



# **WATERLOO METRO QUARTER OVER STATION DEVELOPMENT**

## **Environmental Impact Statement Appendix TT – Arborist Report**

### **SSD-10437 Southern Precinct**

Detailed State Significant Development  
Development Application

Prepared for **Waterloo Developer Pty Ltd**

30 September 2020



Reference	Description
Applicable SSD Applications	SSD-10437 Southern Precinct
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## Table of Contents

<b>1. Glossary and abbreviations</b> .....	<b>5</b>
<b>2. Executive summary</b> .....	<b>8</b>
<b>3. Introduction</b> .....	<b>9</b>
<b>4. The site</b> .....	<b>11</b>
<b>5. Background</b> .....	<b>14</b>
5.1 About Sydney Metro .....	14
5.1.1 Sydney Metro North West.....	14
5.1.2 Sydney Metro City & Southwest .....	14
5.1.3 Sydney Metro West .....	14
5.1.4 Sydney Metro Greater West .....	14
5.2 Sydney Metro CSSI Approval (SSI 7400) .....	15
5.3 Concept Approval (SSD 9393).....	16
<b>6. Proposed development</b> .....	<b>17</b>
6.1 Waterloo Metro Quarter Development .....	17
6.1.1 Southern Precinct [Subject DA] .....	17
6.1.2 Basement Car Park .....	17
6.1.3 Central Precinct .....	18
6.1.4 Northern Precinct.....	18
<b>7. Methodology</b> .....	<b>19</b>
<b>8. Assessment and findings</b> .....	<b>20</b>
<b>9. Mitigation measures</b> .....	<b>21</b>
<b>10. Conclusion</b> .....	<b>22</b>
<b>11. Appendices</b> .....	<b>23</b>
11.1 Appendix 1 – Tree Schedule .....	23
11.2 Appendix 2 – Tree Retention Value Assessment.....	23
11.3 Appendix 3 – Tree Photographs.....	29
11.4 Appendix 4 – Tree Plan.....	31



## List of Figures

Figure 1 - Aerial image of the site .....	12
Figure 2 - Waterloo Metro Quarter site, with sub-precincts identified .....	13
Figure 3 - Waterloo Metro Quarter site, with sub-precincts identified .....	13
Figure 4 - Sydney Metro alignment map .....	15
Figure 5 - CSSI Approval scope of works .....	16
Figure 6 – Site plan, with subject trees identified .....	16

## List of Tables

Table 1 - SEARs requirements .....	9
Table 2 - Conditions of Concept Approval .....	10



## 1. Glossary and abbreviations

Reference	Description
ACHAR	Aboriginal Cultural Heritage Assessment Report
ADG	Apartment Design Guide
AHD	Australian height datum
AQIA	Air Quality Impact Assessment
BC Act	Biodiversity Conservation Act 2016
BCA	Building Code of Australia
BC Reg	Biodiversity Conservation Regulation 2017
BDAR	Biodiversity Development Assessment Report
CEEC	critically endangered ecological community
CIV	capital investment value
CMP	Construction Management Plan
Concept DA	A concept DA is a staged application often referred to as a 'Stage 1' DA. The subject application constitutes a detailed subsequent stage application to an approved concept DA (SSD 9393) lodged under section 4.22 of the EP&A Act.
Council	City of Sydney Council
CPTED	Crime Prevention Through Environmental Design
CSSI approval	critical State significant infrastructure approval
CTMP	Construction Traffic Management Plan
DA	development application
DPIE	NSW Department of Planning, Industry and Environment
DRP	Design Review Panel
EP&A Act	Environmental Planning and Assessment Act 1979
EPA	NSW Environment Protection Authority
EPA Regulation	Environmental Planning and Assessment Regulation 2000
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
ESD	ecologically sustainable design



Reference	Description
GANSW	NSW Government Architect's Office
GFA	gross floor area
HIA	Heritage Impact Assessment
IAP	Interchange Access Plan
LGA	Local Government Area
NCC	National Construction Code
OSD	over station development
PIR	Preferred Infrastructure Report
POM	Plan of Management
PSI	Preliminary Site Investigation
RMS	Roads and Maritime Services
SEARs	Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SEPP 55	State Environmental Planning Policy No 55—Remediation of Land
SEPP 65	State Environmental Planning Policy No. 65 – Design Quality of Residential Apartment Development
SRD SEPP	State Environmental Planning Policy (State and Regional Development) 2009
SREP Sydney Harbour	State Regional Environmental Plan (Sydney Harbour Catchment) 2005
SSD	State significant development
SSD DA	State significant development application
SLEP	Sydney Local Environmental Plan 2012
Transport for NSW	Transport for New South Wales
TIA	Traffic Impact Assessment
The proposal	The proposed development which is the subject of the detailed SSD DA
The site	The site which is the subject of the detailed SSD DA
VIA	Visual Impact Assessment



Reference	Description
WMQ	Waterloo Metro Quarter
WMP	Waste Management Plan
WSUD	water sensitive urban design



## 2. Executive summary

This Arboricultural Impact Assessment report has been prepared by Urban Forestry Australia to accompany a detailed State significant development (SSD) development application (DA) for the Southern Precinct over station development (OSD) at the Waterloo Metro Quarter site. Consent is sought for the removal of five trees, of low to medium retention value, located on Botany Road and Wellington Street, adjacent the Southern Precinct.

The removal of these trees is required because construction impacts will adversely affect tree health and stability. Several of the trees proposed for removal have restricted root zones and have been subjected to past lopping for power line clearances. As part of the redevelopment of the Waterloo Metro Quarter (WMQ) Precinct and to compensate for the loss of these trees, a comprehensive landscape scheme is proposed to enhance the character and amenity of the local area, streetscape and broader neighbourhood.

This report has been prepared to address the relevant conditions of the concept SSD DA (SSD 9393) and the Secretary's Environmental Assessment Requirements (SEARs) issued for the detailed SSD DA SSD 10437.

This report concludes that the proposed Southern Precinct OSD is suitable and warrants approval subject to the implementation of the following mitigation measures:

- Tree replacement at landscaping stage.



### 3. Introduction

This report has been prepared to accompany a detailed State significant development (SSD) development application (DA) for the Southern Precinct over station development (OSD) at the Waterloo Metro Quarter site. The detailed SSD DA is consistent with the concept approval (SSD 9393) granted for the maximum building envelope on the site, as proposed to be modified.

The Minister for Planning, or their delegate, is the consent authority for the SSD DA and this application is lodged with the NSW Department of Planning, Industry and Environment (DPIE) for assessment.

The detailed SSD DA seeks development consent for the design, construction and operation of:

- 25-storey residential building (Building 3) comprising student accommodation, to be delivered as a mixture of studio and twin apartments with approximate capacity of 474 students
- 9-storey residential building (Building 4) above the southern station box to accommodate 70 social housing dwellings
- ground level retail tenancies including Makerspace and gymnasium lobby, and loading facilities
- level 1 and level 2 gymnasium and student accommodation communal facilities
- landscaping and private and communal open space at podium and roof top levels to support the residential accommodation
- new public open space including the delivery of the Cope Street Plaza, including vehicle access to the site via a shared way from Cope Street, expanded footpaths on Botany and Wellington streets and public domain upgrades
- signage zone locations
- utilities and service provision
- removal of five trees
- stratum subdivision (staged).

