzac Parade
- street closures adjacent Devonshire Street and the introduction of new pocket parks
- a new light rail and pedestrian bridge at South Dowling Street
- introduction of tunnel portals and substation associated with the light rail tunnel under Moore Park playing fields and Anzac Parade
- A new pedestrian bridge over Anzac Parade at Sydney Girls High School
The CSELR has a range of impacts across the landscape character areas of Surry Hills Zone. The EIS identified that the landscape and visual impacts throughout the Surry Hills Precinct would be less generally, however that highly adverse landscape impacts would result at Elizabeth Street Gardens and that the removal of mature street trees along Devonshire Street would result in moderate impacts.

The revitalisation of Ward Park and Wimbo Park were identified as significant landscape improvements. The CSELR moderately affected the setting and parkland character of the Moore Park Precinct due to the rem oval of mature Moreton Bay Fig trees, and the introduction of built infrastructure into the Precinct.

Landscape and visual impact significance criteria were developed at EIS stage and are set out in CSELR, EIS, Volume 5, Technical Paper 10, Section 04.

### Landscape Character Areas

<table>
<thead>
<tr>
<th>Landscape Character</th>
<th>EIS Identified Potential Impact</th>
<th>EIS Assessment of Impact</th>
<th>Current Design Identified Potential Impact</th>
<th>Current Design Assessment of Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>9. Belmore Park</td>
<td>Negligible landscape impact</td>
<td>The function of this plaza would be restored for the operation of the proposal. As a result, there may be some improvements to the park as new planting and layers would be implemented in accordance with the Transport for NSW Vegetation Offset Guide (2013d).</td>
<td>Negligible landscape impact</td>
<td>The current design does not propose any works on the northern side of Eddy Avenue. Bus stop infrastructure may be altered by TfNSW as a result of reduced bus numbers.</td>
</tr>
<tr>
<td>10. Elizabeth Street Gardens</td>
<td>High adverse landscape impact</td>
<td>The function of the park would be changed as the size of the garden would be reduced by about 233 square metres, and there would be a loss of four mature trees. This park is within the curtilage of Central Railway Station, and provides a green setting for the sandstone bridge. The overall public realm upgrade would restore the remaining parkland and pedestrian connections.</td>
<td>High Adverse landscape impact</td>
<td>The current design is consistent with the EIS design and requires removal of five trees and reduction of overall park size. The existing low brick wall will be re-constructed in a new location and turf re-installed behind the wall.</td>
</tr>
<tr>
<td>11. Ibero-American Statue Plaza</td>
<td>Negligible landscape impact</td>
<td>The function of the Ibero-American Statue Plaza would be improved with a range of public realm works during operation. Two of the existing Ibero-American statues would be relocated within the plaza site, however the statue plaza would not be removed as part of the CSELR proposal.</td>
<td>Minor Adverse landscape impact</td>
<td>The current design repositions all of the statues in a similar relationship, however set back further from the light rail trackzone to achieve wider footpaths through the precinct. Four large Plane trees require removal in this precinct to construct the light rail trackzone, however options to plant new trees in front of the re-aligned row of statues is being explored. The inclusion of the third track and separated cycleway through Chalmers St requires the removal of most of the existing Plane trees on the eastern side of Chalmers St. Existing trees are retained as much as possible and the constrained site prohibits planting of any new trees.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Landscape Character</th>
<th>EIS Identified Potential Impact</th>
<th>EIS Assessment of Impact</th>
<th>Current Design Identified Potential Impact</th>
<th>Current Design Assessment of Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>12. Devonshire Street</td>
<td>Minor adverse landscape impact</td>
<td>The function of Devonshire Street and its intersecting streets would be maintained for pedestrian movements during operation of the proposal and any impacts on building entries and footpath continuity required for construction would be restored. It is expected that the street trees removed during construction would be replaced on Devonshire Street in accordance with the Transport for NSW Vegetation Offset Guide (2013d). The streets trees, however, would be smaller and less mature, and located only on the northern side of the street. This would provide some landscape amenity but not the same sense of visual enclosure as the double avenue which currently exists. A wider footpath would be provided along the northern side of Devonshire and would connect more directly to Moore Park in the east.</td>
<td>Moderate Adverse landscape impact</td>
<td>The current design is consistent with the EIS design and proposes that the trackzone is located adjacent the southern kerb of Devonshire St, until Crown St. As per the EIS design, existing mature trees (located along the front of Northcott Estate) require removal to enable the light rail tracks and overhead wiring to be constructed. To mitigate the loss of vegetation, new tree planting is proposed where possible on the northern footpath as well as within the frontage to Northcott Estate. In addition, the new pocket parks include a variety of tree species that will be visible from Devonshire St, contributing to the visual amenity of the street. Pocket parks are also proposed in street closures and will provide new small scale plazas for community use and outdoor dining. Due to the space required for light rail track and an east bound traffic lane widening of the northern footpath is not feasible. On the southern side of Devonshire Street a planting strip has been introduced as part of a greening strategy in locations where additional street trees can not be planted.</td>
</tr>
<tr>
<td>13. Ward Park</td>
<td>Minor beneficial landscape impact</td>
<td>The recreational function of Ward Park would be restored during operation. Adjustments to the character and function of the park would change with the introduction of the light rail stop. This would result in a loss of a portion of the park which would now be occupied by a transit plaza with moving and stationary LRVs activating the edge of the park. Trees would be removed along the park frontage to Devonshire Street (as part of construction), however a high quality plaza design would provide amenity in this area.</td>
<td>Minor beneficial landscape impact</td>
<td>The current character of Ward Park would mostly be retained, with exception of the northern edge which will be modified to include the Ward Park light rail stop. Including the stop along the northern edge of the park will open up the northern edge, with a seamless transition between the park and the new footpath. The construction of the stop and trackzone will result in the removal of trees along the northern edge, which will be partially mitigated through the provision of new trees behind the new footpath. An existing footpath on the western edge of the park will be widened to create a shared cycle and pedestrian route to the western end of the new stop. This will result in removal of a group of palm trees in the park and reconstruction of the existing brick wall further to the east.</td>
</tr>
<tr>
<td>14. Nickson Street Park</td>
<td>Negligible impact</td>
<td>The function of Nickson Street Park would be maintained during operation of the proposal. Trees along the frontage of Devonshire Street would be removed. General public realm improvement works would be undertaken including provision of a uniform paving scheme along the footpath of Devonshire Street, the park's primary frontage. The closure of Nickson Street would create an opportunity to revitalise the pocket park. On balance, the loss of trees in the road reserve and improvements to the public realm are change that are compatible with the surrounding urban landscape.</td>
<td>Negligible impact</td>
<td>The current design is consistent with the EIS proposal with exception of the proposal to close Nickson St and create a pocket park. Nickson Street will remain open, prohibiting the possibility of constructing a pocket park.</td>
</tr>
<tr>
<td>Landscape Character</td>
<td>EIS Identified Potential Impact</td>
<td>EIS Assessment of Impact</td>
<td>Current Design Identified Potential Impact</td>
<td>Current Design Assessment of Impact</td>
</tr>
<tr>
<td>---------------------</td>
<td>--------------------------------</td>
<td>-------------------------</td>
<td>------------------------------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>15. Wimbo Park</td>
<td>Negligible impact</td>
<td>The function of Wimbo Park would be restored during operation of the proposal with the exclusion of the southern portion, which would be used to accommodate track infrastructure. Wimbo Park would be expanded with a new public park that would extend into the Olivia Gardens site. The park would include new trees and planting to a high quality open space design.</td>
<td>Moderate beneficial landscape impact</td>
<td>The construction of the light rail through this portion of Surry Hills required the removal of a block of apartments known as Olivia Gardens. The additional space resultant after the light rail infrastructure is constructed will be handed over to the City of Sydney as open space, with the new park to be designed by the City of Sydney. A wide pedestrian and cycle shared path will be provided through the park, along the edge of the light rail corridor, linking from the end of Devonshire St to the new pedestrian and light rail bridge over the Eastern Distributor and into Moore Park West.</td>
</tr>
<tr>
<td>16. Fig Tree Avenue</td>
<td>Moderate adverse landscape impact</td>
<td>During operation of the proposal the formal avenue of mature Moreton Bay fig trees would be disrupted by the tunnel section of the CSERL corridor where it crosses Anzac Parade. It is not proposed that additional trees would be introduced to the area.</td>
<td>Moderate adverse landscape impact</td>
<td>During construction of the tunnel, a diversion road is required to be constructed to continue the use of Anzac Parade as a major arterial road. The diversion road will be located to the east of the current busway and required removal of existing trees, both from the row of very mature fig trees (x 6) and the second row of semi-mature trees (x 10) adjacent to the AFL training oval (Tramway Oval). In addition to the road diversion, the construction of the tunnel required removal of very mature fig trees from both sides of Anzac parade (2 from the western side and 3 from the eastern side). Replacement tree planting is possible where mature trees were removed to create the diversion road, but are not possible where trees were removed to construct the tunnel, due to the shallow soil depth over the tunnel structure at this location.</td>
</tr>
<tr>
<td>17. Moore Park</td>
<td>Negligible landscape impact</td>
<td>The functionality of the playing fields in Moore Park West is expected to be restored during operation, as the park would extend seamlessly over the tunnel section of the alignment. This would allow for pedestrian permeability through the park and result in minimal intrusion on the amenity and function of this space.</td>
<td>Minor adverse landscape impact</td>
<td>The functionality of the playing fields and general open space of Moore Park West, Moore Park East and Tramway Oval will be restored following completion of construction works. The proposed works will provide enhanced pedestrian connection from Surry Hills to Moore Park through provision of a wide shared path to the Tibby Cotter Bridge. Since preparation of the EIS the size of substation structures has been determined, with a substation previously proposed in Wimbo Park relocating to the northern side of the Western Portal structure in Moore Park West. The substation has been designed to integrate into the parklands as far as possible, with green roof and mounding covering the structure. Cladding to the substation façade and portal entry ties the two elements together and further reduces the visual impact of the structures. The new Moore Park light rail stop will assist in activating the edge of the parklands, with a new footpath from the stop to the sporting stadia replacing an existing path in a similar location. The creation of the new, wider path to the stop requires the removal of several semi-mature trees in proximity to the existing toilet building. The current design of the light rail stop is a much smaller structure than the double story stop structure approved as part of the EIS for the project, and will have reduced visual impacts on the parklands. There are two small buildings associated with the stop that provide access to a subway beneath the tracks and facilities for drivers/leaves staff. These buildings have been designed with regard for the existing context and will be constructed from high quality materials, complimentary to the stop architecture.</td>
</tr>
<tr>
<td>18. Anzac Parade footbridge</td>
<td>Text from Planning Modification: Anzac Parade pedestrian bridge The Anzac Parade pedestrian bridge in the modified design would comprise of a stand-alone structure, as opposed to the approved project which was connected to the elevated concourse of the Moore Park stop. The only noticeable change of the modified design would be the inclusion of stairs and ramps on the eastern side of Anzac Parade associated with the bridge, which in the approved project were included in the Moore Park stop structure. The modified design of the pedestrian bridge would have no perceptible visual change, as the stairs and ramps of the modified design were previously included in the approved design of the Moore Park stop. The overall result of the modified pedestrian bridge would therefore be a negligible visual impact.</td>
<td>Major adverse landscape impact</td>
<td>The proposed design includes a pedestrian footbridge over Anzac Parade adjacent to Sydney Girls High School, with stair connection to the northern end of the Moore Park light rail stop. The bridge has been designed to provide safe access for students between the stop and the high schools. The material and detailing of the bridge screens has taken cues from the Albert Tibby Cotter Bridge and will use similar bronze coloured mastic elements combined with open stainless steel mesh. To minimise the scale of the bridge, the design has been refined following the option included within the Planning Modification to replace ramps with glass lifts. This has considerably reduced the scale of the access points to the bridge. The current bridge design impacts on a mature fig tree on the eastern side of Anzac Parade and several mature Robina trees within the school lands.</td>
<td></td>
</tr>
</tbody>
</table>

CBJ and South-East Light Rail | Urban Design and Landscape Plan | Surry Hills Zone | 64
During operation, the EIS identified that the CSELR would generally contribute to improving existing viewpoints within the CBD Traffic Precinct and the Surry Hills Precinct, and would generally have a moderate adverse impact on the existing viewpoints within the Moore Park Precinct.

<table>
<thead>
<tr>
<th>Viewpoint</th>
<th>EIS Identified Potential Impact</th>
<th>EIS Assessment of Impact</th>
<th>Current Design Identified Potential Impact</th>
<th>Current Design Assessment of Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.9. Eddy Avenue, view west at Central Railway Station</td>
<td>Negligible visual impact</td>
<td>In this view, the 10 lanes would be redistributed to dedicated lanes for general use, dedicated bus lanes, and three light rail lines all in parallel, with the rail platform aligned parallel and adjacent to the station building. The stop development would also require minimal changes to the surrounding public realm and open space. There is no opportunity for the introduction of trees into this area. LRVs would be visually prominent due to their length, scale and design. The overall width and general character of this view would be visually similar to that which currently exists. There would be the addition of catenary structures and overhead wires; however, these should be visually absorbed into this complex view.</td>
<td>Negligible visual impact</td>
<td>The stop proposed on Eddy Avenue at the time of EIS assessment has been relocated to Chalmers Street. Traffic lanes will be realigned to allow for a coach stop and two parallel light rail lines adjacent to the station building. The surrounding public domain requires minimal changes to accommodate light rail infrastructure and the view will be quite similar to existing. OHW structures have been aligned with columns of the Central Station facade to reduce the visual impact on the heritage listed building. LRVs will continue to be visually prominent due to their length as they travel along Eddy Avenue.</td>
</tr>
<tr>
<td>1-10. View north along Chalmers Street</td>
<td>Negligible visual impact</td>
<td>In this view, three vehicle lanes and one bus lane would be reduced to one lane dedicated to traffic, one dedicated light rail and one shared light rail/traffic lane with an island platform stop. The alignment of the light rail and stop would require the loss of street trees on both sides of Chalmers Street as well as trees at the intersection of Randle, Chalmers and Devonshire streets. LRVs would be seen moving north and south along the corridor and stationary at the stop, with the potential for numerous LRVs to be seen in this location at the same time. LRVs would be visually prominent in the landscape due to their length and scale. The overall width and general character of this view would be visually more urban and less green than what currently exists. Overall, the loss of street trees would result in a reduction of visual amenity. Introduction of elements such as the canopy structure, platform and overhead wires would create additional visual clutter, thereby resulting in some adverse impact to the existing views experienced from this public space/plaza. However, given the existing bus canopies and other infrastructure currently in this view, the overall change to this viewpoint is expected to be negligible.</td>
<td>Negligible visual impact</td>
<td>Road vehicle traffic on Chalmers Street has been removed between Devonshire Street and Elizabeth Street, with traffic diverted to Randle Street. Limited access for approved vehicles is maintained to the Dental Hospital and businesses at the southern end of the street. The stop comprises of one side and one island platform, with three light rail tracks servicing the stop. LRVs will be prominent in the space, moving north and south and standing on the third track at various times. The track alignment requires the removal of street trees at the intersection of Randle and Devonshire Street and along Chalmers Street. Limited opportunities exist for additional street tree planting. To reduce heat island effect masses planting at ground level is proposed where possible. The loss of street trees, introduction of stop infrastructure and additional OHW poles will have some adverse impact on existing views. The removal of road vehicle traffic from the street however will improve streetscape andlero Plaza experiences.</td>
</tr>
<tr>
<td>2.1. View north along Devonshire Street</td>
<td>Moderate adverse visual impact</td>
<td>Traffic would be reduced to one lane eastbound along Devonshire Street allowing for local access, and the footpath on the northern side of the street would be widened. The large trees which would be removed during construction, and are essential to the character of this portion of Devonshire Street, would not be replaced. These trees would be replaced with smaller trees on the northern side of Devonshire Street in accordance with the ‘Transport for NSW Vegetation Offset Guide’ (2013/18), filtering views to the terrace housing. The brick buildings of the Northcott Estate would be more visually prominent, particularly in winter. New elements including overhead wires and catenary structures would add visual clutter within the streetscape. LRVs would be seen moving through this view, in place of a former traffic lane.</td>
<td>Moderate adverse visual impact</td>
<td>Two light rail lines and one traffic lane will be seen on Devonshire Street. Both existing parking lanes will be removed. Due to track and road vehicle lane requirements the northern footpath of Devonshire Street can not be widened. Footpaths on both sides of the street are continuous, with pocket parks created in road closures. Additional street trees are proposed on the northern footpath where feasible and within the pocket parks. The large existing trees on the southern footpath will be removed. These trees will be replaced with new trees within the Northcott Estate frontage. A 600mm wide planting strip will run along the southern kerb to improve separation between the track zone and the footpath and introduce planting to large areas of paving. Footpath paving will be upgraded for the length of Devonshire Street significantly improving the streetscape, however OHW poles will be located on the southern footpath and will add visual clutter.</td>
</tr>
<tr>
<td>2.2. View from Devonshire Street to Wimbo Park</td>
<td>Negligible visual impact</td>
<td>The street corridor would be altered to accommodate two lanes for local traffic and two light rail lines in the foreground. The light rail corridor would continue into the background of the view, running through the southern portion of Wimbo Park and the former Olivia Gardens complex which would be removed during construction. These sites would be seen as a newly established local park, visually filtering the light rail corridor. The creation of this new park would result in some improvement to the existing viewpoint at this location after the revitalisation of the area has been completed. Safety fencing, overhead wires and catenary structures would add visual clutter to the view. However, the view towards a potential new park on the site of the Olivia Gardens complex would assist in mitigating potential visual impacts.</td>
<td>Negligible visual impact</td>
<td>The arrangement of traffic lanes and light rail tracks remains as per the design at the time of EIS. As a result of flooding issues however the intersection of Bourke Street and Devonshire Street will be raised. Flush footpaths on both sides of Bourke Street will help to integrate the light rail tracks with the surrounding streetscape and allows for the tracks to run seamlessly into the plaza in front of Wimbo Park. As part of the light rail works a paved plaza will be constructed in the existing Wimbo Park and surf reinstated to the Olivia Gardens site. Mass planting to either side of the light rail track zone will soften the space and provide low screening to the park. The further design of the parks lands will be by the City of Sydney, and is likely to result in an improvement to the view from Bourke Street, with the light rail tracks filtered by the park design. As a result of the flush intersection bollards will be required to the intersection and frontage of Wimbo Park, increasing visual clutter on the corner. OHW poles will also add to this clutter as they transition from locations on both sides of Devonshire Street to a central location further along the alignment in Wimbo Park.</td>
</tr>
</tbody>
</table>
### Visual Impact

**Representative Viewpoints**

<table>
<thead>
<tr>
<th>Viewpoint</th>
<th>EIS Identified Potential Impact</th>
<th>EIS Assessment of Impact</th>
<th>Current Design Identified Potential Impact</th>
<th>Current Design Assessment of Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.3. View south along South Dowling Street</td>
<td>Minor adverse visual impact</td>
<td>A new contemporary light rail bridge structure is proposed at the Eastern Distributor. The bridge would be visually prominent in this area, and consistent with the scale and character of this roadway. There would be a loss of trees along the berm at the edge of Moore Park to allow for bridge abutments, and some existing trees within the corridor where the bridge crosses. Owing to the high degree of visual modification within an already modified landscape, the bridge structure would not markedly contrast with the Eastern Distributor, however there would be a noticeable change in the amenity of these views as overhead elements are introduced.</td>
<td>Minor adverse visual impact</td>
<td>The bridge structure has been designed to be consistent with the existing suite of bridges over the Eastern Distributor whilst achieving a contemporary design. The materials and finishes selected for the bridge are consistent with those selected for surrounding light rail elements and existing structures. Trees required to be removed for the construction of the bridge head-stocks are proposed to be replaced to reduce the impact on the landscape. The flush track zone and pedestrian section of the bridge create a strong visual link from Surry Hills to Moore Park at ground level, improving visual amenity. Overhead elements have been aligned to reduce the impact on existing views as far as possible, however the introduction of these overhead elements results in a minor adverse visual impact.</td>
</tr>
<tr>
<td>3.1. View from the SCG Entry Forecourt at Driver Avenue</td>
<td>Moderate adverse impact</td>
<td>This stop includes a 90 metre long island platform which would be a substantial element in the view. Light rail vehicles (LRVs) would be visually prominent due to their length, scale and design. The scale of this Moore Park Stop would have a foreshortening effect on the openness of the fields. However, the size and scale of this stop would be mitigated by distance and filtered by foreground elements in views from this location. Notwithstanding, some views of the Moore Park East playing fields would be affected by the proposed stop due to the aboveground concourse level. The trees removed as a part of the construction stage would be replaced in accordance with the Transport for NSW Vegetation Offset Guide (2013d). This planting would, however, be smaller specimens, so that the gaps in these avenues would be seen against the horizon, opening up views to the landscape beyond.</td>
<td>Moderate adverse impact</td>
<td>The length of the Moore Park Stop has been reduced to 67m and the design significantly altered, with the above ground concourse level of the stop removed. Two light rail tracks pass on either side of the island platform which is accessible via underpass, pedestrian bridge and at grade crossing (when stop is not in event mode). The reduction in scale and height of the stop decreases the visual impact of these elements in the current design. The back-up OCC building has been designed to minimise visual impact on the parklands. Materials for the building are similar to those used on the pedestrian bridge and portal structures and a green roof is proposed to the building. The pedestrian bridge over Anzac Parade will be visible in the background from the SCG Entry Forecourt and removal of some of the existing fig trees along Anzac Parade will reduce the tree canopy in this area. OHW poles will also be visible from within the parklands. These factors result in a moderate adverse impact in the area.</td>
</tr>
<tr>
<td>3.2. View south along Anzac Parade and Busway</td>
<td>Moderate adverse impact</td>
<td>The CSELR would be seen running parallel to the busway on the western edge of Moore Park. Its corridor would reduce the extent of the gateway forecourt to Centennial Park and add to the visual clutter of this busy intersection. The light rail tracks would match the forecourt paving where it traverses the forecourt to assist in the visual integration of the corridor in this location. LRVs would be visually prominent in the landscape due to their length and scale. Catenary structures and overhead wires would create some additional visual clutter at street level.</td>
<td>Moderate adverse impact</td>
<td>Two light rail tracks will run parallel to the bus lane through the Lang Road Anzac Parade intersection. The third track between Central Station and Moore Park Stop terminates on the northern side of Lang Road. The track has been aligned to minimise the impact on the Tennis Centre and plaza space, however the forecourt area will be reduced. OHW poles will be visually prominent in the landscape and will add to streetscape clutter. Similarly fencing to the bus way and track zone will add clutter and reduce the amenity of the view to the plaza, canopy structure and Tennis Centre.</td>
</tr>
</tbody>
</table>
In this view, the existing traffic lanes will be redistributed to allow for a coach stop and two parallel light rail lines adjacent to the station building. The surrounding public domain requires minimal changes to accommodate light rail infrastructure. OHW structures have been aligned with columns of the Central Station facade to reduce the visual impact on the heritage listed building and are absorbed into the view. LVRs will be visually prominent due to their length as they travel along Eddy Avenue.

Additional Viewpoint 1-12
Eddy Avenue, view west at Central Railway Station

Existing View
2015

Proposed View
10 years post-installation
Road vehicle through traffic on Chalmers Street has been removed between Devonshire Street and Elizabeth Street, with traffic diverted to Randle Street. Limited access for approved vehicles is maintained to the Dental Hospital and businesses at the southern end of the street.

The track alignment requires the removal of street trees at the intersection of Randle and Devonshire Street and along Chalmers Street. Limited opportunities exist for additional street tree planting. To reduce heat island effect mass planting at ground level is proposed where possible. The track alignment encroaches on the existing layout of Ibero American Plaza. The view shows a reconfigured plaza layout similar to existing, with statues reinstated.

The loss of street trees, introduction of stop infrastructure and additional OHW poles will have some adverse impact on existing views. The removal of road vehicle traffic from the street however will improve streetscape amenity and encourage outdoor dining.
Additional Viewpoint 2-4
Devonshire Street Reserve

On Devonshire Street existing parking and road lanes will be removed and two light rail tracks and one east bound traffic lane will be constructed. Footpaths on both sides of the street are continuous in numerous locations, with a suite of pocket parks located in closed areas of side streets.

The existing Devonshire Street Reserve will be upgraded and include various types of seating areas within a flexible layout. New trees are proposed within the park with mass planting beds around existing and proposed trees. Additional street trees are proposed on the northern footpath where feasible.

A 600mm wide planting strip will run along the southern kerb to improve separation between the track zone and the footpath and introduce planting to large areas of paving where there is insufficient space to plant trees.

Footpath paving will be upgraded for the length of Devonshire Street significantly improving the streetscape, however OHW poles will be located on the southern footpath and will add visual clutter.

Existing View
2015

Proposed View
10 years post-installation
Additional Viewpoint 2-5
View east along Devonshire Street

The two light rail tracks and single east bound traffic lane continue up Devonshire Street to the intersection with Crown Street.
The large existing trees in front of Northcott Estate will be removed and new trees planted within the Estate frontage.
A low seating wall will replace the existing wall to the Northcott Estate, with fence behind.
A 600mm wide planting strip will run along the southern kerb to improve separation between the track zone and the footpath and introduce planting to large areas of paving where there is insufficient space to plant trees.
OHW poles are located on the southern footpath and will add to the visual clutter on the streetscape.
Additional Viewpoint 2-6

The Surry Hills Stop is located on Devonshire Street at the intersection of Riley Street. Two light rail tracks and one east bound traffic lane replace the current road arrangement. Due to the alignment of the light rail tracks, existing trees, planter beds and low brick walls to the front of Ward Park will be removed. As a result the views from the street into the eastern end of the park will be improved, with the park tying in to footpath levels. Removed trees will be replaced with new trees along the new park frontage.

The western end of the park will retain its existing character, with a brick retaining wall to the footpath edge, allowing for existing trees and levels within the park to be retained. A widened shared path connects the path system within Ward Park to Devonshire Street.

Stop infrastructure has been kept to a minimum and OHW poles coordinated with canopy structures. Existing overhead electrical wires on Devonshire Street will be under-grounded, reducing the visual clutter of wires crossing the street. These poles and cables will be replaced with OHW and catenary structures associated with the light rail on the southern footpath.
The Eastern Distributor Bridge and shared path will be significantly wider than other bridging structures over the Eastern Distributor. This width at ground level will strengthen the visual and physical connections between Surry Hills and Moore Park. The shared path over the bridge links into the path to Albert Tibby Cotter Bridge on the eastern side and to Devonshire Street (through Wimbo Park) on the western side, creating a direct pedestrian connection from Central Station to the Entertainment precinct.

The substation has been integrated into the wall of the western portal to reduce the visual impact on South Dowling Street and Moore Park. Mounding and planting over the structure is proposed to further reduce this impact. An area of hardstand is required for emergency and service vehicles in front of the substation. Planting has been proposed where feasible in this space to reduce the overall impact.

The design of the Eastern Distributor Bridge and western portal structures have been reviewed to reflect feedback from the UDRG in terms of form, materials and finishes. Changes implemented include symmetrical bridge screening, changes to chamfer to the girder profile, removal of the concrete triangle on the south side of the bridge and integrating lighting with handrail. Bronze battens extend along the front elevation of the substation and into the portal mouth, reducing the visual impact of both structures. The bronze colour relates to the City of Sydney Villages palette, with proposed bollards, smartpoles and bridge elements of a similar bronze colour.

The existing planting along South Dowling Street will be upgraded and trees planted to replace those requiring removal as part of the bridge works.
Additional Viewpoint 3-4

View on Anzac Parade towards Pedestrian Bridge

The Anzac Parade pedestrian bridge connects the western side of Anzac Parade to the Moore Park Stop. Previous bridge designs included large access ramp structures on both sides of the bridge. In the current design these ramps have been replaced with two elevators, significantly reducing the visual impact of the bridge structure.

The super-T structure requires one central support pier, located within the existing verge between Anzac Parade and the busway. The existing shared path on the eastern side of Anzac Parade will be realigned around the pier to ensure pedestrian and cyclist access is maintained. The existing signalised crossing on Anzac Parade will be removed and fencing reinstated to the central median.

