



global environmental solutions

Oakdale South Industrial Estate  
Master Plan  
Operational Environmental Management Plan

Report Number 610.17706

29 January 2018

Goodman  
Level 17  
60 Castlereagh St  
Sydney NSW 2000

Version: Final

# Oakdale South Industrial Estate

## Master Plan

### Operational Environmental Management Plan

#### PREPARED BY:

SLR Consulting Australia Pty Ltd  
ABN 29 001 584 612  
2 Lincoln Street  
Lane Cove NSW 2066 Australia  
(PO Box 176 Lane Cove NSW 1595 Australia)  
+61 2 9427 8100 +61 2 9427 8200  
sydney@slrconsulting.com www.slrconsulting.com

This report has been prepared by SLR Consulting Australia Pty Ltd with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with the Client. Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of Goodman.  
No warranties or guarantees are expressed or should be inferred by any third parties.  
This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

#### DOCUMENT CONTROL

Reference	Version	Date	Prepared	Checked	Authorised
610.17706	Draft	5 December 2017	Samantha Roberts	Eryn Bath	Eryn Bath
610.17706	Final Draft	15 January 2018	Samantha Roberts	Eryn Bath	Eryn Bath
610.17706	Final	29 January 2018	Samantha Roberts	Russell Hogan	Russell Hogan

## Table of Contents

1	BACKGROUND	6
1.1	Development Overview	6
1.2	Relevant Companies	8
1.2.1	Goodman	8
1.2.2	Penrith City Council	8
1.2.3	Others	8
1.2.4	Goodman Tenants and other Site Owners	9
1.3	Operational Environmental Management Plan	9
1.3.1	Scope	9
1.3.2	Objectives	10
2	ENVIRONMENTAL MANAGEMENT FRAMEWORK	11
2.1	Goodman Sustainability Policy	11
2.2	Roles and Responsibilities	11
2.3	Development Consent	11
2.3.1	Relevant Consent Conditions	11
2.4	Community Enquiries	18
2.5	Environmental Training	18
2.6	Environmental Incidents	18
2.6.1	Objective	18
2.6.2	Responsibility	19
2.6.3	Notification Requirements	19
2.6.4	Handling Procedure	20
2.6.5	Incidents Register	21
2.7	Environmental Complaints	22
2.7.1	Objective	22
2.7.2	Responsibility	22
2.7.3	Handling Procedure	22
2.7.4	Complaints Register	23
3	ENVIRONMENTAL MANAGEMENT COMMITMENTS	24
3.1	General	24
3.2	Noise	25
3.4	Energy Efficiency	27
3.5	Traffic	29
3.6	Waste	31
3.7	Stormwater	34
3.8	Air Quality	36
3.9	Biodiversity	36
3.10	Landscaping and Visual Amenity	38

## Table of Contents

3.11	Hazards, Risks and Emergencies	40
4	MONITORING AND AUDITING	42
4.1	Monitoring	42
4.2	Reporting	43
4.3	Auditing	44
5	OEMP REVIEW	45
6	REFERENCES	46

### TABLES

Table 1 - Oakdale South Tenants and Owners	9
Table 2 - OEMP Scope	10
Table 3 - Personnel Responsible for Environmental Management	11
Table 4 - Relevant Consent Conditions for Environmental Performance and Management	12
Table 5 - Regulatory Authority Contact Details for Environmental Incidents	20
Table 6 - General Environmental Management Controls	24
Table 7 - Project Specific Noise Limits dB(A)	25
Table 8 - Environmental Management Controls for Noise	25
Table 9 - Environmental Management Controls for Energy Efficiency	27
Table 10 - Environmental Management Controls for Traffic	29
Table 11 - Environmental Management Controls for Waste	31
Table 12 - Environmental Management Controls for Stormwater	34
Table 13 - Environmental Management Controls for Air Quality	36
Table 14 - Environmental Management Controls for Biodiversity	37
Table 15 - Environmental Management Controls for Landscaping and Visual Amenity	38
Table 16 - Environmental Management Controls for Hazards, Risks and Emergencies	40
Table 17 - Monitoring Requirements	42
Table 18 - Reporting Requirements	43
Table 19 - Auditing Requirements	44

### FIGURES

Figure 1 - Oakdale South Site Layout	7
--------------------------------------	---

## Table of Contents

### **APPENDICES**

- Appendix A - Development Consent SSD 6917, MOD 1, MOD 3, MOD 4 and MOD 5
- Appendix B - Landscape Management Plan
- Appendix C - Vegetation Management Plan
- Appendix D - Biodiversity Management Plan
- Appendix E - Operational Noise Management Plan
- Appendix F - Energy Efficiency S.96 Report
- Appendix G - Operational Traffic Management Plan
- Appendix H - Waste Management Plan
- Appendix I - Stormwater Management Report
- Appendix J - Biodiversity Offset Strategy
- Appendix K - Bushfire Emergency Evacuation Plan
- Appendix L - Plan detailing areas covered under this OEMP

# 1 BACKGROUND

## 1.1 Development Overview

The Oakdale South Industrial Estate (Oakdale South), being a regional warehouse and distribution hub, is located at Kemps Creek within the Penrith local government area (LGA). Oakdale South forms part of the broader Oakdale Industrial Precinct which is located within the Western Sydney Employment Area (WSEA).

Goodman Property Services (Aust) Pty Ltd (Goodman) obtained Development Consent SSD 6917 on the 26 October 2016 for the Oakdale South "Concept Proposal" and "Stage 1 Development". The Concept Proposal essentially comprises a "Master Plan" to guide the staged development of Oakdale South and core development controls that will form the basis for design and assessment of future development applications for the site. It includes:

- Six development precincts with a total of 15 building envelopes;
- Warehouse buildings and ancillary office floor space;
- Conceptual subdivision and lot layout, site levels, road layout, design controls, landscape designs and infrastructure arrangements; and
- An amenities lot for future small-scale local services such as commercial, retail and community facilities (including childcare facilities) that service or support the needs of local employment-generating uses in accordance with Condition C20 of the Oakdale South (SSD 6917) conditions of consent.

Additional future stages of Oakdale South (i.e. Stage 2, 3, etc.) are the subject of separate development applications and approvals.

At the time of preparing this document, three applications to modify SSD 6917 had been approved and a further application was pending approval. In summary, these modifications comprise:

- Mod 1 – approved on the 21 April 2017 for revisions to the approved Concept Proposal and Stage 1 Development in the northern portion of the estate;
- Mod 2 – withdrawn;
- Mod 3 – approved on the 5 October 2017 to permit out of hours importation of fill material;
- Mod 4 – approved on 18 December 2017 for revisions to the approved Concept Proposal and Stage 1 Development in the northern portion of the estate; and
- Mod 5 – approved on the 23 November 2017 for administrative changes to condition E37.

For the purposes of this document, the approved Oakdale South Master Plan is illustrated on **Figure 1** and described in:

- *Environmental Impact Statement - Oakdale South Estate, State Significant Development Application Ref. 6917 (EIS) (Urban Advisory Services 2015), along with the Response to Submissions (RTS) and supplementary reports;*
- *Section 96(2) Modification Proposal, Oakdale South Industrial Estate SSD (Urbis 2016), along with the RTS and supplementary reports; and*
- *SSD 6917: Oakdale South Industrial Estate – S.96 Application to Modify Condition E27 'Standard Construction Hours' (Goodman 2017);*
- *Oakdale South Estate - SSDA 6917, Section 96(1A) Modification Application - MOD 4 (Urbis 2017), along with the RTS and supplementary reports; and*
- *SSD 6917: Oakdale South – S.96(1) Application To Modify Condition E37 - Noise Verification – External Mechanical Plant.*

### Site Area Schedule

<b>Total Site Area</b>	<b>117.117 ha</b>
Less:	
Non Developable Land	33.48 ha
Easements	4.56 ha
Regional Roads	1.74 ha
Estate Roads	6.19 ha
	<b>45.97 ha</b>
<b>Development Areas</b>	
Precinct 1	16.46 ha
Precinct 2	7.31 ha
Precinct 3	18.94 ha
Precinct 4	14.26 ha
Precinct 5	6.46 ha
Precinct 6	6.84 ha
Amenity Lot	0.58 ha
<b>Total Developable</b>	<b>70.89 ha</b>
Total Warehouse	321,249 sqm
Total Office	15,486 sqm
<b>Total Facility</b>	<b>336,735 sqm</b>