This report has been prepared in response to the requirements contained within the Secretary’s Environmental Assessment Requirements (SEARs) dated 8 April 2020 and issued for the detailed SSD DA. Specifically, this report has been prepared to respond to the SEARs requirements summarised below.

Item	Description of requirement	Section reference (this report)
	Plans and Documents – Tree Removal Plan and Arborist Report (where relevant)	This report has been prepared in response to this SEAR.

**Table 1 - SEARs requirements**

This report has also been prepared in response to the following conditions of consent issued for the concept SSD DA (SSD 9393) for the OSD as summarised in the table below.



Item	Description of requirement	Section reference (this report)
	N/A	

*Table 2 - Conditions of Concept Approval*



## 4. The site

The site is located within the City of Sydney Local Government Area (LGA). The site is situated about 3.3 kilometres south of Sydney CBD and eight kilometres northeast of Sydney International Airport within the suburb of Waterloo.

The Waterloo Metro Quarter site comprises land to the west of Cope Street, east of Botany Road, south of Raglan Street and north of Wellington Street (refer to Figure 1). The heritage-listed Waterloo Congregational Church at 103–105 Botany Road is within this street block but does not form a part of the Waterloo Metro Quarter site boundaries.

The Waterloo Metro Quarter site is a rectangular shaped allotment with an overall site area of approximately 1.287 hectares.

The Waterloo Metro Quarter site comprises the following allotments and legal description at the date of this report. Following consolidation by Sydney Metro (the Principal) the land will be set out in deposited plan DP1257150.

- 1368 Raglan Street (Lot 4 DP 215751)
- 59 Botany Road (Lot 5 DP 215751)
- 65 Botany Road (Lot 1 DP 814205)
- 67 Botany Road (Lot 1 DP 228641)
- 124-128 Cope Street (Lot 2 DP 228641)
- 69-83 Botany Road (Lot 1, DP 1084919)
- 130-134 Cope Street (Lot 12 DP 399757)
- 136-144 Cope Street (Lots A-E DP 108312)
- 85 Botany Road (Lot 1 DP 27454)
- 87 Botany Road (Lot 2 DP 27454)
- 89-91 Botany Road (Lot 1 DP 996765)
- 93-101 Botany Road (Lot 1 DP 433969 and Lot 1 DP 738891)
- 119 Botany Road (Lot 1 DP 205942 and Lot 1 DP 436831)
- 156-160 Cope Street (Lot 31 DP 805384)
- 107-117A Botany Road (Lot 32 DP 805384 and Lot A DP 408116)
- 170-174 Cope Street (Lot 2 DP 205942).

The detailed SSD DA applies to the Southern Precinct (the site) of the Waterloo Metro Quarter site. The site has an area of approximately 4830sqm. The subject site comprises the following allotments and legal description at the date of this report.

- 130–134 Cope Street (Lot 12 DP 399757) (Part)
- 136–144 Cope Street (Lots A-E DP 108312) (Part)
- 93–101 Botany Road (Lot 1 DP 433969 and Lot 1 DP 738891) (Part)
- 156–160 Cope Street (Lot 31 DP 805384)
- 107–117A Botany Road (Lot 32 DP 805384 and Lot A DP 408116)
- 119 Botany Road (Lot 1 DP 205942 and Lot 1 DP 436831)

- 170–174 Cope Street (Lot 2 DP 205942).

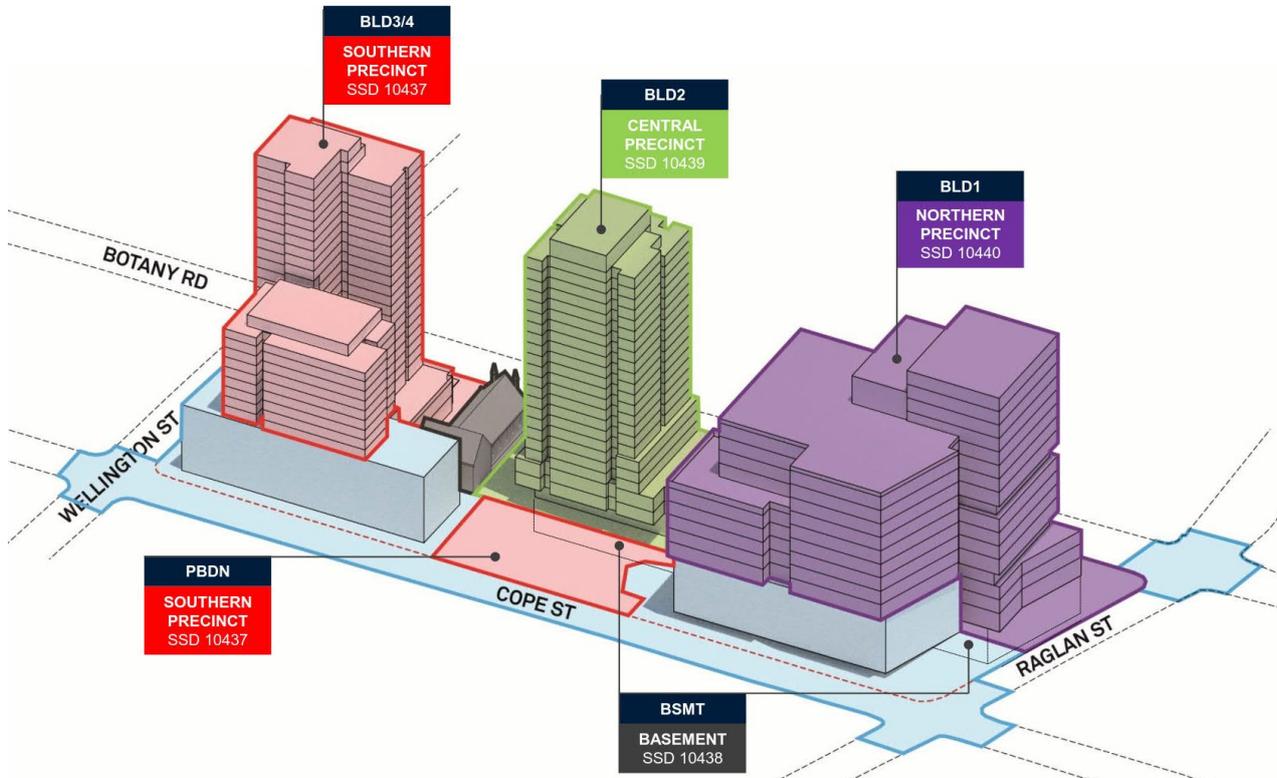
The boundaries of the overall site are identified at Figure 1, and the subject site of the detailed SSD DA is identified at Figures 2 and 3. The site is reasonably flat with a slight fall to the south.