One fig tree on the eastern side of Anzac Parade will be removed to allow for construction of the bridge, impacting on the visual quality of the avenue.

The materiality and detailing of the bridge screens has taken cues from the Albert Tilby Cotter Bridge and will use bronze coloured metal elements combined with open stainless steel mesh, which is also in line with other elements along the Light Rail alignment.

The bridge will have a significant impact on the existing views along Anzac Parade and will increase visual clutter on the street.

Existing View

2016

Proposed View

10 years post-installation
7 Stops, Buildings and Bridges
**Vision**

The CSELR stops will contribute to delivering an exemplar high quality light rail system. The designs have been developed based on principles of modern, minimal, elegant and functional design. These principles have been used as a guiding philosophy that underpins our vision for CSELR – to design a transport system that enhances the passenger experience.

**Architectural Concept**

The architectural design of the stops is derived from key design principles:

- **Customer Experience**
- **Integration**
- **Lasting Simplicity and Coherence**
- **Safety**
- **Amenity**

The concept design for the architectural stop components is based on the utilisation of a common palette of materials to create a line wide system. The architectural components are to be clean, simple, integrated and modular. This will ensure a consistent identity for CSELR that delivers value, reliability, ease of maintenance and buildability.

**Stop Canopy**

The identifying CSELR feature bronze soffits. Canopy lengths vary depending on patronage numbers and stop locations.

**Totem**

A number of integrated functions such as lighting, PA, CCTV and Opal card.

**Furniture**

Line wide identity of stops through consistent detailing of components and platform furniture.

**Integrated Services Cabinet**

Area with highest customer interface that contains all customer information systems and ticketing.

**Platform Paving**

Material and pattern to suit Local Council guidelines.
CSELK Stops

A good customer outcome is achieved, if the transport environment is perceived as reliable, intuitive and easy to use. The vision for the CSELK stops is to design a modern, minimal elegant and functional transport system that enhances the passenger experience. The design of the CSELK will enhance the character of the landscape and communities through which it passes, by integrating with existing and planned future context. Stop designs will be clutter free and formed out of a family of consistent components, which will aid intuitive wayfinding and provide a clear, easy to use and high quality light rail system.

All stops have been designed with a consistent approach for the setting out of canopies and platform equipment. Platform areas have been divided into separate zones for circulation, waiting, boarding and information. These zones have been designated based on the design of the light rail vehicle (LRV). Areas of the platform where LRV doors are present are considered boarding areas and are therefore clear of equipment. Seating (waiting) and information zones have been placed away from LRV door locations.

Separating waiting areas from boarding areas on the stops will minimise conflict between passenger movements and accommodate peak crowds.

The different needs of departing and arriving passengers have been considered. The departing passenger will require clear and visible next train information, a place to purchase tickets or top up an opal card, and waiting/seating. The arriving passenger will require quick and legible wayfinding information, stop identifiers (clearly visible from the LRV), local area information and unimpeded exits from the platforms.

In order to provide clear sight lines and open and spacious customer circulation, equipment on stops has been grouped together. A single, central ticketing and information zone has been dedicated on each platform. This zone coincides with the LRV coupling and is believed to be an area where passengers are unlikely to queue to board and alight the LRV.

Locating the ticketing and information zone consistently in the centre of the platforms has been a deliberate move to aid intuitive wayfinding and prevent platform congestion.

**KEY**

- **WAITING AREA**
- **CIRCULATION AREA**
- **TICKETS & INFORMATION**
Canopies

The defining feature of the CSELR stops are the canopies which have a distinct bronze soffit that will enhance the identity of the CSELR and aid intuitive wayfinding. In order to provide a common line wide identity the selection of material and finish is consistent across all precincts.

CSELR canopies have been developed as a line wide modular component system. Canopies have been designed to have a horizontal appearance with a slender edge. The thin and minimal appearance was developed to minimise visual impact on the surrounding environment. This is of particular importance in heritage or parkland settings.

A separation between the integrated services cabinet and the canopy soffit has been proposed to enhance the perception of space and visual permeability.

The CSELR canopies have been designed to maximise transparency (while providing shade where appropriate) and visibility. The canopies minimise barriers for pedestrians and reduce clutter and signage.
Subway at Moore Park Stop

Moore Park stop includes a subway access at the southern end of the island platform connecting to the marshalling area.

Pedestrian modeling of the subways was carried out and resulted in an increase in the required clear width of the subway from the Concept Design proposal from 4800mm to 5100mm. The overall 5100mm clear width of the stairs consists of 2 no. of 2550mm runs separated by double balustrades.

The Concept Design proposal had FLR posts located inside the subway enclosure at the top of the stair. In the current configuration it is proposed to have the FLR posts located outside the subway enclosure.

The subways will be clad in a lightweight, transparent mesh material which will maximise natural light within. The soffits will be clad in bronze alloy panels, sympathetic in geometry and appearance to that of the stop canopies. The subways will be locked and secured in non-event mode by mesh doors.

The canopies will contain a box gutter on the southern end, draining through two downpipes concealed with an RHS structural column.

Moore Park Driver’s Facilities and Back up Operations Control Centre

The Moore Park driver’s facilities and back up Operations Control Centre will be located underground, at the northern end of the stop. The building will contain the following:

- 2 WCs (both DDA accessible – one ambulant male cubic, and one fully DDA accessible);
- Kitchenette and Staff area (to be used by Event Operations Staff and Back-up OCC Staff – Max. occupancy: 12 people);
- Back-Up Operations Control Centre

The Back-Up OCC room will ensure that required services can continue if the Primary OCC (located at Randwick Depot) is unavailable. When used in lieu of the main OCC Room, the Back-Up OCC room will be 24h in operation.
Substations

The substation buildings are comprised of two elements: the structural enclosure and the architectural facade elements. The structural wall thickness will be confirmed and assessed against BCA standards.

Two cladding concepts are currently being investigated for the substations:

- **Masonry** – a brick cladding, which may be prefabricated for ease of assembly. Ventilation requirements will be concealed behind the brick detailing within a perforated skin.
- **The substation facade adopts a low profile clay brick arrangement in a garden ‘hit and miss’ pattern with aligned joints. Horizontal and vertical mortar joints are 5mm wide and finish flush to the brickwork. The mortar is colour matched to the bricks creating an even and seamless facade finish. The bricks will be stacked to allow for apertures in the brick facade. These apertures mean that the facade is perforated for mechanical ventilation purposes.**
- **Aluminium battens, fixed back to the concrete structure. This system allows for seamless integration of doors and conceals open areas required for ventilation.**

Substation facade designs adopt a similar materials palette and detailing to provide consistency across the alignment. The choice of material and detailing reflect their locality and the material palette includes:

- **A specific palette is preferred for each substation location which has been informed by the immediate precinct and the design development of the colour palette for other architectural elements on the CSELR. Detailing will be consistent throughout the project. The choice of and colour of materials will be finalised in consultation with TfNSW and stakeholders.**

The Moore Park West substation has been integrated into the Moore Park landscape as far as possible. Mounding is proposed over the structure, with mass planting preventing pedestrian access to the areas surrounding the rear of the portal, addressing safety and CPTED considerations.
Anzac Parade Pedestrian Bridge

The new pedestrian bridge over Anzac Parade has been designed to provide a safe and convenient link between Moore Park, the Moore Park Stop and Sydney Boys and Girls High Schools. The overall length of the bridge is approximately 76.7m, located near the existing at-grade pedestrian crossing over Anzac Parade, which will be removed. The bridge superstructures consist of two simply supported spans. The column of the bridge is positioned to minimise impact on the existing cycle path (however some realignment will be required) whilst providing span lengths within the limitations of the proposed girder depth. The superstructure of the bridge comprises of a super-T girder with an in-situ concrete deck slab. The overall width of the pedestrian bridge is 4.0m, with a clear width of 3.5m between the handrails. 3.0m high safety screens are provided at both sides along the entire bridge body. Stairs and lifts are provided at each end of the bridge, with CCTV monitoring bridge facilities. The lifts at both ends are glass clad, providing good surveillance between semi-private and public space. Stairs are orientated to connect to the pedestrian path and Moore Park light rail stop platform, channel users into target areas and provide clear and effective access control. On the eastern side of Anzac parade the stairs both have a clear width of 3.5m in order to satisfy the required boarding capacity for special events. On the western side (near Sydney Boys and Girls High Schools) the stair has a clear width of 2.4m. This stair has been orientated to minimise impacts on the heritage listed Bear Pit within Sydney Girls High Schools.

The bridge’s cladding design consists of vertical battens at handrail level and anti-throw mesh at higher level, maintaining clear sight-lines between the bridge and the street. Mesh panels are also detailed at an angle, opening up the “corridor” like pass way to be more spacious. These screening elements utilise the same modern materials palette as the ED Bridge, creating a family of bridges and incorporating Bridge Aesthetic guidelines.

Eastern Distributor Bridge

The Eastern Distributor Bridge connects the new Wimbo Park space to Moore Park. Two tracks sit on the northern side of the bridge, separated from a 6m wide shared path by a concrete girder. The bridge crosses South Dowling Street northbound and southbound lanes at grade, with the bridging structure located over the Eastern Distributor. The girder bridge has been designed to minimise the impact to South Dowling Street in terms of the extent of regrading required, whilst satisfying a minimum vertical clearance of 4.65m above the road level of the Eastern Distributor Motorway below. The substructure comprises of cast-in-situ concrete headstocks, with wing walls, supported by 900mm diameter cast-in-place piles. The superstructure comprises two external L-shaped prestressed concrete through girders, supporting precast deck slab panels. The shape of the girders was developed in line with feedback from the UDRG, with changes to chamfer to the girder profile and removal of the concrete triangle on the south side adopted.

Screening on the bridge is required to be in keeping with the existing family of bridges over the Eastern Distributor Motorway. These bridges have a common screen design consisting of full height coloured steel posts spaced at regular intervals with infill mesh screens and guard rails/railings to the interior face. In response, the proposed screen design comprises a component system of fabricated steel verticals, spaced at 2.1m intervals, which capture a series of framed stainless steel tensioned Webmesh fabric panels. The screens on the shared path are side fixed to the concrete upstand. On the northern edge of the bridge, the screens are fixed to the concrete girder via cast-in-ferules. The posts are fabricated steel plates which take the mesh panel frames and handrail fixings. The stainless steel mesh panel is designed to be more solid towards the bottom and more permeable towards the top. This allows for visibility to bridge users at eye level, addresses CPTED considerations, and relates to the fencing and screens of the adjacent tunnel portal and public realm. The shared path crosses the bridge and continues through Moore Park, providing a pedestrian link following the desire line to the stadium precinct. Pedestrian lighting is provided on the shared path through Moore Park to Australian Standards. Handrails are proposed to both sides of the shared path and will contain built in LED lighting, highlighting the features of the bridge in the landscape. The consistency between existing and new bridges, symmetrical design of the girders and screen elements, modern finishes selected and elements of feature lighting are in line with the Bridge Aesthetics guidelines.
2.0 Surry Hills Precinct Description

2.1 Preamble
This section of the HIA identifies the existing listed heritage items and conservation areas within or in the immediate vicinity of the CSELR corridor. The items identified include heritage listed buildings, structures, parks and trees, and heritage conservation areas. State significant items are listed on the NSW Heritage Register under the Heritage Act. Locally significant items are listed under Schedule 5 of the Sydney Local Environmental Plan 2012 (SLEP).

2.2 Heritage Context and Significance
The Surry Hills precinct contains three distinct areas as described below.

Central Station
The Central Station area is dominated by the station itself, a State Heritage Registered sandstone building constructed in two main phases: 1901-1906 and 1923-1927. The construction of the station transformed the area and surrounds, with major commercial and public buildings, including department stores such as Daking House (completed in 1914) and the Parcels Post Office, springing up in response to the new transport hub. Eddy Avenue, created by the development of Central Station, along its principal (northern) elevation station, become a major thoroughfare, with numerous tram lines and, later, a coach terminal established there. Belmore Park, originally gazetted in 1868, was remodelled as part of Central Station's construction and is a significant element of the station's setting. It remains a major park in the area and is flanked by sandstone under-bridges from the station.

Devonshire Street
Surry Hills is characterised by a fine grained pattern of Victorian-era terraced housing, pubs and corner shops, with nineteenth-century warehouse and factory buildings dotted throughout. Many of the streets are lined with mature trees, listed on the City of Sydney Register of Significant Trees 2013. Much of Surry Hills is within heritage conservation areas listed on SLEP 2012. The CSELR would cross Surry Hills via Devonshire Street, which is located in the southern part of the suburb. The heritage character of Devonshire Street is typical of the suburb, with heritage items comprising a mix of terraced housing, a church, corner hotels and small industrial buildings, as well as mature street trees on both sides of the road. Devonshire Street also features the Northcott Housing Estate, a 1961 public housing complex, and the associated Ward Park. Neither of these elements are listed as heritage items, but they are landmarks along Devonshire Street, and likely to be of social value to the local community. Wimbo Park, located at the eastern end of Devonshire Street, was formerly the City of Sydney Council's stone yard, where stone for the city's many sandstone buildings was dressed. A monument to this use is located in the southern area of the park. Wimbo Park also contains a mosaic mural of activities that took place in the park when it was part of larger recreational grounds. While Wimbo Park is not listed as a heritage item, these elements are also likely to be of some significance to the local community. Similarly, Olivia Gardens, the (now) demolished 1970s apartment block between Wimbo Park and South Dowling Street, is not listed as a heritage item and was identified in the City of Sydney Development Control Plan Contributory Buildings Map as having a neutral contribution to the Bourke Street South Conservation Area, but may have some social value to the local community.

Moore Park
The Moore Park precinct is dominated by three major cultural landscape elements: Moore Park, Centennial Park and Anzac Parade. Moore Park and Centennial Park comprise State significant areas of parklands established during the nineteenth century. Moore Park and Centennial Park are within a broad, low lying area with established plantings along the street alignments, creating open spaces and significant groupings of established trees. The historic Royal Agricultural Show-ground (RAS), now Fox Studios and the Entertainment Quarter, and the Sydney Cricket and Sports Ground, are the primary built elements in the precinct. Both feature built elements of State significance, including the Ladies and Members Pavilion of the Sydney Cricket Ground and the Commemorative Pavilion of the former RAS. The mixed fig avenue along Anzac Parade dates from the early twentieth century is recognised for its aesthetic and historic significance.

GML Heritage Pty Ltd have been engaged by ALTRAC to provide ongoing heritage advice to the project team through the design and construction stage. Their heritage assessment builds on the initial Heritage Impact Assessment GML prepared for TfNSW for the EIS. GML have provided ongoing heritage advice to the project team to assist in the development of decreased heritage impacts or mitigated impacts that are incorporated into the proposed urban design and landscape works. GML’s updated Heritage Impact Assessment is attached in full as appendix A. An extract outlining the key issues for Surry Hills follows.
### Table 2.1

<table>
<thead>
<tr>
<th>Name</th>
<th>Address</th>
<th>Listing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sydney Terminal and Central Railway Station Group</td>
<td>Great Southern and Western Railways, Illawarra Railway</td>
<td>SHR (listing No. 01255)</td>
</tr>
<tr>
<td>Belmore Park</td>
<td>Belmore Park, Haymarket</td>
<td>SLEP 2012 (item No. 1825)</td>
</tr>
<tr>
<td>Belmore Park Significant Trees</td>
<td>Belmore Park, Haymarket</td>
<td>City of Sydney Register of Significant Trees 2013 (item No. 8.01)</td>
</tr>
<tr>
<td>Dental Hospital</td>
<td>2-18 Chalmers Street</td>
<td>SLEP 2012 (item No. 1469)</td>
</tr>
<tr>
<td>Former Metro Goldwyn Mayer including interior</td>
<td>20-28 Chalmers Street</td>
<td>SLEP 2012 (item No. 1470)</td>
</tr>
<tr>
<td>Former RC Henderson Ltd factory including interiors</td>
<td>11-13 Randle Street</td>
<td>SLEP 2012 (item No. 1270)</td>
</tr>
<tr>
<td>Railway Institute Building</td>
<td>Chalmers Street, Surry Hills</td>
<td>SHR (listing No. 01257)</td>
</tr>
<tr>
<td>Devonshire Street Significant Trees</td>
<td>Devonshire Street, Chalmers Street to Riley Street</td>
<td>City of Sydney Register of Significant Trees 2013 (item No. 10.02)</td>
</tr>
<tr>
<td>Bourke Street Significant Trees</td>
<td>Bourke Street, Arthur Street to Cleveland Street</td>
<td>City of Sydney Register of Significant Trees 2013 (item No. 10.01)</td>
</tr>
<tr>
<td>Royal Exhibition Hotel including interior</td>
<td>86-92 Chalmers Street</td>
<td>SLEP 2012 (item No. 1471)</td>
</tr>
<tr>
<td>Strawberry Hills Hotel</td>
<td>451-455 Elizabeth Street</td>
<td>SLEP 2012 (item No. 11535)</td>
</tr>
<tr>
<td>Terrace House</td>
<td>457-459 Elizabeth Street</td>
<td>SLEP 2012 (item No. 11536)</td>
</tr>
<tr>
<td>Corner Terrace House</td>
<td>457-459 Elizabeth Street</td>
<td>SLEP 2012 (item No. 11537)</td>
</tr>
<tr>
<td>Former ANZ Bank</td>
<td>420-422 Elizabeth Street</td>
<td>SLEP 2012 (item No. 11534)</td>
</tr>
<tr>
<td>Society of Friends (Quaker) Meeting House</td>
<td>119-123 Devonshire Street</td>
<td>SLEP 2012 (item No. 11516)</td>
</tr>
<tr>
<td>Terrace Group</td>
<td>125-129 Devonshire Street</td>
<td>SLEP 2012 (item No. 11517)</td>
</tr>
<tr>
<td>Former Clarendon Hotel</td>
<td>156-158 Devonshire Street</td>
<td>SLEP 2012 (item No. 11518)</td>
</tr>
<tr>
<td>Shakespeare Hotel</td>
<td>198-200 Devonshire Street</td>
<td>SLEP 2012 (item No. 11519)</td>
</tr>
<tr>
<td>Terrace House</td>
<td>242 Devonshire Street</td>
<td>SLEP 2012 (item No. 11521)</td>
</tr>
<tr>
<td>Terrace House</td>
<td>244 Devonshire Street</td>
<td>SLEP 2012 (item No. 11522)</td>
</tr>
<tr>
<td>St Peter’s Roman Catholic Church Group</td>
<td>235-241 Devonshire Street</td>
<td>SLEP 2012 (item No. 11520)</td>
</tr>
<tr>
<td>Terrace Group</td>
<td>252-264 Devonshire Street</td>
<td>SLEP 2012 (item No. 11523)</td>
</tr>
<tr>
<td>Shop and Residence Group</td>
<td>499-503 Crown Street</td>
<td>SLEP 2012 (item No. 11507)</td>
</tr>
<tr>
<td>Former Hotel Victoria</td>
<td>505 Crown Street</td>
<td>SLEP 2012 (item No. 11508)</td>
</tr>
<tr>
<td>Former Edward Hill &amp; Co Factory including interiors</td>
<td>Former Edward Hill &amp; Co Factory including Interiors</td>
<td>SLEP 2012 (item No. 1264)</td>
</tr>
<tr>
<td>Terrace Group (9-15 Pawley Street)</td>
<td>2-8 Edgely Street</td>
<td>SLEP 2012 (item No. 11524)</td>
</tr>
<tr>
<td>Bourke Street Public School Buildings</td>
<td>500-514 Bourke Street</td>
<td>SLEP 2012 (item No. 1449)</td>
</tr>
<tr>
<td>Terrace Houses</td>
<td>633 South Dowling Street</td>
<td>SLEP 2012 (item No. 11640)</td>
</tr>
<tr>
<td>Terrace group</td>
<td>635-641 South Dowling Street</td>
<td>SLEP 2012 (item No. 11641)</td>
</tr>
<tr>
<td>Terrace Houses</td>
<td>643-645 South Dowling Street</td>
<td>SLEP 2012 (item No. 11642)</td>
</tr>
<tr>
<td>Terrace group</td>
<td>647 South Dowling Street</td>
<td>SLEP 2012 (item No. 11643)</td>
</tr>
<tr>
<td>Terrace house</td>
<td>649 South Dowling Street</td>
<td>SLEP 2012 (item No. 11644)</td>
</tr>
</tbody>
</table>

#### 2.2.1 Heritage Items

The tables below set out the listed heritage assets in the Surry Hills precinct. For clarity, items that are listed on more than one heritage register are included on the higher register only.
Table 2.1 (cont’d)
Heritage items listed on the SHR, SLEP, RLEP and other registers along or in the immediate vicinity of the CSELR route in the Surry Hills precinct.

<table>
<thead>
<tr>
<th>Name</th>
<th>Address</th>
<th>Listing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terrace house ‘Kinkora’</td>
<td>651 South Dowling Street</td>
<td>SLEP 2012 (Item No. 11645)</td>
</tr>
<tr>
<td>Terrace group</td>
<td>546-554 Bourke Street</td>
<td>SLEP 2012 (Item No. 1444)</td>
</tr>
<tr>
<td>Wyee Terrace</td>
<td>563-579 South Dowling Street</td>
<td>SLEP 2012 (Item No. 1639)</td>
</tr>
<tr>
<td>Centennial Park - Moore Park / Anzac Parade Significant Trees</td>
<td>Anzac Parade</td>
<td>City of Sydney Register of Significant Trees (Item No. 24.12)</td>
</tr>
<tr>
<td>Sydney Boys High School Group</td>
<td>556-560 Cleveland Street</td>
<td>SLEP 2012 (Item No. 1958)</td>
</tr>
<tr>
<td>Sydney Girls High School Group</td>
<td>556-560 Cleveland Street</td>
<td>SLEP 2012 (Item No. 1959)</td>
</tr>
<tr>
<td>Sydney Boys High School &amp; Sydney Girls High School Significant Trees</td>
<td>Anzac Parade and Cleveland Street</td>
<td>City of Sydney Register of Significant Trees (Item No. 24.06)</td>
</tr>
<tr>
<td>Former Toll House</td>
<td>Anzac Parade</td>
<td>SLEP 2012 (Item No. 1957)</td>
</tr>
<tr>
<td>Centennial Park, Moore Park, Queens Park</td>
<td>N/A</td>
<td>SHR (listing No. 01384)</td>
</tr>
</tbody>
</table>

Table 2.3
Heritage conservation areas listed on other registers along or immediately adjacent to the CSELR route in the Surry Hills precinct.

<table>
<thead>
<tr>
<th>Conservation Area</th>
<th>Listing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cleveland Gardens</td>
<td>SLEP 2012 (Area No. C62)</td>
</tr>
<tr>
<td>Brumby Street</td>
<td>SLEP 2012 (Area No. C63)</td>
</tr>
<tr>
<td>Little Riley Street</td>
<td>SLEP 2012 (Area No. C65)</td>
</tr>
<tr>
<td>High Holborn Street</td>
<td>SLEP 2012 (Area No. C64)</td>
</tr>
<tr>
<td>Bourke Street South</td>
<td>SLEP 2012 (Area No. C66)</td>
</tr>
<tr>
<td>Moore Park</td>
<td>SLEP 2012 (Area No. C68)</td>
</tr>
</tbody>
</table>

2.2.2 Heritage Conservation Areas
3.0 Assessment of Heritage Impact

3.1 General (Precinct Wide) Impact Assessment

Generally, the potential for heritage impacts resulting from the proposed CSELR in the Surry Hills precinct derives from the various permanent structures in the public realm affecting the visual setting of heritage items and heritage conservation areas. These structures include stops and associated weather shelters, poles and catenary wires. Physical impacts may result from the need to attach catenary wires to building facades and inserting new poles through existing awnings; the removal of significant trees; and the visual impact of the establishment and operation of work sites during construction.

Construction of the CSELR through Moore Park will comprise the construction of a cut-and-cover tunnel through Moore Park west and a tunnel portal and stop in Moore Park East (in the vicinity of the western boundary of the Sydney Cricket Ground). There would be a temporary impact on Moore Park West through the construction of the tunnel, although the areas in the parklands and playing fields that are affected would be reinstated once works were complete. However, a permanent tunnel portal would remain within the park near the South Dowling Street frontage and a pedestrian Bridge is proposed for construction over Anzac Parade adjacent to Sydney Boys and Sydney Girls High Schools.

There would be significant, and permanent, impacts in Moore Park East, as a result of the construction of the Moore Park Stop, the removal or substantial alteration of significant street trees along Anzac Parade and the proposed pedestrian bridge over Anzac Parade. Generally, the route of the CSELR along Anzac Parade in this precinct is within the SHR listed Centennial Park, Moore Park, Queens Park curtilage. Introducing infrastructure such as catenary wiring, poles and stops would have a direct impact on the aesthetic significance and visual character of the item, notwithstanding that trams have historically operated along Anzac Parade and in Moore Park East.

3.2 Detailed (Per Heritage Asset) Impact Assessment

3.2.1 Tabulated Results

The following table:

- identifies each heritage asset along the route (heritage items, conservation areas and groups of or individual significant trees);
- provides an impact assessment of the scheme and revised impact ranking;
- suggests makes recommendations for design changes to avoid or minimise the impact; and
- records the agreed action following the design review workshop.