<b>Warehouse 1A</b>	Site 25,230sqm Warehouse 11,595sqm Office 705sqm Dock Office 95sqm Total Area 12,395sqm Total Carparking 42 Provisional Parking 19
<b>Warehouse 1B</b>	Site 34,491sqm Warehouse 17,900sqm Office 535sqm Dock Office 100sqm Drive Thru 1,000sqm Total Area 19,535sqm Total Carparking 91
<b>Warehouse 1C</b>	Site 49,776sqm Warehouse 1 14,180sqm Warehouse 2 13,460sqm Office 1 698sqm Office 2 698sqm Dock Office 1 190sqm Dock Office 2 190sqm Total Area 29,416sqm Total Carparking 185

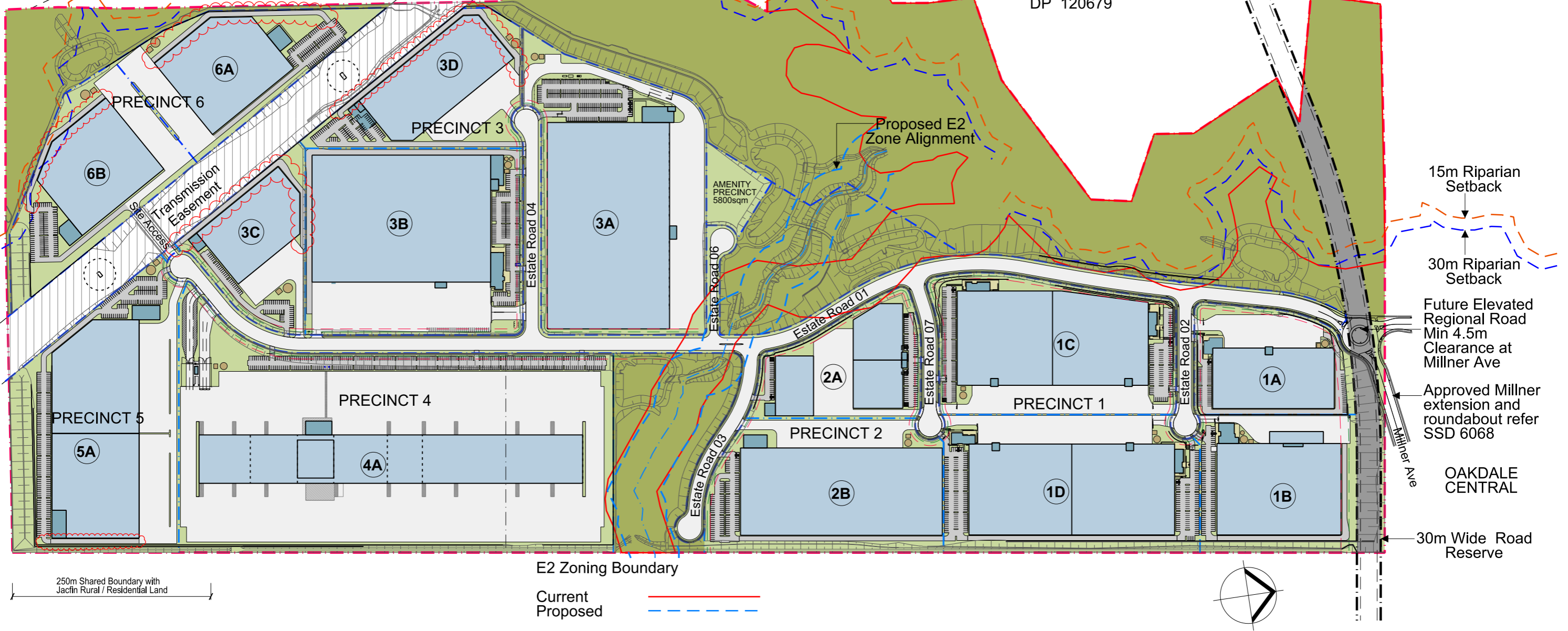
<b>Warehouse 1D</b>	Site 55,147sqm Warehouse 1 14,750sqm Warehouse 2 14,750sqm Office 1 845sqm Office 2 698sqm Dock Office 1 190sqm Dock Office 2 190sqm Total Area 31,423sqm Total Carparking 204
<b>Warehouse 2A</b>	Site 25,350sqm Warehouse 11,490sqm Office 575sqm Dock Office N/A Total Area 12,065sqm Total Carparking 80
<b>Warehouse 2B</b>	Site 47,846sqm Warehouse 27,963sqm Office 1,398sqm Dock Office N/A Total Area 29,361sqm Total Carparking 118

<b>Warehouse 3A</b>	Site 70,383sqm Warehouse 40,090sqm Office 1,242sqm Dock Office 230sqm Total Area 41,562sqm Total Carparking 200
<b>Warehouse 3B</b>	Site 64,290sqm Warehouse 36,100sqm Office 1,478sqm Dock Office 176sqm Fork ReCharge 702sqm Total Area 38,456sqm Total Carparking 159 Provisional Parking 32
<b>Warehouse 3D</b>	Site 31,424sqm Warehouse 14,828sqm Office 741sqm Dock Office N/A Total Area 15,569sqm Total Carparking 71

<b>Warehouse 3C</b>	Site 23,322sqm Warehouse 10,324sqm Office 516sqm Dock Office N/A Total Area 10,840sqm Total Carparking 62
<b>Warehouse 4A</b>	Site 142,768sqm Warehouse 33,588sqm Office 1,761sqm Dock Office N/A Total Area 35,349sqm Total Carparking 325
<b>Warehouse 5A</b>	Site 64,638sqm Warehouse 1 14,659sqm Warehouse 2 13,845sqm Office 1,425sqm Dock Office N/A Total Area 29,929sqm Total Carparking 256

<b>Warehouse 6A</b>	Site 32,582sqm Warehouse 14,632sqm Office 732sqm Dock Office N/A Total Area 15,364sqm Total Carparking 100
<b>Warehouse 6B</b>	Site 35,850sqm Warehouse 14,734sqm Office 737sqm Dock Office N/A Total Area 15,471sqm Total Carparking 98

<b>Precinct 1</b>		
	Approved MP03 Rev M	Proposed MP03 Rev S
Precinct 1	104,739 sqm	92,769 sqm
<b>Total</b>	<b>331,311 sqm</b>	<b>336,735 sqm</b>



Oakdale South provides a logistics hub for the receipt, warehousing and distribution of products. Operational activities are approved for 24 hours a day, seven days a week and will likely include:

- General storage and warehousing;
- Unloading and loading of goods via trucks and shipping containers;
- Management of inventory in a racked and stacked environment;
- Order fulfilment, including picking and packing of finished orders for customers;
- Loading of transport vehicles;
- Management of product returns;
- Inspection of goods for quality assurance purposes; and
- Product embellishment.

## 1.2 Relevant Companies

The Oakdale South Estate consists of a mix of Goodman entity and Joint Venture (JV) owned properties as well as occupiers, Fund and Trust owners and other owners of large and small corporations.

### 1.2.1 Goodman

In general, Goodman is responsible for the Estate's private infrastructure and overall management of the common vegetated areas of which there a number of key components including Defendable Zones, Bio-retention Basins, landscaped setbacks, Riparian Corridors and development lots including the Amenity Lot.

Goodman is only responsible for the site management of the assets it owns within Oakdale South.

A plan showing the areas Goodman are responsible for under this OEMP is included within **Appendix L**.

### 1.2.2 Penrith City Council

Penrith City Council is responsible for the road network and streetscape planting in the verges within the road reserves.

### 1.2.3 Others

Some of the development lots within the Oakdale South Estate have been already been sold and some are in that process of change of ownership, while others are retained by Goodman.

See **Table 1** below for list of current Oakdale South Tenants and Owners.

It is important to note, other owners within the Oakdale South Estate are responsible for all Environmental and Operational management matters within their lot boundaries including compliance with relevant conditions of consent applicable to the individual lot.