The site previously included three to five storey commercial, light industrial and shop top housing buildings. All previous structures except for an office building at the corner of Botany Road and Wellington Street have been demolished to facilitate construction of the new Sydney Metro Waterloo station. As such the existing site is predominately vacant and being used as a construction site. Construction of the Sydney metro is currently underway on site in accordance with critical State significant infrastructure approval (CSSI 7400).

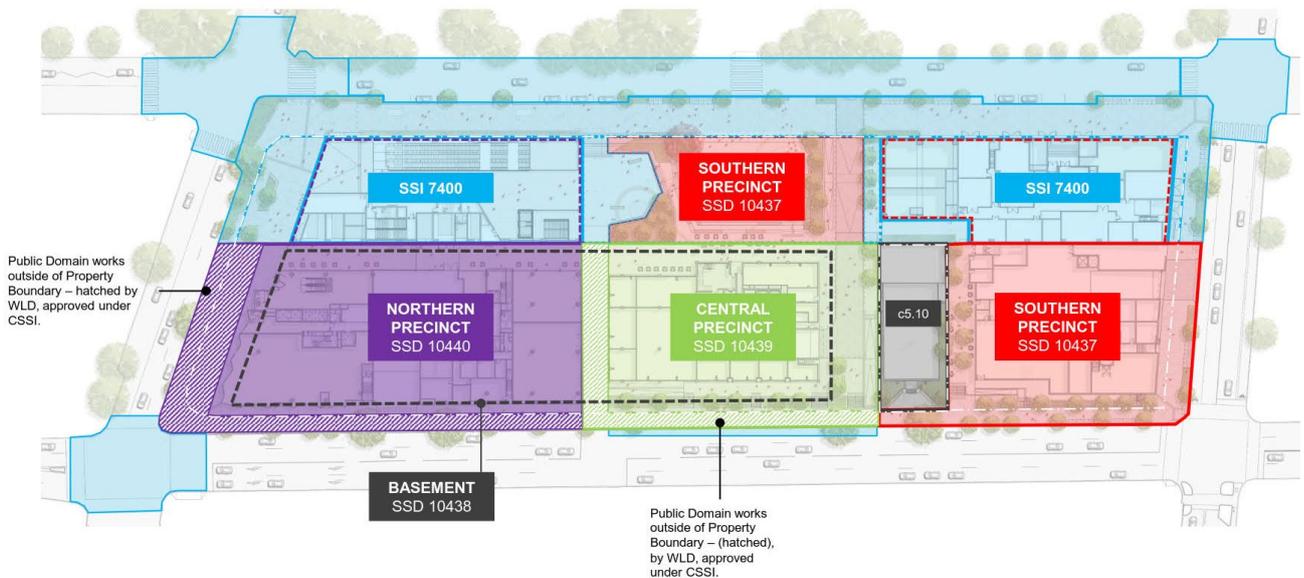


**Figure 1 - Aerial image of the site**  
**Source: Urbis**

The area surrounding the site consists of commercial premises to the north, light industrial and mixed-use development to the south, residential development to the east and predominantly commercial and light industry uses to the west.



**Figure 2 - Waterloo Metro Quarter site, with sub-precincts identified**  
**Source: HASSELL**



**Figure 3 - Waterloo Metro Quarter site, with sub-precincts identified**  
**Source: Waterloo Developer Pty Ltd**



## 5. Background

### 5.1 About Sydney Metro

Sydney Metro is Australia's biggest public transport project. Services started in May 2019 in the city's North West with a train every four minutes in the peak. A new standalone railway, this 21st century network will revolutionise the way Sydney travels.

There are four core components:

#### Sydney Metro North West

This project is now complete and passenger services commenced in May 2019 between Rouse Hill and Chatswood, with a metro train every four minutes in the peak. The project was delivered on time and \$1 billion under budget.

#### Sydney Metro City & Southwest

Sydney Metro City & Southwest project includes a new 30km metro line extending metro rail from the end of Metro Northwest at Chatswood, under Sydney Harbour, through new CBD stations and southwest to Bankstown. It is due to open in 2024 with the ultimate capacity to run a metro train every two minutes each way through the centre of Sydney.

Sydney Metro City & Southwest will deliver new metro stations at Crows Nest, Victoria Cross, Barangaroo, Martin Place, Pitt Street, Waterloo and new underground metro platforms at Central Station. In addition, it will upgrade and convert all 11 stations between Sydenham and Bankstown to metro standards.

#### Sydney Metro West

Sydney Metro West is a new underground railway connecting Greater Parramatta and the Sydney CBD. This once-in-a-century infrastructure investment will transform Sydney for generations to come, doubling rail capacity between these two areas, linking new communities to rail services and supporting employment growth and housing supply between the two CBDs.

The locations of seven proposed metro stations have been confirmed at Westmead, Parramatta, Sydney Olympic Park, North Strathfield, Burwood North, Five Dock and The Bays.

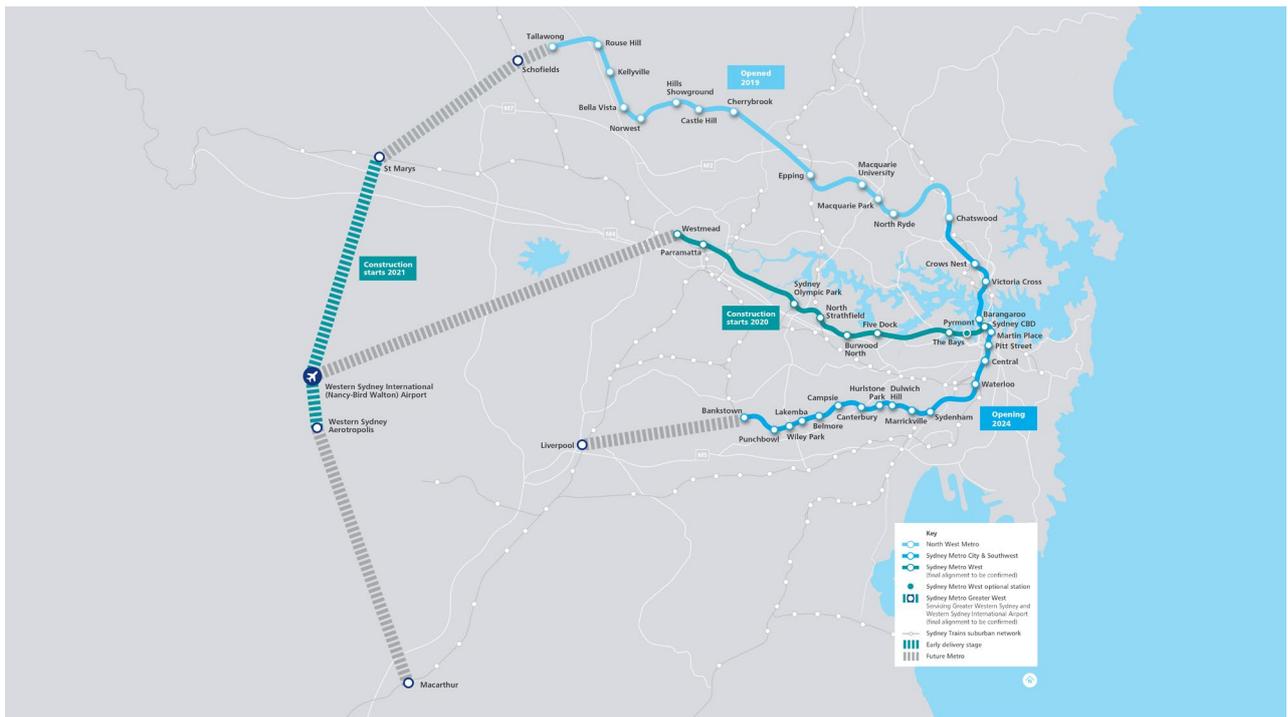
The NSW Government is assessing an optional station at Pyrmont and further planning is underway to determine the location of a new metro station in the Sydney CBD.