It is acknowledged that not all of the recommended design changes may be able to be implemented owing to constraints about track alignments, road levels, operational requirements, CSELR project objectives/commitments, etc. The aim is to incorporate this advice into the design development process, and where possible reduce the heritage impact or mitigate it in some way. This is an iterative process and will continue to be revised incrementally until the construction documentation is finalised.
<table>
<thead>
<tr>
<th>Heritage Asset</th>
<th>Significance</th>
<th>Previous Impact Ranking</th>
<th>Previous Mitigation Measure From 2013 HIA</th>
<th>Site Specific REMM and MECA</th>
<th>Compliance to Date</th>
<th>Proposed Design Change to Avoid/Minimise Impacts From Draft HIA (based on Stage 1 Design)</th>
<th>Acciona Response to Heritage Advice and Draft HIA (dated 18 March 2016)</th>
<th>Current Design (Stage 2 Submission)</th>
<th>Revised Impact Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sydney Terminal and Central Railway Station Group</td>
<td>State</td>
<td>Moderate Adverse</td>
<td>Detailed design of the Eddy Avenue alignment would retain and conserve the significant fabric of Central Station and its underbridges. Any fixtures proposed to be attached to the under-bridges would be to the concrete structure, not the sandstone. Service pipes would be rationalised and services grouped to minimise clutter on Eddy Avenue and minimise impacts on the setting of Central Station and views of its principal elevation. The alignment of the Eddy Avenue to Chalmers Street turn would minimise impacts on the Elizabeth Street Gardens. Significant fabric of the Elizabeth Street Gardens that is to be removed, such as the edging and the palms, would be salvaged, catalogued and stored for possible reinstatement (or partial reinstatement) following completion of construction works. The location and design of the Rawson Place stop would seek to minimise impact on key views of Central Station east along Rawson Place.</td>
<td>Archival recording of Central Station and Elizabeth Street Gardens was undertaken in February 2016. Archival recording of Chalmers Street boundary wall is yet to be undertaken. ALTRAC Light Rail Revigoration Compensation Package (January 2016). Archival recording of the Former Radio Workshop at Central Station was undertaken in June 2016.</td>
<td>Installation of safety screens and anti-thieve screens on or near to the fabric should be avoided where possible. If essential, glass safety screen to be designed as independent panels in between sandstone columns. Any fixtures proposed to be attached to the under-bridges would need to be to the concrete structure, not the sandstone. Minimise smart pole in front of Central Station. Request confirmation that replacement plantings undertaken during construction will be in accordance with the Revigoration Compensation Package. Seek to reuse significant fabric from Elizabeth Street Gardens. Stops are to be consistent with stops in the citytrend of the CSELR network. Note interpretation opportunities along the public domain. Substation (Former Radio Workshop) Materiality, screens for exhaust shafts, symmetry</td>
<td>Safety and anti-thieve screens on sandstone pedestrian/vehicle bridge and light rail bridge may not be required. Risk Assessment being undertaken. If required – should be freestanding and minimal and not attached to heritage fabric. Glass safety screens between sandstone columns along Eddy Avenue no longer proposed. Fence is located on median. Smart poles to be central on sandstone columns. Design should be minimal in size as much as possible. Requirement for replacement awning on Chalmers Street to be removed (PP with Sydney Trains). Retain palms in Elizabeth Street Gardens. Investigate opportunity for salvage and reuse if Eddy for new realigned retaining wall. Substation (Former Radio Workshop) Change proposed brick to perforated steel sheet. Not to use brick. Retain timber sash windows and door on side elevation. Alterations are possible on the interior.</td>
<td>Change from bus loading/unloading area to two light rail tracks. Separated fence located on median is away from façade/condominium of Central Station. Would be low and discrete. Masonry fixings into underside of rail bridge over Eddy Avenue. The project specifications do not allow chemical fixings on the underside of the heavy rail bridge, as this connection will permanently be in tension. Advice has been provided that they should be located on the recessed sections of the under-bridge between the ribs, and not on the ribbed sections. The brackets should not impact the ribs. Removal of one tree between existing light rail and Railway bridge, opposite Central Station. While large and characteristics of the trees within Belmore Park (which are listed), this particular tree is not listed on the City of Sydney Significant Tree Register. Removal of multiple (7H593-596, 598) plane trees from Chalmers Street Entrance Gardens. These are identified in the Central Station CMP as being of high significance. This would allow a clearer view of the Chalmers Street entry to Central Station, however it would result in a moderate adverse heritage impact. Retain two palm trees in the Garden and reconstruction of brick retaining wall, which is not identified in the CMP as a significant element.</td>
<td>Change from car traffic to light rail tracks on Chalmers Street. Avenging over lift on Chalmers Street to be removed. Central Station stop on Chalmers Street where existing bus stops are. Less prominent/significant edge to Central Station. Removal of multiple trees along Chalmers Street, beside Central Station. Substation (Former Radio Workshop) See attached detailed heritage advice (timber roof structure retained, cladding removed, concrete and primary brick structure walls retained). Materiality, screens for exhaust shafts, symmetry. Requirement for air conditioning plant necessitates a redesign. Acciona to propose designs and Grimshaw to model. Further heritage advice and assessment can be provided when the next iteration of design for the substation is released.</td>
<td></td>
</tr>
<tr>
<td>Belmore Park</td>
<td>Local</td>
<td>IB2S</td>
<td>Moderate Adverse</td>
<td>Significant trees and landscaping to be retained would be protected from damage by vehicular or machinery movement. Significant landscape elements (such as sandstone kerbing) that is to be removed for the construction works depot, would be salvaged, catalogued and stored for reinstatement following completion of construction works. A photographic archival recording of Belmore Park would be undertaken prior to works commencing.</td>
<td>REMM10 - B58 - Minimise the removal of vegetation B58 - Remove permanently modify Belmore Park B61 – Archival Recordings REMM10 - No trees removed in Belmore Park REMM12 - archaeology, trees, landscaping elements, AR</td>
<td>Archival recording of Belmore Park and Significant Trees was undertaken in February 2016. ALTRAC Light Rail Revigoration Compensation Package (January 2016). Confirm if still being used as a construction compound. Yes, the northern extent of Belmore Park will be a construction compound. Exact location and extent to be confirmed. Note there are specific methodologies which should be allowed for to retain heritage values in the park including no removal of trees, laying membrane and clear $1 million across site, and no sub-surface works at all.</td>
<td>The one tree to be removed owing to its location within the expanded pedestrian and cycle crossing is outside of Belmore Park and not identified on the City of Sydney Significant Tree Register. As a construction compound Belmore Park is proposed to be the site for a construction works depot. This would be located at the northern end of the park, near Hay Street. The construction works depot would necessitate the occupation of a section of the park for an extended period, and the construction of temporary buildings. The use of a section of the park for an extended period as a construction compound would have a moderate adverse impact upon the aesthetic significance of the park, albeit temporary.</td>
<td>Moderate Adverse (temporary)</td>
<td></td>
</tr>
<tr>
<td>Belmore Park Significant Trees</td>
<td>Local</td>
<td>B.01</td>
<td>Moderate Adverse</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>As above</td>
</tr>
<tr>
<td>Heritage Asset</td>
<td>Significance</td>
<td>ID</td>
<td>Previous Impact Ranking</td>
<td>Previous Mitigation Measure</td>
<td>Site Specific REMM and MCOA</td>
<td>Compliance to date</td>
<td>Proposed Design Change to Avoid/Minimise Impacts from Draft HIA (based on Stage 1 Design)</td>
<td>Acciona Response to Heritage Advice and Draft HIA (dated 18 March 2016)</td>
<td>I</td>
</tr>
<tr>
<td>----------------</td>
<td>--------------</td>
<td>----</td>
<td>-------------------------</td>
<td>-----------------------------</td>
<td>-----------------------------</td>
<td>------------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>---</td>
</tr>
<tr>
<td>Dental Hospital</td>
<td>Local</td>
<td>II469</td>
<td>Minor</td>
<td>Adverse</td>
<td>No specific mitigation measures are required</td>
<td>127 - Stops Access and Design Plans</td>
<td>**</td>
<td>**</td>
<td>ALTRAC Light Rail Revegetation Compensation Package (January 2016).</td>
</tr>
<tr>
<td>Former Metro Goldwyn Mayer including interior</td>
<td>Local</td>
<td>II470</td>
<td>Minor</td>
<td>Adverse</td>
<td>No specific mitigation measures are required</td>
<td>**</td>
<td>**</td>
<td>Street trees being removed in front this heritage item owing to third track and separated bike path.</td>
<td>Change from car traffic to light rail tracks and bike path on Chalmers Street. Pedestrianized Chalmers Street.</td>
</tr>
<tr>
<td>Former RC Henderson Ltd Factory including interiors</td>
<td>Local</td>
<td>I270</td>
<td>Not previously impacted</td>
<td></td>
<td></td>
<td>**</td>
<td>**</td>
<td>Change from car traffic to light rail tracks and bike path on Chalmers Street. Pedestrianized Chalmers Street.</td>
<td>Street trees being removed in front this heritage item.</td>
</tr>
<tr>
<td>Railway Institute Building</td>
<td>State</td>
<td>01257</td>
<td>Neutral</td>
<td></td>
<td></td>
<td>**</td>
<td>**</td>
<td>As above in Central Railway Station Group</td>
<td>As above in Central Railway Station Group</td>
</tr>
<tr>
<td>Royal Exhibition Hotel including interior</td>
<td>Local</td>
<td>II471</td>
<td>Minor</td>
<td>Adverse</td>
<td>**</td>
<td>**</td>
<td>Smart poles positioning should not be through awning.</td>
<td>Will investigate moving smart poles to avoid impacts on awning.</td>
<td>**</td>
</tr>
<tr>
<td>Heritage Asset</td>
<td>Significance ID</td>
<td>Previous Impact Ranking</td>
<td>Previous Mitigation Measure from 2013 HIA</td>
<td>Site Specific REMM and MCOA</td>
<td>Compliance to date</td>
<td>Proposed Design Change to Avoid/Minimise Impacts from Draft HIA (based on Stage 1 Design)</td>
<td>Acciona Response to Heritage Advice and Draft HIA (dated 18 March 2016)</td>
<td>Current Design (Stage 2 Submission)</td>
<td>Revised Impact Ranking</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>----------------</td>
<td>-------------------------</td>
<td>------------------------------------------</td>
<td>-----------------------------</td>
<td>--------------------</td>
<td>-----------------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>Devonshire Street Significant Trees</td>
<td>10.02</td>
<td>Major Adverse</td>
<td>Replanting of trees would be undertaken following completion of construction works in accordance with a management plan or other approved document</td>
<td>REMM V17 - replanting of trees</td>
<td>B47 - Minimise the removal of vegetation</td>
<td>ALTRAC Light Rail Revegetation Compensation Package (January 2016).</td>
<td>Request confirmation that replacement plantings undertaken during construction will be in accordance with the Revegetation Compensation Package.</td>
<td>Negotiations are currently being undertaken with Housing NSW for the proposed replanting within the boundary of the Northcott Housing Estate. To be confirmed.</td>
<td>Substantial removal of significant street trees along the length of Devonshire Street. This would affect the visual setting of heritage items and the character of the HCA. Construction of the CSELR along Devonshire Street would necessitate the removal of the majority of the trees identified. The Devonshire Street trees are identified as significant as a group of plantings and not as individual specimens, and therefore removal of parts of the group would result in an adverse impact on the recognised significance of the row.</td>
</tr>
<tr>
<td>Bourke Street Significant Trees</td>
<td>10.01</td>
<td>Moderate Adverse</td>
<td>Where significant trees along Bourke Street would be retained and conserved. If the trees must be removed, then suitable replacements would be made.</td>
<td>B47 - Minimise the removal of vegetation</td>
<td>ALTRAC Light Rail Revegetation Compensation Package (January 2016).</td>
<td>Request confirmation that replacement plantings undertaken during construction will be in accordance with the Revegetation Compensation Package.</td>
<td></td>
<td></td>
<td>Removal of one (assumed Eucalyptus) in the direct line of the CSELR route. Two closest significant trees are retained.</td>
</tr>
<tr>
<td>Cleveland Gardens HCA</td>
<td>562</td>
<td>Not previously impacted</td>
<td>No specific mitigation measures are required.</td>
<td>ALTRAC Light Rail Revegetation Compensation Package (January 2016).</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Minor Adverse</td>
</tr>
<tr>
<td>Strawberry Hills Hotel</td>
<td>11535</td>
<td>Not previously impacted</td>
<td>Smart poles positioning should not be through awning. Pressed metal underside of awning should be left intact and not altered or impacted.</td>
<td>ALTRAC Light Rail Revegetation Compensation Package (January 2016).</td>
<td></td>
<td></td>
<td>Will investigate moving smart poles to avoid impacts on highly intact, pressed metal awning.</td>
<td></td>
<td>Minor Adverse</td>
</tr>
<tr>
<td>Former ANZ Bank</td>
<td>11534</td>
<td>Neutral</td>
<td>Pavement works to combine/extend existing pavement and traffic island. Two smart poles along Devonshire Street in front of this heritage item. One tree would be removed from Devonshire Street frontage for this heritage item.</td>
<td></td>
<td></td>
<td></td>
<td>Pavement works to combine/extend existing pavement and traffic island. Two smart poles along Devonshire Street in front of this heritage item. One tree would be removed from Devonshire Street frontage for this heritage item.</td>
<td></td>
<td>Neutral</td>
</tr>
<tr>
<td>Brumby Street HCA</td>
<td>561</td>
<td>Moderate Adverse</td>
<td>No specific mitigation measures are required.</td>
<td>B47 - Minimise the removal of vegetation</td>
<td>ALTRAC Light Rail Revegetation Compensation Package (January 2016).</td>
<td></td>
<td></td>
<td></td>
<td>Neutral</td>
</tr>
<tr>
<td>Society of Friends (Quaker) Meeting House</td>
<td>11516</td>
<td>No specific mitigation measures are required.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Minor Adverse</td>
</tr>
<tr>
<td>Heritage Asset</td>
<td>Significance ID</td>
<td>Previous Impact Ranking</td>
<td>Previous Mitigation Measure from 2013 HIA</td>
<td>Site Specific REMM and MCDA</td>
<td>Compliance to date</td>
<td>Proposed Design Change to Avoid/Minimise Impacts from Draft HIA (based on Stage 1 Design)</td>
<td>Acciona Response to Heritage Advice and Draft HIA (dated 18 March 2016)</td>
<td>Current Design (Stage 2 Submission)</td>
<td>Revised Impact Ranking</td>
</tr>
<tr>
<td>----------------</td>
<td>----------------</td>
<td>------------------------</td>
<td>------------------------------------------</td>
<td>----------------------------</td>
<td>-------------------</td>
<td>-----------------------------------------------------------------</td>
<td>-----------------------------------------------</td>
<td>---------------------------------------------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td>Terrace Group</td>
<td>Local</td>
<td>I1517</td>
<td>No specific mitigation measures are required.</td>
<td></td>
<td></td>
<td></td>
<td>Removal of a street tree from the south side of Devonshire Street in front of heritage item.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>The under-grounding of electrical poles and wires along Devonshire Street would necessitate the installation of private pillars or new poles and connections to each property. Refer to specific previous heritage advice included as an Appendix to this HIA.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Further heritage advice and assessment can be provided when the next iteration of design for the electrical connections is released/finalised.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Little Riley</td>
<td>Local</td>
<td>C65</td>
<td>No specific mitigation measures are required.</td>
<td>B47 - Minimise the removal of vegetation</td>
<td>Maintain kerb lines and heights – sink park in roadway.</td>
<td>Pocket park paving will be in line with pavement, but maintain delineation of kerb and sidewalk.</td>
<td>Creation of pocket park to terminate street (Waterloo Street).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Street HCA</td>
<td></td>
<td></td>
<td></td>
<td>ALTRAC Light Rail Revegetation Compensation Package (January 2016).</td>
<td></td>
<td></td>
<td>Removal of numerous street trees along Devonshire Street affecting the character of the HCA.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>The under-grounding of electrical poles and wires along Devonshire Street would necessitate the installation of private pillars or new poles and connections to each property. Refer to specific previous heritage advice included as an Appendix to this HIA.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Further heritage advice and assessment can be provided when the next iteration of design for the electrical connections is released/finalised.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Former Clarendon Hotel</td>
<td>Local</td>
<td>I1518</td>
<td>No specific mitigation measures are required.</td>
<td></td>
<td></td>
<td></td>
<td>The under-grounding of electrical poles and wires along Devonshire Street would necessitate the installation of private pillars or new poles and connections to each property. Refer to specific previous heritage advice included as an Appendix to this HIA.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shake-</td>
<td>Local</td>
<td>I1519</td>
<td>No specific mitigation measures are required.</td>
<td></td>
<td></td>
<td></td>
<td>The under-grounding of electrical poles and wires along Devonshire Street would necessitate the installation of private pillars or new poles and connections to each property. Refer to specific previous heritage advice included as an Appendix to this HIA.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>speare Hotel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Further heritage advice and assessment can be provided when the next iteration of design for the electrical connections is released/finalised.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ward Park</td>
<td>Local</td>
<td>-</td>
<td>Minor Adverse</td>
<td>B27 – Stops Access and Design Plans</td>
<td>ALTRAC Light Rail Revegetation Compensation Package (January 2016).</td>
<td>Note interpretation opportunities along the public domain.</td>
<td>Substation ventilation shafts, access hatches, and other infrastructure no longer required in Ward Park. Revegetation to be undertaken in accordance with Revegetation Compensation Package. Further details required for interface between project boundary and park, in collaboration with Aspect and CUS.</td>
<td>White not a heritage item, this park is likely to have social significance for the community.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>B47 - Minimise the removal of vegetation</td>
<td>REMMV02 - minimise impact on significant trees</td>
<td>REMMV19 – substation infrastructure</td>
<td>Substantial tree removal along Devonshire Street boundary.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Surry Hills stop along the northern edge of the park.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Terrace House</td>
<td>Local</td>
<td>I1521</td>
<td>Minor Adverse</td>
<td></td>
<td></td>
<td></td>
<td>Removal of street trees from the north side of Devonshire Street in front of heritage item.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Pavement works</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Surry Hills stop in close proximity.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>The under-grounding of electrical poles and wires along Devonshire Street would necessitate the installation of private pillars or new poles and connections to each property. Refer to specific previous heritage advice included as an Appendix to this HIA.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Further heritage advice and assessment can be provided when the next iteration of design for the electrical connections is released/finalised.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heritage Asset</td>
<td>Significance ID</td>
<td>Previous Impact Ranking</td>
<td>Previous Mitigation Measure from 2013 HIA</td>
<td>Site Specific REMM and MCOA Compliance to date</td>
<td>Proposed Design Change to Avoid/Minimise Impacts from Draft HIA (based on Stage 1 Design)</td>
<td>Acciona Response to Heritage Advice and Draft HIA (dated 18 March 2016)</td>
<td>Current Design (Stage 2 Submission)</td>
<td>Revised Impact Ranking</td>
<td></td>
</tr>
<tr>
<td>----------------</td>
<td>----------------</td>
<td>--------------------------</td>
<td>-------------------------------------------</td>
<td>-----------------------------------------------</td>
<td>------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>----------------------------</td>
<td></td>
</tr>
<tr>
<td>Terrace House</td>
<td>Local</td>
<td>Minor</td>
<td>No specific mitigation measures are required.</td>
<td></td>
<td>● Removal of street trees from the north side of Devonshire Street in front of heritage item.</td>
<td></td>
<td></td>
<td>Minor</td>
<td></td>
</tr>
<tr>
<td>High Holborn Street HCA</td>
<td>Local</td>
<td>Moderate</td>
<td>No specific mitigation measures are required.</td>
<td></td>
<td>● The under-grounding of electrical poles and wires along Devonshire Street would necessitate the installation of private pillars or new poles and connections to each property.</td>
<td>Refer to specific previous heritage advice included as an Appendix to this HIA.</td>
<td></td>
<td>Moderate</td>
<td></td>
</tr>
<tr>
<td>St Peter's Roman Catholic Church Group</td>
<td>Local</td>
<td>Minor</td>
<td>No specific mitigation measures are required.</td>
<td>● B61 - Archival Recordings</td>
<td>Confirmation that a new vehicle gate would be constructed in the western boundary of the church.</td>
<td>Would necessitate the removal of a section of brick wall, metal infill panels, grassed area and hedging. Freestanding sign to be relocated.</td>
<td>Should seek to retain hedging as much as possible.</td>
<td>Minor</td>
<td></td>
</tr>
<tr>
<td>Terrace Group</td>
<td>Local</td>
<td>Minor</td>
<td>No specific mitigation measures are required.</td>
<td></td>
<td>● Retention of street trees on both sides of Devonshire Street in front of heritage item.</td>
<td>Two smart poles in front of heritage item.</td>
<td></td>
<td>Neutral</td>
<td></td>
</tr>
<tr>
<td>Former Hotel Victoria</td>
<td>Local</td>
<td>Minor</td>
<td>No specific mitigation measures are required.</td>
<td></td>
<td>● Smart pole in front of heritage item.</td>
<td></td>
<td></td>
<td>Neutral</td>
<td></td>
</tr>
<tr>
<td>Bourke Street South HCA</td>
<td>Local</td>
<td>Moderate</td>
<td>No specific mitigation measures are required.</td>
<td></td>
<td>Revegetation to be undertaken in accordance with Revegetation Compensation Package</td>
<td>The under-grounding of electrical poles and wires along Devonshire Street would necessitate the installation of private pillars or new poles and connections to each property.</td>
<td>Refer to specific previous heritage advice included as an Appendix to this HIA.</td>
<td>Moderate</td>
<td></td>
</tr>
<tr>
<td>Former Edward Hill &amp; Co Factory including interiors</td>
<td>Local</td>
<td>Minor</td>
<td>No specific mitigation measures are required.</td>
<td></td>
<td>● Retention of street trees on both sides of Devonshire Street in front of heritage item.</td>
<td>Two smart poles in front of heritage item.</td>
<td></td>
<td>Neutral</td>
<td></td>
</tr>
<tr>
<td>Terrace Group (9-15 Pawley Street)</td>
<td>Local</td>
<td>Minor</td>
<td>No specific mitigation measures are required.</td>
<td></td>
<td>● Smart poles positioning</td>
<td>● Smart pole in close proximity to the first floor veranda of the terrace closest to Nicholson Lane. Relocation away from the building must be investigated.</td>
<td>Retain three trees in park in front of heritage item.</td>
<td>Minor</td>
<td></td>
</tr>
<tr>
<td>Heritage Asset</td>
<td>Significance</td>
<td>Previous Impact Ranking</td>
<td>Previous Mitigation Measure from 2013 HIA</td>
<td>Site Specific REMM and MCOA</td>
<td>Compliance to date</td>
<td>Proposed Design Change to Avoid/Minimise Impacts from Draft HIA (based on Stage 1 Design)</td>
<td>Acciona Response to Heritage Advice and Draft HIA (dated 18 March 2016)</td>
<td>Current Design (Stage 2 Submission)</td>
<td>Revised Impact Ranking</td>
</tr>
<tr>
<td>----------------</td>
<td>--------------</td>
<td>-------------------------</td>
<td>-------------------------------------------</td>
<td>-----------------------------</td>
<td>-------------------</td>
<td>----------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>Wimbo Park</td>
<td>Major Adverse</td>
<td>-</td>
<td></td>
<td>B47 - Minimise the removal of vegetation</td>
<td>ALTRAC Light Rail Revegetation Compensation Package (January 2016).</td>
<td>Retention of trees towards south boundary of Wimbo Park?</td>
<td>Current discussions with arborist about the possibility of retaining more existing trees within Wimbo Park.</td>
<td>While not a heritage item, this park is likely to have social significance for the community.</td>
<td>Major Adverse</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>B55 - Impacts to heritage shall be minimised</td>
<td>REMMO14 - minimise impact on significant trees</td>
<td>Request confirmation that replacement plantings undertaken during construction will be in accordance with the Revegetation Compensation Package.</td>
<td>The removal of trees and construction of the CSELR would have a detrimental impact on Wimbo Park.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>B61 - Archival Recordings</td>
<td>REMMV18 - mosaic mural and sandstone monument</td>
<td>Mosaic mural on concrete wall and sandstone monument to be retained in situ or relocated.</td>
<td>Request confirmation that replacement plantings undertaken during construction will be in accordance with the Revegetation Compensation Package.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>REMMV20 - mitigation measures for the Moore Park</td>
<td>REMMV19 - mosaic mural and sandstone monument</td>
<td>Mosaic mural on concrete wall and sandstone monument must be retained in the new design.</td>
<td>Request confirmation that replacement plantings undertaken during construction will be in accordance with the Revegetation Compensation Package.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Note interpretation opportunities along the public domain.</td>
<td>Request confirmation that replacement plantings undertaken during construction will be in accordance with the Revegetation Compensation Package.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Request confirmation that replacement plantings undertaken during construction will be in accordance with the Revegetation Compensation Package.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Request confirmation that replacement plantings undertaken during construction will be in accordance with the Revegetation Compensation Package.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Request confirmation that replacement plantings undertaken during construction will be in accordance with the Revegetation Compensation Package.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Wimbo Park**

- **Significance:** Major Adverse
- **Previous Impact Ranking:** -
- **Previous Mitigation Measure from 2013 HIA:**
  - B47 - Minimise the removal of vegetation
  - REMMO14 - minimise impact on significant trees
  - REMMV18 - mosaic mural and sandstone monument
- **Site Specific REMM and MCOA:** ALTRAC Light Rail Revegetation Compensation Package (January 2016).
- **Compliance to date:**
  - Retention of trees towards south boundary of Wimbo Park?
  - Request confirmation that replacement plantings undertaken during construction will be in accordance with the Revegetation Compensation Package.
  - Mosaic mural on concrete wall and sandstone monument to be retained in situ or relocated.
- **Proposed Design Change to Avoid/Minimise Impacts from Draft HIA (based on Stage 1 Design):**
  - Note interpretation opportunities along the public domain.
- **Acciona Response to Heritage Advice and Draft HIA (dated 18 March 2016):**
  - Current discussions with arborist about the possibility of retaining more existing trees within Wimbo Park.
  - Request confirmation that replacement plantings undertaken during construction will be in accordance with the Revegetation Compensation Package.
- **Current Design (Stage 2 Submission):**
  - While not a heritage item, this park is likely to have social significance for the community.
  - The removal of trees and construction of the CSELR would have a detrimental impact on Wimbo Park.

**Centennial Park - Moore Park / Anzac Parade Significant Trees**

- **Significance:** Local
- **Previous Impact Ranking:** Moderate Adverse
- **Previous Mitigation Measure from 2013 HIA:**
  - B47 - Minimise the removal of vegetation
  - B55 - Impacts to heritage shall be minimised
  - B61 - Archival Recordings
  - REMMO15 - environmental management measures at Moore Park
  - REMMV20 - mitigation measures for the Moore Park
- **Site Specific REMM and MCOA:**
  - Archival recording of the southern boundary of Centennial Park (Lang Road to Anzac Parade) was undertaken by GML in December 2015.
  - ALTRAC Light Rail Revegetation Compensation Package (January 2016).
- **Compliance to date:**
  - Archival recording of the southern boundary of Centennial Park (Lang Road to Anzac Parade) was undertaken by GML in December 2015.
  - ALTRAC Light Rail Revegetation Compensation Package (January 2016).
- **Proposed Design Change to Avoid/Minimise Impacts from Draft HIA (based on Stage 1 Design):**
  - Archival recording of the southern boundary of Centennial Park (Lang Road to Anzac Parade) was undertaken by GML in December 2015.
  - ALTRAC Light Rail Revegetation Compensation Package (January 2016).
- **Acciona Response to Heritage Advice and Draft HIA (dated 18 March 2016):**
  - Archival recording of the southern boundary of Centennial Park (Lang Road to Anzac Parade) was undertaken by GML in December 2015.
  - ALTRAC Light Rail Revegetation Compensation Package (January 2016).
- **Current Design (Stage 2 Submission):**
  - Archival recording of the southern boundary of Centennial Park (Lang Road to Anzac Parade) was undertaken by GML in December 2015.
  - ALTRAC Light Rail Revegetation Compensation Package (January 2016).
- **Revegetation to be undertaken in accordance with Revegetation Compensation Package:**
  - The avenue of trees along the length of Anzac Parade are listed on the City of Sydney Significant Tree Register 2013 as a large group of uncommon native figs that form a contiguous border along Anzac Parade, and as an item of local significance.
  - Construction of the portal, tunnel and emergency vehicle hardstand area for the CSELR will require the removal of numerous significant trees within Moore Park.
  - The construction of the tunnel and emergency vehicle hardstand area for the CSELR will require the removal of numerous significant trees within Moore Park.
  - The construction of the tunnel and emergency vehicle hardstand area for the CSELR will require the removal of numerous significant trees within Moore Park.
  - The construction of the tunnel and emergency vehicle hardstand area for the CSELR will require the removal of numerous significant trees within Moore Park.
  - The construction of the tunnel and emergency vehicle hardstand area for the CSELR will require the removal of numerous significant trees within Moore Park.
- **Current Design (Stage 2 Submission):**
  - The avenue of trees along the length of Anzac Parade are listed on the City of Sydney Significant Tree Register 2013 as a large group of uncommon native figs that form a contiguous border along Anzac Parade, and as an item of local significance.
  - Construction of the portal, tunnel and emergency vehicle hardstand area for the CSELR will require the removal of numerous significant trees within Moore Park.
  - The construction of the tunnel and emergency vehicle hardstand area for the CSELR will require the removal of numerous significant trees within Moore Park.
  - The construction of the tunnel and emergency vehicle hardstand area for the CSELR will require the removal of numerous significant trees within Moore Park.
  - The construction of the tunnel and emergency vehicle hardstand area for the CSELR will require the removal of numerous significant trees within Moore Park.
  - The construction of the tunnel and emergency vehicle hardstand area for the CSELR will require the removal of numerous significant trees within Moore Park.
- **Revised Impact Ranking:** Moderate Adverse
Moore Park HCA
Minor to Moderate Adverse
- The area required for excavation would be minimised to reduce the impact of the works on Moore Park.
- A construction methodology that reduces the number of significant trees to be removed would be implemented.
- The size and form of the tunnel portal structures would be as recessive as possible to reduce permanent visual impacts on the landscape of Moore Park. Any new structures/infrastructure would be recessive and allow the broader landscape to remain the dominant feature.
- The location and design of the Moore Park stop would minimise impact on significant views of the Sydney Cricket Ground and former RAS buildings from Anzac Parade and within Moore Park.
- The detailed design of the alignment would ensure maximum separation from the tennis pavilion, and avoid any impacts on physical fabric.
- Areas excavated for construction of the CSELR would be reinstated to the current condition on completion of construction. This includes areas to be used for construction work depot/lay-down areas.
- A photographic archival recording of the areas of Moore Park that would be subject to impacts from construction of the CSELR, including the Anzac Parade avenue of trees, would be undertaken prior to works commencing.
- B39 - Design of the Moore Park portal bridge over the Eastern Distributor and the relocated Surry Hills substation.
- B47 - Minimise the removal of vegetation
- B55 - Impacts to heritage shall be minimised
- B61 - Archival Recordings
- REMO15 - environmental management measures at Moore Park
- REMO20 - mitigation measures for the Moore Park Conservation Area
- Archival recording of the southern boundary of Centennial Park (Lang Road to Anzac Parade) undertaken by GML in December 2015.
- ALTRAC Light Rail Revegetation Compensation Package (January 2016).
- Greater landscaping around portal - returning more landscape character to Moore Park.
- Note interpretation opportunities along the public domain.