## 1.2.4 Goodman Tenants and other Site Owners

**Table 1** lists the tenants and owners who occupy the various sites at Oakdale South.

**Table 1 - Oakdale South Tenants and Owners**

Site	Tenant / Owner	Site	Tenant / Owner
1A	TBC	3C	Nolans – Other Owner
1B	Iron Mountain – Goodman Tenant	3D	Briggs and Stratton – Goodman Tenant
1C	TBC	4A	Costco – Other Owner
1D	TBC	5A	TBC
2A	TBC	6A	TBC
2B	TBC	6B	TBC
3A	Sigma – Other Owner	Amenities lot	TBC
3B	Toyota – Other Owner		

TBC – to be confirmed

## 1.3 Operational Environmental Management Plan

### 1.3.1 Scope

This Operational Environmental Management Plan (OEMP) has been prepared to satisfy condition F4 of Development Consent SSD 6917 in relation to the Oakdale South Master Plan. The specific requirements of this consent condition, along with where these requirements have been addressed within this document, are listed in **Table 2**.

This OEMP has been prepared with reference to the following Goodman assets:

- Lot 1A;
- Lot 1B – Iron Mountain (Goodman Tenant);
- Lot 1C;
- Lot 1D; and
- Oakdale South infrastructure and common areas that not controlled by Penrith City Council, including:
  - Basins A, B, C, D and E;
  - Landscape common areas under the *Landscape Management Plan* (LMP) for Oakdale South;
  - Vegetated areas under the *Vegetation Management Plan* (VMP) for Oakdale South;
  - Vegetated areas under the *Biodiversity Management Plan* (BMP);
  - Common areas; and
  - The amenities lot.

A plan showing the abovementioned areas included under this OEMP is included within **Appendix L**.

**Table 2 - OEMP Scope**

Condition F4 of Development Consent SSD 6917	OEMP Section
<b>Operational Environmental Management Plan</b> F4. The Applicant shall prepare an Operational Environmental Management Plan (OEMP) for the development and be submitted to the satisfaction of the Secretary prior to the commencement of operations. The OEMP must:	This document
(a) provide the strategic framework for environmental management of the development;	Section 2
(b) identify the statutory approvals that apply to the development;	Section 2.3
(c) include a copy of all relevant management plans and monitoring requirements and (d) programs relevant under this consent;	Section 3 and Appendices B to K
(e) outline all environmental management practices and procedures to be followed during operation;	Sections 2.4, 2.5, 2.6 and 2.7.
(f) describe all activities to be undertaken on the site during operation;	Section 1.1
(g) detail how the environmental performance of the operation of the development will be monitored, and what actions will be taken to address identified adverse environmental impacts;	Sections 3 and 4
(h) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the development;	Sections 2.2, 2.4, 2.5, 2.6 and 2.7
(i) describe the procedures that will be implemented to: <ol style="list-style-type: none"> <li>i. keep the local community and relevant agencies informed about the operation and environmental performance of the development;</li> <li>ii. receive, handle, respond to, and record complaints;</li> <li>iii. resolve any disputes that may arise during the course of the development;</li> <li>iv. respond to any non-compliance;</li> <li>v. respond to emergencies;</li> <li>vi. include copies of any strategies, plans and programs approved under the (vii) conditions of this consent; and</li> <li>viii. a clear plan depicting all the monitoring required to be carried out under the conditions of this consent.</li> </ol>	<ol style="list-style-type: none"> <li>i. Sections 2.4, 2.6 and 2.7</li> <li>ii. Section 2.7</li> <li>iii. Section 2.4, 2.5 and 2.7</li> <li>iv. Sections 2.5, 2.6 and 3</li> <li>v. Sections 2.6 and 3.10</li> <li>vi. Appendices B to K</li> <li>vii. Sections 3 and 4</li> </ol>

### 1.3.2 Objectives

The objectives of this OEMP are to guide and assist Goodman in ensuring:

- The application of best practice environmental management;
- The relevant commitments made in the EIS (Urban Advisory Services 2015) are fully implemented and/or complied with;
- The relevant conditions imposed by Development Consent SSD 6917 are fully implemented and/or complied with; and
- Environmental risks associated with the operation of the development are properly managed.

## 2 ENVIRONMENTAL MANAGEMENT FRAMEWORK

### 2.1 Goodman Sustainability Policy

Goodman maintains a Sustainability Policy which states that the long-term philosophy includes a sustainable approach to the environment, as well as proper consideration for the social and economic responsibilities to the wider community.

### 2.2 Roles and Responsibilities

The key personnel responsible for environmental management at Oakdale South, at the time of preparing this document, are listed in **Table 3**.

This OEMP applies only to Goodman entity owned properties in this estate, whom Goodman can be held accountable for. Whereas, each sale lot owned by others will have their own OEMP in accordance with their individual Development Consents.

**Table 3 - Personnel Responsible for Environmental Management**

Site	Company and Position Description	Responsibilities
Oakdale South Estate Infrastructure	Goodman Building Manager	Ensure the consultant/contractor is made aware of and understand their obligations under the OEMP.
All Goodman entity owned Development Lots	Goodman Building Manager	Ensure the tenant's representative is made aware of their obligations of the OEMP (as relevant to their respective site) are appropriately implemented and maintained.
Other Owners Lots	Other Owner's Facility Manager	Ensure the obligations of the OEMP (as relevant to their respective site) are appropriately implemented and maintained.
Oakdale South Public Road Reserves	Penrith City Council	Management in accordance with Council legislative requirements

### 2.3 Development Consent

Goodman obtained Development Consent SSD 6917 on the 26 October 2016 for the staged development of Oakdale South, comprising a Concept Proposal (Master Plan) for the overall development and the Stage 1 Development. At the time of preparing this document, four (4) applications to modify SSD 6917 had been approved. Further details are provided in **Section 1.1**.

A copy of Development Consent SSD 6917 and the Notices of Modification for the approved Mods 1, 3, 4 and 5 are contained in **Appendix A**.

Additional future stages of Oakdale South (i.e. Stage 2, 3, etc.) are the subject of separate development applications and approvals.

#### 2.3.1 Relevant Consent Conditions

Development Consent SSD 6917 imposes a number of environmental performance and management requirements applicable to the on-going operation of Oakdale South. These conditions are listed in **Table 4** (N.B. administrative conditions not relevant to the operational phase of the estate and conditions relating to construction works have not been included).

**Table 4 - Relevant Consent Conditions for Environmental Performance and Management**

Development Consent SSD 6917 (as modified)	Comments
<b>Schedule B - Conditions of Consent for Concept Proposal</b>	
<b>Statutory Requirements</b>	
B3.The Applicant shall ensure that all licenses, permits, and approvals/consents are obtained as required by law and maintained as required throughout the life of the Development. No condition of this consent removes the obligation for the Applicant to obtain, renew or comply with such licenses, permits or approvals/consents.	Section 3.1
<b>Terms of Consent</b>	
B4. The Applicant shall carry out the Development in accordance with the : (a) EIS and RTS; (b) the letter titled ' <i>Re: SSD6917 Oakdale South Industrial Estate, TransGrid Easement Flood Extents</i> ', ref 14-193-ATL-TRANSGRID-L2, prepared by At&I, dated 18 May 2016 and all appendices; (c) the Supplementary Response to Submissions titled ' <i>Re: Oakdale South Estate SSDA_ 6917</i> ' and all annexures, prepared by Urban Advisory Services, dated 12 July 2016; (d) the letter report titled ' <i>Oakdale South Estate, Operational Noise Contours, Adverse Weather Conditions</i> ',prepared by SLR, dated 13 July 2016; (e) the letter titled ' <i>Re: Oakdale South Estate- State Significant Development Application Ref. 6917</i> ' and all annexures, prepared by Urban Advisory Services, dated 8 September 2016; (f) the section 96(2) Modification Application SSD 6917 MOD 1 prepared by Urbis, dated 4 November 2016 and all supporting documentation; (g) the section 96(1A) Modification Application SSD 6917 MOD 3, prepared by Goodman , dated 5 April 2017 and all supporting documentation, excluding Appendix E; (h) the section 96(1A) Modification Application SSD 6917 MOD 4, prepared by Urbis, reference: "Oakdale South MOD 4_Final" and all supporting documentation; (i) the development layout plans and drawings listed at Appendix 1; and (j) the Management and Mitigation Measures (see Appendix 3).	Noted
B5. If there is any inconsistency between the plans and documents referred to above, the most recent document shall prevail to the extent of the inconsistency. However, the conditions of this consent shall prevail to the extent of any inconsistency.	Noted
B6.The Applicant shall comply with any reasonable requirement(s) of the Secretary arising from the Department's assessment of: (a) any reports, plans or correspondence that are submitted in accordance with this consent; and (b) the implementation of any actions or measures contained within these reports, plans or correspondence.	Noted
<b>Limits of Consent</b>	
B13. A maximum of one illuminated sign is permitted on each elevation of each warehouse building. All illuminated signage shall be orientated away from residential receivers.	Section 3.9