#### Sydney Metro Greater West

Metro rail will also service Greater Western Sydney and the new Western Sydney International (Nancy Bird Walton) Airport. The new railway line will become the transport spine for the Western Parkland City's growth for generations to come, connecting communities and travellers with the rest of Sydney's public transport system with a fast, safe and easy metro service.

The Australian and NSW governments are equal partners in the delivery of this new railway.

The Sydney Metro project is illustrated below.



**Figure 4 - Sydney Metro alignment map**  
**Source: Sydney Metro**

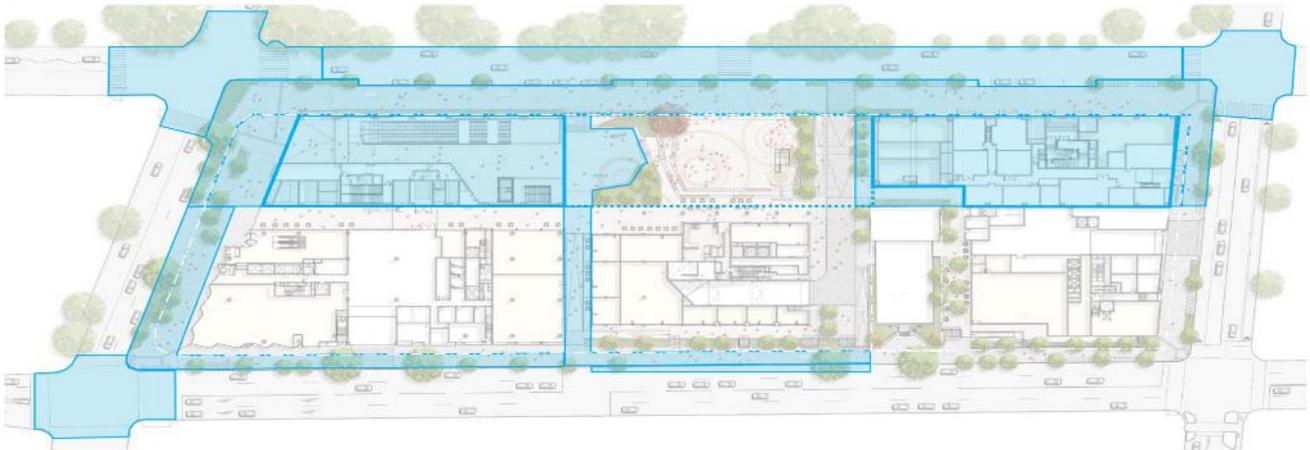
## 5.2 Sydney Metro CSSI Approval (SSI 7400)

On 9 January 2017, the Minister for Planning approved the Sydney Metro City & Southwest - Chatswood to Sydenham project as a critical State significant infrastructure (CSSI) project (reference SSI 7400) (CSSI approval). The terms of the CSSI approval includes all works required to construct the Sydney Metro Waterloo Station. The CSSI approval also includes the construction of below and above ground works within the metro station structure for appropriate integration with the OSD.

With regards to CSSI related works, any changes to the ‘metro station box’ envelope and public domain will be pursued in satisfaction of the CSSI conditions of approval and do not form part of the scope of the concept SSD DA or detailed SSD DA for the OSD.

Except to the extent described in the EIS or Preferred Infrastructure Report (PIR) submitted with the CSSI application, any OSD buildings and uses do not form part of the CSSI approval and will be subject to the relevant assessment pathway prescribed by the EP&A Act.

The delineation between the approved Sydney Metro works, generally described as within the two ‘metro station boxes’ and surrounding public domain works, and the OSD elements are illustrated in Figure 5.



**Figure 5 - CSSI Approval scope of works**  
**Source: WL Developer Pty Ltd**

### 5.3 Concept Approval (SSD 9393)

As per the requirements of clause 7.20 of the *Sydney Local Environmental Plan 2012 (SLEP)*, as the OSD exceeds a height of 25 metres above ground level (among other triggers), development consent is first required to be issued in a concept DA (formerly known as Stage 1 DA).

Development consent was granted on 10 December 2019 for the concept SSD DA (SSD 9393) for the Waterloo Metro Quarter OSD including:

- a maximum building envelope for podium, mid-rise and tower buildings
- a maximum gross floor area of 68,750sqm, excluding station floor space
- conceptual land use for non-residential and residential floor space
- minimum 12,000sqm of non-residential gross floor area including a minimum of 2,000sqm of community facilities
- minimum 5% residential gross floor area as affordable housing dwellings
- 70 social housing dwellings
- basement car parking, motorcycle parking, bicycle parking, and service vehicle spaces.

The detailed SSD DA seeks development consent for the OSD located within the Southern Precinct of the site, consistent with the parameters of this concept approval. Separate SSD DAs have been prepared and will be submitted for the Central Precinct Northern Precinct and basement car park proposed across the Waterloo Metro Quarter site.

A concurrent amending concept SSD DA has been prepared and submitted to the DPIE which proposed to make modifications to the approved building envelopes at the northern precinct and central building. This amending concept SSD DA does not impact the proposed development within the southern precinct.



## 6. Proposed development

### 6.1 Waterloo Metro Quarter Development

The Waterloo Metro Quarter OSD comprises four separate buildings, a basement carpark and public domain works adjacent to the Waterloo Metro station.

Separate SSD DAs will be submitted concurrently for the design, construction and operation of each building in the precinct;

- Southern precinct SSD-10437,
- Basement Car Park SSD-10438,
- Central precinct SSD-10439, and
- Northern precinct-SSD-10440.

An overview of the Development is included below for context. This detailed SSD DA seeks development consent for the design, construction and operation of the Southern Precinct:

#### Southern Precinct [Subject DA]

The Southern Precinct comprises:

- 25-storey residential building (Building 3) comprising student accommodation, to be delivered as a mixture of studio and twin apartments with approximate capacity of 474 students
- 9 storey residential building (Building 4) above the southern station box to accommodate 70 social housing dwellings
- ground level retail tenancies including Makerspace and gymnasium lobby, and loading facilities
- level 1 and level 2 gymnasium and student accommodation communal facilities
- landscaping and private and communal open space at podium and roof top levels to support the residential accommodation
- new public open space including the delivery of the Cope Street Plaza, including vehicle access to the site via a shared way from Cope Street, expanded footpaths on Botany and Wellington Streets and public domain upgrades
- signage zone locations
- utilities and service provision
- stratum subdivision (staged).