8 Acciona Response to Heritage Advice and Draft HIA (dated 18 March 2016)
- Grinshaw confirmed that the three screens on the new bridge over the Eastern Distributor would be the similar to the Albert “Tibby” Cotter pedestrian bridge.
- Aluminium barriers in a bronze finish clad the facade of the substation building and into the portal mouth. The barriers further reduce the visual impact of both the substation and tunnel structures and align with the materials and finishes palette used on the Eastern Distributor Bridge, surrounding light rail infrastructure and relate to the City of Sydney Villages palettes, with proposed bollards, smartpoles and bridge elements of a similar bronze colour.
- Other changes implemented include symmetrical bridge screening; changes to chamer to the gilder profile; removal of the concrete triangle on the south side of the bridge and integrating lighting with handrail.
- The substation is contained in a landscaped mound, with a planted roof and substantial surrounding planting, with an aim to soften the elevation to South Dowling Street.

The proposed alignment of the CSELR through Moore Park would result in both temporary and permanent impacts on the heritage significance of the item.
- (Lightrail and shared path bridge over Eastern Distributor, portals, substation, tunnel, Moore Park stop)
- Design changes to the substation and tunnel portals are in keeping with the suite of materials for other elements of the SLR. This clearly distinguishes these elements as modern insertions into the parkland setting.
- The use of landscaping to mound over the substation and tunnel portals, and the planting of new Ficus macrophylla along South Dowling Street, would screen and reduce the visual impact of the substation and tunnel portal from western views into the HCA.
- While the lightrail and shared path bridge over Eastern Distributor would be a large new “Tard” structure on the periphery of two HCA’s, the design and selection of materials is in keeping with the suite of new SLR elements and landscaping has been incorporated to soften this element.
- There needs to be consistency between the language and finish of the eastern and western light rail portals within Moore Park.
- The new pedestrian bridge over Anzac Parade would increase the amount of built infrastructure within the parklands, be visually intrusive and it necessitates further removal/pruning of trees along Anzac Parade. It would be a dominant piece of infrastructure within the parklands and would have a major adverse impact on the landscape and surrounding heritage items. The bridge also results in a cumulative impact, given the two bridges across Anzac Parade would be in such close proximity to each other.
- Construction of the Moore Park Special Events stop and the CSELR alignment next to the busway on Anzac Parade would result in the permanent loss of this area of Moore Park as a landscape space. The stop structure and portal would have a moderate adverse impact on the visual setting and dominant parkland character of this area in views from Anzac Parade and within Moore Park.
- The additional infrastructure required for this section of CSELR, such as support poles, catenary wiring, fences associated with the tunnel portal, and in particular the substation, would increase the amount of built infrastructure within the parklands. Overall, this would have a moderate adverse visual impact on the aesthetic significance and setting of Moore Park and Centennial Park, in both views from the parklands area and Anzac Parade.
- While the Tennis Pavilion, south of Lang Road, is proposed to be retained, the proximity of the CSELR route would have a moderate adverse visual impact on the setting of the building.
- The location and alignment of the CSELR within Moore Park and along the alignment of Anzac Parade is consistent with the historic former alignment of Sydney tramways.
- Overall, the proposed works within the Centennial Park, Moore Park, Queens Park area represent a major adverse impact on the aesthetic and historic significance of the park and on its significant use as public parklands.
<table>
<thead>
<tr>
<th>Heritage Asset</th>
<th>Significance ID</th>
<th>Previous Impact Ranking</th>
<th>Previous Mitigation Measure from 2013 HIA</th>
<th>Site Specific REMM and MCOA</th>
<th>Compliance to date</th>
<th>Proposed Design Change to Avoid/Minimise Impacts from Draft HIA (based on Stage 1 Design)</th>
<th>Acciona Response to Heritage Advice and Draft HIA (dated 18 March 2016)</th>
<th>Current Design (Stage 2 Submission)</th>
<th>Revised Impact Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sydney Girls High School group</td>
<td>1959</td>
<td>Neutral</td>
<td></td>
<td></td>
<td></td>
<td>Bridge, ramp, stairs design package (DP06.8) extracted from Zone S.</td>
<td>Acciona confirmed that the potential draft design for the pedestrian bridge will include stairs and lifts rather than ramps. A new bridge in this location would have a substantial adverse heritage impact on the heritage items adjacent and in the HCA. The construction of the bridge adds to the cumulative impact of significant tree removal, large event station construction and increased built forms and infrastructure within the HCA. Has the potential to impact on the Bear Pit. Relocation of the staff facilities to be colocated behind stairs. Construction of the Moore Park stop, and its staff facilities, hardstand areas, footbridge structure, would increase the amount of built infrastructure in the conservation area. The proposed bridge across Anzac Parade (and its associated stairs) connecting the school and the Moore Park stop would be a prominent piece of infrastructure within the parklands and would have a major adverse impact on the landscape and surrounding heritage items. The western stairs are physically separated from the Bear Pit and does not substantially affect the visual setting of this heritage feature.</td>
<td>Major Adverse</td>
<td></td>
</tr>
<tr>
<td>Sydney Boys High School &amp; Sydney Girls High School Significant Trees</td>
<td>24.06</td>
<td>Neutral</td>
<td></td>
<td></td>
<td></td>
<td>Bridge, ramp, stairs design package (DP06.8) extracted from Zone S.</td>
<td>The removal of trees for the tracks and stop would make the proposed bridge very prominent. The bridge and associated infrastructure would require the removal of trees along the Anzac Parade frontage to the school.</td>
<td>Major Adverse</td>
<td></td>
</tr>
<tr>
<td>Centennial Park, Moore Park, Queens Park</td>
<td>01384</td>
<td>Moderate Adverse</td>
<td></td>
<td></td>
<td></td>
<td>Bridge, ramp, stairs design package (DP06.8) extracted from Zone S.</td>
<td>The Anzac Parade alignment would result in the removal of a number of significant trees from within the conservation area. The removal of significant trees would have a major adverse impact on the heritage conservation area. Potential to affect Group B, C and E trees along the eastern boundary of the schools. The removal of trees on both sides of the road for the new pedestrian bridge over Anzac Parade is a major adverse impact on the HCA.</td>
<td>Major Adverse</td>
<td></td>
</tr>
</tbody>
</table>
The detailed design, documentation and construction of the proposed CSELR would be managed to ensure that the potential heritage impacts identified in this report are minimised and/or avoided by implementation of the mitigation management and strategies proposed in this report.

The following general measures apply to the management of heritage issues along the CSELR route:

- Heritage specialists (built and landscape heritage) must be involved in the detailed design and documentation phase. They would also liaise with the teams selected to carry out the construction works to ensure that the recommended mitigation measures are implemented and impacts on heritage items and conservation areas are minimised.
- Works within or adjacent to built and landscape heritage items, or within HCAs, would be subject to careful detailed design to ensure adverse impacts are avoided or minimised.
- Appropriate protection of the physical fabric of heritage items would be provided during construction of the CSELR. This may involve temporary hoardings to sensitive areas, or variations to the construction methodology to avoid unnecessary impacts.
- The light rail stops would be designed to minimise impacts on heritage items in terms of form, scale, materials and any landscaping. For example, open, lightweight and low profile structures of contemporary design that minimise visual impacts on key views to and from heritage items, would be appropriate.
- Photographic archival recording of heritage items/areas would continue to be undertaken in accordance with the relevant NSW Heritage Division guidelines. Photographic material generated from this process could be incorporated within interpretive features.
- Following the previous development of the Interpretation Strategy, Subsequent stages of interpretation would seek to develop the concepts identified in the Heritage Interpretation Strategy report, and would also address the recognition of any significant archaeology investigated/uncovered during the course of the CSELR project.
- Interpretation would be concentrated at places/routes which are publicly accessible and highly trafficked—such as, along shared paths, at light rail stops, along fence lines, in ground, and in retaining walls.
- Specific initiatives associated with particular areas should be incorporated at particular stops in the vicinity of those features/deposits/items.
- The design of the light rail vehicles should also include interpretive aspects.

The following targeted measures would apply to the management of heritage issues within the Surry Hills precinct:

**Belmore Park**
- The construction compound in the northern extent of Belmore Park needs to be designed and constructed in accordance with the ARD and CHMP, and not remove significant trees or have any subsurface works.
- Salvage of existing bricks and reuse for realigned retaining wall.
- Replanting of plane trees in the park to re-establish the line along Elizabeth Street.

**Dental Hospital**
- Replanting of trees along Chalmers Street should be further investigated.

**Former Radio Workshop**
- Redesign of the adaptation of this building should replace the currently proposed brick infill panels with something like perforated metal screen in order to differential between the existing original brick walls and later additions.
- If any further ‘closing off’ is required, it should be undertaken on the inside of the building (i.e. grills could be installed on the inside), but they must still allow access to the timber windows for maintenance.

**Strawberry Hills Hotel**
- Smart poles should be relocated to avoid penetration of highly intact awning. This should be the general approach for smart poles in the vicinity of heritage items.

**Devonshire Street Significant Trees**
- Where significant trees along Devonshire Street must be removed, suitable replacements would be made, in accordance with the Revegetation Compensation Package.

- Replanting of trees along Chalmers Street.
- Where significant trees within Moore Park or along Anzac Parade must be removed, suitable replacements would be made, in accordance with the Revegetation Compensation Package.

- The finishing of the eastern Light Rail portal should be the same as the western portal. This provides consistency for Light Rail elements across the whole project, as well as within Moore Park HCA.
- Where significant trees within Moore Park or along Anzac Parade must be removed, suitable replacements would be made, in accordance with the Revegetation Compensation Package.

- Replanting of trees along Chalmers Street.
- Where significant trees within Moore Park or along Anzac Parade must be removed, suitable replacements would be made, in accordance with the Revegetation Compensation Package.
Sustainability principles have been embedded throughout the design of the CSELR. The Project is governed by the requirements of the Project Deed Scope and Performance Requirements Appendix 7 - Sustainability, to deliver on sustainability targets that:

- meet a minimum “gold” rating, compliant with TfNSW Sustainable Design Guidelines Version 2;
- achieve an IS Rating Tool “design” rating of at least 65; and
- achieve an IS Rating Tool “as built” rating score of at least 65 for OpCo’s Activities.

Project Conditions of Approval B77, B78 and B79 address the above sustainability targets.

A full table of the detailed requirements and Project compliance follows.

<table>
<thead>
<tr>
<th>#</th>
<th>Reference</th>
<th>Detailed Requirement</th>
<th>Comments on compliance</th>
<th>Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>App 7 - 2.4.1 (a)</td>
<td>OpCo must identify, implement and document initiatives that enhance community health, well being and safety.</td>
<td>Compliant. Design allows pedestrians to locally access a sustainable transport system and reduces the reliance on private car use for trips along the alignment. A shared paths and dedicated cycleways encourages walking and cycling through the public domain, with bicycle parking spaces at stops and within parks supporting cyclists. Landscaped areas and new trees provide shade and soften the visual impact of urban areas. Regular pedestrian crossings have been positioned to promote safe access to the stops.</td>
<td>SLR-ASP-D40-URD-DWG-023101 to 023124</td>
</tr>
<tr>
<td>2</td>
<td>App 7 - 2.4.2 (a)</td>
<td>OpCo must identify, implement and document initiatives that enhance heritage values and minimise heritage impacts.</td>
<td>Compliant. A Heritage Impact Assessment has been prepared for the Project. For a summary of the current heritage issues refer to Section 8: Heritage, of this UDLP.</td>
<td>SLR-ASP-D40-URD-REP-023001, Appendix O.</td>
</tr>
<tr>
<td>3</td>
<td>App 7 - 2.6 Table 1</td>
<td>Area of new landscape / public open space created: 2.12 Ha</td>
<td>Compliant.</td>
<td>SLR-ASP-D40-URD-DWG-023101 to 023124</td>
</tr>
<tr>
<td>4</td>
<td>App 7 - 2.6 Table 1</td>
<td>Number of secure cycle parking spaces to be provided. In accordance with any cycle parking requirements of the Pedestrian and Cyclist Network and Facilities Strategy to be prepared in accordance with Planning Approval Condition B33 as detailed in Schedule B2.</td>
<td>Compliant. Bicycle parking spaces have been provide at stops, pocket parks and existing parks in line with SPR requirements.</td>
<td>SLR-ASP-D40-URD-DWG-023101 to 023124</td>
</tr>
<tr>
<td>5</td>
<td>ISCA - Hea-2 Crime prevention</td>
<td>The likelihood of crime has been reduced through implementing appropriate CPTED guidelines in design, construction and operation. AND All tunnels or underpasses have end-to-end visibility. Temporary construction diversions and lighting are designed to meet CPTED guidance.</td>
<td>Compliant. A CPTED consultant has reviewed the current crime statistics, conducted a walk-through of the length of the Zone S alignment and received a full current set of drawings for information. The preliminary report, in liaison with the D+C Contractor, OpCo has been provided as Appendix W of the Public Domain design report SLR-ASP-D40-URD-REP-023001. All recommendations made in the said report, pertaining to Public Domain are incorporated in the design.</td>
<td>Design Report SLR-ASP-D40-URD-REP-023001, Appendix W</td>
</tr>
</tbody>
</table>
| 6   | ISCA - Urb-2 Site planning | “A comprehensive site planning report is prepared that addresses the following objectives as a minimum where relevant:
- Integration with existing infrastructure and development
- Urban form
- Public transport
- Activity centres and employment
- Landscape
The requirements for Level 1 are achieved. AND The site planning report has been independently reviewed.” | N/A for this package | Prepared by the D+C contractor |
<table>
<thead>
<tr>
<th>#</th>
<th>Reference</th>
<th>Detailed Requirement</th>
<th>Comments on compliance</th>
<th>Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>ISCA - Urb-3 Urban design</td>
<td>An urban and landscape design plan is developed and implemented that includes the following principles from the Australian Urban Design Protocol as a minimum: 1. Site analysis in accordance with the requirements of Urb-2; 2. Vision and objectives for the infrastructure; and 3. Strategies that respond to the relevant People and Place principles outlined in the Australian Urban Design Protocol (AUDP) or other ISCA approved guidelines. AND Qualified urban/landscape design professionals are involved with documentation, implementation, and monitoring of quality of workmanship throughout the design phase. The requirements for Level 1 are achieved. AND The urban and landscape design plan has been independently reviewed.</td>
<td>In progress. This Urban Design and Landscape Plan has been prepared in consultation with stakeholders and TfNSW to satisfy the requirements of Planning Condition B51. This UDLP will be reviewed by an independent member of the Urban Domain Reference Group. Comments received following independent review will be included in the Appendix.</td>
<td>This document</td>
</tr>
<tr>
<td>8</td>
<td>ISCA - Urb-4 Implementation</td>
<td>Qualified urban/landscape design professionals are involved with documentation, implementation, and monitoring of quality of workmanship throughout the construction phase. AND Urban and landscape designs are constructed and ongoing management is incorporated into urban design and landscape management plans. AND Monitoring of performance of urban and landscape design aspects is undertaken at regular intervals during the operation phase. The as-built infrastructure is independently audited for compliance with the urban and landscape design plan and the audit finds a high degree of compliance. AND The operating asset is independently audited for compliance with the urban and landscape design plan and the urban design and landscape management plan and the audit finds a high degree of compliance.</td>
<td>ASPECT Studios are appointed as Landscape Architects throughout all phases of the CSELR project.</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>SDG - C.22 Planning framework</td>
<td>Plan and design projects to take into considerations existing planning strategies in consultation with relevant authorities.</td>
<td>Compliant. The design of the public domain, as addressed in Design Package DP02.3, has taken into account the relevant planning strategies and guidelines, as listed in Section 1.6: Design Standards and Guidelines.</td>
<td>SLR-ASP-D40-URD-REP-023001, Appendix I</td>
</tr>
<tr>
<td>10</td>
<td>&quot;SDG - C.23 Crime Prevention Through Environmental Design (CPTED)&quot;</td>
<td>Incorporate CPTED principles during design. This may include natural observation and use of CCTV. Natural observation is achieved through fence, landscape, streetscape and open space design in public or staff supervised areas. This is achieved by minimising narrow corridors, hidden corners and through the use of lighting.</td>
<td>Compliant. A CPTED consultant has reviewed the current crime statistics, conducted a walk-through of the length of the Zone 5 alignment and received a full current set of drawings for information. The preliminary report, in liaison with the D+C Contractor, OpCo has been provided as Appendix W of the Public Domain design report SLR-ASP-D40-URD-REP-023001. All recommendations made in the said report, pertaining to Public Domain are incorporated in the design.</td>
<td>SLR-ASP-D40-URD-REP-023001, Appendix W</td>
</tr>
<tr>
<td>11</td>
<td>SDG - 1.15 Light colored finishes</td>
<td>Use light colored finishes on floors, walls and ceilings of offices, stations and platforms to help reflect ambient light. Within car parks, consider glare and safety issues that may arise.</td>
<td>Compliant. Hardcape materials have been selected in accordance with SPR Appendix 14 and CoS Street Design Code.</td>
<td>SLR-ASP-D40-URD-REP-023001, Appendix I</td>
</tr>
<tr>
<td>#</td>
<td>Reference</td>
<td>Detailed Requirement</td>
<td>Comments on compliance</td>
<td>Evidence</td>
</tr>
<tr>
<td>----</td>
<td>-----------------</td>
<td>---------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>12</td>
<td>SDG - 1.36</td>
<td>External solar shading Use external solar shading and vegetation (deciduous trees</td>
<td>Compliant. Tree species have generally been selected in</td>
<td>SLR-ASP-D40-URD.DWG-023424 to 023424 and planting schedules</td>
</tr>
<tr>
<td></td>
<td></td>
<td>preferred).</td>
<td>accordance with SPR Appendix 14 and CoS Street Tree Masterplan.</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>SDG - 3.4</td>
<td>Recycled / renewable materials</td>
<td>Compliant.</td>
<td>SLR-ASP-D40-URD.DWG-023401 to 023424 and planting schedules</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Maximise the recycled content of construction materials, in particular those included</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>in the Infrastructure Sustainability Council of Australia’s IS Materials Calculator</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>available from ISCA for free at <a href="http://www.isca.org.au">www.isca.org.au</a>.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>SDG - 3.5</td>
<td>Optimise design to minimise material consumption, mass/ volume/spare use and above</td>
<td>Compliant. In general the public domain has been designed to</td>
<td>SLR-ASP-D40-URD.DWG-023424 to 023424 and planting schedules</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ground land use.</td>
<td>meet the requirements of the SPR and its environmental</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Maximise the recycled content of construction materials, in particular those included</td>
<td>Where possible existing site furniture will be retained or</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>in the Infrastructure Sustainability Council of Australia’s IS Materials Calculator</td>
<td>recycled, footpaths will be combined with landscaped areas</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>available from ISCA for free at <a href="http://www.isca.org.au">www.isca.org.au</a>.</td>
<td>to reduce hardscape.</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>SDG - 4.2</td>
<td>Ecological value opportunities</td>
<td>Compliant.</td>
<td>SLR-ASP-D40-URD.DWG-023424 to 023424 and planting schedules</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Maximise ecological values through landscape species choice, and planting density</td>
<td>Plant species have generally been selected to be in</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>and configuration. Make sure that appropriate weed management strategies are</td>
<td>accordance with SPR Appendix 14, Section 8.7.2, or in line</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>undertaken to avoid migration or contamination on and off-site.</td>
<td>with feedback provided by CoS.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Shrubs and ground covers have been planted at 4/sqm and</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>6/sqm.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Configuration of mass planting areas has been designed to</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>reduce erosion on slopes and to minimise pedestrians</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>crossing the alignment at unsafe locations.</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>SDG - 4.4</td>
<td>Feral animal and weed program</td>
<td>Identifying, control, monitor and manage feral animals and</td>
<td>SLR-ASP-D40-URD.DWG-023424 to 023424 and planting schedules</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Maximise ecological values through landscape species choice, and planting density</td>
<td>weeds.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>and configuration. Make sure that appropriate weed management strategies are</td>
<td>D+C Contractor to provide evidence</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>undertaken to avoid migration or contamination on and off-site.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>SDG - 5.8</td>
<td>Water real-time metering</td>
<td>Monitor and record water use patterns.</td>
<td>SLR-ASP-D40-URD.DWG-023424 to 023424 and planting schedules</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>D+C Contractor to provide evidence</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>SDG - 5.10</td>
<td>Select plant species that require minimal or no irrigation after establishment.</td>
<td>Compliant.</td>
<td>SLR-ASP-D40-URD.DWG-023424 to 023424 and planting schedules</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Plant species have generally been selected to be in</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>accordance with SPR Appendix 14, Section 8.7.2, or in line</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>with feedback provided by CoS.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Shrub species have been selected to be in accordance with</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SPR Appendix 14, Section 8.7.2, or in line with feedback</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>provided by CoS.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Drought tolerant and low maintenance species have been</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>selected to minimise water use and maximise long term</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>visual amenity.</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>SDG - 5.11</td>
<td>Drip feed irrigation</td>
<td>Use drip feed irrigation or similar water efficient</td>
<td>SLR-ASP-D40-URD.DWG-023101 to 023124</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>technology from a non-potable water source where irrigation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>is necessary.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Irrigation in Zone S as per CoS Irrigation Strategy</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>SDG - 5.15</td>
<td>Permeable and porous surfaces</td>
<td>Design for permeable and porous surfaces to allow for</td>
<td>SLR-ASP-D40-URD.DWG-023101 to 023124</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>stormwater infiltration (preferably with other treatments</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>such as vegetation and swales).</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Compliant.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Vegetated zones have been incorporated into the Public</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Domain and Landscape Design.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>The use of permeable pavers of Terrabond to allow</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>for stormwater infiltration and reduce impacts on existing</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>and proposed trees.</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>SDG - 6.9</td>
<td>Avoid level crossings</td>
<td>Avoid level crossings where this does not significantly</td>
<td>SLR-ASP-D40-URD.DWG-023101 to 023124</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>impact upon vehicular or pedestrian accessibility.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Compliant.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Pram ramps have been used at the majority of crossings.</td>
<td></td>
</tr>
<tr>
<td>#</td>
<td>Reference</td>
<td>Detailed Requirement</td>
<td>Comments on compliance</td>
<td>Evidence</td>
</tr>
<tr>
<td>----</td>
<td>-----------</td>
<td>----------------------</td>
<td>------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>22</td>
<td>SDG - 6.11 Separate passenger waiting areas from noise</td>
<td>Segregate passenger waiting area from noisy areas.</td>
<td>N/A for this package</td>
<td>Passenger waiting areas as per Stop design - ref package DP01.3</td>
</tr>
<tr>
<td>23</td>
<td>SDG - 7.5 Shared adaptive use</td>
<td>Design in adaptive use on the weekends/non-peak periods (e.g. consider how the car park may be converted into a market or festival space on the weekend).</td>
<td>N/A for this package</td>
<td>Design based on SPR App 14 and third party agreements</td>
</tr>
<tr>
<td>24</td>
<td>SDG - 7.7 Plan station entries</td>
<td>Plan station entries that connect directly to existing key desire lines, pedestrian routes or for the most efficient pedestrian routes.</td>
<td>Compliant. Most efficient pedestrian routes have been designed, keeping in mind the existing key desire lines, where possible, while providing maximum safety to all user groups.</td>
<td>SLR-ASP-D40-URD-REP-023001, Appendix M</td>
</tr>
<tr>
<td>25</td>
<td>SDG - 7.8 Bicycle and pedestrian links</td>
<td>“Optimise local pedestrian links to and between community facilities, such as sports grounds etc. Plan pathways within the asset to connect directly with existing pedestrian routes, centre activities and station entries. Design station building in a way to prevent it becoming a visual or psychological barrier to crossing the railway.”</td>
<td>Compliant. Pedestrian Links optimised to connect with existing pedestrian routes, where possible, in the surrounding areas.</td>
<td>SLR-ASP-D40-URD-REP-023001, Appendix M</td>
</tr>
<tr>
<td>26</td>
<td>SDG - 7.16 Enable easy and intuitive navigation</td>
<td>Devise efficient pedestrian movement routes, and make sure that exits and entries are readily identifiable by sight without any reliance upon signage (e.g. arrows on directional floor tiling to direct to exits).</td>
<td>Compliant. Pedestrian movement routes optimised to provide easy identification of entries and exists. All building shore lines kept clear of trees and street furniture to provide easy access for all user groups.</td>
<td>SLR-ASP-D40-URD-URD-DWG-023101 to 023124</td>
</tr>
<tr>
<td>27</td>
<td>SDG - 7.17 Legibility through public art</td>
<td>Assist orientation in the station through the use of public art (e.g. floorscape art).</td>
<td>N/A for this package</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>SDG - 7.18 Enhance access and public amenity</td>
<td>Develop a coordinated strategy between agencies to make sure that modal interchanges are accessible and seamless</td>
<td>N/A for this package</td>
<td>Modal interchanges as per Roadworks package DP04.3 and Stops package DP01.3</td>
</tr>
<tr>
<td>29</td>
<td>SDG - 7.19 Kiss and ride</td>
<td>Provide for kiss and ride at the station.</td>
<td>N/A for this package</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>SDG - 7.20 Sheltered taxi stands and bus stops</td>
<td>Provide shelter for nearby taxi stands and bus stops.</td>
<td>Shelter provision as per SPR App 14 and third party agreement requirements.</td>
<td>SLR-ASP-D40-URD-URD-DWG-023101 to 023124</td>
</tr>
<tr>
<td>31</td>
<td>SDG - 7.28 Sheltered bicycle lockers and/or racks</td>
<td>Provide sheltered bicycle lock-ups and/or lockers in or near entrance to the station. Allow for at least 5% of staff use as maintenance facilities. See Section 3.9.3.1 of the ASA Station Design Standard Requirements for further information on bicycle parking requirements at stations.</td>
<td>N/A to this package</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>SDG - 7.29 Bicycle storage security</td>
<td>Locate bicycle storage area in an area with a high level of passive surveillance and/or prominent CCTV.</td>
<td>Compliant. Bicycle spaces provided in highly visible and easily accessible areas in line with SPR Appendix 14 number requirements.</td>
<td>SLR-ASP-D40-URD-URD-DWG-023101 to 023124</td>
</tr>
<tr>
<td>33</td>
<td>SDG - 7.30 Separate cycle ways and footpaths</td>
<td>Separate cycle ways and footpaths to decrease the likelihood of collisions and decrease pathway congestion.</td>
<td>Compliant. Separated cycleway provided wherever feasible on Eddy Avenue and Chalmers Street.</td>
<td>SLR-ASP-D40-URD-URD-DWG-023102 to 023106</td>
</tr>
<tr>
<td>#</td>
<td>Reference</td>
<td>Detailed Requirement</td>
<td>Comments on compliance</td>
<td>Evidence</td>
</tr>
<tr>
<td>----</td>
<td>-----------</td>
<td>----------------------</td>
<td>-----------------------</td>
<td>----------</td>
</tr>
<tr>
<td>34</td>
<td>SDG - 7.31 Wide footpaths</td>
<td>Design wider than minimum footpaths to enhance safety and service, keep corners clear of obstructions and improve intersections</td>
<td>Compliant. Footpaths provided are as wide as allowable. Corners and building shorelines are clear of obstructions to provide easy access to all user groups.</td>
<td>SLR-ASP-D40-URD-DWG-023101 to 023124</td>
</tr>
<tr>
<td>35</td>
<td>SDG - 7.32 Easy pathways</td>
<td>Make sure that pathways consider topography, minimising steep slopes and provide alternatives to steps</td>
<td>Pathways ramps designed to achieve maximum 1:21 ratio and 1:40 cross falls wherever possible. However, this is constrained in places by footpath slopes being governed by existing topography of the land. Levels as designed in conjunction with Stop designers and road and pavement designers.</td>
<td>SLR-ASP-D40-URD-DWG-023501 to 023527</td>
</tr>
<tr>
<td>36</td>
<td>SDG - 7.33 Safe pedestrian movement</td>
<td>Make sure that safe movement is promoted for pedestrians and cyclists by minimising vehicle crossings of paths, providing clear signage, and providing freedom from obstacles such as poles, trees etc.</td>
<td>Compliant. Continuous footpath provided where feasible on Devonshire Street and all street trees and furniture located to promote pedestrian movement.</td>
<td>SLR-ASP-D40-URD-SKT-023101 to 023124</td>
</tr>
<tr>
<td>37</td>
<td>SDG - 7.34 Passive traffic calming measures</td>
<td>Use passive traffic calming measures that do not modify road geometry to reduce vehicle speeds and improve safety around interchanges – such as tree-lined streets, tree lawns between a footpath and road, streets with raised centre medians, on street parking, highly visible pedestrian crossings and short building set back distances.</td>
<td>Compliant. Vehicular areas have tree lined avenues (as far as possible) and street furniture between the streets offering traffic calming measures. Pedestrian crossings are highly visible.</td>
<td>SLR-ASP-D40-URD-DWG-023101 to 023124</td>
</tr>
<tr>
<td>38</td>
<td>SDG - 7.37 Create station identity</td>
<td>Create a station identity using public art, architecture, use of color and materials etc.</td>
<td>N/A to this package</td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>SDG - 7.39 Reduce graffiti</td>
<td>Minimise graffiti risks such as through treatment of fencing and other surfaces with anti-graffiti paint or coatings, vegetation cover to deter graffiti or providing designated walls for graffiti.</td>
<td>Compliant. Walls will be treated with anti-graffiti coating.</td>
<td>SLR-ASP-D40-URD-SPE-023001</td>
</tr>
<tr>
<td>40</td>
<td>SDG - 7.47 Comfortable pedestrian and cyclist movement</td>
<td>Make sure that interchange is designed to promote pedestrian activity and bicycle use by considering the comfort and amenity of users i.e., including a buffer zone between the roadway and the walking area, avoid placing pedestrian and cycling crossing points at busy intersections, locate pedestrian and cycle crossings as close to the direct line of travel as possible, make sure that there are clear views of traffic at crossing points, provide kerb ramps, provide alternatives to pedestrian and bicycle crossings at roundabouts.</td>
<td>Compliant. Locations of pedestrian crossings have been located to co-ordinate with roadworks and access to each stop. Kerb ramps have been provided at all crossings.</td>
<td>SLR-ASP-D40-URD-DWG-023101 to 023124</td>
</tr>
<tr>
<td>41</td>
<td>SDG - 7.48 Cigarette disposal</td>
<td>Provide cigarette disposal facilities outside a station or maintenance facilities, away from ventilation intakes, stormwater drains and entry/exit points to reduce litter, and smoke particulates entering the internal environment.</td>
<td>N/A to this package</td>
<td></td>
</tr>
<tr>
<td>42</td>
<td>SDG - 7.49 Wind breaks</td>
<td>Design structures and landscape to shelter passengers from prevailing winds.</td>
<td>N/A to this package</td>
<td></td>
</tr>
<tr>
<td>43</td>
<td>SDG - 7.51 Asset vegetation</td>
<td>Provide vegetation to reduce heat islanding and increase visual attraction.</td>
<td>Tree have been located where space permits and in general to reduce glare, provide a visually attractive environment and protect customers from unpleasant weather conditions. Where tree planting cannot be achieved strip planting has been used to reduce heat islanding.</td>
<td>SLR-ASP-D40-URD-DWG-023101 to 023124</td>
</tr>
<tr>
<td>44</td>
<td>SDG - 7.52 Heat islands</td>
<td>Use light colored materials on roofs and pavements to both shade from and reflect sunlight, in order to decrease heat islanding.</td>
<td>Refer SLR SPR Appendix 14 for footpaths finishes</td>
<td><em>SLR-ASP-D40-URD-DWG-024101 to 024126 Refer Design Report Appendix 1 SLR-ASP-D40-URD-REP-024001</em></td>
</tr>
</tbody>
</table>
BRIEFING NOTE – Moore Park Substation