<b>Noise Limits</b>				
B18. The Applicant shall ensure the Development does not exceed the noise limits provided in Table 3 below and the receiver locations (L1, L2 and L3 shown in Appendix 4):				
<b>Table 3: Project Specific Noise Limits dB(A)</b>				
Location	Day	Evening	Night	
	L <sub>Aeq</sub> (15 minute)	L <sub>Aeq</sub> (15 minute)	L <sub>Aeq</sub> (15 minute)	L <sub>A1</sub> (1 minute)
L1 North of Warragamba Pipeline	37	37	37	47
L2 Horsley Park	39	39	39	49
L3 Kemps Creek, Mt Vernon, Jacfin and Capitol Hill	40	40	40	48
<b>Note:</b> Noise generated by the Development is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy.				
<b>Schedule D - Conditions of Consent for the Stage 1 DA</b>				
<b>Obligation to Minimise Harm to the Environment</b>				
D1. In addition to meeting the specific performance criteria established under this consent, the Applicant shall implement all reasonable and feasible measures to prevent and/or minimise any harm to the environment that may result from the Development.				Section 3
<b>Development Description</b>				
D2. Development Consent is granted to the 'Stage 1 works' as described in Schedule A, the conditions contained in this Development Consent and the EIS, as amended by the RTS, SSD 6917 MOD 1, SSD MOD 3 and SSD MOD 4.				Section 1
<b>Development in Accordance with Plans and Documents</b>				
D3. The Applicant shall carry out the Development in accordance with the: <ul style="list-style-type: none"> <li>(a) EIS and RTS;</li> <li>(b) the letter titled 'Re: SSD6917 Oakdale South Industrial Estate, TransGrid Easement Flood Extents', ref 14-193-ATL-TRANSGRID-L2, prepared by At&amp;I, dated 18 May 2016 and all appendices;</li> <li>(c) the Supplementary Response to Submissions titled 'Re: Oakdale South Estate SSDA_6917' prepared by Urban Advisory Services, dated 12 July 2016;</li> <li>(d) the letter report titled 'Oakdale South Estate, Operational Noise Contours, Adverse Weather Conditions', prepared by SLR, dated 13 July 2016;</li> <li>(e) the letter titled 'Re: Oakdale South Estate- State Significant Development Application Ref.6917' and all annexures, prepared by Urban Advisory Services, dated 8 September 2016;</li> <li>(f) the section 96(2) Modification Application SSD 6917 MOD 1 prepared by Urbis, dated 4 November 2016 and all supporting documentation;</li> <li>(g) the section 96(1A) Modification Application SSD 6917 MOD 3, prepared by Goodman, dated 5 April 2017 and all supporting documentation, excluding Appendix E;</li> <li>(h) the section 96(1A) Modification Application SSD 6917 MOD 4, prepared by Urbis, reference: "Oakdale South MOD 4_ Final" and all supporting documentation;</li> <li>(i) drawings listed at Appendix 2; and</li> <li>(j) the Management and Mitigation Measures (see Appendix 3).</li> </ul>				Noted
D4. If there is any inconsistency between the plans and documentation referred to above, the most recent document shall prevail to the extent of the inconsistency. However, the conditions of this consent prevail to the extent of any inconsistency.				Noted
D5. The Applicant shall comply with any reasonable requirement(s) of the Secretary arising from the Department's assessment of: <ul style="list-style-type: none"> <li>(a) any reports, plans or correspondence that are submitted in accordance with this consent; and</li> <li>(b) the implementation of any actions or measures contained within these documents.</li> </ul>				Noted
<b>Prescribed Conditions</b>				
D10. The Applicant shall comply with all relevant prescribed conditions of Development Consent under Part 6, Division SA of the Regulation.				Noted

<b>Evidence of Consultation</b>	
<p>D14. Where consultation with any public authority is required by the conditions of this consent, the Applicant shall:</p> <ul style="list-style-type: none"> <li>(a) consult with the relevant public authority prior to submitting the required documentation to the Secretary, where required;</li> <li>(b) submit evidence of this consultation as part of the relevant documentation required by the conditions of this consent to the Secretary; and</li> <li>(c) include the details of any outstanding issues following this consultation upon submitting any documentation required by the conditions of this consent.</li> </ul>	Noted
<b>Dispute Resolution</b>	
<p>D15. In the event that a dispute arises between the Applicant and Council or a public authority, in relation to an applicable requirement in this consent or relevant matter relating to the Development, either party may refer the matter to the Secretary for resolution. The Secretary's determination of any such dispute shall be final and binding on the parties.</p>	Sections 2.4 and 2.7
<b>Statutory Requirements</b>	
<p>D17. The Applicant shall ensure that all necessary licenses, permits and approvals are obtained and kept up-to-date as required throughout the life of the Development. No condition of this consent removes the obligation for the Applicant to obtain, renew or comply with such licenses, permits or approvals.</p>	Section 3.1
<b>Compliance</b>	
<p>D25. The Applicant shall ensure that employees, contractors and sub-contractors are aware of, and comply with, the conditions of this consent relevant to their respective activities.</p>	Section 2.5
<p>D26. The Applicant shall be responsible for any environmental impacts resulting from the actions of all persons that it invites onto the site, including contractors, sub-contractors and visitors.</p>	Sections 2.5, 2.6 and 3
<b>Operation of Plant and Equipment</b>	
<p>D27. The Applicant shall ensure that all plant and equipment used for the Development is:</p> <ul style="list-style-type: none"> <li>(a) maintained in a proper and efficient condition; and</li> <li>(b) operated in a proper and efficient manner.</li> </ul>	Section 3.1
<p>D28. The Applicant shall not operate any mobile plant and equipment which exceeds a height of 4.2 metres within the TransGrid transmission line easement. All construction plant and equipment that will operate within the transmission line easement shall be fitted with an earthing trail.</p>	Section 3.1
<b>Schedule E - Environmental Performance and Management</b>	
<b>Traffic and Access</b>	
<p><b>Operational Traffic Management Plan</b></p> <p>E3. Prior to the issue of an Occupation Certificate for each building, the Applicant shall prepare and submit an Operational Traffic Management Plan (OTMP) for the development in consultation with Council and TfNSW, to the Secretary for approval. The OTMP must at a minimum:</p> <ul style="list-style-type: none"> <li>(a) be prepared by a suitably qualified and experienced expert;</li> <li>(b) estimate the numbers and frequency of truck movements, sizes of trucks, vehicle routes and hours of operation;</li> <li>(c) detail the access and parking arrangements for operational vehicles to ensure road and site safety, and demonstrate that there will be no queuing on the public road network;</li> <li>(d) include detail of proposed truck parking to ensure this is managed in an orderly manner; and</li> <li>(e) include a Driver Code of Conduct that details traffic management measures to be implemented during operation to:             <ul style="list-style-type: none"> <li>(i) minimise impacts of the development on the local and regional road network;</li> <li>(ii) minimise conflicts with other road users;</li> <li>(iii) ensure truck drivers use specified routes and minimise traffic noise during night-time hours; and</li> <li>(iv) manage/control pedestrian movements.</li> </ul> </li> </ul>	Section 3.4