#### Basement Car Park

The Basement Car Park comprises:

- 2-storey shared basement car park and associated excavation comprising
- Ground level structure
- Carparking for the Commercial Building 1, Residential Building 2, social housing Building 4, Waterloo Congregational Church and Sydney Metro
- Service vehicle bays
- commercial end of trip and bicycle storage facilities
- Retail end of trip and bicycle storage facilities



- residential storage facilities
- shared plant and services.

### Central Precinct

The Central Precinct comprises:

- 24-storey residential building (Building 2) comprising approximately 126 market residential and 24 affordable housing apartments, to be delivered as a mixture of 1 bedroom, 2 bedroom and 3 bedroom apartments
- Ground level retail tenancies, community hub, precinct retail amenities and basement car park entry
- level 1 and level 2 community facilities (as defined in the SLEP) intended to be operated as a childcare centre
- landscaping and private and communal open space at roof top levels to support the residential accommodation
- new public open space including the delivery of the Church Square, including vehicle access to the basement via a shared way from Cope Street, expanded footpaths and public domain upgrades on Botany Road
- external licensed seating areas
- signage zone locations
- utilities and service provision
- stratum subdivision (staged).

### Northern Precinct

The Northern Precinct comprises:

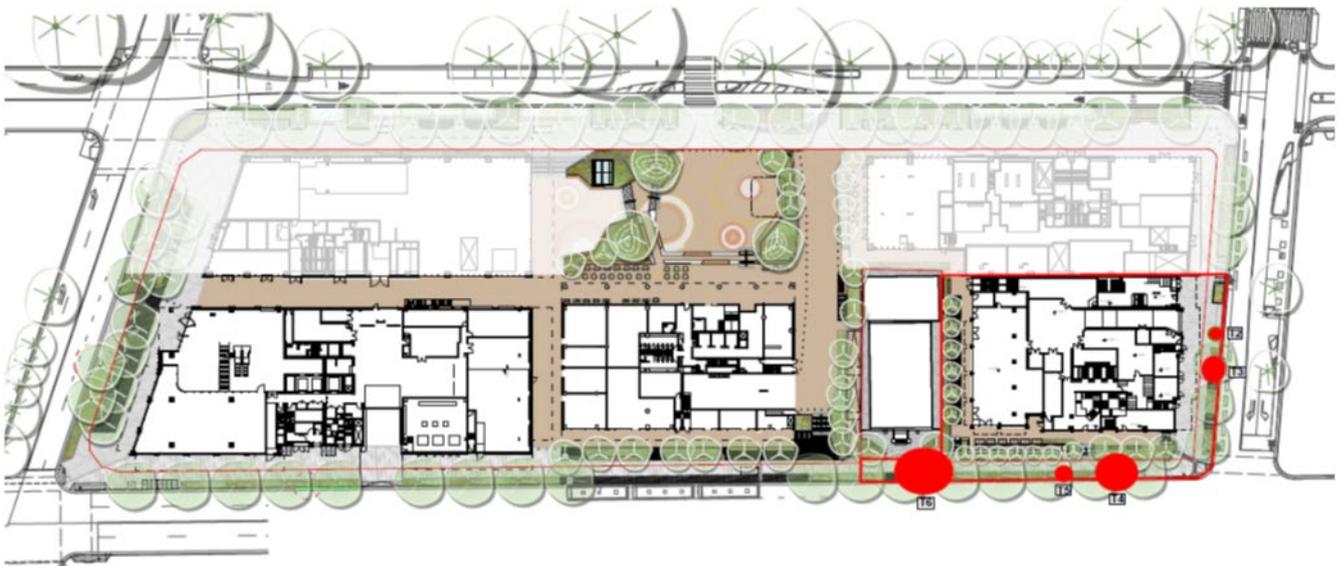
- 17-storey commercial building (Building 1) comprising Commercial floor space, with an approximate capacity of 4000 workers
- ground level retail tenancies, loading dock facilities serving the northern and central precinct including Waterloo metro station
- landscaping and private open space at podium and roof top levels to support the commercial tenants
- new public open space including the delivery of the Raglan Street Plaza, Raglan Walk and expanded footpaths on Raglan Street and Botany Road and public domain upgrades
- external licensed seating areas
- signage zone locations
- utilities and service provision
- stratum subdivision (staged).

## 7. Methodology

**7.1** As instructed, I have assessed five (5) trees located on Botany Road and Wellington Street, adjacent the Southern Precinct. The locations of the trees are identified in Figure 6.

I have carried out an assessment of the trees to determine the species, approximate dimensions, general vigour and structural condition, and Useful Life Expectancy and Retention Value of each tree. Refer to **Appendix 1** (Tree Schedule) and **Appendix 2** (Tree Retention Value Assessment) for details.

The assessment, as far as practicable, has been carried out in accordance with Australian Standard 4970-2009 Protection of trees on development sites.



**Figure 6 – Site Plan showing the five subject trees in red**  
*Source: Aspect Studio*



## 8. Assessment and findings

- 8.1** Two of the 5 assessed trees are located on the north side road verge of Wellington Street (Trees 2 and 3). The remaining three trees (Trees 4, 5 and 6) are located on the east side of the road verge on Botany Road. **Appendix 3** (Photographs), and **Appendix 4** (Tree Plan).

The subject trees are:

- Tree 2 – *Tristaniopsis laurina* (Water Gum)
- Tree 3 – Water Gum
- Tree 4 – *Platanus orientalis* 'Digitata' (Oriental Plane)
- Tree 5 – *Lophostemon confertus* (Brush Box)
- Tree 6 – Brush Box

Trees 2 and 3 on Wellington Street and Tree 5 on Botany Road are young or small trees that have not been pruned. There are no overhead power lines to interfere with the crowns of Tree 2 and 3, and Tree 5 is not tall enough to be pruned to clear the powerlines along Botany Road.

Trees 4 and 6 have been routinely lopped to clear the overhead power lines and this practice has negatively affected the natural form and growth habit of the trees.

- 8.2** Proposed new services will be inground and require removal of the existing footpaths and trenching into Wellington Street and Botany Road. The five trees of low to medium retention value will be significantly and adversely impacted upon and will be removed to facilitate these works.
- 8.3** The landscape plan I have reviewed (Aspect Studios Public Domain Master Plan, Ground Floor, Dwg.No. WMQ-PBDN-ASP-LS-DRG-100, Revision 03, dated 28.07.2020) indicates approximately nine (9) replacement street trees are proposed to enhance the streetscape in the vicinity of the subject trees to be removed.