1. INTRODUCTION

Infrastructure Approval Condition B39 (c) states:

Specific measures to limit visual and ‘land-take’ impacts of the bridge, portals and substation on surrounding playing fields and adjacent heritage items. In relation to the substation, it must be located entirely underground with access and ventilation integrated with the tunnel structure. No component of the substation shall intrude into or impact on the use of the surface of Moore Park;

The concept design adhered to this requirement with the substation wholly underground and access provided via the tunnel portal. Design development has shown that this design intent is not practicable and a revised design has been progressed which puts the substation adjacent to the tunnel portal with access from a hardstand adjacent to the roadway of South Dowling Street.

2. DISCUSSION

2.1 Option 1 – Concept Design

The Concept design proposed that the substation be constructed completely underground and accessed through the Tunnel Portal (as required in the planning condition B39 c). Please refer to attached drawings SLR-CSY-DWG-AR-0530_B North Option & SLR-CSY-DWG-AR-0530_B South Option. There are significant difficulties with the concept design and further design development has shown that in order for the design to be acceptable the following modifications will be required:

1. Personnel access to the substation via the portal will require a safety refuge which will widen the portal
2. Access for equipment to the substation will require a flat hardstand area large enough to receive the transformer which is 3.5m x 2.1m and will require a hardstand of at least 4.5m x 3.5m. This will cause the portal to increase in width by an additional 4.5m, presenting a large concrete face to the elevation of South Dowling Street.
3. Emergency vehicle access is required adjacent to the portal dive structure; this requires a hard stand area and a retaining wall.
4. Additionally, increasing the width of the tunnel portal will cause the pedestrian route from the southern side of the Eastern Distributor Bridge to cross South Dowling Street in a diagonal direction away from the tunnel portal. This is in direct contravention of an obvious desire line and pedestrians are more likely to erroneously enter the tunnel portal.

2.2 Option 2 – Current Design

The current design integrates the substation with the retaining wall for the emergency vehicle hardstand. Please refer to the attached drawings SLR-ASP-D40-URD-SKT-023210 Moore Park West Substation Plan & SLR-ASP-D40-URD-SKT-023211 Moore Park West Substation Sections. The current substation design is summarised below:

1. The substation sits within the retained area adjacent to hardstand for emergency vehicle access, within the existing planted embankment to Moore Park West and utilises the face of the retaining wall.
2. The substation is underground except for the front face which utilises the already proposed retaining wall as a façade. In front of this face it is proposed to provide soft landscaping as screening.
3. Emergency vehicle access requires a hardstand area and retaining wall regardless of the location of the substation.
4. Pedestrian access to the park follows a direct desire line with no encouragement to erroneously enter the tunnel portal.
5. The substation has been pushed back underground into the park area to ensure that the façade does not impose onto the South Dowling Street Elevation more than necessary.

2.3 Discussion

2.3.1 Scope & Performance Requirements

SPR App 14 requires OpCo to minimise extent and visual impact, and that the design seamlessly integrates with the surrounding landscape. Both concept and current designs achieve this.

2.3.2 Planning Conditions

Planning Condition B39 (c) states that "No component of the substation shall intrude into or impact on the use of the surface of Moore Park".

Both Concept and Current designs are buried beneath the surface of Moore Park and therefore can be considered to comply with the requirement to not intrude into the surface of Moore Park, which is interpreted to mean that there can be no vertical structures such as ventilation shafts.

Both concept and current designs do impact upon the use of the surface of Moore Park and this is intrinsic to the design of a substation in this area. It is therefore considered that it is the extent of the intrusion that is a measure of compliance with the condition.

2.3.3 Concept Design

Whilst it may be argued that the concept design of the substation is wholly underground, the visual impact of widening the portal entrance is a poor outcome. The provision for an access way area to the substation was never included in the concept design; this will require the portal to be widened by 4.5m (width of the required access track) by the length of the portal...
(39.6m) - an area of 178.2m2. Whilst technically in accordance with the planning condition, this land-take does significantly impact upon the surface of Moore Park.

Consultation with the NSW emergency services has highlighted the requirement for a hardstand area adjacent to the tunnel portal. This requirement was never included in the concept design and will further take a 5.5m x 18.5m (101.75m2) area. The emergency vehicle hardstand and associated retaining wall will exist regardless of the substation location.

This equates the land take of the Concept Design to 279.95m2

2.3.4 Current Design

The current proposed design provides an architectural treatment to the retaining wall, which rather than a retaining wall has now become the front façade of the substation. This façade is further screened by soft landscaping.

The only area impacting the parkland is the area of the emergency vehicle hardstand, which will also become the transformer loading area, this sets the substation back into the hillside. This hardstand is the same area as the concept design hardstand 5.5m x 18.5m (101.75m2). This total land-take is less than the required land take of the concept design.

This equates the land take of the Concept Design to 101.75m2

3. CONCLUSION

The concept design, once developed, produces a poor outcome both visually along the South Dowling Street and because of the additional 176.9m2 land-take of the park.

The proposed current design produces a better outcome because of a considerably reduced land take, due to the required hardstand (required in both options) and better visual amenity along South Dowling Street.

4. References

4.1 Scope & Performance Requirements – Appendix 14

7.5 c)

iv - minimise the extent and visual impact of both tunnel portals and dive structures into Moore Park, and integrate into the landscape of the park;

x - Maximise the integration of the Light Rail infrastructure with the parklands area;

Xi - consider the interface between each area to ensure the design is seamlessly integrated with the surrounding landscape;

7.5.4. Moore Park tunnel and portals

(a) OpCo must ensure that the following requirements are achieved:

i - Any effects from de-watering must be managed to minimise the impacts to the existing fig trees within Moore Park;

ii - consider options to mitigate water loss due to de-watering;

iii - Moore Park western tunnel portal precinct - located in Moore Park West; provide a direct DDA-compliant, 6m wide, bitumen, shared path connection across Moore Park between existing playing fields to the connect to the proposed RMS footbridge;

iv - Moore Park eastern tunnel portal precinct – located in Moore Park East adjacent to the Tramway Oval; provide screening elements to the portal and dive structure min 3m high;

v - ensure that the screening elements and portal structures:

  A. are sensitive to the parkland character;
  B. use materials that are consistent with Moore Park; and
  C. are robust, elegant and vandal proof.

4.2 Planning Conditions

B39 (c)

Specific measures to limit visual and ‘land-take’ impacts of the bridge, portals and substation on surrounding playing fields and adjacent heritage items. In relation to the substation, it must be located entirely underground with access and ventilation integrated with the tunnel structure. No component of the substation shall intrude into or impact on the use of the surface of Moore Park.
**Moore Park Substation | Plan**

- **PROPOSED RETAINING WALL AND BOUNDARY FENCING.**
- **MOORE PARK WEST PORTAL STRUCTURE WITH ANTI-THROW SCREEN ABOVE.**
- **PROPOSED TREE PLANTING.**
- **MOORE PARK WEST. MASS SHRUB PLANTING ABOVE SUBSTATION TO DETER ACCESS.**
- **EMERGENCY VEHICLE AND MAINTENANCE ACCESS HARD STANDING.**
- **TREE AND SHRUB PLANTING TO SCREEN SUB STATION FROM SOUTH DOWLING STREET.**
- **LOW GROUND COVERS TO ALLOW ACCESS DOORS TO SWING OPEN.**
- **PROPOSED PEDESTRIAN CROSSING.**
- **PROPOSED EASTERN DISTRIBUTOR BRIDGE.**
- **BOLLARDS TO PREVENT VEHICLE ACCESS TO PORTAL.**
- **SUBSTATION WALL EXTENDED TO FORM SAFETY FENCE.**
- **SOUTH DOWLING STREET.**
- **CATTLE GRID TO DISCOURAGE PEDESTRIAN ACCESS TO PORTAL.**
- **FENCE TO PREVENT UNAUTHORISED PEDESTRIAN ACCESS TO PORTAL.**
- **PROPOSED WESTERN DISTRIBUTOR SOUTHBOUND (BELOW).**

---

**ASPECT Studios Pty Ltd ABN 11 120 219 561**

**SLR-ASP-D40-URD-SKT-023210|Scale 1:200 @ A3| Revision A | 19.08.2015**
MOORE PARK WEST PORTAL SECTION
Scale: 1:200

3m SAFETY SCREEN TO WESTERN PORTAL STRUCTURE.

MOORE PARK WEST PORTAL ELEVATION
Scale: 1:200

LIGHTRAIL AND PEDESTRIAN BRIDGE OVER EASTERN DISTRIBUTOR.
CBD and South East Light Rail (Surry Hills Precinct)

Stage 2 Design—Heritage Impact Assessment

Report prepared for ACCIONA on behalf of Transport for NSW

September 2016
Report Register

The following report register documents the development and issue of the report entitled CBD and South East Light Rail (Surry Hills Precinct)—Stage 2 Design—Heritage Impact Assessment, undertaken by GML Heritage Pty Ltd in accordance with its quality management system.

<table>
<thead>
<tr>
<th>Job No.</th>
<th>Issue No.</th>
<th>Notes/Description</th>
<th>Issue Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>16-0036</td>
<td>1</td>
<td>Draft Report</td>
<td>18 March 2016</td>
</tr>
<tr>
<td>16-0036</td>
<td>2</td>
<td>Final Report</td>
<td>30 September 2016</td>
</tr>
</tbody>
</table>

Quality Assurance

GML Heritage Pty Ltd operates under a quality management system which has been certified as complying with the Australian/New Zealand Standard for quality management systems AS/NZS ISO 9001:2008.

The report has been reviewed and approved for issue in accordance with the GML quality assurance policy and procedures.

<table>
<thead>
<tr>
<th>Project</th>
<th>Julian Su</th>
<th>Project Director &amp; Reviewer</th>
<th>Claire Nuñez</th>
</tr>
</thead>
<tbody>
<tr>
<td>Issue No.</td>
<td>2</td>
<td>Issue No.</td>
<td>2</td>
</tr>
<tr>
<td>Signature</td>
<td></td>
<td>Signature</td>
<td></td>
</tr>
<tr>
<td>Position:</td>
<td>Senior Heritage Consultant</td>
<td>Position:</td>
<td>Associate and Manager of Heritage Places Team</td>
</tr>
<tr>
<td>Date:</td>
<td>30 September 2016</td>
<td>Date:</td>
<td>30 September 2016</td>
</tr>
</tbody>
</table>

Copyright

Historical sources and reference material used in the preparation of this report are acknowledged and referenced at the end of each section and/or in figure captions. Reasonable effort has been made to identify, contact, acknowledge and obtain permission to use material from the relevant copyright owners.

Unless otherwise specified or agreed, copyright in this report vests in GML Heritage Pty Ltd ('GML') and in the owners of any pre-existing historic source or reference material.

Moral Rights

GML asserts its Moral Rights in this work, unless otherwise acknowledged, in accordance with the (Commonwealth) Copyright (Moral Rights) Amendment Act 2000. GML's moral rights include the attribution of authorship, the right not to have the work falsely attributed and the right to integrity of authorship.

Right to Use

GML grants to the client for this project (and the client's successors in title) an irrevocable royalty-free right to reproduce or use the material from this report, except where such use infringes the copyright and/or Moral Rights of GML or third parties.
<table>
<thead>
<tr>
<th>Contents</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0 Introduction</td>
<td>1</td>
</tr>
<tr>
<td>1.1 Project Background</td>
<td>1</td>
</tr>
<tr>
<td>1.1.1 Previous Heritage Impact Assessments</td>
<td>1</td>
</tr>
<tr>
<td>1.2 Statutory Context for Heritage</td>
<td>2</td>
</tr>
<tr>
<td>1.2.1 State Significant Infrastructure Approvals</td>
<td>2</td>
</tr>
<tr>
<td>1.3 CBD and South East Light Rail Route</td>
<td>9</td>
</tr>
<tr>
<td>1.3.1 Surry Hills Precinct</td>
<td>9</td>
</tr>
<tr>
<td>1.4 Methodology</td>
<td>9</td>
</tr>
<tr>
<td>1.4.1 Aboriginal Archaeology</td>
<td>10</td>
</tr>
<tr>
<td>1.4.2 Historical Archaeology</td>
<td>11</td>
</tr>
<tr>
<td>1.5 Author Identification</td>
<td>11</td>
</tr>
<tr>
<td>1.6 Acknowledgements</td>
<td>11</td>
</tr>
<tr>
<td>2.0 Surry Hills Precinct Description</td>
<td>13</td>
</tr>
<tr>
<td>2.1 Preamble</td>
<td>13</td>
</tr>
<tr>
<td>2.2 Heritage Context and Significance</td>
<td>13</td>
</tr>
<tr>
<td>2.2.2 Heritage Items</td>
<td>14</td>
</tr>
<tr>
<td>2.2.3 Heritage Conservation Areas</td>
<td>15</td>
</tr>
<tr>
<td>3.0 Assessment of Heritage Impact</td>
<td>17</td>
</tr>
<tr>
<td>3.1 General (Precinct Wide) Impact Assessment</td>
<td>17</td>
</tr>
<tr>
<td>3.2 Detailed (Per Heritage Asset) Impact Assessment</td>
<td>17</td>
</tr>
<tr>
<td>3.2.1 Tabulated Results</td>
<td>17</td>
</tr>
<tr>
<td>3.3 Assessment of Heritage Impact for Surry Hills Precinct</td>
<td>18</td>
</tr>
<tr>
<td>4.0 Mitigation Measures</td>
<td>30</td>
</tr>
<tr>
<td>4.1 General Measures</td>
<td>30</td>
</tr>
<tr>
<td>4.2 Specific Mitigation Measures</td>
<td>31</td>
</tr>
<tr>
<td>4.2.1 Delnmre Park</td>
<td>31</td>
</tr>
<tr>
<td>4.2.2 Electrify Street Park</td>
<td>31</td>
</tr>
<tr>
<td>4.2.3 Dental Hospital</td>
<td>31</td>
</tr>
<tr>
<td>4.2.4 Former Radio Workshop</td>
<td>31</td>
</tr>
<tr>
<td>4.2.5 Strawberry Hills Hotel</td>
<td>31</td>
</tr>
<tr>
<td>4.2.5 Devonshire Street Significant Trees</td>
<td>31</td>
</tr>
<tr>
<td>4.2.7 Ward Park</td>
<td>32</td>
</tr>
<tr>
<td>4.2.9 St Peter's Roman Catholic Church Group</td>
<td>32</td>
</tr>
<tr>
<td>4.2.10 Wimbo Park</td>
<td>32</td>
</tr>
<tr>
<td>5.0 Appendix</td>
<td>33</td>
</tr>
<tr>
<td>Appendix A</td>
<td></td>
</tr>
<tr>
<td>Previous Heritage Advice—Chalmers Street Substation</td>
<td></td>
</tr>
<tr>
<td>Appendix B</td>
<td></td>
</tr>
<tr>
<td>Previous Heritage Advice—Devonshire Street Property Connections</td>
<td></td>
</tr>
</tbody>
</table>
1.0 Introduction

1.1 Project Background

GML Heritage Pty Ltd (GML) has been commissioned by Acciona Infrastructure Australia (Acciona) on behalf of Transport for NSW (TfNSW) to prepare a supplementary Heritage Impact Assessment (HIA) to assess the potential heritage impact of the proposed design changes to the Surry Hills precinct of the CBD and South East Light Rail (CSEL&R) Stage 2 project.

The Surry Hills precinct (Zone S) includes the area between Eddy Avenue (Pitt Street intersection) and Anzac Parade (at Lang Street).

This HIA synthesises all previous heritage advice, and heritage impact assessments and recommendations for mitigation, into a summary report for submission with the Stage 2 design packages. It provides up to date listings information for heritage items of local and state significance and heritage conservation areas to be impacted, the previously approved mitigation measures, whether the mitigation measures have been incorporated/whether design changes have been undertaken, an assessment of the severity of the current impact and (if required) proposes new/additional mitigation measures.

This report has been prepared with reference to all relevant contract, approval and statutory requirements of the project, as identified in the Construction Heritage Management Plan, Revision F (GML, September 2015), from the following project approval documents:

- Minister’s Conditions of Approval (MCoA) for the project;
- TfNSW Deed requirements; and
- Revised Environmental Management Measures (REMMs) from the Environmental Impact Statement, (EIS)/Submissions Report/Project Modification and Submissions to the Modifications Report.

1.1.1 Previous Heritage Impact Assessments

In November 2013, an HIA was prepared to support the Environmental Impact Statement (EIS) for the CSEL&R project (Godden Mackay Logan, November 2013 (2013 HIA)). The HIA assessed the potential impacts of the proposed CSEL&R on heritage items, heritage conservation areas, landscape, Aboriginal archaeology and historical archaeology. The impact assessment was based on the Definition Design as at 5 September 2013. The HIA also proposed mitigation measures to avoid or reduce the extent of impacts on heritage elements across the project. A Heritage Interpretation Strategy was also prepared by GML in 2013 to form part of the EIS.

In January 2014, the first supplementary HIA was prepared to address proposed design changes to the CSEL&R project that occurred following the exhibition of the EIS and accompanied the Preferred Infrastructure Report (PIR) (GML, January 2014).

In 2015, GML prepared several other heritage reports in accordance with the Conditions of Approval, including:

- an Aboriginal Cultural Heritage Assessment Report and Aboriginal Technical Report (ACHAR/ATR); and
• an Archaeological Research Design (ARD).

1.2 Statutory Context for Heritage

In New South Wales cultural heritage is principally protected under three acts:

- *Heritage Act 1977 (NSW) (Heritage Act)*;
- *Environmental Planning and Assessment Act 1979 (NSW) (EP&A Act)*; and

There is also Commonwealth legislation that applies to certain heritage places. Places listed on the National Heritage List (NHL) and the Commonwealth Heritage List (CHL) are protected under the *Environment Protection and Biodiversity Conservation Act 1999 (Cwlth) (EPBC Act)*. Items of National Heritage value (defined by the EPBC Act as being of 'outstanding heritage value to the nation') are listed on the NHL and can be owned and controlled by any agency, organisation or individual. The CHL is a list of places owned or controlled by the Commonwealth that have been assessed as having heritage values against the criteria established under the EPBC Act.

1.2.1 State Significant Infrastructure Approvals

In June 2013, TfNSW made an application to the Department of Planning and Infrastructure for the CSELR project to be assessed as a State Significant Infrastructure (SSI) Project (Application No. SSI 13_6042). This application was granted. As a declared SSI Project, the CSELR project was assessed under Part 5.1 of the EP&A Act and was subject to Director General's Requirements (DGRs).

In response to the DGRs and the mitigation measures identified through the HIA process, the following heritage reports and advice have been prepared for the project:

- a Heritage Interpretation Strategy prepared by GML., September 2013;
- a Construction Heritage Management Plan—Revision F, prepared by GML, September 2015;
- an Archaeological Research Design prepared by GML, September 2015;
- an Aboriginal Cultural Heritage Assessment Report and Aboriginal Technical Report prepared by GML, September 2015; and
- various other heritage advice reports and options analysis prepared by GML.

The consent also set out MCoA for the project. The conditions have been revised a number of times to address the changing design. In addition to the MCoA, modification approvals resulting from the Submissions Report/Project Modification and Submissions to the Modification Report have been issued with REMMs.

The MCoA and REMMs that relate to heritage for the Surry Hills precinct are shown in Table 1.1.

In addition to the site specific mitigation measures, a number of design packages are required to be developed with the identification of urban design principles and standards, which includes local environmental and heritage values. Impacts to heritage items within or adjacent to the study area are also to be minimised.
### Table 1.1 Minister’s Conditions of Approval and Revised Environmental Mitigation Measures for the Surry Hills Precinct.

<table>
<thead>
<tr>
<th>A1</th>
<th>The Proponent shall carry out the SSI generally in accordance with the:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(a) SSI Application SSI 6042;</td>
</tr>
<tr>
<td></td>
<td>(b) CBD and South East Light Rail Project Environmental Impact Statement (eight volumes), prepared by Parsons Brinckerhoff for TfNSW and dated November 2013;</td>
</tr>
<tr>
<td></td>
<td>(c) CBD and South East Light Rail Project Submissions Report (incorporating Preferred Infrastructure Report), prepared by Parsons Brinckerhoff for TfNSW and dated March 2014;</td>
</tr>
<tr>
<td></td>
<td>(d) Supplementary information provided by TfNSW;</td>
</tr>
<tr>
<td></td>
<td>(e) Modification application and supporting Modification Report prepared by Parsons Brinckerhoff for TfNSW and dated December 2014 (Modification 1);</td>
</tr>
<tr>
<td></td>
<td>(f) Submissions Report to Project Modification prepared by Parsons Brinckerhoff for TfNSW and dated January 2015 (Modification 1);</td>
</tr>
<tr>
<td></td>
<td>(g) Modification 2 and supporting documentation dated 20 February 2015;</td>
</tr>
<tr>
<td></td>
<td>(h) Modification 3 and supporting documentation dated 19 August 2015;</td>
</tr>
<tr>
<td></td>
<td>(i) Modification application and supporting Modification Report prepared by Parsons Brinckerhoff for TfNSW and dated November 2015 (Modification 4);</td>
</tr>
<tr>
<td></td>
<td>(j) Submissions Report to Project Modification prepared by Parsons Brinckerhoff for TfNSW and dated February 2016 (Modification 4);</td>
</tr>
<tr>
<td></td>
<td>(k) CBD and South East Light Rail Project State Significant Infrastructure Approval (SSI-6042) Administrative modification – Timing of Randwick stabling facility noise mitigation dated April 2016 (Modification 5);</td>
</tr>
<tr>
<td></td>
<td>(l) conditions of this approval.</td>
</tr>
</tbody>
</table>

### B27

The Proponent shall prepare and implement **Steady Access and Design Plans** for all the SSI stops (including associated stop infrastructure).…

The Plan(s) shall consider, but not necessarily be limited to: a) identification of design principles and standards based on: 

a) local environmental values,  

b) urban design context,  

f) measures to minimise the impact of these elements, particularly with respect to the impacts on adjoining residences, educational facilities, open space areas and heritage items and landscapes.
Prior to construction of the Anzac Parade Pedestrian Bridge, the Propo­nent shall prepare a detailed design for the bridge. The design of the bridge must be prepared in consultation with OEH (Heritage), RMS, the UDRS, CRG and City of Sydney and the Centennial Park and Moore Park Trust. If the design criteria, as outlined below, are not achieved, the design of the facility shall be submitted to the Secretary for approval accompanied by justification for any changes and evidence of consultation with the abovementioned organisations. The final design shall be implemented as part of the SSI. The design of the bridge must be sympathetic to the design of the adjacent Albert (Tibby) Cotter Walkway with the aim of minimising its visual impact and ensure:

(a) Identification of urban design principles and standards based on:

i) local environmental and heritage values;

ii) urban design context;

iii) sustainable design and maintenance;

iv) lighting;

v) community amenity; and

vi) consideration of relevant design standards such as Crime Prevention through Environmental Design Principles and Bridge Aesthetics: Design Guidelines to Improve the Appearance of Bridges in NSW (RTA, 2003).

(b) Provision of appropriate landscaping, including details on the location of existing and retained vegetation, the proposed removal of vegetation and proposed landscaping;

(c) Specific measures to limit visual impacts of the bridge on surrounding landuses and adjacent lands managed by the Centennial Park and Moore Park Trust;

(d) Consideration of direct access from the bridge to the Moore Park stop platform;

(e) Cumulative impacts are mitigated from the construction of the concurrent RMS pedestrian bridge over Anzac Parade at Moore Park;

(f) Graphics and design details of built elements to meet the following criteria:

i) minimum height clearance over Anzac Parade roadway of 5.5 metres;

ii) no support structures within the Anzac Parade median;

iii) a total width across the Anzac Parade roadway of no more than 5 metres including deck, truss and safety screens;

iv) no advertising structures or material to be affixed to the bridge;

(g) Specific measures to avoid or minimise heritage impacts to the bear pit in the vicinity of Sydney Girls High School and the heritage value of Anzac Parade;

(h) In meeting the criteria listed above, the following is provided to the Department to document compliance:

i) graphics such as sections, perspective views and sketches of the bridge and its accesses from various viewpoint;

ii) plans outlining design details of materials and colours, screens and support structures;

iii) how relevant design standards have been considered in the design; and

iv) evidence of consultation in relation to the design of the facility.
Prior to construction of the Moore Park Portals, bridge over the Eastern Distributor and the relocated Surry Hills substation, the Proponent shall prepare a detailed design for the structure(s). The design of the structure(s) must be prepared in consultation with the UDRG, CRG, City of Sydney and the Centennial Park and Moore Park Trust. If the design criteria, as outlined below, are not achieved, the design of the facility shall be submitted to the Secretary for approval accompanied by justification for any changes and evidence of consultation. The final design shall be implemented as part of the SSI. The design must ensure:

(a) Identification of urban design principles and standards based on:
   i) urban design context;
   ii) sustainable design and maintenance;
   iii) lighting;
   iv) community amenity; and

v) consideration of relevant design standards such as Crime Prevention through Environmental Design Principles and Bridge Aesthetics: Design Guidelines to Improve the Appearance of Bridges in NSW (RTA, 2003).