E4.The Applicant must ensure that the OTMP (as revised and approved by the Secretary from time to time) is implemented for the life of the development.	Section 3.4
<b>Operating Conditions</b> E6. The Applicant shall ensure that: (a) all trucks entering or leaving the site with loads have their loads covered; and (b) trucks associated with the Development do not track dirt onto the public road network.	Section 3.4
<b>Internal Roads, Queuing and Parking</b> E8.The Applicant shall ensure that: (a) internal roads, driveways and parking associated with the Development are constructed and maintained in accordance with the relevant standards and the latest versions of AS 2890.1,AS 2890.2 and AS/NZS 2890 .6; (b) the swept path of the longest vehicle entering and exiting the site, as well as maneuverability through the site, must be in accordance with <i>AUSTROADS Design Vehicles and Turning Path Templates</i> ; (c) the Development does not result in any vehicles queuing on the public road network; (d) heavy vehicles associated with the Development do not park or stand on local roads or footpaths in the vicinity of the site; (e) all vehicles are wholly contained on-site before being required to stop; (f) all vehicles enter and exit the site in a forward direction; (g) all loading and unloading of materials is carried out on-site; and (h) the loading areas and turning areas in the car park are kept clear of any obstacles, including parked vehicles, at all times.	Section 3.4
<b>Water</b>	
<b>Stormwater</b> E14. The Applicant shall carry out the Development in accordance with the SWMR (Stormwater Management Report) as approved by the Secretary (and as revised and approved by the Secretary from time to time), unless otherwise agreed by the Secretary.	Section 3.6
<b>Noise and Vibration</b>	
<b>Operational Noise Limits</b> E35. The Applicant shall operate the Stage 1 DA in a manner that ensures the Oakdale South Industrial Estate complies with the noise limits for the Concept Proposal set in Condition B18 of this Development Consent.	Section 3.2
<b>Noise Management</b> E38. The Applicant shall: (a) implement best management practice, including all reasonable and feasible measures to prevent and minimise noise and vibration during construction and operation of the Development (including low frequency noise and traffic noise); (b) minimise the noise impacts of the Development during adverse meteorological conditions when noise criteria do not apply; (c) maintain the effectiveness of any noise suppression equipment on plant at all times and ensure defective plant is not used operationally until fully repaired; and (d) regularly assess noise monitoring data and relocate, modify and/or stop operations to ensure compliance with the relevant conditions of this consent.	Section 3.2
<b>Heritage</b>	
<b>Interpretation Plan</b> E45. Within 12 months of the completion of the Stage 1 DA works, the Applicant shall prepare Heritage Interpretation Plan addressing Aboriginal Cultural Heritage, the former Lochwood Estate and Lenore Closer Soldier Settlement Scheme for the Secretary's approval. The Heritage Interpretation Plan shall be prepared in consultation with the Heritage Council and the OEH and include information obtained through the historical research and archaeological investigations of the subject land (Aboriginal and historic) to enable future users of the site to understand the sites history.	Noted

<b>Air Quality</b>	
E48. The Applicant shall: (a) implement best management practice, including all reasonable and feasible mitigation measures to prevent and minimise dust and odour emissions from operation of the Development; and (b) minimise any visible off-site air pollution that occurs as a result of construction and operation the Development.	Section 3.7
<b>Dust Minimisation</b> E49. The Applicant shall implement all reasonable and feasible measures to minimise dust and odour emissions generated during demolition, earthworks, construction and operation of the Development.	Section 3.7
<b>Hazard and Risk</b>	
<b>Dangerous Goods</b> E53. The storage of Dangerous Goods shall not exceed the thresholds outlined in the <i>Hazardous and Offensive Development Application Guidelines: Applying SEPP 33</i> .	Section 3.10
E54. Dangerous Goods, as defined by the Australian Dangerous Goods Code, shall be stored and handled strictly in accordance with all relevant Australian Standards.	Section 3.10
<b>Bunding</b> E55. The Applicant shall store all chemicals, fuels and oils used on-site in appropriately banded areas in accordance with the requirements of all relevant Australian Standards, and/or the EPA's <i>Storing and Handling of Liquids: Environmental Protection - Participants Handbook</i> .	Section 3.10
<b>Waste</b>	
<b>Classification</b> E58. The Applicant shall ensure that any waste generated on the site is classified in accordance with the EPA's <i>Waste Classification Guidelines</i> (DECCW, 2009), or any superseding document and disposed of to a facility that may lawfully accept the waste.	Section 3.5
<b>Waste Management</b> E59. The Applicant shall implement the Waste Management Plan at Appendix W of the EIS for the duration of construction works and for the operational life of the Development.	Section 3.5
E60. For the life of the Development, the Applicant shall: (a) monitor the amount of waste generated by the Development; (b) investigate ways to minimise waste generated by the Development; and (c) implement reasonable and feasible measures to minimise waste generated by the Development in accordance with the EPA's <i>NSW Waste Avoidance and Resource Recovery Strategy 2014-2021</i> .	Section 3.5
<b>Visual Amenity</b>	
<b>Landscaping</b> E65. The Applicant shall maintain all site perimeter landscaping, in accordance with the approved LMP for the life of the Development.	Section 3.9
<b>Lighting</b> E66. The Applicant shall ensure that the lighting associated with the Development: (a) complies with the latest version of <i>AS 4282 (NT) - Control of Obtrusive Effects of Outdoor Lighting</i> ; and (b) is mounted, screened and directed in such a manner that it does not create a nuisance to surrounding properties or the public road network.	Section 3.9
<b>Bushfire Protection</b>	
E76. Prior to the commencement of operation, the Applicant shall prepare a Bushfire Emergency Evacuation Plan, in consultation with the Rural Fire Service that complies with section 4.2.7 of <i>Planning for Bushfire Protection 2006</i> , to the satisfaction of the Secretary. The Bushfire Emergency Evacuation Plan shall form part of the OEMP.	Section 3.10



<b>Schedule F - Environmental Management, Reporting and Auditing</b>	
<b>Environmental Management</b>	
<p><b>Operational Environmental Management Plan</b></p> <p>F4. The Applicant shall prepare an Operational Environmental Management Plan (OEMP) for the development and be submitted to the satisfaction of the Secretary prior to the commencement of operations. The OEMP must:</p> <ul style="list-style-type: none"> <li>(a) provide the strategic framework for environmental management of the development;</li> <li>(b) identify the statutory approvals that apply to the development;</li> <li>(c) include a copy of all relevant management plans and monitoring requirements and (d) programs relevant under this consent;</li> <li>(e) outline all environmental management practices and procedures to be followed during operation;</li> <li>(f) describe all activities to be undertaken on the site during operation;</li> <li>(g) detail how the environmental performance of the operation of the development will be monitored, and what actions will be taken to address identified adverse environmental impacts;</li> <li>(h) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the development;</li> <li>(i) describe the procedures that will be implemented to:               <ul style="list-style-type: none"> <li>(i) keep the local community and relevant agencies informed about the operation and environmental performance of the development;</li> <li>(ii) receive, handle, respond to, and record complaints</li> <li>(iii) resolve any disputes that may arise during the course of the development;</li> <li>(iv) respond to any non-compliance;</li> <li>(v) respond to emergencies;</li> <li>(vi) include copies of any strategies, plans and programs approved under the (vii) conditions of this consent; and</li> <li>(viii) a clear plan depicting all the monitoring required to be carried out under the conditions of this consent</li> </ul> </li> </ul>	<p>This document See <b>Table 2</b></p>
<p>F5. The approved OEMP (as revised and approved by the Secretary from time to time) shall be implemented by the Applicant for the life of the Development.</p>	<p>Noted</p>
<b>Environmental Reporting</b>	
<p><b>Incident Reporting</b></p> <p>F6. Upon detecting an exceedance of the limits/performance criteria in this consent or the occurrence of an incident that causes (or may cause) material harm to the environment, the Applicant shall immediately (or as soon as practical thereafter) notify the Secretary and other relevant agencies of the exceedance/incident. Within seven days of the date of the incident, the Applicant shall provide the Secretary and any relevant agencies with a detailed report on the incident, and such further reports as may be requested.</p>	<p>Section 2.6</p>
<p><b>Regular Reporting</b></p> <p>F7. The Applicant shall provide regular reporting on the environmental performance of the Development on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this consent.</p>	<p>Section 3.1</p>
<b>Access to Information</b>	
<p>F8. The Applicant shall make the following information publicly available on its website and keep the information up to date:</p> <ul style="list-style-type: none"> <li>(a) the EIS;</li> <li>(b) the RTS;</li> <li>(c) current statutory approvals for the Development;</li> <li>(d) approved strategies, plans or programs;</li> <li>(e) a complaints register, updated on an annual basis; and</li> <li>(f) any other matter required by the Secretary.</li> </ul> <p><b>Note:</b> This condition does not require any confidential information to be made available to the public.</p>	<p>Section 3.1</p>