## 9. Mitigation measures

- 9.1** Tree replacement is an acceptable mitigation measure to compensate for the loss of the existing five low to medium retention value trees.

The landscape plan by Aspect Studios proposes the planting of another 25 new trees within the public domain around the church and Botany road frontage. Overall, this mitigates the impact from the loss of the existing trees.



## 10. Conclusion

No high retention value tree is proposed to be removed.

The proposed removal of these five existing trees and replacement with new trees is an acceptable impact of the proposal.

Whilst the loss of established street trees is unfortunate, the longer-term benefits gained from removing overhead power lines and allowing replacement trees to develop their natural form and height without threat of repeated pruning, are much improved.

For example, pruning and its associated costs will be substantially reduced, the risk of poor branch architecture will decrease, the overall visual amenity of trees that are allowed to mature without repeated crown reduction will vastly enhance the streetscape, and the urban tree canopy cover in this area will increase.



## 11. Appendices

- 11.1 Appendix 1 – [Tree Schedule]
- 11.2 Appendix 2 – [Tree Retention Value Assessment Methodology]
- 11.3 Appendix 3 – [Tree Photographs]
- 11.4 Appendix 4 – [Tree Plan]

# APPENDIX 1

## Schedule of Assessed Trees – Waterloo Metro Quarter – August 2020

Tree No.	Genus & species Common Name	Ht (m)	Sp (m)	DBH (mm)	Age	V	C	ULE	TSR	RV	SRZ (m)	TPZ (m)
2	<i>Tristaniopsis laurina</i> Water Gum	3 – 3.5	2	<100	Y	G	G	2A	L	M	1.5	1.6
3	<i>Tristaniopsis laurina</i> Water Gum	4.5 – 5	5	175	SM	F-G	G	2A	L	L-M	1.7	2.1
4	<i>Platanus orientalis</i> 'Digitata' Oriental Plane	7 – 8	8	350	EM	G	F	2D	M	M	2.3	4.2
5	<i>Lophostemon confertus</i> Brush Box	4 – 4.5	3	150	Y	G	G	2D	L	L	1.6	1.8
6	<i>Lophostemon confertus</i> Brush Box	7 – 8	11	350	EM	G	F	2D	M	M	2.3	4.2

Tree No.	Observations/Comments
2	No special problems observed.
3	West stem less vigorous- slightly chlorotic, smaller leaves.
4	Restricted root zone. Codominant stems @ 2m AGL. Restricted root zone. Past topping, and routinely lopped below power lines. Basal sprouts.
5	Restricted root zone. Growing directly below 'tiger-tailed' power lines, communication cables. Not yet pruned for clearance but will eventually be subjected to topping and routine lopping.
6	Restricted root zone. Several abrupt vertical growths (branch crooks) and developing 'candelabra' form due to routine pruning to clear power lines.

### KEY

L	LOW Retention Value	M	MEDIUM Retention Value	H	HIGH Retention Value
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### DETAILS FOR HEADINGS AND SYMBOLS USED IN TREE SCHEDULE

**AGL**—above ground level.

**H** refers to the approximate height of a tree in metres, from base of stem to top of tree crown.

**Sp** refers to the approximate and/or average diameter spread in metres of branches/canopy (the 'crown') of a tree.

**DBH** refers to the approximate diameter of tree stem at breast height i.e. 1.4 metres above ground (unless otherwise noted) and expressed in millimetres.

**Age Y** *Young* refers to a well-established but juvenile tree.

**SM** *Semi-mature* refers to a tree at growth stages between immaturity and full size.

**EM** *Early-mature* refers to a tree that is more or less full sized and vigorously growing.



- M** *Mature* refers to a full sized tree with some capacity for further growth.
- LM** *Late Mature* refers to a full sized tree with little capacity for growth that is not yet about to enter decline.
- OM** *Over-mature* refers to a tree about to enter decline or already declining.
- LS** *Live Stag* refers to a tree in a significant state of decline. This is the last life stage of a tree prior to death.
- V** refers to the tree's vigour (health) (syn. health) as exhibited by the crown density, leaf colour, presence of epicormic shoots, ability to withstand disease invasion, and the degree of dieback.
- C** refers to the tree's structural condition e.g. form and growth habit, as modified by its environment (aspect, suppression by other trees, soils) and the state of the scaffold (i.e. trunk and major branches), including structural defects such as cavities, crooked trunks or weak trunk/branch junctions.
- ULE** refers to the estimated *Useful Life Expectancy* of a tree. Refer to Appendix 2, Part 1.
- TSR** The *Tree Significance Rating* considers the importance of the tree as a result of its prominence in the landscape and its amenity value, from the point of public benefit. Refer to Appendix 2, Part 2.
- RV** Refers to the retention value of a tree, based on the tree's ULE *and* tree's TSR. Refer to Appendix 2, Part 3.
- SRZ** Structural Root Zone (SRZ) refers to the radial distance in metres, measured from the centre of the tree stem, which defines the critical area required to maintain stability of the tree. Note: The SRZ is a notional offset figure. The actual SRZ may not be symmetrical in shape/area where there are existing obstructions/confinement to lateral root growth, e.g. structures such as walls, rocky outcrops, etc. Only thorough investigation into the location of structural roots within this area can identify whether any incursions into this protection zone are feasible.
- TPZ** Tree Protection Zone (TPZ) refers to the radial distance in metres, measured from the centre of the tree stem which defines the *tree protection zone* for a tree to be retained. As defined under 3.2 of AS4970, the TPZ is calculated for a tree by multiplying its DBH x 12..



## APPENDIX 2

### TREE RETENTION VALUE ASSESSMENT

#### Part 1 of 3—Useful Life Expectancy (ULE)

In a planning context, the time a tree can expect to be usefully retained is the most important long-term consideration. ULE i.e. a system designed to classify trees into a number of categories so that information regarding tree retention can be concisely communicated in a non-technical manner. ULE categories are easily verifiable by experienced personnel without great disparity.

A tree's ULE category is the life expectancy of the tree modified first by its age, health, condition, safety and location (to give the life expectancy); then by economics (i.e. cost of maintenance - retaining trees at an excessive management cost is not normally acceptable); and finally, effects on better trees, and sustained amenity (i.e. establishing a range of age classes in a local population).

ULE assessments are not static but may be modified as dictated by changes in tree health and environment. Trees with a short ULE may at present be making a contribution to the landscape, but their value to the local amenity will decrease rapidly towards the end of this period, prior to them being removed for safety or aesthetic reasons.