(b) Provision of appropriate landscaping, including details on the location of existing and retained vegetation, the proposed removal of vegetation and proposed landscaping;

(c) Specific measures to limit visual and 'land-take' impacts of the bridge, portals and substation on surrounding playing fields and adjacent heritage items. In relation to the substation, it must be located entirely underground with access and ventilation integrated with the tunnel structure. No component of the substation shall intrude into or impact on the use of the surface of Moore Park;

(d) Safety measures to address:
   i) Public access into the portals;
   ii) Private vehicle or bike movements into the portals;
   iii) Stray balls (anti-throw screening); and
   iv) Sight distance/speed of light rail vehicles interacting with South Dowling Street footpath and road users.

(e) In meeting the criteria listed above, the following is provided to the Department to document compliance:
   i) Graphics such as sections, perspective views and sketches of the bridge and portals from various view points;
   ii) Plans outlining design details of materials and colours, screens and support structures;
   iii) How relevant design standards have been considered in the design; and
   iv) Evidence of consultation in relation to the design of the facility.
Prior to the construction of the Moore Park Amenities Building, the Proponent shall prepare a detailed design for the building in consultation with the UDRS, CRG, Centennial Park and Moore Park Trust and City of Sydney. If the design criteria, as outlined below, are not achieved, the design of the building shall be submitted to the Secretary for approval accompanied by justification of the changes and evidence of consultation. The final design shall be implemented as part of the SSI. The design must ensure:

(a) Identification of urban design principles and standards based on:
   i) urban design context;
   ii) sustainable design and maintenance;
   iii) lighting;
   iv) community amenity; and
   vi) consideration of relevant design standards such as Crime Prevention through Environmental Design Principles and relevant agency and Council design standards;
(b) Consideration of locating the building underground within the stop envelope and if not, reasons to justify why it is required aboveground.
(c) Specific measures to limit visual and ‘land-take’ impacts;
(d) in meeting the criteria listed above, the following is to be provided to the Department to document compliance:
   i) Graphics such as sections, perspective views and sketches on key elements of the building from various viewpoints clearly indicating its scale and appearance;
   ii) Plans outlining design details of materials and colours of all exterior and landscape elements;
   iii) How relevant design standards have been considered in the design; and
   iv) Evidence of consultation in relation to the design of the facility.

The Proponent shall design and construct the SSI in a manner that minimizes visual and heritage setting impacts from specific components of the SSI and hard landscaping elements, including stops, catenary, lighting, station canopies, substations, signage and the like.

Third party advertising shall not be permitted on light rail structures, urban elements, stops or the pedestrian bridge over Anzac Parade.

The Proponent shall, to the greatest extent possible, minimize the removal of vegetation, including at Cicular Quay, Moore Park and surrounds, Anzac Parade, Centennial Park and surrounds, Royal Randwick Racecourse (along Alison and Warney Roads), High Cross Park, Arthur Street, High Street and within the UNSW lands. Where vegetation has been removed, reinstatement and supplement landscaping shall be undertaken in accordance with the Revegetation Compensation Package required by condition B52. The two mature fig trees located on Centennial Park and Moore Park Trust lands at the end of the heritage listed perimeter fence on the corner of Alison Road and Darley Road shall not be impacted by the SSI.

The Proponent shall limit the removal of significant trees (mature and semi-mature fig trees) along Anzac Parade as part of the construction of the cut and cover tunnel. Prior to the removal of any trees for the construction of the tunnel, the Proponent shall demonstrate, to the satisfaction of the Secretary, that it has investigated the following options, and any other option that may be identified by the contractor, to further reduce the impacts to trees in the construction footprint as a result of the Anzac Parade lane diversions:

(a) Temporarily relocating the footpaths on either side of the road (or temporarily limiting the provision of footpaths to one side of the road) to provide more space for traffic lanes; and
(b) Providing five traffic lanes for Anzac Parade instead of six.

Where these options do not result in traffic flow arrangements acceptable to the RMS, information must be submitted to the Secretary to justify why this is the case, including supporting information from the RMS.

Notwithstanding whether one of the above options is implemented as part of construction, the Proponent shall also employ construction techniques that minimize impacts to tree root zones at all times along Anzac Parade (to its intersection with Alison Road), Alison Road and Warney Road, including but not limited to those identified in environmental management measure T4 within Table 4.2 of the Modification Report referred to in condition A1e).
| B51 | Prior to the commencement of construction of permanent built works, the Proponent shall prepare an Urban Design and Landscape Plan for the SSI in consultation with the UDRG, City of Sydney, Randwick City Council and Centennial Park and Moore Park Trust and submit it to the Secretary for approval. The Plan may be submitted in stages to suit the staged construction of the SSI, however shall include, but not necessarily be limited to:
(a) identification of design objectives and standards based on local environmental and heritage values,
(b) design details of the built elements of the SSI and the measures to minimise the impact of these elements, particularly with respect to the impacts on adjoining residences, educational facilities, open space areas, heritage items and landscapes;
(c) details on public art and heritage (indigenous and non-indigenous) interpretation installations;

| B52 | The Proponent shall develop and implement a Revegetation Compensation Package for the SSI to outline how vegetation impacts will be compensated for within and adjacent to the corridor. The Package shall be prepared and submitted to the Secretary for approval prior to removal of vegetation, unless otherwise agreed by the Secretary, and in consultation with relevant Councils, the UDRG and the Centennial Park and Moore Park Trust in accordance with TINSW’s Vegetation Offset Guide (2013). The Package should ensure that all vegetation loss is offset through regeneration or replanting and include:
(a) the identification of the extent and types of vegetation impacts as a result of the final design of the SSI;
(b) details of impact mitigation measures to compensate for vegetation removal;
(c) measures for the management, protection and monitoring of the compensatory vegetation, for a minimum period of two years;
(d) timing and responsibilities for the implementation of the provisions of the Package.
To mitigate visual impacts, direct replacement of vegetation lost should be undertaken in the vicinity of where the vegetation was impacted (where space permits). For all other vegetation to be replanted as part of the Revegetation Compensation Package, vegetation shall be replaced within the same Local Government Area as the impact occurs, unless otherwise agreed by the Secretary.
Where monitoring shows inadequate compensation has been achieved, remedial actions must be undertaken to ensure that the objectives of the Package are achieved.

| B55 | With the exception of condition B53, identified impacts to heritage (both Aboriginal and non-Aboriginal), shall be minimised to the greatest extent practicable through both detailed design and construction. Where impacts are unavoidable, works shall be undertaken in accordance with the actions to manage heritage construction impacts required by condition B59 and under the guidance of an appropriately qualified heritage specialist.

| B58 | The Proponent shall not destroy or permanently modify the heritage listed First Fleet Park, Tank Stream, or Barmore Park.

| B59 | The Proponent shall design and construct the SSI to avoid any direct impact to the ‘Bear Pit’ adjacent to Anzac Parade and Sydney Girls High School or the Tramway Turntable Building complex within the Racecourse Conservation Area.

| B61 | The Proponent shall complete all archival recordings for all heritage items directly and physically impacted by the SSI; including photographic recording of the intact heritage item, unless otherwise agreed by the Secretary. The archival recording shall be undertaken by an experienced heritage consultant, in accordance with the Guidelines issued by the Heritage Council of NSW. The area containing the heritage item shall be clearly identified and/or fenced until the completion of the archival recordings. Within six months of completing the archival recording, the Proponent shall submit a report containing the archival and photographic recordings and the historic research, where required, to the Department (Heritage Branch), the relevant Council and the local library and the Randwick & District Historical Society.

| B62 | The Proponent shall not destroy, modify or otherwise physically affect any heritage items outside the approved SSI alignment (as defined in the documents referred to in condition A1), unless otherwise agreed by the Secretary.

| B63 | The measures to protect Aboriginal or historic heritage sites near or adjacent to the SSI during construction shall be detailed in the Heritage Management Sub-plan required under condition B69.
The following environmental management measures would be implemented for the Balmoral Park construction compound:

- No trees within Balmoral Park would be removed by the proposed construction compound. Exclusion fencing would be established around the drip lines of each tree to minimise the risk of impact to the viability of the trees. Where impact to the drip line area cannot be avoided (due to space constraints), opportunities to raise construction facilities (e.g. demountable buildings) above the ground level would be investigated so as to avoid impacting on underlying tree roots, in accordance with Australian Standard (AS 4970).

The following environmental management measures would be implemented for the Ward Park construction compound:

- The layout of the construction compound would be designed to minimise impacts to significant trees within Ward Park. Exclusion fencing would be established around the drip lines of each tree to be retained to minimise the risk of impact to the viability of the trees. Where impact to the drip line area cannot be avoided (due to space constraints), opportunities to raise construction facilities (e.g. demountable) above the ground level would be investigated so as to avoid impacting on underlying tree roots, in accordance with Australian Standard (AS 4970).

- Vehicle access would be designed so as to avoid significantly impacting on trees that would not already be impacted by the proposed permanent works (e.g. light rail stop and station).

The following environmental management measures would be implemented for the Wimbo Park construction compound:

- The proposed construction vehicle access to Wimbo Park would be designed to avoid impacts to significant street trees along Bourke Street that would not already be removed to accommodate the proposed permanent works (e.g. light rail track and associated overhead wires).

The following environmental management measures would be implemented for the associated construction facilities east and west of Anzac Parade (at Moore Park):

- The construction compound boundary would be designed to avoid impacts to significant trees within Moore Park that would not already be impacted by the proposed permanent works (i.e. the cut-and-cover tunnel). Exclusion fencing would be established around the drip lines of each tree to be retained to minimise the risk of impact to the viability of the trees. Where impact to the drip line area cannot be avoided (due to space constraints), opportunities to raise construction facilities (e.g. demountable) above the ground level would be investigated so as to avoid impacting on underlying tree roots, in accordance with Australian Standard AS 4370.

- The Moore Park construction compound would not impact on the Korean War memorial or children’s play area, located towards the north-western corner of Moore Park.

- Exclusion fencing would be installed around the drip lines of any tree fringing the proposed staff car park (with the potential to be adversely impacted) to avoid impacts to the viability of these trees.

The following mitigation measures would be implemented for Balmoral Park:

- The subsurface archaeological remains within Balmoral Park would be protected from compaction or movement of vehicles over the park’s ground surface.

- Significant trees and landscaping to be retained within Balmoral Park would be protected from damage by vehicular or machinery movement.

- Significant landscape elements (such as sandstone kerbing) that are to be removed from Balmoral Park for the construction compound would be salvaged, catalogued and stored for reinstatement following completion of construction works.

- A photographic archival recording of Balmoral Park would be undertaken prior to works commencing.

Significant fabric of the Elizabeth Street Gardens that is to be removed, such as the edging and the palms, would be salvaged, catalogued and stored for possible reinstatement (or partial reinstatement) following completion of construction works.

A photographic archival recording of the parts of Central Railway Station to be affected by the CSEL R works, including the Elizabeth Street Gardens and the Chalmers Street boundary wall, would be undertaken prior to works commencing.

Replanting of trees would be undertaken along Devonshire Street where possible following completion of construction works in accordance with the Landscape Strategy (Appendix F) of the EIS.
The mosaic mural and sandstone monument in Wando Park would be retained where feasible and conserved. If they cannot be retained in situ, relocation of these elements within the proposed new landscaping would be undertaken in accordance with a management plan or other approved document.

The design of necessary substation ventilation shafts, access hatches, and other infrastructure in Wando Park would minimise impacts on the spatial quality of Wando Park.

The following mitigation measures would be implemented for Centennial Park, Moore Park, Queens Park and the Moore Park Conservation Area:
- The area required for excavation would be minimised to reduce the impact of the works on Moore Park.
- The size and form of the tunnel portal structures would be as recessive as possible to reduce permanent visual impacts on the landscape of Moore Park. Any new structures/infrastructure would be recessive and allow the broader landscape to remain the dominant feature.
- The location and design of the Moore Park stop would minimise impacts on significant views of the Sydney Cricket Ground and former RAS buildings from Anzac Parade and within Moore Park.
- Where feasible, areas excavated for construction of the CSELR would be reinstated to the current condition on completion of construction. This includes areas to be used for construction compounds/laydown areas.
- A photographic archival recording of the areas of Moore Park that would be subject to impacts from construction of the CSELR, including the Anzac Parade avenue of trees, would be undertaken prior to works commencing.
- Works in this HAMU may require some open area excavation and archival recording during site works, as well as post excavation analysis and reporting (limited to the extent of the area affected by the CSELR proposal). The nature and intactness of the archaeological resource may warrant interpretation.

1.3 CBD and South East Light Rail Route

The CBD line will commence at Circular Quay and run north to south along George Street to Rawson Place, where it will run east along Rawson Place to Eddy Avenue, in front of the principal elevation of Central Station. The line will turn south at Chalmers Street, then east along Devonshire Street, Surry Hills. The CSELR line will cross South Dowling Street at grade and enter a tunnel below Moore Park west, re-surfacing east of Anzac Parade in Moore Park East. From there, it will head south to Alison Road where the line will branch off to Randwick along Alison Road; and Kensington, UNSW and Kingsford along Anzac Parade. It will traverse the City of Sydney and Randwick City local government areas (LGAs).

The CSELR project includes construction of stops for the new light rail vehicles (LRVs), terminus facilities, interchanges and facilities for the maintenance and stabilisation of LRVs, as well as public domain works and adjustments to existing public roads and utility services.

1.3.1 Surry Hills Precinct

The proposed route of the CSELR is shown in Figure 1.1. The Surry Hills precinct includes the area of the project between Eddy Avenue (Pitt Street intersection) and Anzac Parade (at Lang Street). This precinct is located within the City of Sydney LGA.

1.4 Methodology

This current version of this report has been prepared following review of the Stage 2 Submission documentation (dated 20 May 2016). We have also reviewed the Urban Design & Landscape Plan Surry Hill (dated 13 September 2016) and the Public Domain Design Report Surry Hills (Zone S) (dated 20 May 2016). We have reviewed the Design Stage 1 submission for the Pedestrian Bridge Over Anzac Parade (dated 12 July 2016).
We have identified where the design differed from previous schemes, and then assessed the currently proposed works and design modifications against those recommended in the previous HIAs. Compliance with previously recommended mitigation measures, as well as project consent conditions, was also reviewed.

The current design's heritage impacts were ranked in accordance with the established rating system (discussed below). Following this, design changes were identified which could minimise current heritage impacts, and additional heritage advice was provided to the Design Joint Venture (DJV), Grimshaw and Aspect.

GML has reviewed the Stage 1 design drawings (issued in July 2015). A design review workshop was undertaken on 15 March 2016 with Acciona, Grimshaw and Aspect to discuss the recommended mitigation measures/design changes and seek agreement on feasible ways to avoid or minimise current heritage impacts.

A supplementary meeting was undertaken on 23 March with Acciona and Grimshaw to specifically discuss the substation designs. Other specific iterative advice was provided by GML in relation to the substation at Central, property connections along Devonshire Street and fixings to the heavy rail bridge over Eddy Avenue.

In order to clarify the potential impacts of the proposed works, GML has developed a ranking for measuring the severity of potential impacts on heritage values. The methodology used to rate the severity is explained below.

<table>
<thead>
<tr>
<th>Rating</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major adverse</td>
<td>Actions which will have a severe, long-term and possibly irreversible impact on a heritage item. Actions in this category would include partial or complete demolition of a heritage item or addition of new structures in its vicinity that destroy the visual setting of the item. These actions cannot be fully mitigated.</td>
</tr>
<tr>
<td>Moderate adverse</td>
<td>Actions which will have an adverse impact on a heritage item. Actions in this category would include removal of an important part of a heritage item's setting or temporary removal of significant elements or fabric. The impact of these actions could be reduced through appropriate mitigation measures.</td>
</tr>
<tr>
<td>Minor adverse</td>
<td>Actions which will have a minor adverse impact on a heritage item. This may be the result of the action affecting only a small part of the place or a distant/small part of the setting of a heritage place. The action may also be temporary and/or reversible.</td>
</tr>
<tr>
<td>Neutral</td>
<td>Actions which will have no heritage impact.</td>
</tr>
<tr>
<td>Minor positive</td>
<td>Actions which will bring a minor benefit to a heritage item, such as an improvement in the item's visual setting.</td>
</tr>
<tr>
<td>Moderate positive</td>
<td>Actions which will bring a moderate benefit to a heritage item, such as removal of intrusive elements or fabric or a substantial improvement to the item's visual setting.</td>
</tr>
<tr>
<td>Major positive</td>
<td>Actions which will bring a major benefit to a heritage item, such as reconstruction of significant fabric, removal of substantial intrusive elements/fabric or reinstatement of an item's visual setting or curtilage.</td>
</tr>
</tbody>
</table>

1.4.1 Aboriginal Archaeology

The 2013 HIA addressed impacts to Aboriginal archaeological remains that may be impacted along the CSELR route in accordance with the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW*. The HIA provided an assessment of the impact of the CSELR on Aboriginal archaeology and appropriate mitigation measures. In September 2015, GML also prepared a CSELR
ACHAR/ATR, which outlined whether the study area may possess Aboriginal heritage archaeological sites, places, objects, landscapes and/or values. It also assessed the impacts to Aboriginal cultural heritage, including a significance assessment, and it presented a research design for the investigation and salvage of any areas of archaeological potential impacted by the proposal. Impacts to the Aboriginal archaeological resource for the CSELR project are ongoing, and require management and mitigation in accordance with the ACHAR/ATR.

This supplementary HIA does not assess any impacts on Aboriginal archaeology resulting from design changes, as the ACHAR/ATR has established methodologies for assessing and managing those changes as the design is further developed.

1.4.2 Historical Archaeology

The key areas of historical archaeological potential within the CSELR route and the associated construction impacts were assessed as part of the 2013 HIA. Management recommendations for the mitigation of impacts on the known and potential historical archaeological resource have been developed to assist with the minimisation of impacts. Impacts to known archaeological remains have been addressed, in accordance with the CSELR conditions of approval, in the CBD and South East Light Rail—Archaeological Research Design (ARD) prepared by GML in September 2015. The ARD addresses known archaeological items listed on statutory registers, particularly the Tank Stream, First Fleet Park and Belmore Park, with site specific programs that are designed to address the relevant conservation management plans and work in consultation with Sydney Water, City of Sydney Council and NSW Heritage Division of OEH, as required.

Impacts to the historical archaeological resource for the CSELR project are ongoing, and require management and mitigation in accordance with the ARD. This supplementary HIA does not assess any impacts on historical archaeology resulting from design changes as the ARD has established methodologies for assessing and managing those changes as the design is further developed.

1.5 Author Identification

This supplementary HIA has been prepared by Julian Siu, Senior Consultant and Jane McMahon, Consultant of GML. Steven Barry, Senior Consultant, has provided strategic input and assisted with the impact assessment. Claire Nunez, Associate of GML has reviewed this report.

1.6 Acknowledgements

GML acknowledges the assistance of the following people in the preparation of this HIA:

<table>
<thead>
<tr>
<th>Surry Hills Precinct</th>
<th>Substations</th>
<th>Project Team (in general)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Daniel Martin—Acciona</td>
<td>• Jose Ronquillo—Acciona</td>
<td>• Sally Reynolds—Acciona</td>
</tr>
<tr>
<td>• Thanuka Nanayakkara—Acciona</td>
<td>• Kon Maladakis—Acciona</td>
<td>• John Armstrong—Acciona</td>
</tr>
<tr>
<td>• Paula Kennedy—Aspect Studios</td>
<td>• Joel Acosta Perez—Acciona</td>
<td>• Krisy Vajda—Acciona</td>
</tr>
<tr>
<td>• Katarzyna Jurkiewicz—Grimshaw Architects</td>
<td>• Catherine Kuok—Grimshaw</td>
<td></td>
</tr>
</tbody>
</table>
Figure 1.1 The CSELR project overview and zones. (Source: Acciona, February 2016)

Figure 1.2 Surry Hills precinct. (Source: Acciona, March 2016)
2.0 Surry Hills Precinct Description

2.1 Preamble

This section of the supplementary HIA identifies the existing listed heritage items and conservation areas within or in the immediate vicinity of the CSELR corridor. The items identified include heritage listed buildings, structures, parks and trees, and heritage conservation areas. State significant items are listed on the NSW Heritage Register under the Heritage Act. Locally significant items are listed under Schedule 5 of the Sydney Local Environmental Plan 2012 (SLEP).

2.2 Heritage Context and Significance

The Surry Hills precinct contains four distinct areas as described below.

*Central Station*

The Central Station area is dominated by the station itself, a State Heritage Registered sandstone building constructed in two main phases: 1901–1906 and 1923–1927. The construction of the station transformed the area and surrounds, with major commercial and public buildings, including department stores such as Daking House (completed in 1914) and the Parcels Post Office, springing up in response to the new transport hub. Eddy Avenue, created by the development of Central Station, along its principal (northern) elevation station, became a major thoroughfare, with numerous tram lines and, later, a coach terminal established there. Belmore Park, originally gazetted in 1868, was remodelled as part of Central Station’s construction and is a significant element of the station’s setting. It remains the major park in the area and is flanked by sandstone underbridges from the station.

*Devonshire Street*

Surry Hills is characterised by a fine grained pattern of Victorian-era terraced housing, pubs and corner shops, with nineteenth-century warehouse and factory buildings dotted throughout. Many of the streets are lined with mature trees, listed on the City of Sydney Register of Significant Trees 2013. Much of Surry Hills is within heritage conservation areas listed on SLEP 2012.

The CSELR would cross Surry Hills via Devonshire Street, which is located in the southern part of the suburb. The heritage character of Devonshire Street is typical of the suburb, with heritage items comprising a mix of terraced housing, a church, corner hotels and small industrial buildings, as well as mature street trees on both sides of the road. Devonshire Street also features the Northcott Housing Estate, a 1961 public housing complex, and the associated Ward Park. Neither of these elements are listed as heritage items, but they are landmarks along Devonshire Street, and likely to be of social value to the local community.

Wimbo Park, located at the eastern end of Devonshire Street, was formerly the City of Sydney Council’s stone yard, where stone for the city’s many sandstone buildings was dressed. A monument to this use is located in the southern area of the park. Wimbo Park also contains a mosaic mural of activities that took place in the park when it was part of larger recreational grounds. While Wimbo Park is not listed as a heritage item, these elements are also likely to be of some significance to the local community.

Similarly, Olivia Gardens, the (now demolished) c1970s apartment block between Wimbo Park and South Dowling Street, is not listed as a heritage item and was identified in the City of Sydney
Development Control Plan Contributory Buildings Map as having a neutral contribution to the Bourke Street South Conservation Area, but may have some social value to the local community.

**Moore Park**

The Moore Park precinct is dominated by three major cultural landscape elements—Moore Park, Centennial Park and Anzac Parade. Moore Park and Centennial Park comprise state significant areas of parklands established during the nineteenth century. Moore Park and Centennial Park are within a broad, low lying area with established plantings along the street alignments, creating open spaces and significant groupings of established trees. The historic Royal Agricultural Showground (RAS), now Fox Studios and the Entertainment Quarter, and the Sydney Cricket and Sports Ground, are the primary built elements in the precinct. Both feature built elements of state significance, including the Ladies and Members Pavilion of the Sydney Cricket Ground and the Commemorative Pavilion of the former RAS. The mixed fig avenue along Anzac Parade dates from the early twentieth century is recognised for its aesthetic and historic significance.

### 2.2.2 Heritage Items

The tables below set out the listed heritage assets in the Surry Hills precinct. For clarity, items that are listed on more than one heritage register are included on the higher register only.

<table>
<thead>
<tr>
<th>Name</th>
<th>Address</th>
<th>Listing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sydney Terminal and Central Railway Station</td>
<td>Great Southern and Western Railway, Illawara</td>
<td>SHR (listing No. 01255)</td>
</tr>
<tr>
<td>Belmore Park</td>
<td>Belmore Park, Haymarket</td>
<td>SLEP 2012 (Item No. 01256)</td>
</tr>
<tr>
<td>Belmore Park Significant Trees</td>
<td>Belmore Park, Haymarket</td>
<td>City of Sydney Register of Significant Trees 2013 (Item No. 8.01)</td>
</tr>
<tr>
<td>Dental Hospital</td>
<td>2–18 Chalmers Street</td>
<td>SLEP 2012 (Item No. 11469)</td>
</tr>
<tr>
<td>Former Metro Goldwyn Mayer including interior</td>
<td>20–28 Chalmers Street</td>
<td>SLEP 2012 (Item No. 11470)</td>
</tr>
<tr>
<td>Former RC Henderson Ltd factory including</td>
<td>11–13 Randle Street</td>
<td>SLEP 2012 (Item No. 12270)</td>
</tr>
<tr>
<td>interiors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Railway Institute Building</td>
<td>Chalmers Street, Surry Hills</td>
<td>SHR (listing No. 01257)</td>
</tr>
<tr>
<td>Devonshire Street Significant Trees</td>
<td>Devonshire Street, Chalmers Street</td>
<td>City of Sydney Register of Significant Trees 2013 (Item No. 10.02)</td>
</tr>
<tr>
<td>Bourke Street Significant Trees</td>
<td>Bourke Street, Arthur Street to Cleveland Street</td>
<td>City of Sydney Register of Significant Trees 2013 (Item No. 10.01)</td>
</tr>
<tr>
<td>Royal Exhibition Hotel including interior</td>
<td>86–92 Chalmers Street</td>
<td>SLEP 2012 (Item No. 11471)</td>
</tr>
<tr>
<td>Strawberry Hills Hotel</td>
<td>451–455 Elizabeth Street</td>
<td>SLEP 2012 (Item No. 11535)</td>
</tr>
<tr>
<td>Former ANZ Bank</td>
<td>420–422 Elizabeth Street</td>
<td>SLEP 2012 (Item No. 11534)</td>
</tr>
<tr>
<td>Society of Friends (Quaker) Meeting House</td>
<td>119–123 Devonshire Street</td>
<td>SLEP 2012 (Item No. 11516)</td>
</tr>
<tr>
<td>Terrace Group</td>
<td>125–129 Devonshire Street</td>
<td>SLEP 2012 (Item No. 11517)</td>
</tr>
<tr>
<td>Former Clarendon Hotel</td>
<td>156–158 Devonshire Street</td>
<td>SLEP 2012 (Item No. 11518)</td>
</tr>
<tr>
<td>Shakespeare Hotel</td>
<td>198–200 Devonshire Street</td>
<td>SLEP 2012 (Item No. 11519)</td>
</tr>
<tr>
<td>Terrace House</td>
<td>242 Devonshire Street</td>
<td>SLEP 2012 (Item No. 11521)</td>
</tr>
<tr>
<td>Name</td>
<td>Address</td>
<td>Listing</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>-------------------------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>Terrace House</td>
<td>244 Devonshire Street</td>
<td>SLEP 2012 (Item No. 11522)</td>
</tr>
<tr>
<td>St Peter's Roman Catholic Church group</td>
<td>236–241 Devonshire Street</td>
<td>SLEP 2012 (Item No. 11520)</td>
</tr>
<tr>
<td>Terrace group</td>
<td>252–264 Devonshire Street</td>
<td>SLEP 2012 (Item No. 11523)</td>
</tr>
<tr>
<td>Former Hotel Victoria</td>
<td>505 Crown Street</td>
<td>SLEP 2012 (Item No. 11508)</td>
</tr>
<tr>
<td>Former Edward Hill &amp; Co factory including interiors</td>
<td>Former Edward Hill &amp; Co factory including interiors</td>
<td>SLEP 2012 (Item No. 12264)</td>
</tr>
<tr>
<td>Terrace group (9–15 Pawley Street)</td>
<td>2–8 Edgely Street</td>
<td>SLEP 2012 (Item No. 11524)</td>
</tr>
<tr>
<td>Wyee Terrace</td>
<td>563–579 South Dowling Street</td>
<td>SLEP 2012 (Item No. 11639)</td>
</tr>
<tr>
<td>Centennial Park—Moore Park/Anzac Parade Significant Trees</td>
<td>Anzac Parade</td>
<td>City of Sydney Register of Significant Trees 2013 (Item No. 24.12)</td>
</tr>
<tr>
<td>Sydney Boys High School group</td>
<td>556–560 Cleveland Street</td>
<td>SLEP 2012 (Item No. 1653)</td>
</tr>
<tr>
<td>Sydney Girls High School group</td>
<td>556–560 Cleveland Street</td>
<td>SLEP 2012 (Item No. 1659)</td>
</tr>
<tr>
<td>Sydney Boys High School &amp; Sydney Girls High School Significant Trees</td>
<td>Anzac Parade and Cleveland Street</td>
<td>City of Sydney Register of Significant Trees 2013 (Item No. 24.06)</td>
</tr>
<tr>
<td>Centennial Park, Moore Park, Queens Park</td>
<td>N/A</td>
<td>SHR (listing No. 01384)</td>
</tr>
</tbody>
</table>

### 2.2.3 Heritage Conservation Areas

*Table 2.2 Heritage Conservation Areas Listed on other Registers Along or Immediately Adjacent to the CSELR Route in the Surry Hills Precinct.*

<table>
<thead>
<tr>
<th>Conservation Area</th>
<th>Listing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cleveland Gardens</td>
<td>SLEP 2012 (Area No. C62)</td>
</tr>
<tr>
<td>Brumby Street</td>
<td>SLEP 2012 (Area No. C61)</td>
</tr>
<tr>
<td>Little Riley Street</td>
<td>SLEP 2012 (Area No. C65)</td>
</tr>
<tr>
<td>High Holborn Street</td>
<td>SLEP 2012 (Area No. C64)</td>
</tr>
<tr>
<td>Bourke Street South</td>
<td>SLEP 2012 (Area No. C60)</td>
</tr>
<tr>
<td>Moore Park</td>
<td>SLEP 2012 (Area No. C38)</td>
</tr>
</tbody>
</table>
Figure 2.1 Extract from heritage map showing local heritage items and conservation areas within Zone S in Sydney LGA. (Source: Sydney Local Environmental Plan 2012)

Figure 2.2 Extract from heritage map showing local heritage items and conservation areas within Zone S in Sydney LGA. (Source: Sydney Local Environmental Plan 2012)
3.0 Assessment of Heritage Impact

3.1 General (Precinct Wide) Impact Assessment

Generally, the potential for heritage impacts resulting from the proposed CSELR in the Surry Hills precinct derives from the various permanent structures in the public realm affecting the visual setting of heritage items and heritage conservation areas. These structures include stops and associated weather shelters, poles and catenary wires. Physical impacts may result from the need to attach catenary wires to building facades and inserting new poles through existing awnings; the removal of significant trees; and the visual impact of the establishment and operation of work sites during construction.