<p><b>Revision of Strategies, Plans and Programs</b></p> <p>F9. Within three months of:</p> <p>(a) the determination of a modification; or</p> <p>(b) the submission of an incident report under Condition F6,</p> <p>the Applicant shall review, and if necessary revise the strategies, plans and programs required under this consent to the satisfaction of the Secretary.</p> <p><i>Note: This is to ensure the strategies, plans and programs are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the Development.</i></p>	Section 5
---	-----------

## 2.4 Community Enquiries

Relevant contact details, including a phone number for community enquiries, will be included on site signage. All community enquiries should be forwarded to Goodman's Estate Manager.

## 2.5 Environmental Training

It is responsibility of Goodman's Building Manager to ensure all Site Managers and maintenance contractors engaged by Goodman are appropriately inducted and aware of their general obligations under this OEMP. It is then the responsibility of the respective Site Managers to ensure all other employees and contractors are appropriately inducted and aware of their obligations under the OEMP. It is also the responsibility of the Site Managers to conduct regular "toolbox talks" to ensure continuing awareness of environmental management expectations and responsibilities.

The topics to be covered during the induction and toolbox talks include:

- General site maintenance and management expectations and requirements;
- Familiarisation with site environmental controls;
- The environmental management commitments and responsibilities in this OEMP (including appended management plans);
- Appropriate emergency response actions for the site as detailed in the *Bushfire Emergency Evacuation Plan* (ABPP 2017);
- Energy management and energy savings procedures especially in regard to high energy consumption aspects of the development;
- Appropriate response and management of environmental incidents (for example, a chemical spill) in accordance with the incidents protocol in **Section 2.6**; and
- Appropriate response and management of complaints received from the public, government agencies or other stakeholders in accordance with the complaints protocol in **Section 2.7**.

Records of all training undertaken should be recorded and maintained in an Environmental Training Register to maintain consistency and for audit purposes.

## 2.6 Environmental Incidents

For the purposes of this OEMP, an environmental incident is defined as any event that causes or has the potential to cause material harm to the environment.

### 2.6.1 Objective

To ensure that any environmental incident caused by or relating to the operation of Oakdale South is effectively responded to, and any resulting adverse environment and/or human health impact is promptly prevented or effectively managed.

## 2.6.2 Responsibility

Goodman's Building Manager and other Owners Facility Managers are responsible for ensuring that the appropriate management response and handling procedures are instigated and carried through in the event of an environmental incident. The induction and toolbox talks outlined in **Section 2.5** should be used to ensure all site employees and contractors are aware of and understand their obligations for incident response.

All employees and contractors are to:

- Notify Site Management of any hazard or potential hazard that may result in an environmental incident, regardless of the nature or scale;
- Take immediate action to notify their respective tenants representative / Facility Manager, who will then notify the Goodman Building Manager, of any environmental incident; and
- Take immediate action (where it is safe to do so) to prevent, stop, contain and/or minimise any adverse impact associated with an incident.

## 2.6.3 Notification Requirements

Notification responsibilities for incidents that have caused or threatened to cause material harm to the environment are detailed in section 148 of the *Protection of the Environment Operations Act 1997* (POEO Act). In summary, these are broadly categorised as:

- Duty of an employee or any person undertaking an activity  
Any person engaged as an employee or undertaking an activity at Oakdale South must, immediately after becoming aware of any potential incident (even if outside of normal business hours), notify their respective tenant representative or Facility Manager of the incident and all relevant information about it. If the tenant representative or Facility Manager is unavailable, the Goodman Building Manager must be contacted. All tenant representatives/Facility Managers and the Goodman Building Manager will be available 24 hours a day, seven days a week and have the authority to stop or direct works. Duty of an employer or occupier of the premises to notify
- Duty of an employer or occupier of the premises, not owned by Goodman to notify  
The employer or occupier of the premises (in this case, the Facility Manager) on which the incident occurred, who is notified (or otherwise becomes aware of) of the incident, must immediately notify the relevant authorities about the incident and all relevant information.

Under the POEO Act, "relevant authority" means any of the following:

- The appropriate regulatory authority;
- If the Environment Protection Authority (EPA) is the appropriate regulatory authority - the EPA;
- If the EPA is not the appropriate regulatory authority - the local authority for the area in which the pollution incident occurs (i.e. Penrith City Council [Council]);
- NSW Health;
- SafeWork NSW; and
- Fire and Rescue NSW.

**Table 5** lists the contact details for these authorities. The person reporting the pollution incident should provide the following key details:

- Location of the pollution incident/emergency;
- Nature of the pollution incident/emergency;
- Their name and contact details; and
- Details of any required assistance.

**Table 5 - Regulatory Authority Contact Details for Environmental Incidents**

Regulatory Authority	Contact Details
Environment Protection Authority (EPA)	Environmental Line – 131 555
Department of Planning and Environment (DPE)	02 9228 6111 Email: information@planning.nsw.gov.au
SafeWork NSW	Incident Notification Hotline – 131 050 <i>Select Option 3 to report a “Serious Incident or Fatality” – this will result in the incident being recorded and the appropriate person being contacted.</i>
Local Authority – Penrith City Council	02 4732 777 (8:30 am to 4:00 pm, Monday to Friday)
Emergency Services	Emergency – 000 NSW Fire and Rescue – 000 or 1300 729 579
NSW Health	02 9391 9000

As advised in **Section 2.6.1**, and in accordance with condition F6 of Development Consent SSD 6917, Goodman is required to immediately notify the DPE and other relevant agencies of an incident that causes (or may cause) harm to the environment and subsequently provide a detailed report to these agencies within 7 days of the incident.

#### 2.6.4 Handling Procedure

Upon becoming aware of an environmental incident, the procedure outlined below must be followed.

##### 1. Preventative Action

Where possible and safe to do so, immediate action should be taken to prevent, stop, contain and/or minimise the environmental impact of the incident. The situation should be visually assessed and emergency response undertaken if required.

In the unlikely event that an incident requires the evacuation of the site, actions will be completed in accordance with site evacuation procedures. All employees and contractors are to be made aware of the location of emergency assembly areas through site inductions, signage and regular toolbox talks.

##### 2. Assistance

If adequate internal resources are not available and the incident threatens public health, property or the environment, it is essential that Fire and Rescue NSW be contacted by telephoning “000” for emergency assistance.

Contacting Fire and Rescue NSW does not negate the notification requirements in **Section 2.7.3**.

### 3. Notify

Under the provisions of the POEO Act, there is a duty to notify any incident that has caused or threatens to cause material harm to the environment and all relevant information about the incident. The specific duties to notify are outlined above in **Section 2.7.3**.

In the event of a serious incident or emergency, it is more than likely that Fire and Rescue NSW will take control and manage the required investigation and remedial activities. Any instructions issued must be strictly adhered to.

### 4. Investigate

Where safe to do so, undertake immediate investigative work to determine the cause of the incident.

### 5. Remedial Action

Where safe to do so, undertake appropriate remedial action to address the cause of the incident or emergency and mitigate any further environmental impact. In some instances, outside resources such as specialist contractors/consultants may be required.

### 6. Record

It is imperative that an honest assessment of the situation is carried out and documented in order to minimise the potential for similar events in the future. On this basis, every environmental incident is to be recorded in an *Incident and Hazard Report*. A copy of the completed report should be maintained for at least four years.

Condition F6 of Development Consent SSD 6917 requires that the DPE and other relevant authorities be provided with a detailed report within 7 days of the incident.