**ULE categories (modified from Barrell 2001)** The five categories and their sub-groups are as follows:

- 1. Long ULE** - tree appeared retainable at the time of assessment for over 40 years with an acceptable degree of risk, assuming reasonable maintenance:
  - A. structurally sound trees located in positions that can accommodate future growth
  - B. trees which could be made suitable for long term retention by remedial care
  - C. trees of special significance which would warrant extraordinary efforts to secure their long term retention
- 2. Medium ULE** - tree appeared to be retainable at the time of assessment for 15 to 40 years with an acceptable degree of risk, assuming reasonable maintenance:
  - A. trees which may only live from 15 to 40 years
  - B. trees which may live for more than 40 years but would be removed for safety or nuisance reasons
  - C. trees which may live for more than 15 years but would be removed to prevent interference with more suitable individuals or to provide space for new planting
  - D. trees which could be made suitable for retention in the medium term by remedial care
- 3. Short ULE** - tree appeared to be retainable at the time of assessment for 5 to 15 years with an acceptable degree of risk, assuming reasonable maintenance:
  - A. trees which may only live from 5 to 15 years
  - B. trees which may live for more than 15 years but would be removed for safety or nuisance reasons
  - C. trees which may live for more than 15 years but would be removed to prevent interference with more suitable individuals or to provide space for new planting
  - D. trees which require substantial remediation and are only suitable for retention in the short term
- 4. Removal** - trees which should be removed within the next 5 years.
  - A. dead, dying, suppressed or declining trees because of disease or inhospitable conditions.
  - B. dangerous trees through instability or recent loss of adjacent trees
  - C. dangerous trees because of structural defects including cavities, decay, included bark, wounds or poor form.
  - D. damaged trees that are clearly not safe to retain.
  - E. trees which may live for more than 5 years but would be removed to prevent interference with more suitable individuals or to provide space for new planting.
  - F. trees which are damaging or may cause damage to existing structures within the next 5 years.
  - G. trees that will become dangerous after removal of other trees for the reasons given in (a) to (f).
  - H. trees in categories (a) to (g) that have a high wildlife habitat value and, with appropriate treatment, could be retained subject to regular review.
- 5. Small, young or regularly pruned** - Trees that can be reliably moved or replaced.
  - A. small trees less than 5m in height.
  - B. young trees less than 15 years old but over 5m in height.
  - C. formal hedges and trees intended for regular pruning to artificially control growth



## Part 2 of 3—IACA Significance of a Tree, Assessment Rating System (STARS)©

The landscape significance of a tree is an essential criterion to establish the importance that a particular tree may have on a site. However, rating the significance of a tree becomes subjective and difficult to ascertain in a consistent and repetitive fashion due to assessor bias. It is therefore necessary to have a rating system utilising structured qualitative criteria to assist in determining the retention value for a tree. To assist this process all definitions for terms used in the *Tree Significance - Assessment Criteria* and *Tree Retention Value - Priority Matrix*, are taken from the IACA Dictionary for Managing Trees in Urban Environments 2009.

The system uses a scale of *High*, *Medium* and *Low* significance in the landscape. Once the landscape significance of an individual tree has been defined, the retention value can be determined.



### Tree Significance - Assessment Criteria

<b>1. HIGH SIGNIFICANCE IN LANDSCAPE</b>
The tree is in good condition and good vigour
The tree has a form typical for the species
The tree is a remnant or is a planted locally indigenous specimen and/or is rare or uncommon in the local area or of botanical interest or of substantial age
The tree is listed as a Heritage Item, Threatened Species or part of an Endangered Ecological Community, or listed on Councils Significant Tree Register
The tree is visually prominent and visible from a considerable distance when viewed from most directions within the landscape due to its size and scale and makes a positive contribution to the local amenity
The tree supports social and cultural sentiments or spiritual associations, reflected by the broader population or community group or has commemorative values
The tree's growth is unrestricted by above and below ground influences, supporting its ability to reach dimensions typical for the taxa <i>in situ</i> - tree is appropriate to the site conditions
<b>2. MEDIUM SIGNIFICANCE IN LANDSCAPE</b>
The tree is in fair-good condition and good or low vigour
The tree has a form typical or atypical for the species
The tree is a planted locally indigenous or a common species with its taxa commonly planted in the area
The tree is visible from surrounding properties, although not visually prominent as partially obstructed by other vegetation or buildings when viewed from the street.
The tree provides a fair contribution to the visual character and amenity of the local area.
The tree's growth is moderately restricted by above and/or below ground influences, reducing its ability to reach dimensions typical for the taxa <i>in situ</i> .
<b>3. LOW SIGNIFICANCE IN LANDSCAPE</b>
The tree is in fair-poor condition and good or low vigour
The tree has a form atypical for the species
The tree is not visible or is partly visible from surrounding properties as obstructed by other vegetation or buildings
The tree provides a minor contribution or has a negative impact on the visual character and amenity of the local area.
The tree is a young specimen which may or may not have reached dimension to be protected by local Tree Preservation orders or similar protection mechanisms and can easily be replaced with a suitable specimen
The tree's growth is severely restricted by above or below ground influences, unlikely to reach dimensions typical for the taxa <i>in situ</i> - tree is inappropriate to the site conditions
The tree is listed as exempt under the provisions of the local Council Tree Preservation Order or similar protection mechanisms
The tree has a wound or defect that has potential to become structurally unsound.
<b>Environmental Pest / Noxious Weed Species</b>
–The tree is an Environmental Pest Species due to its invasiveness or poisonous/ allergenic properties
–The tree is a declared noxious weed by legislation
<b>Hazardous/Irreversible Decline</b>
–The tree is structurally unsound and/or unstable and is considered potentially dangerous
–The tree is dead, or is in irreversible decline, or has the potential to fail or collapse in full or part in the immediate to short term

The tree is to have a minimum of three (3) criteria in a category to be classified in that group.

The assessment criteria are for individual trees only, however, can be applied to a monocultural stand in its entirety e.g. hedge.

In the development of this document IACA acknowledges the contribution and original concept of the Tree Significance & Retention Value Matrix, developed by Footprint Green Pty Ltd and Andrew Morton in June 2001.

### Part 3 of 3—Tree Retention Value Priority Matrix

		SIGNIFICANCE										
		1. High			2. Medium			3. Low				
		Significance in landscape			Significance in landscape			Significance in landscape		Environmental pest / Noxious weed species		Hazardous / Irreversible decline
ESTIMATED LIFE EXPECTANCY	1. Long >40 years	[Vertical lines pattern]						[Horizontal lines pattern]				[Grey shaded area]
	2. Medium 15-40 years	[Vertical lines pattern]			[Horizontal lines pattern]			[White pattern]				
	3. Short <1-15 years	[White pattern]			[White pattern]			[White pattern]				
	Dead	[White pattern]			[Grey shaded area]			[White pattern]				
LEGEND FOR MATRIX ASSESSMENT 												
[Vertical lines pattern]		<b>Priority for Retention (High)</b> -These trees are considered important for retention and should be retained and protected. Design modification or re-location of building/s should be considered to accommodate the setbacks as prescribed by AS4970 <i>Protection of trees on development sites</i> . Tree sensitive construction measures must be implemented e.g. pier and beam etc. if works are to proceed within the Tree Protection Zone.										
[Horizontal lines pattern]		<b>Consider for Retention (Medium)</b> -These trees may be retained and protected. These are considered less critical; however, their retention should remain priority with removal considered only if adversely affecting the proposed building/works and all other alternatives have been considered and exhausted.										
[White pattern]		<b>Consider for Removal (Low)</b> -These trees are not considered important for retention, nor require special works or design modification to be implemented for their retention.										
[Grey shaded area]		<b>Consider for Removal (Low)</b> -These trees are not considered important for retention, nor require special works or design modification to be implemented for their retention.										