Construction of the CSELR through Moore Park will comprise the construction of a cut-and-cover tunnel through Moore Park west and a tunnel portal and stop in Moore Park East (in the vicinity of the western boundary of the Sydney Cricket Ground). There would be a temporary impact on Moore Park West through the construction of the tunnel, although the areas in the parklands and playing fields that are affected would be reinstated once works were complete. However, a permanent tunnel portal would remain within the park near the South Dowling Street frontage and a pedestrian bridge is proposed for construction over Anzac Parade adjacent to Sydney Girls High School.

There would be significant, and permanent, impacts in Moore Park East, as a result of the construction of the Moore Park Special Events stop, the removal or substantial alteration of significant street trees along Anzac Parade and the proposed pedestrian bridge over Anzac Parade.

Generally, the route of the CSELR along Anzac Parade in this precinct is within the SHR listed Centennial Park, Moore Park, Queens Park curtilage. Introducing infrastructure such as catenary wiring, poles and stops would have a direct impact on the aesthetic significance and visual character of the item, notwithstanding that trams have historically operated along Anzac Parade and in Moore Park East.

3.2 Detailed (Per Heritage Asset) Impact Assessment

3.2.1 Tabulated Results

The following table:

- identifies each heritage asset along the route (heritage items, conservation areas and groups of or individual significant trees);
- includes the previous heritage impact ranking (as Table 1.1);
- identifies relevant mitigation measures from the 2013 EIS HIA, MCOAs and REMMs;
- determines if these have been incorporated, implemented or are yet to be undertaken;
- provides an impact assessment of the scheme and revised impact ranking;
- suggests recommendations for design changes to avoid or minimise the impact; and
- records the agreed action following the design review workshop.
It is acknowledged that not all of the recommended design changes may be able to be implemented owing to constraints about track alignments, road levels, operational requirements, CSELR project objectives/commitments, etc.

The aim is to incorporate this advice into the design development process, and where possible reduce the heritage impact or mitigate it in some way. This is an iterative process and would continue to be revised incrementally until the final Stage 2 design, and construction documentation is finalised.

3.3 Assessment of Heritage Impact for Surry Hills Precinct

These heritage assets (items, heritage conservation areas, trees) have been arranged sequentially as the precinct moves east towards Anzac Parade. For clarity, items that are listed on more than one heritage register are included on the higher register only.
<table>
<thead>
<tr>
<th>Heritage Asset</th>
<th>Significance ID</th>
<th>Priority Ranking</th>
<th>Proposed Design Changes to Address Heritage Impact</th>
<th>Action Response to Heritage Impact</th>
<th>Impacted Area</th>
<th>Revised Impact Ranking</th>
</tr>
</thead>
</table>
| Sydney Terminal and Central Railway Station Group | State 01265 | Moderate Adverse | • Detailed design of the Eddy Avenue alignment would retain and conserve the significant fabric of Central Station and its underbridges.  
• Any fillings proposed to be attached to the underbridges would be to the concrete structure, not the sandstone.  
• Service piers would be rationalised and services grouped to minimise clutter on Eddy Avenue and minimise impacts on the setting of Central Station and views of its principal elevation.  
• The alignment of the Eddy Avenue to Chalmers Street turn would minimise impacts on the Elizabeth Street Gardens.  
• Significant fabric of the Chalmers Street Gardens that is to be removed, such as the edging and the palms, would be salvaged, catalogued and stored for possible reinstatement (or partial reinstatement) following completion of construction works.  
• The location and design of the Rawson Place stop would seek to minimise impact on key views of Central Station east along Rawson Place.  
• A photographic archival recording of the plant of Central Station to be affected by the CSEIR works, including the Elizabeth Street Gardens and the Chalmers Street boundary wall, would be undertaken prior to works commencing. | • BIS5 - Impacts to heritage shall be minimised  
• BIS1:REM4/16 - Archival Recordings  
• REM4/V2 - salvage and reuse of removed elements  
• Archival recording of Central Station and Elizabeth Street Gardens was undertaken in February 2016.  
• Archival recording of Chalmers Street boundary wall is yet to be undertaken.  
• ALTRAC Light Rail Revegetation Compensation Package (January 2016).  
• Archival recording of the Former Radio Workshop at Central Station was undertaken in June 2016.  
• Installation of safety screens and anti-blowdown screens on or near to heritage fabric should be avoided where possible.  
• Essential, glass safety screen to be designed as independent panels in between sandstone columns.  
• Any fillings proposed to be attached to the underbridges would need to be to the concrete structure, not the sandstone.  
• Minimise smart poles in front of Central Station.  
• Request confirmation that replacement plantings undertaken during construction will be in accordance with the Revegetation Compensation Package.  
• Seek to reuse significant fabric from Elizabeth Street Gardens.  
• Stops are to be consistent with stops in the city heart of the CSEIR network.  
• Note interpretation opportunities along the public domain.  
• Materiality, screens for exhaust shafts, symmetry  
• Safety and anti-blowdown screens on sandstone pedestals, vehicle bridge and light rail bridge may not be required. Risk Assessment being undertaken. If required, reduced and minimal and not attached to heritage fabric.  
• Glass safety screen between sandstone columns along Eddy Avenue no longer proposed. Fences is located on median. Smart poles to be placed on sandstone columns. Design should be minimal in size as much as possible. | • Change from bus loading/parking area to two light rail tracks.  
• Separated lanes located on median is away from façade/entrance of Central Station. Would be low and discreet.  
• Masonry filling into underside of rail bridge over Eddy Avenue. The project specifications do not allow chemical fixings on the underside of the heavy rail bridge, as this connection will permanently be in tension. Advice has been provided that they should be located on the recessed sections of the underbridge between the rib, and not on the ribbed sections. The brackets should not impact the rib.  
• Removal of one tree between existing light rail and Railway bridge, opposite Central Station. While large and characteristic of the trees within Somers Park (which are listed), the particular tree is not listed on the City of Sydney Significant Tree Register.  
• Removal of multiple (TH655-596, 598) plane trees from Chalmers Street Entrance Gardens. These are identified in the Central Station CMP as being of High significance. This would allow a clearer view of the Chalmers Street entry to Central Station, however it would result in a moderate adverse heritage impact.  
• Retain two palm trees in the Garden and reconstruction of brick retaining wall, which is not identified in the CMP as a significant element.  
• Change iron car traffic to light rail tracks on Chalmers Street.  
• Aweing over lift on Chalmers Street to be removed.  
• Central Station stop on Chalmers Street where existing bus stops are. Less prominent/significant edge to Central Station.  
• Removal of multiple trees along Chalmers Street, outside Central Station. | Moderate Adverse |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Belmore Park</td>
<td>Local</td>
<td>M25</td>
<td>Moderate Averse</td>
<td>Significant trees and landscaping to be retained would be protected from damage by vehicular or machinery movement.</td>
<td>B47: Maintain the removal of vegetation at Belmore Park Friedland in February 2016.</td>
<td>Yes, the northern extent of Belmore Park will be a construction compound. Exact location and extent to be confirmed. Note: there are specific methodologies which should be applied for the retention of heritage values in the park including no removal of trees, no reseeding, and clean fill across site, and no subsurface works at all.</td>
<td>The tree to be removed (owing to its location within the expanded pedestrian and cycle crossing is outside of Belmore Park and not identified on the City of Sydney Significant Tree Register). As a construction compound. Belmore Park is proposed to be the site for a construction works depot. This would be located at the northern end of the park, near Hay Street. The construction works depot would necessitate the occupation of a section of the park for an extended period, and the construction of temporary buildings. The use of a section of the park for an extended period as a construction compound would have a moderate adverse impact upon the aesthetic significance of the park, albeit temporary.</td>
<td>Moderate Averse (albeit temporary)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Belmore Park Significant Tree</td>
<td>Local</td>
<td>8.01</td>
<td>Moderate Averse</td>
<td>A photographic archival recording of Belmore Park would be undertaken prior to works commencing.</td>
<td>B47: Maintain the removal of vegetation at Belmore Park Friedland in February 2016.</td>
<td>Yes, the northern extent of Belmore Park will be a construction compound. Exact location and extent to be confirmed. Note: there are specific methodologies which should be applied for the retention of heritage values in the park including no removal of trees, no reseeding, and clean fill across site, and no subsurface works at all.</td>
<td>The tree to be removed (owing to its location within the expanded pedestrian and cycle crossing is outside of Belmore Park and not identified on the City of Sydney Significant Tree Register). As a construction compound. Belmore Park is proposed to be the site for a construction works depot. This would be located at the northern end of the park, near Hay Street. The construction works depot would necessitate the occupation of a section of the park for an extended period, and the construction of temporary buildings. The use of a section of the park for an extended period as a construction compound would have a moderate adverse impact upon the aesthetic significance of the park, albeit temporary.</td>
<td>Moderate Averse (albeit temporary)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dental Hospital</td>
<td>Local</td>
<td>HN69</td>
<td>Minor Averse</td>
<td>No specific mitigation measures are required.</td>
<td>B31: Maintain the removal of vegetation at Belmore Park Friedland in February 2016.</td>
<td>Yes, the northern extent of Belmore Park will be a construction compound. Exact location and extent to be confirmed. Note: there are specific methodologies which should be applied for the retention of heritage values in the park including no removal of trees, no reseeding, and clean fill across site, and no subsurface works at all.</td>
<td>The tree to be removed (owing to its location within the expanded pedestrian and cycle crossing is outside of Belmore Park and not identified on the City of Sydney Significant Tree Register). As a construction compound. Belmore Park is proposed to be the site for a construction works depot. This would be located at the northern end of the park, near Hay Street. The construction works depot would necessitate the occupation of a section of the park for an extended period, and the construction of temporary buildings. The use of a section of the park for an extended period as a construction compound would have a moderate adverse impact upon the aesthetic significance of the park, albeit temporary.</td>
<td>Minor Averse</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heritage Area</td>
<td>Significance ID</td>
<td>Previous Impact</td>
<td>Proposed Mitigation Measure from 2013 HIA</td>
<td>Significance of Impact to NCAIA</td>
<td>Proposed Design Change to Additional Impact from Draft HIA (September 2016)</td>
<td>Action Proposed to Heritage Area and Draft HIA (February 2016)</td>
<td>Impact Assessment of Current Design (Stage 2 Submission)</td>
<td>Revised Impact Ranking</td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------------------</td>
<td>-----------------</td>
<td>-----------------</td>
<td>------------------------------------------</td>
<td>---------------------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------</td>
<td>----------------------------------------------------------------</td>
<td>------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Former Metro Goldwyn Mayer Including Interior</td>
<td>Local 11470</td>
<td>Minor Adverse</td>
<td>No specific mitigation measures are required.</td>
<td>Street trees being removed in front of the heritage item owing to third track and separated bike path.</td>
<td>-</td>
<td>-</td>
<td>Minor Adverse</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Former RC Holdenstore Ltd Factory Including Interiors</td>
<td>Local 12270</td>
<td>Not previously impacted</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Neutrality</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Railway Institute Building</td>
<td>State 01267</td>
<td>Neutral</td>
<td>As above in Central Railway Station Group</td>
<td>As above in Central Railway Station Group</td>
<td>-</td>
<td>-</td>
<td>Neutral</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heritage Area</td>
<td>Significance</td>
<td>ID</td>
<td>Previous Impact Assessment</td>
<td>Planning Approval Status 2013 HIA</td>
<td>See Specific REMM and MCCG/COMAH</td>
<td>Compliance in now?</td>
<td>Proposed Design Change to Accommodate Impact from Burm. SHA  (Assessment Stage 2 Design)</td>
<td>Action Plan to Address Impact and Date HIA (April 2013)</td>
<td>Impact Assessment of Current Design (Stage 2 Submission)</td>
<td>Revised Impact Assessment</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-------------</td>
<td>-----</td>
<td>---------------------------</td>
<td>----------------------------------</td>
<td>----------------------------------</td>
<td>--------------------</td>
<td>---------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------</td>
<td>------------------------------------------------------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>Royal Exhibition</td>
<td>Local</td>
<td>11471</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Smart pole positioning should not be through awning. Will investigate moving smart poles to avoid impacts on awning.</td>
<td>+</td>
<td>-</td>
<td>Minor Adverse</td>
</tr>
<tr>
<td>Hotel including</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interior</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Devonshire Street</td>
<td>Local</td>
<td>10.02</td>
<td>Moderate</td>
<td>Peri-urban</td>
<td>Replacing of trees would be undertaken following completion of construction works in accordance with a management plan or other approved document.</td>
<td>+</td>
<td>Request confirmation that replacement planting undertaken during construction will be in accordance with the LHVRR's Vegetation Management Package.</td>
<td>Neopartners are currently being undertaken with Housing NSW for the proposed replacement within the boundary of the Thurgoona Housing Estate. To be confirmed. This would be a positive heritage impact owing to the removal of numerous significant trees along the Devonshire Street boundary of the estate.</td>
<td>-</td>
<td>Major Adverse</td>
</tr>
<tr>
<td>Significant Trees</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Booker Street</td>
<td>Local</td>
<td>10.01</td>
<td>Moderate</td>
<td>Case study</td>
<td>Where significant trees along Booker Street near Wmo Park) would be retained and conserved. If the trees must be removed, then suitable replacements would be made.</td>
<td>+</td>
<td>Request confirmation that replacement planting undertaken during construction will be in accordance with the LHVRR's Vegetation Management Package.</td>
<td>-</td>
<td>-</td>
<td>Minor Adverse</td>
</tr>
<tr>
<td>Significant Trees</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cleveland Gardens</td>
<td>Local</td>
<td>C62</td>
<td>Moderate</td>
<td>Enhance</td>
<td>No specific mitigation measures are required.</td>
<td>+</td>
<td>+</td>
<td>Pocket park should reference that they were through streets previously. Maintain kerb lines and heights. Get CoR design.</td>
<td>Pocket park paving will be in line with pavement, but maintain delineation of kerb and sidewalk.</td>
<td>-</td>
</tr>
<tr>
<td>HCA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strawberry Hills Hotel</td>
<td>Local</td>
<td>11935</td>
<td>Not previously</td>
<td></td>
<td></td>
<td></td>
<td>+</td>
<td>Will investigate moving smart poles to avoid impacts on highly instable, pressurised.</td>
<td>+</td>
<td>Minor Adverse</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heritage Area</td>
<td>Significance</td>
<td>ID</td>
<td>Previous Impact Rating</td>
<td>Proposed Mitigation Measures from 2013 HIA</td>
<td>Significant Factors Identified</td>
<td>Achieved Result in Heritage Advice and Draw Plan HIA (issued on Stage 1 Design)</td>
<td>Impact Assessment of Current Design (Stage 2 Submission)</td>
<td>Relevance Impact Rating</td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------</td>
<td>--------------</td>
<td>-----</td>
<td>------------------------</td>
<td>-------------------------------------------</td>
<td>------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Intact and not altered or impacted.</td>
<td>Metal awning.</td>
<td>Large truck passing the heritage item. Any kerb adjustment must not alter the main awning or awning itself.</td>
<td>Neutral</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Former ANZ Bank</td>
<td>Local</td>
<td>11534</td>
<td></td>
<td></td>
<td></td>
<td>Will investigate moving smart pole west (towards Elizabeth Street) to allow smart poles on western side to be relocated to avoid impacts on highly intact awning.</td>
<td>Paving works to combine extend existing pavement and traffic island. Two smart poles along Devonshire Street in front of this heritage item. One tree would be removed from Devonshire Street frontage for this heritage item.</td>
<td>Neutral</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Burmby Street HCA</td>
<td>Local</td>
<td>C61</td>
<td>Moderate Adverse</td>
<td>No specific mitigation measures are required.</td>
<td>847 - Minimise the removal of vegetation</td>
<td>Maintain kerb lines and heights to retain an understanding that is was a former through street.</td>
<td>Pocket park paving will be in line with pavement, but maintain delineation of kerbs and sidewalks. Will include new planting of 3 trees at the turn back.</td>
<td>Neutral</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Society of Friends (Quilter Meeting House)</td>
<td>Local</td>
<td>11516</td>
<td></td>
<td>No specific mitigation measures are required.</td>
<td></td>
<td></td>
<td>Change from car traffic to light rail tracks on Devonshire Street. Pedestrianised Devonshire Street. Removal of two street trees from the north side of Devonshire Street affecting the character of the HCA. Creation of a turn back at the end of Clissold Street. Reworking of the concrete retaining wall. The undergrounding of electrical poles and wires along Devonshire Street would necessitate the installation of private pillars or new poles and connections to each property. Refer to specific previous heritage advice included as an Appendix to this HIA. Further heritage advice and assessment can be provided when the next iteration of design for the electrical connections is release/finalised.</td>
<td>Minor Adverse</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heritage Area</td>
<td>Significance</td>
<td>ID</td>
<td>Previous Impact Rating</td>
<td>Previous Management Measures from 2013 HIA</td>
<td>Site Specific REMM and MOQA</td>
<td>Compliance test?</td>
<td>Proposed Design Changes to Avoid/Minimise Impacts from Devonshire Street &amp; PVWA (Step 1 Design)</td>
<td>Actual Response to Heritage Action and Date HIA (Amended Step 2 Design)</td>
<td>Impact Assessment of Current Design (Step 2 Submission)</td>
<td>Revised Impact Rating</td>
</tr>
<tr>
<td>---------------</td>
<td>--------------</td>
<td>---</td>
<td>------------------------</td>
<td>------------------------------------------</td>
<td>-----------------------------</td>
<td>----------------</td>
<td>----------------------------------------------------------------</td>
<td>------------------------------------------------------------------</td>
<td>---------------------------------------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>Tonnoo Group</td>
<td>Local</td>
<td>15117</td>
<td>No specific mitigation measures are required.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-</td>
<td>Minor Adverse</td>
</tr>
<tr>
<td>Little Riley Street HCA</td>
<td>Local</td>
<td>C05</td>
<td>Moderate Adverse</td>
<td>No specific mitigation measures are required.</td>
<td>B47 - Maximise the removal of vegetation</td>
<td>+ ALTRAC Light Rail Revegetation Compensation Package (January 2016).</td>
<td>• Maintain herb lines and heights - sink park in roadway.</td>
<td>Pocket park paving will be in line with pavement, but maintain decoration of kerb and sidewalk.</td>
<td>-</td>
<td>Moderate Adverse</td>
</tr>
<tr>
<td>Former Clarendon Hotel</td>
<td>Local</td>
<td>15118</td>
<td>No specific mitigation measures are required.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-</td>
<td>Neutral</td>
</tr>
<tr>
<td>Shakespeare Hotel</td>
<td>Local</td>
<td>15119</td>
<td>No specific mitigation measures are required.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-</td>
<td>Neutral</td>
</tr>
<tr>
<td>Ward Park</td>
<td>-</td>
<td>Minor Adverse</td>
<td>B27 - Stops Access and Design Plans B47 - Minimise the removal of vegetation REMM013 - minimise impact on significant trees REMM16 - substitution</td>
<td>+ ALTRAC Light Rail Revegetation Compensation Package (January 2016).</td>
<td></td>
<td></td>
<td>Substation ventilation shafts, access hatches, and other infrastructure no longer required in Ward Park. Revegetation to be undertaken in accordance with Revegetation Compensation Package. Further details required for interface between project boundary and park, in</td>
<td>-</td>
<td>Major Adverse</td>
<td></td>
</tr>
<tr>
<td>Heritage Area</td>
<td>Significance</td>
<td>ID</td>
<td>Previous Impact Ranking</td>
<td>Previous Mitigation Measures from 2013 HA</td>
<td>Significance REMM and MOEA</td>
<td>Current Impact Ranking</td>
<td>Previous Design Changes in Allocation with Impacts from Draft HA (version 1 draft draft)</td>
<td>Updated PE and Heritage Advice and Draft HA (version 1 draft)</td>
<td>Updated PE and Heritage Advice and Draft HA (version 1 draft)</td>
<td>Impacts Assessment of Current Design (Stage 2 Submission)</td>
</tr>
<tr>
<td>-----------------------</td>
<td>--------------</td>
<td>-----</td>
<td>--------------------------</td>
<td>------------------------------------------</td>
<td>-----------------------------</td>
<td>------------------------</td>
<td>-----------------------------------------------------------------</td>
<td>-----------------------------------------------------------------</td>
<td>-----------------------------------------------------------------</td>
<td>----------------------------------------------------------------</td>
</tr>
<tr>
<td>Terrace House</td>
<td>Local</td>
<td>11521</td>
<td>Minor Adverse</td>
<td>No specific mitigation measures are required.</td>
<td>Infrastructure</td>
<td>Collaboration with Aspect and CoS.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Terrace House</td>
<td>Local</td>
<td>11522</td>
<td>Minor Adverse</td>
<td>No specific mitigation measures are required.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>High Holborn Street HCA</td>
<td>Local</td>
<td>054</td>
<td>Moderate Adverse</td>
<td>No specific mitigation measures are required.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>St Peter's Roman Catholic Church</td>
<td>Local</td>
<td>11520</td>
<td>Moderate Adverse</td>
<td>No specific mitigation measures are required.</td>
<td>861 - Archival Recordings</td>
<td>Confirmation that a new vehicle gate would be constructed in the western boundary of the church. Would necessitate the removal of a section of brick wall metal infill panels, grassed area and hedging. Freestanding sign to be relocated. Should seek to retain hedging as much as possible.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Terrace group</td>
<td>Local</td>
<td>11523</td>
<td>No specific mitigation measures are required.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Former Hotel Victoria</td>
<td>Local</td>
<td>11508</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Bow She Street South HCA</td>
<td>Local</td>
<td>050</td>
<td>Moderate Adverse</td>
<td>No specific mitigation measures are required.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>--------------</td>
<td>-------------</td>
<td>---</td>
<td>-------------------------------</td>
<td>-----------------------------------</td>
<td>-----------------------------------</td>
<td>-------------------</td>
<td>----------------------------------------------------------------</td>
<td>------------------------------------------------</td>
<td>-----------------------------------------------------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>Former Edward Hill &amp; Co factory including interiors</td>
<td>Local</td>
<td>1254</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-</td>
<td></td>
<td>Retention of street trees on both sides of Devonshire Street in front of heritage items.</td>
<td>Neutral</td>
</tr>
<tr>
<td>Terrace group (0-16 Pawley Street)</td>
<td>Local</td>
<td>1524</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Smart poles positioning</td>
<td></td>
<td>Ratanise three trees in park in front of heritage items.</td>
<td>Minor Adverse</td>
</tr>
<tr>
<td>Winno Park</td>
<td>-</td>
<td>Major Adverse</td>
<td>• B47 - Minimise the removal of vegetation REMMO14 - minimise impact on significant trees REMMV18 - mosaic mural and sandstone monument</td>
<td>• ALTRAC Light Rail Revegetation Compensatory Package (January 2019).</td>
<td>• Retention of trees towards south boundary of Winno Park</td>
<td>• Request confirmation that replacement plantings undertaken during construction will be in accordance with the Revegetation Compensatory Package.</td>
<td>• Mosaic mural on concrete wall and sandstone monument to be retained inside or relocated.</td>
<td>• Note interpretation opportunities along the public domain.</td>
<td></td>
<td>Major Adverse</td>
</tr>
<tr>
<td>Centennial Park—Moore Park/Ancan Parada Significant Trees</td>
<td>Local</td>
<td>24-12</td>
<td>• A construction methodology that reduces the number of significant trees to be removed would be implemented.</td>
<td>• B55 - Impacts to heritage shall be minimised REMMO15 - environmental management measures at Moore Park REMM020 - mitigation measures for the Moore Park</td>
<td>• Archival recording of the southern boundary of Centennial Park (Lang Road to Anzac Parade) was undertaken by CML in December 2015.</td>
<td>• ALTRAC Light Rail Revegetation Compensatory Package (January 2019).</td>
<td>• Revegetation to be undertaken in accordance with Revegetation Compensatory Package.</td>
<td></td>
<td>The avenue of trees along the length of Anzac Parade are listed on the City of Sydney Significant Tree Register 2013 as a large group of uncommon native trees that form a contiguous border along Anzac Parade, and as an item of Local significance.</td>
<td>Moderate Adverse</td>
</tr>
<tr>
<td>Moore Park</td>
<td>Local</td>
<td>C36</td>
<td>• The area required for excavation would be minimised to reduce the impact on the Moore Park parklands.</td>
<td>• Archival recording of the southern Greater landscaping around portal returning more landscape</td>
<td>• The proposed alignment of the CSELR through Moore Park would result in</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(CSELR and South East Light Rail (Stony Hill to Pemulwuy)—Stage 2 Design—Heritage Impact Assessment, September 2019)
<table>
<thead>
<tr>
<th>Heritage Area</th>
<th>Significance ID</th>
<th>Previous Inspectors</th>
<th>Previous Inspections Measures from 2013 HIA</th>
<th>Site Surveyed FEAM with MOCA</th>
<th>Completion of HIA?</th>
<th>Previous Inspectors, Changes to Alice Lane, Balaclava Lane and O’connor Road (High Impact—group 1)</th>
<th>Current Interventions</th>
<th>Impact Assessment of Current Design (Stage 2 submission)</th>
<th>Relevant Inspectors, Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCA</td>
<td>Advise</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Bridge over the Eastern Distributor and the relocated Surrey Hills</td>
<td>Bridge over the Eastern Distributor and the relocated Surrey Hills</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Substation. SNR - removal of vegetation BSS - impacts to heritage shall be minimised</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>BSS - Archival Recordings REMV015 - environmental management measures at Moore Park</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>REMV020 - mitigation measures for the Moore Park Conservation Area</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Boundary of Centennial Park (Lang Road to Anzac Parade) was undertaken by GML in December 2015.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ALTRAC Light Rail Reclamation Package (January 2015)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Character to Moore Park; more interpretation opportunities along the public domain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Eastern Distributor would be the similar to the Abert Tilly Cotter pedestrian bridge.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Aluminium barriers in a bronze finish clad the facade of the substation building and into the portal mouth.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>The barriers further reduce the visual impact of both the substation and tunnel structures and align with the materials and finishes palette used on the Eastern Distributor Bridge, surrounding light rail infrastructure and relates to the City of Sydney Villages palette, with proposed bollards, smartpodes and bridge elements of a similar bronze colour.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Other changes implemented include symmetrical bridge screening, changes to the gable profile, removal of the concrete triangle on the south side of the bridge and integrating lighting with handrail.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>The substation is contained in a landscaped mound, with a planted roof and substantial surrounding planting, with an aim to soften the elevation to South Dowling Street.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Access to provide drawings for Anzac Parade redirection works. Confirm if more significant trees along Anzac Parade are proposed to be removed for the diversion during construction of the tunnel crossing under Anzac Parade. This could result in more trees being removed from within the SCG (near the Tramway Oval).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>The Stage 1 design for the new pedestrian bridge over Anzac Parade incorporates lift and stairs with anti-throw screens (rather than ramps), and a footbridge with anti-throw screens.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Both temporary and permanent impacts on the heritage significance of the item. (Light rail and shared path bridge over Eastern Distributor, portals, substation, tunnel, Moore Park stop) |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sydney Boys High School group</td>
<td>Local</td>
<td>1998</td>
<td>Neutral</td>
<td>REMMO15 - environmental management measures at Moore Park</td>
<td></td>
<td></td>
<td>Neutral to Major</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Adverse</td>
</tr>
<tr>
<td>Sydney Girls High School group</td>
<td>Local</td>
<td>1999</td>
<td>Neutral</td>
<td>B38 - Anzac Parade Pedestrian Bridge 94F - Minimise the removal of vegetation BSS - Impacts to heritage shall be minimised BS9 - Avoid direct impacts on Bear Pit REMKO15 -</td>
<td></td>
<td>Bridge, ramp, stairs design package (DPSL98) executed from Zone E. Question if a bridge in this location, for the purpose, is necessary, given there is already a pedestrian crossing and another bridge nearby? Another Albert 'Tubby' Cotter bridge (officially opened on 27 Feb 2015).</td>
<td>Major to Adverse</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Accions confirmed that the potential draft design for the pedestrian bridge will include stairs and bins rather than ramps. A new bridge in this location would have a substantial adverse heritage impact on the heritage items adjacent and in the HCA. The construction of the bridge adds to the cumulative impact of significant tree removal, large event diversion</td>
<td>Major to Adverse</td>
</tr>
<tr>
<td>Location</td>
<td>Significance</td>
<td>ID</td>
<td>Previous Impact Rating</td>
<td>Possibly Significant Management Measures 2013 HAA</td>
<td>Candidate HAA?</td>
<td>Proposed Design Changes to Account Minimize Impacts from Draft HAA (based on Stage 1 Design)</td>
<td>Actions Required by Heritage Advice and Draft HAA (based 18 March 2016)</td>
</tr>
<tr>
<td>----------</td>
<td>--------------</td>
<td>----</td>
<td>------------------------</td>
<td>-----------------------------------------------</td>
<td>---------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Sydney Boys High School &amp; Sydney Girls High School Significant Trees</td>
<td>Local</td>
<td>2606</td>
<td>Neutral</td>
<td>B45 – Minimise visual and heritage setting impacts. B47 - Minimise the removal of vegetation B57 – Stops Access and Design Plans REMO15 - environmental management measures at Moore Park</td>
<td>ALTRAC Light Rail Revegetation Compensation Package (January 2016). Bridge, ramp, stairs design package (IP/06/2) extracted from Zone S.</td>
<td>The removal of trees for the bridge and stop would make the proposed bridge very prominent. The bridge and associated infrastructure would require the removal of trees along the Anzac Parade frontage to the school.</td>
<td>The Anzac Parade alignment would result in the removal of a number of significant trees from within the conservation area. The removal of significant trees would have a major adverse impact on the heritage conservation area. Potential to affect Group B, C and E trees along the eastern boundary of the schools. The removal of trees on both sides of the road for the new pedestrian bridge over Anzac Parade is a major adverse impact on the HCA.</td>
</tr>
<tr>
<td>Centennial Park, Moore Park, Queens Park</td>
<td>State</td>
<td>0184</td>
<td>Moderate Adverse</td>
<td>The detailed design of the alignment would ensure maximum separation from the tennis pavilion and avoid any impacts on physical fabric. REMO15 - environmental management measures at Moore Park</td>
<td></td>
<td>Could the set down area be in the median to the west of the busway? Would this reduce the need to shift the alignment closer to the tennis pavilion? We understand that as a result, access to the carpark is also obstructed by the tracks. Actions to provide updated drawings of the bus set down reconfiguration.</td>
<td></td>
</tr>
</tbody>
</table>
4.0 Mitigation Measures