### 7. Preventative Action

Once the incident has been suitably handled, appropriate measures should be identified and implemented to negate the possibility of re-occurrence.

#### 2.6.5 Incidents Register

An Environmental Incidents Register is to be maintained at Oakdale South. The register should contain the following:

- A copy of the environmental incident notification requirements and handling procedure contained above in **Sections 2.6.3** and **2.6.4**;
- Site evacuation procedures;
- A separate reference sheet containing the contact details for Goodman's Building Managers and other Owners' Facility Managers and the contact details for the regulatory authorities listed above in **Table 5**;
- Blank hard copies of the *Incident and Hazard Report*; and
- Copies of all completed *Incident and Hazard Reports*, which are to be maintained on-site for at least four years after the event to which they relate.

## **2.7 Environmental Complaints**

### **2.7.1 Objective**

To ensure that all environmental complaints in relation to the operation of Oakdale South are promptly and effectively received, handled and addressed.

### **2.7.2 Responsibility**

Goodman's Building Manager and other Owners Facility Managers are responsible for ensuring that the appropriate management response and handling procedures are instigated and carried through in the event of an environmental complaint. The induction and toolbox talks outlined in **Section 2.5** should be used to ensure all site employees and contractors are aware of and understand their obligations for incident response.

All employees and contractors who take receipt of a complaint, either verbal or written, are to immediately notify their respective tenants representative or Facility Manager, who will then contact the Building Manager.

### **2.7.3 Handling Procedure**

Upon becoming aware of a complaint, the protocol outlined below must be followed.

#### **1. Receive**

In the normal course of events, the first contact for complaints will usually be made in person or by telephone. While this should instigate investigative action, a formal written complaint should also be requested.

Where the initial contact reaches an employee/contractor who is not a representative of Owners Facility Management team, the call should be directed to the respective Owners Facility Manager or the Goodman Building Manager. If unavailable, the complainant's details should be taken with a view to returning the contact once the Owners Facility Manager / Goodman Building Manager is in a position to discuss the matter.

The complainant's name, address and contact details, along with the nature of the complaint, must be requested. If the complainant refuses to supply the requested information, a note should be made on the form and complainant advised of this.

#### **2. Investigate**

A field investigation should be initiated in an attempt to establish the legitimacy of the complaint and the cause of the problem. The respective Owners Facility Manager should be consulted to identify any abnormality or incident that may have resulted in the complaint. Any monitoring information and/or records at and around the time of the complaint should be reviewed for any abnormality or incident that may have resulted in the complaint.

If the complaint is due to an incident, the notification requirements and handling procedures outlined in **Section 2.7** must be followed.

#### **3. Remedial Action**

Once the legitimacy and cause of the complaint has been established, every possible effort must be made to undertake appropriate remedial action(s) to fix the cause of the complaint and mitigate any further impact.

#### **4. Inform**

The investigative work and remedial action should be reported back to the complainant and, if necessary, the relevant authorities.

## 5. Record

It is imperative that an honest assessment of the situation is carried out and documented in order to minimise the potential for similar complaints in the future. On this basis, every complaint received is to be recorded in the *Environmental Complaint Report Form*. A copy of the completed form should be maintained for at least four years.

## 6. Preventative Action

Once the complaint has been suitably handled, appropriate measures should be identified and implemented to negate the possibility of re-occurrence.

### 2.7.4 Complaints Register

An Environmental Complaints Register is to be maintained for Oakdale South. The register should contain the following:

- A copy of the environmental complaint handling procedure contained in **Section 2.7.3**;
- A separate reference sheet containing the contact details for Goodman's Building Management and Owners Facility Managers;
- Blank hard copies of the *Environmental Complaint Report Form*; and
- Copies of all completed *Environment Complaint Report Forms*, which are to be maintained on-site for at least four years after the event to which they relate.

### 3 ENVIRONMENTAL MANAGEMENT COMMITMENTS

Environmental aspects with the potential to be impacted by Oakdale South are addressed in the following sub-sections. These issues have specific regulatory requirements (imposed by Development Consent SSD 6917) and/or are considered to have the highest potential to result in a non-compliance with a legislative requirement or generate community complaints.

#### 3.1 General

**Table 6** lists the general environmental controls that will be implemented throughout the life of the development to minimise the potential for adverse impacts on the local environmental and surrounding receptors.

**Table 6 - General Environmental Management Controls**

Environmental Management Control	Person Responsible	Timing / Frequency	References / Notes
All necessary licences, permits and approvals will be obtained and kept up to date as required throughout the life of the Development.	Management	On-going	SSD 6917 Condition D17
All employees, contractors and sub-contractors will be made aware of, and comply with, the conditions of this consent relevant to their respective activities.	Management / Contractors / Employees		SSD 6917 Condition D25
All plant and equipment will be maintained and operated in a proper and efficient manner.	Management / Contractors		SSD 6917 Condition D27
No mobile plant and equipment which exceeds a height of 4.2 metres will be operated within the TransGrid transmission line easement.			SSD 6917 Condition D28
All activities associated with the operation of the Development will be undertaken in a manner that does not restrict TransGrid from operating and maintaining its transmission towers.	Management / Contractors / Employees		SSD 6917 Condition E70
A 25 m horizontal clearance will be maintained from each transmission tower leg at all times during operation.	Management / Contractors		SSD 6917 Condition E71
Regular reporting on the environmental performance of the Development will be available on the website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of SSD 6917.	Management		SSD 6917 Condition F7
The following information will be made publicly available on the website and the information kept up to date: a) the EIS; b) the RTS; c) current statutory approvals for the Development; d) approved strategies, plans or programs; e) a complaints register, updated on an annual basis; and f) any other matter required by the Secretary.			SSD 6917 Condition F8



### 3.2 Noise

Operational noise at Oakdale South will be managed in accordance with the *Operational Noise Management Plan* (ONMP) (SLR 2017), a copy of which is contained in **Appendix E**.

As replicated in **Table 7**, condition B18 of Development Consent SSD 6917 lists the project-specific operational noise limits for Oakdale South.

**Table 7 - Project Specific Noise Limits dB(A)**

Location	Day	Evening	Night	
	L <sub>Aeq</sub> (15 minute)	L <sub>Aeq</sub> (15 minute)	L <sub>Aeq</sub> (15 minute)	L <sub>A1</sub> (1 minute)
L1 North of Warragamba Pipeline	37	37	37	47
L2 Horsley Park	39	39	39	49
L3 Kemps Creek, Mt Vernon, Jacfin and Capitol Hill	40	40	40	48

**Note:** Noise generated by the Development is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy.

The environmental management controls in **Table 8** will be implemented to minimise the potential for adverse noise emissions from the operation of Oakdale South.

**Table 8 - Environmental Management Controls for Noise**

Environmental Management Control	Person Responsible	Timing / Frequency	References / Notes
Noise generated by the operation of the Development will not exceed the noise limits set out in <b>Table 7</b> above.	Management / Contractors / Employees	On-going	SSD 6917 Condition B18
All plant and equipment will be maintained and operated in a proper and efficient manner.	Management / Contractors		SSD 6917 Condition D27
Noise walls will be maintained throughout the operation of the Development.			SSD 6917 Condition E36
Best management practice will be implemented, including all reasonable and feasible measures to prevent and minimise operational noise (including low frequency noise and traffic noise).			SSD 6917 Condition E38
Noise impacts will be minimised during adverse meteorological conditions when noise criteria do not apply.			SSD 6917 Appendix 3
The effectiveness of any noise suppression equipment on plant will be maintained at all times and defective plant will not used operationally until fully repaired.			
Cumulative sound power levels of fixed plant for each building will be limited to 100 dBA.			
Regular assessment of fixed plant will be undertaken to ensure specifications minimise noise emissions or apply local attenuation to manage potential noise impacts.			Management
An awareness and understanding of noise issues and the use of quiet work practices will be included in site inductions for all employees, contractors and visitors. Specific mention of the following items will be included: <ul style="list-style-type: none"> <li>Site specific noise management measures to be followed.</li> <li>Locations of nearby noise sensitive receivers.</li> </ul>			