IACA, 2010, *IACA Significance of a Tree, Assessment Rating System (STARS)*, Institute of Australian Consulting Arboriculturists, Australia, [www.iaca.org.au](http://www.iaca.org.au)

#### REFERENCES

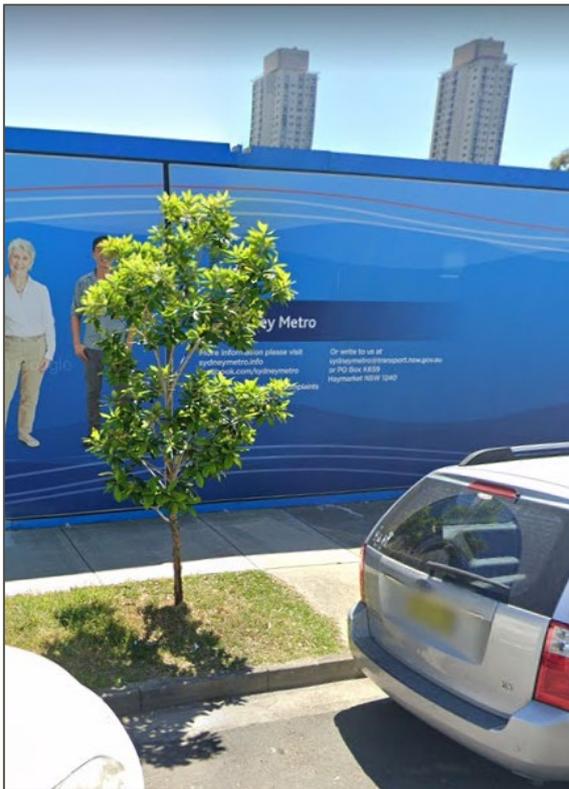
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## APPENDIX 3 Tree Photographs

(Wellington Street)



**Plate 1** – *Tree 2* Water Gum  
Looking northeast from Wellington Street.  
Google street view October 2019, accessed 09 August 2020.



**Plate 2** – *Tree 3* Water Gum  
Looking east/northeast from Wellington Street.  
Google street view October 2019, accessed 09 August 2020.

**(Botany Road)**



**Plate 3 – Tree 4 Oriental Plane**  
Looking south/southeast from Botany Road.  
Google street view March 2020, accessed 09 August 2020.



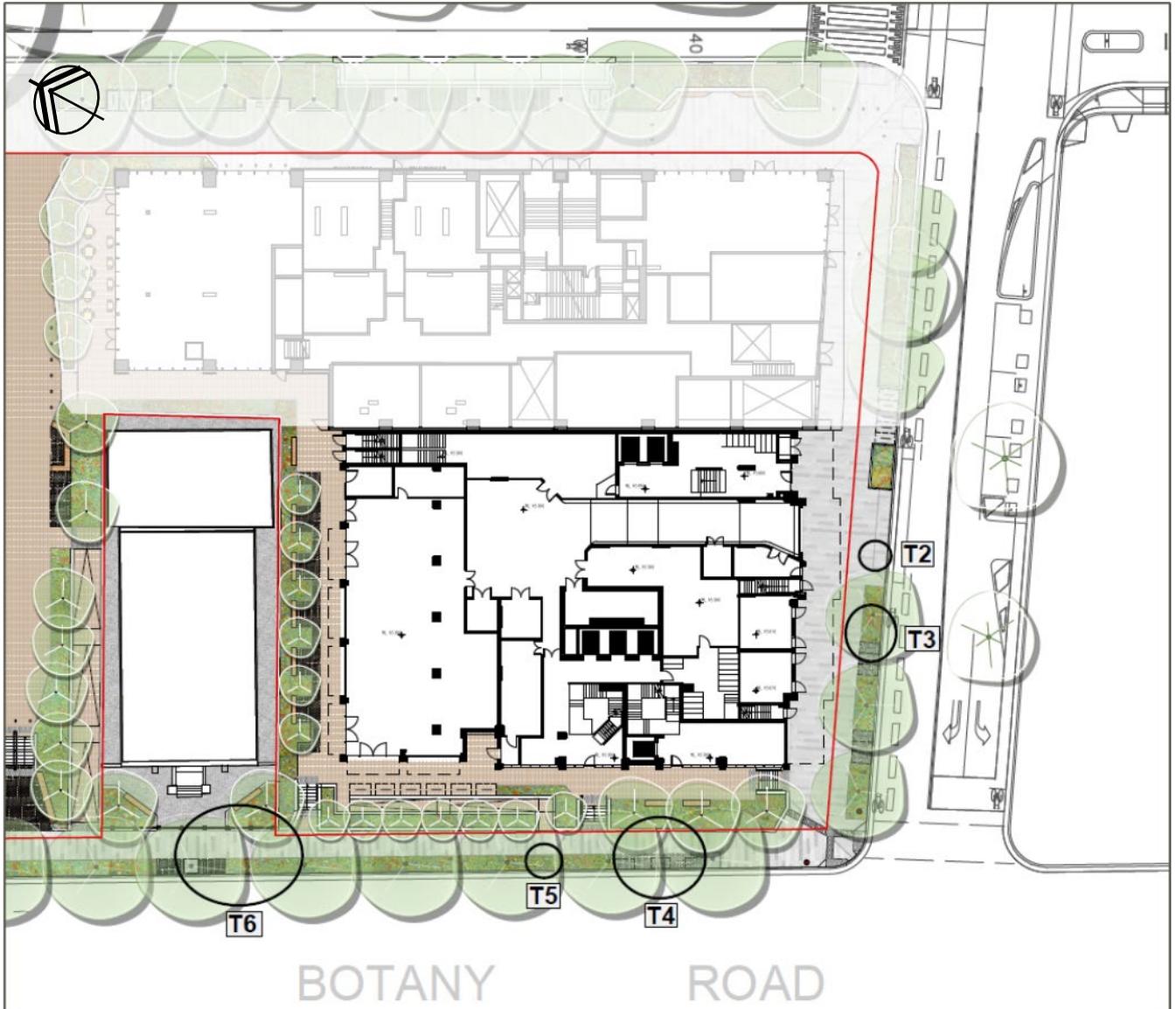
**Plate 4 – Tree 5 Brush Box**  
Looking northeast from Botany Road.  
Google street view March 2020, accessed 09 August 2020.



**Plate 5 – Tree 6 Brush Box**  
Looking southeast from Botany Road.  
Google street view March 2020, accessed 09 August 2020.

## APPENDIX 4

### TREE PLAN



Subject Trees 2, 3, 4, 5 and 6. Not to scale.

Marked-up excerpt of Aspect Studios Drawing No. WMQ-PBDN-ASP-LS-DRG-100, Revision 03, dated 28.07.2020.