4.1 General Measures

The detailed design, documentation and construction of the proposed CSELR would be managed to ensure that the potential heritage impacts identified in this report are minimised and/or avoided by implementation of the mitigation management and strategies proposed in this report.

The following general measures apply to the management of heritage issues along the CSELR route:

- Heritage specialists (built and landscape heritage) must be involved in the detailed design and documentation phase. They would also liaise with the teams selected to carry out the construction works to ensure that the recommended mitigation measures are implemented and impacts on heritage items and conservation areas are minimised.

- Works within or adjacent to built and landscape heritage items, or within HCAs, would be subject to careful detailed design to ensure adverse impacts are avoided or minimised.

- Appropriate protection of the physical fabric of heritage items would be provided during construction of the CSELR. This may involve temporary hoardings to sensitive areas, or variations to the construction methodology to avoid unnecessary impacts.

- The light rail stops would be designed to minimise impacts on heritage items in terms of form, scale, materials and any landscaping. For example, open, lightweight and low profile structures of contemporary design that minimise visual impacts on key views to heritage buildings and places would be developed.

- Where above ground substations are proposed, they would be designed to minimise impacts on heritage items in the vicinity in terms of form, scale and materials. Landscaping would be used to lessen the visual impact where appropriate. For example, low profile structures utilising complementary materials and details, of contemporary design that minimise visual impacts on key views to and from heritage items, would be appropriate.

- Photographic archival recording of heritage items/areas would continue to be undertaken in accordance with the relevant NSW Heritage Division guidelines. Photographic material generated from this process could be incorporated within interpretive features.

- Following the previous development of the Interpretation Strategy, Subsequent stages of interpretation would seek to develop the concepts identified in the Heritage Interpretation Strategy report, and would also address the recognition of any significant archaeology investigated/uncovered during the course of the CSELR project.
  - Interpretation would be concentrated at places/on routes which are publicly accessible and highly trafficked—such as, along shared paths, at light rail stops, along fence lines, in ground, and in retaining walls.
  - Specific initiatives associated with particular areas should be incorporated at particular stops in the vicinity of those features/deposits/items.
  - The design of the light rail vehicles should also include interpretive aspects.
4.2 Specific Mitigation Measures

The following targeted measures would apply to the management of heritage issues within the Surry Hills precinct.

4.2.1 Belmore Park

- The construction compound in the northern extent of Belmore Park needs to be design and constructed in accordance with the ARD and CHMP, and not remove significant trees or have any subsurface works.

4.2.2 Elizabeth Street Park

- Salvage of existing bricks and reuse for realigned retaining wall.

- Replanting of plane trees in the park to re-establish the line along Elizabeth Street.

4.2.3 Dental Hospital

- Replanting of trees along Chalmers Street should be further investigated.

4.2.4 Former Radio Workshop

- Redesign of the adaptation of this building should replace the currently proposed brick infill panels with something like perforated metal screen in order to differential between the existing original brick walls and later additions.

- If any further ‘closing off’ is required, it should be undertaken on the inside of the building (ie grills could be installed on the inside), but they must still allow access to the timber windows for maintenance.

- The air conditioning requirement needs to be designed to minimise visual impacts on the surrounding heritage items, while maintaining the overall scale and form of the workshop building.

- The incremental alteration and adaption of the workshop building affects the integrity and intactness of the building. Depending on the extent of works, the suitability of the building to be adapted, or the appropriateness of a new building, may need to be revisited.

4.2.5 Strawberry Hills Hotel

- Smart poles should be relocated to avoid penetration of highly intact awning. This should be the general approach for smart poles in the vicinity of heritage items.

4.2.6 Devonshire Street Significant Trees

- Where significant trees along Devonshire Street must be removed, suitable replacements would be made, in accordance with the Revegetation Compensation Package.

- Replanting within the boundary of the Northcott Housing Estate should be critically perused.
4.2.7 Ward Park
- The design of necessary substation ventilation shafts, access hatches, and other infrastructure would minimise impacts on the spatial quality of Ward Park.

4.2.8 St Peter’s Roman Catholic Church Group
- The design should seek to maximise retention of hedging along Devonshire Street.

4.2.9 Wimbo Park
- Maximise retention of existing trees throughout the park.
- The mosaic mural and sandstone monument in Wimbo Park would be retained and conserved. If they cannot be retained in situ, relocation of these elements within the proposed new landscaping would be undertaken in accordance with a management plan or other approved document.
- Design documentation for the redesigned park is required for further assessment.

4.2.10 Moore Park
- The finish of the eastern Light Rail portal should be the same as the western portal. This provides consistency for Light Rail elements across the whole project, as well as within Moore Park HCA.
- Where significant trees within Moore Park or along Anzac Parade must be removed, suitable replacements would be made, in accordance with the Revegetation Compensation Package.
- Further refinement of the Anzac Parade pedestrian bridge design is required in order to reduce the visual and physical impacts on the heritage items and conservation area in the vicinity.
- Heritage interpretation along the new bridge over Anzac Parade should be consistent with the Interpretation Strategy for the project. It may be appropriate to interpret the early Zoological stories for this particular area, or the former use of the Tramways Oval.
5.0 Appendix

Appendix A
Previous Heritage Advice—Chalmers Street Substation

Appendix B
Previous Heritage Advice—Devonshire Street Property Connections
CBD and South East Light Rail
Central Station Substation (Chalmers Street, Surry Hills)
Heritage Report, September 2015

Background
The CBD and South East Light Rail (CSELR) will comprise the construction and operation of a new light rail service from Circular Quay to Central Station, then to Kingsford and Randwick, via Surry Hills and Moore Park. The project has been approved as a State Significant Infrastructure (SSI) project (SSI-6402). GML Heritage Pty Ltd (GML) prepared a Heritage Impact Assessment (HIA) to accompany the Environmental Impact Statement (EIS) for the project, as well as a number of supplementary reports to address changes in the design.

The purpose of this report is to address the relocation of the proposed above-ground Central Station substation, to the former Radio Workshop building behind the Railway Institute Building on Chalmers Street, Surry Hills. In preparing this report a Hazardous Materials Survey Report prepared by A.D. Envirotech in April 2015 has been reviewed and informed the options analysis contained here.

Site Identification
The building referred to in this assessment as the former Radio Workshop is limited to the small rectangular structure and annexe to the immediate south and west of the Railway Institute building on Chalmers Street, Surry Hills (see Figure 1).

Figure 1 Location plan showing the former Radio Workshop in relation to Chalmers Street and the Railway Institute Building. (Source: Google Earth Pro with GML overlay)
Historical Outline

Primary historical research was undertaken to inform this analysis, however, very limited information is available on the building itself. Aerial photography from 1943 indicates that the building was constructed by 1943. The Sydney Central Station and Sydney Yard Conservation Plan and Management Study, 1987, indicates that the building was constructed sometime between 1929 and 1949. Given the similar detailing and material palette of the subject building to the adjacent substations (which were constructed prior to 1929) it can be assumed that the building was constructed c1930s.

Description

An inspection of the building was undertaken on 4 September 2015 by Steven Barry and Jane McMahon of GML, facilitated by Acciona. Due to site contamination, including friable asbestos cement, the inspection was limited to the exterior of the building. The Hazardous Materials Survey Report, 2015 was relied upon for internal images.

The former Radio Workshop is set between the Railway Institute building to the north, and two larger brick substations to the south in the easternmost section of the Central Railway Station group. The building is a utilitarian industrial building and is rectangular in form with a small skillion roofed brick annex to the north (see Figures 2–4). The main roof section is a gable form running north to south. The roof is clad in short sheet corrugated asbestos cement roofing with a decorative terracotta ridge capping running the length of the roof. The building is constructed of dark face brickwork to the north, east and south elevations (see Figure 5). The west elevation comprises five equally sized bays set within rendered concrete columns. The three northern bays comprise steel roller doors, while the central bay is open with a hinged wire mesh gate. The two southern bays are comprised of a mix of light weight timber construction and windows. The lower portions of the walls are clad in corrugated iron sheeting. The central portion is glazed with 10 panel fixed timber windows, and the upper portion is infilled with expressed timber framing and sheeted (see Figure 6). The southernmost bay also contains a timber door with a hood awning.

Figure 2. West elevation of the building showing the arrangement of the equal bays. (Source: GML 2015)

Figure 3. Detail of the east elevation with the Railway Institute building in the background. (Source: GML 2015)
Figure 4 North elevation with skillion brick annex. (Source: GML 2015)

Figure 5 South elevation of the building which comprises two timber windows with steel bars and a timber door. (Source: GML 015)

Figure 6 Detail of west elevation with central timber windows, corrugated iron sheeting to the base and timber and sheeted infill to the top. (Source: GML 2015)

Figure 7 Detail view of concrete column between bays in the east elevation. The concrete varies in condition between fair to poor. (Source: GML 2015)
Heritage Significance

The former Radio Workshop building is located within the Sydney Terminal and Central Railway Stations Group (Central Station) which is listed on the NSW State Heritage Register (SHR: 01255) for its historical, aesthetic and social significance, and its ongoing research potential (technical significance).

The Railway Institute Building, to the immediate north of the subject site, is also separately listed on the NSW SHR (SHR: 01257).

Existing Assessments

A number of Conservation Management Plans have been prepared for the Sydney Terminal and Central Railway Stations Group which include an assessment of the significance of the former Radio Workshop Building. The following table summarises the previous assessments.

Table 1 Analysis of existing assessments of the former Radio Workshop building.

<table>
<thead>
<tr>
<th>Conservation Management Document</th>
<th>Reference</th>
<th>Level of Significance</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sydney Central Station and Sydney Yard, Conservation Plan and Management Study, 1997—prepared by Howard Tanner and Associates.</td>
<td>Building 2.2—Radio Room and Mains Depot</td>
<td>Low significance (0)</td>
<td>This CMP recommends re-use and adoption as an appropriate form of conservation.</td>
</tr>
<tr>
<td>Central Station Conservation Management Plan, 1995—prepared by Department of Public Works and Services.</td>
<td>— —</td>
<td>— —</td>
<td>This CMP does not specifically address the subject building.</td>
</tr>
<tr>
<td>Central Station Conservation Management Plan, 2013—prepared by Rappoport and NSW Government Architect’s Office</td>
<td>Area 2.1—Prince Alfred Substation</td>
<td>High significance (coloured as high significance on heritage ranking map)</td>
<td>This CMP suggests that the subject building is of high significance. This believed to be an anomaly as it is not specifically addressed or mentioned elsewhere in the report.</td>
</tr>
</tbody>
</table>

Discussion of Significance

The former Radio Workshop is part of the significant Prince Alfred Sidings and Substation group within the state significant Central Railway Station. The significance of the Prince Alfred Sidings and Substation group is rated as being of high significance. The building is a utilitarian industrial structure which makes some contribution to the immediate group, and a more limited contribution to the Central Railway Station group as a whole. It represents the electrification of the Sydney train network and the rapid phase of development in this period to facilitate that change.

Options Analysis

Based on the identified significance of the building as part of Central Station a number of options should be considered in determining the future use, adaptation or demolition of the building to facilitate the implementation of a new substation for the CSELJR project.

The CMP 2013 indicates that the continued use of the precinct as housing sub stations is appropriate. Whilst the subject building is not a substation, it is in in a precinct that is defined by its relationship to the development of the City Electric Network, and therefore the use of the building or site for use of a substation is deemed appropriate.
**Physical Condition**

The physical condition of the fabric varies from fair to poor. There is some deterioration to the timber elements including barge boards and capping. The brickwork is generally in good condition. There is some minor deterioration to the west elevation concrete columns (this appears to be surface damage, but more detailed analysis would be required) (see Figure 7).

The *Hazardous Materials Survey Report, 2015* identifies friable asbestos and lead paints as the major contamination issues for the building. This would require remediation and removal of some early building fabric such as the roof, windows, and internal linings.

**Option 1: Retention and Conservation of Entire Building and Contents**

Complete retention and conservation of the entire former Radio Workshop structure may be physically possible, but is not warranted owing to the site condition, and limited heritage significance. The building is disused and there is no apparent immediate use for the retained structure should it be retained in its current form, particularly internally.

**Option 2: Adaptation of the Building In Whole or In Part**

Adaptation of the former Radio Workshop structure could involve the remediation of the building to remove all contamination including asbestos and lead paint. Internally, the building could be modified extensively to contain a new use whilst retaining the external form, scale and appearance of the building, albeit with new roofing material (ie replacement of the new asbestos cement roofing) and modified fenestration to the west elevation to accommodate the new use.

**Option 3: Demolition of the Existing Building and Construction of a New Substation Facility**

Demolition of the existing structure and the design and construction of a new substation will constitute a heritage impact. Demolition of the former Radio Workshop structure in itself would not constitute a major adverse impact on the Central Railway Station (as defined in the HIA, GML 2013). However, the building is in a highly sensitive location given its proximity to the Railway Institute building. The current building relates well to this context in terms of its basic detailing, scale, and form. A replacement building has the potential to be a moderate to major adverse heritage impact on the setting of adjacent heritage items.

**Preferred Heritage Option**

The former Radio Workshop building is of historical significance to the precinct, which is of state significance, and warrants retention. Option 2, involving the adaptation and reuse of the existing structure, albeit modified to accommodate the new use and remediate the site of harmful contaminants is the preferred option in heritage terms. An adaptive reuse of the building as a substation, which will involve substantial change, will retain the buildings relationship with the significant surrounding buildings whilst allowing the new use to take place within the envelope of the existing building.

**Recommendations**

Having regard to the preferred heritage option (Option 2) the following recommendations are submitted for consideration:

1. Investigate options for the retention and adaption of the existing building to accommodate the proposed new use.
2. Seek heritage advice for the detailed design, including extent of remediation and replacement of fabric.

3. Include the work in a supplementary Heritage Impact Assessment for the zone prior to the work being undertaken.

4. Undertake an archival recording of the building consistent with the requirements of the project prior to work being undertaken.
29 July 2016

Mr Dakshan Balaretnaraja
Utilities Project Engineer
ACCIONA Infrastructure Australia Pty Ltd
Level 4, 83 York Street
SYDNEY NSW 2000

Our Ref: 16-0036Adbl1

Re: Property Connection Options Along Devonshire Street, Surry Hills—Heritage Advice

Dear Mr Balaretnaraja

We refer to the proposed electrical connection modification work required along Devonshire Street in Surry Hills to accommodate the Sydney Light Rail Project. We understand that the existing network poles along Devonshire Street are required to be removed to allow for the light rail infrastructure to be installed and operated. As such, new individual connections for each property currently connected via the network poles are required.

The heritage context in the area where these works are proposed include individual heritage items, heritage conservation areas (HCA) and contributory items.

A meeting was held on 27 June 2016 with Acciona and GML to discuss the requirements for the proposed works and options available for new individual connections to each affected property. The following advice is provided by GML Heritage Pty Ltd (GML) in relation to built heritage impacts; expressly, minimising adverse impacts on significant fabric, visual setting and overall cumulative impacts on the HCAs and heritage items (as a result of this project and other associated works for the Sydney Light Rail project). This advice is not intended as a Heritage Impact Assessment of each individual proposal for each dwelling, and does not outline what consents are required for the proposed work.

Acciona has provided GML with two reports detailing the proposed property connection options for properties along Devonshire Street. GML has reviewed these reports and, following initial discussions, generally support the proposed options – noting that they are in general accordance with our advice, while some properties require additional investigations.

Appended to the general heritage advice below are specific recommendations for the properties at 126-154 Devonshire Street – in order to avoid the use of Private Poles and preference the use of Private Pillars.
General Heritage Advice

- The use of a discrete Network Pillar at the properties’ boundary is appropriate. Co-locating pillars beside each other (or using one pillar for two properties – if possible) when the respective switchboards/metre boxes are on the same party wall is preferable (eg 138 and 140, 142 and 144 Devonshire Street).

- The use of Private Pillars within the property boundary is preferable over Private Poles within front yards. The introduction of Private Poles would add to the amount of new infrastructure along Devonshire Street associated with the Sydney Light Rail. These would be detracting elements within the HCA and obstruct views of a consistent row of contributory terraces.

- Small penetrations through rendered brick front boundary walls could be acceptable to connect the Network Pillar with the metre box or to the Private Box. Co-locating them with existing penetrations (eg for gas lines, telecommunications conduits etc) is preferable (eg 134 and 136 Devonshire Street).

- Conduits should avoid penetrating through sandstone posts, fences or front retaining walls. It would be preferable for the conduit to go over the sandstone. (eg 146-152 Devonshire Street)

- Minimise the diameter of the conduit.
<table>
<thead>
<tr>
<th>General Heritage Advice</th>
<th>Photographs (GML, July 2016)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Conduits should be surface mounted, not chased into walls.</td>
<td><img src="image1" alt="Conduits mounted" /></td>
</tr>
<tr>
<td>• Conduits should be screwed into the mortar joints between masonry (brick or stone) units, rather than into the face of the masonry unit. Adhesives should not be used.</td>
<td><img src="image2" alt="Mortar joints" /></td>
</tr>
<tr>
<td>• Attachment of conduit to low/medium height, side fence/walls is acceptable to take conduits towards building.</td>
<td><img src="image3" alt="Attachment" /></td>
</tr>
<tr>
<td>• Conduits should avoid cutting/penetrating through mouldings on the façade. Attachments should also avoid mouldings.</td>
<td><img src="image4" alt="Mouldings" /></td>
</tr>
<tr>
<td>• Conduits should be tracked up in less obvious locations such as in corners or at building boundary lines.</td>
<td><img src="image5" alt="Tracking" /></td>
</tr>
<tr>
<td>• Minor excavation (using hand tools) of front yards in some properties, to underground the conduit before it is brought out of the ground at the closest point on the façade, could be appropriate.</td>
<td><img src="image6" alt="Excavation" /></td>
</tr>
<tr>
<td>• Sandstone flagging/paving in front yards (of properties #144—150 Devonshire Street) should not be removed. The below recommended locations of Network Pillars and conduit routes avoid impacting these sandstone features.</td>
<td><img src="image7" alt="Flagging" /></td>
</tr>
</tbody>
</table>
While it would be preferable to remove the (resulting redundant/extraneous) electricity attachment point (at roof line, awning or the side of the building) of each property as part of this project, we understand that Acciona want to minimise impact on any building fabric.

It should be noted that City of Sydney Council approval/notification may be required for works that will be undertaken within a HCA or to a heritage item. This information should be provided to the property owner/occupiers as they hold the responsibility for liaising with the City of Sydney regarding developments to their properties.

We also understand that the galvanised conduit would not be painted by Acciona. It will be the property owners’ choice to paint the conduit. It should be noted that City of Sydney Council approval may be required for some painting works within a HCA or to a heritage item.

Heritage advice should continue to inform the final options selection when dealing with properties in HCAs or individual heritage items.

To discuss or for further information or clarification, contact Julian Siu or Claire Nunez.

Yours sincerely
GML Heritage Pty Ltd

Claire Nunez
Associate and Manager of Heritage Places
Recommended Network Pillar and Conduit Route for 126—154 Devonshire Street, Surry Hills
126 Devonshire Street
- Low sandstone wall rendered
- Left side entry gate

Existing conduit channel on #126 side.
- Recommended location of Network Pillar(s) at boundary.
- Conduit to go up and over sandstone wall and into garden bed OR attached to side boundary wall towards building, up wall to metre boxes.

128 Devonshire Street
- Low sandstone wall rendered
- Right side entry gate

130 Devonshire Street
- Low sandstone wall rendered and painted
- Left side entry gate

Existing conduit on #132 side.
- Recommended location of Network Pillar(s) at boundary.
- Conduit to go up and over sandstone wall and into garden bed OR attached to side boundary wall towards building, up wall to metre boxes.

132 Devonshire Street
- Low sandstone wall rendered and painted
- Right side entry gate
134 Devonshire Street
- Brick wall atop low sandstone wall
- Existing conduits penetrating boundary wall
- Left side entry gate

136 Devonshire Street
- Existing conduits penetrating boundary wall on both #134 and #136 sides.
- Recommended location of Network Pillar(s) at boundary.
- Conduit to through boundary walls and into garden beds, then underground towards building, up wall to metre boxes.
- New low brick wall
- Right side entry gate

138 Devonshire Street
- Low sandstone wall
- Left side entry gate

140 Devonshire Street
- Recommended location of Network Pillar(s) at boundary.
- Conduit to go up and over sandstone wall and into garden bed OR attached to side boundary wall towards building, up wall to metre boxes.
- Low sandstone wall
- Right side entry gate
142 Devonshire Street
- New high rendered brick wall
- Left side entry gate
- Existing conduit pipe on #144 side.
- Recommended location of Network Pillar(s) at boundary.
- Conduit to go through boundary wall at #142, then underground towards building, up wall to metre boxes.
- Conduit to go up and over sandstone wall then underground OR attached to side boundary wall towards building, up wall to metre boxes.

144 Devonshire Street
- Low sandstone wall and posts
- Sandstone paving
- Right side entry gate

146 Devonshire Street
- Low sandstone wall and posts
- Sandstone paving
- Existing conduits across façade
- Left side entry gate
- Recommended location of Network Pillar(s) at boundary.
- Conduit to go up and over sandstone wall then underground OR attached to side boundary wall towards building, up wall, along façade with existing conduits to metre boxes.
- Low sandstone wall and posts
- Sandstone paving
- Large tree in front garden
- Existing conduits across façade
- Right side entry gate
<table>
<thead>
<tr>
<th>150 Devonshire Street</th>
<th>152 Devonshire Street</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low sandstone wall and posts</td>
<td></td>
</tr>
<tr>
<td>Sandstone paving</td>
<td></td>
</tr>
<tr>
<td>Left side entry gate</td>
<td></td>
</tr>
<tr>
<td>Recommended location of Network Pillar(s) at boundary.</td>
<td></td>
</tr>
<tr>
<td>Conduit to go up and over sandstone wall and into garden bed OR attached to side boundary wall towards building, up wall to metre boxes.</td>
<td></td>
</tr>
<tr>
<td>Low sandstone wall and posts</td>
<td></td>
</tr>
<tr>
<td>Sandstone paving</td>
<td></td>
</tr>
<tr>
<td>Large tree in front yard</td>
<td></td>
</tr>
<tr>
<td>Right side entry gate</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>154 Devonshire Street</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brick wall atop low sandstone wall</td>
</tr>
<tr>
<td>Left side entry gate</td>
</tr>
<tr>
<td>Recommended location of Network Pillar at boundary (potential obstruction issue).</td>
</tr>
<tr>
<td>Conduit attached to side boundary wall towards building, up wall to metre boxes.</td>
</tr>
</tbody>
</table>