Environmental Management Control	Person Responsible	Timing / Frequency	References / Notes
The simultaneous use of multiple items of significant noise generating equipment will be avoided wherever possible, scheduling operations so they are used separately rather than concurrently	Management / Contractors / Employees	On-going	ONMP Section 9.1
The use of noisy equipment will seek to not be scheduled during daytime hours.	Management		
Noisy equipment will be sited behind structures that act as barriers, or at the greatest distance from the noise-sensitive area, or orienting the equipment so that noise emissions are directed away from any sensitive areas, to minimise noise emissions.	Management / Contractors / Employees		
Where practicable, all roller doors will be kept closed during the night-time period.			
Weather conditions will be monitored and where adverse conditions are experienced or predicted (such as high winds or temperature inversions), operational changes will be made to avoid or reduce noise impacts during these periods.	Management		
All equipment, machinery and plant used on site will be maintained regularly to minimise noise generation.	Management / Contractors		
The effectiveness of any noise suppression equipment will be maintained on plant at all times and ensure defective plant is not operational until fully repaired.			
The volume of reversing and start-up alarms will be reduced to the minimum practicable level (while still complying with safety regulations) and the least intrusive alarms will be used.			
Maximum allowable noise/sound levels will be specified when purchasing equipment.			
Maximum allowable noise/sound levels will be included in tender documents and contracts.			
Noise monitoring will include attended monitoring as well as a program to monitor the Sound Power Levels (SWLs) of the plant on site.	Management	On-going	ONMP Section 9.2
An awareness of industry developments will be maintained in relation to noise mitigation for individual plant items used on the site in order to assess cost and practicality of plant upgrade or mitigation implementation.			
Outdoor fixed plant will be enclosed where possible.			
Operational noise surveys will be conducted in accordance with the ONMP.		Every 6 months	ONMP Section 10.1.1
The sound power levels of all plant and equipment will be tested with all results maintained.		Every 3 years at minimum	ONMP Section 10.3

### 3.4 Energy Efficiency

The *Energy Efficiency S.96 Report* (EER) (SLR 2017) in **Appendix F** identifies all potential energy savings pertinent to the operation of Oakdale South, including a description of likely energy consumption levels and options for alternative energy sources such as solar power in accordance with Council's requirements.

**Table 9** lists the environmental management controls to be implemented at Oakdale South in relation to energy efficiency.

**Table 9 - Environmental Management Controls for Energy Efficiency**

Environmental Management Control	Person Responsible	Timing / Frequency	References / Notes
The EER will be implemented to ensure that the Development will continue to operate at industry best practice over time.	Management / Contractors / Employees		SSD 6917 Condition E51
Building design: <ul style="list-style-type: none"> <li>• Fire retardant polycarbonate roof sheeting will be installed to 10% of the roof area of the warehouses to allow for natural daylight and reduce the need to use artificial lighting.</li> <li>• Heat-reflective semi-translucent roller blinds on all windows will reduce solar heat load to the building.</li> <li>• Awnings over windows or shading devices where appropriate will be maintained to reduce the solar heat load to the building therefore decreasing the cooling load requirements from the air conditioning system.</li> <li>• Insulating with external development fabrics allows for lower energy demand on the air-conditioning system and higher thermal comfort level for occupants.</li> <li>• Glazing will be installed on windows to prevent heat loss in winter and reduce heat transfer in summer.</li> <li>• Roller shutter openings (natural ventilation) will be used during hot summer to reduce the internal temperature.</li> <li>• Awnings will be installed for loading doors and big openings to prevent direct solar radiation through openings.</li> <li>• Door seals for office doors and airlock for reception areas will help to maintain a comfortable indoor air environment and lower energy demand on the air-conditioning system.</li> </ul>	Management	On-going	EER Section 4.3.1

Environmental Management Control	Person Responsible	Timing / Frequency	References / Notes
Lighting: <ul style="list-style-type: none"> <li>A lighting control system will be installed to manage and minimise power consumption.</li> <li>Dimmable lighting, T5 Fluoro fittings or equivalent environmentally friendly will be fitted for the development.</li> <li>LED lighting will be implemented where possible for the benefit of lower energy consumption with a longer bulb lifespan.</li> <li>Lighting zoning will be used for light switching in zones.</li> <li>Lighting system will be programmable and incorporate timeclock, and motion sensors in the warehouses, office, lunch room and amenities.</li> <li>Energy efficient floodlights will be considered for lighting of external perimeter of building.</li> </ul>	Management	On-going	EER Section 4.3.2
Air Conditioning: <ul style="list-style-type: none"> <li>Air-conditioning control zoning will be provided where necessary to cater for varying occupancy rates, orientation to solar loads etc.</li> <li>Air-conditioning units will be of the air-cooled, reverse cycle, packaged unit type, incorporating economy cycles where required under the BCA Section J Energy Efficiency.</li> </ul>			EER Section 4.3.3
Domestic Water Heating: <ul style="list-style-type: none"> <li>Hot water systems implemented in employee amenities, including toilets, lunchrooms and cleaners room will be connected to a solar hot water system.</li> <li>Hot water will be generated through a roof mounted solar water packaged plant.</li> <li>Piping will be insulated to both external and internal DHW &amp; DCW circulation pipes.</li> </ul>			EER Section 4.3.4
Energy Metering: <ul style="list-style-type: none"> <li>All electrical metered loads will be sub-metered to facilitate ongoing management of energy consumption.</li> </ul>			EER Section 4.3.5
Water: <ul style="list-style-type: none"> <li>A rainwater tank will be installed for reuse on site</li> <li>Water efficient bathroom hardware will be used.</li> </ul>			EER Section 4.3.6
Information on energy savings procedures, annual energy targets for the development, as well as the results of energy usage reviews and audits, will be communicated to all employees via forums.			Quarterly
Signs will be placed adjacent to any appliances or equipment, where significant energy savings can be made through employee awareness of simple energy savings procedures.	On-going		
Electrical equipment will be maintained to Australian Standards to ensure unnecessary energy wastage is minimised.	Management / Contractors		EER Section 4.6.2

Environmental Management Control	Person Responsible	Timing / Frequency	References / Notes
A Building Users' Guide will be prepared to provide details regarding the everyday operation of a building and will include energy minimisation initiatives such as natural ventilation strategies, user comfort control, maintenance of air conditioning units and other electrical devices to ensure maximum operating efficiency, and lighting zoning strategies.	Management	On-going	EER Section 4.6.2
Natural Ventilation versus Air Conditioning: <ul style="list-style-type: none"> <li>Provision will be made to increase outside air rates, during favourable climatic conditions which maintain general contaminants at lower concentrations than artificially ventilated spaces, improving the indoor air quality environment.</li> <li>Alternative passive exhaust options such as wind or solar assisted whirly birds will be considered to improve thermal comfort.</li> </ul>			EER Section 5
Daylight versus Artificial Lighting: <ul style="list-style-type: none"> <li>Reliance on artificial lighting in buildings will be reduced and natural lighting will be favoured to improve the mindset and health of workers and visitors.</li> </ul>	Management / Contractors / Employees		
Solar Powered versus Electricity Powered: <ul style="list-style-type: none"> <li>The provision of solar panels to produce electricity will reduce the electricity demand and therefore reduce greenhouse gas emission.</li> </ul>	Management		
GreenPower may be purchased from the electricity provider: <ul style="list-style-type: none"> <li>GreenPower is electricity from wind or solar energy which does not emit greenhouse gas.</li> </ul>			

### 3.5 Traffic

Operational traffic at Oakdale South will be managed in accordance with the *Operational Traffic Management Plan* (OTMP) (Ason 2017) contained in **Appendix G**. The OTMP provides guidance in relation to the parking and traffic management arrangements for Oakdale South with an overall objective to ensure safe and efficient movement of vehicles and personnel. The OTMP details type, frequency and number of trucks within Oakdale South, parking arrangements, internal traffic controls and signage, and outlines the commitments of the *Driver Code of Conduct* to be implemented at Oakdale South.

The environmental management controls in **Table 10** will be implemented to further minimise the potential for adverse impact associated with operational traffic at Oakdale South.

**Table 10 - Environmental Management Controls for Traffic**

Environmental Management Control	Personnel Responsible	Timing / Frequency	References / Notes
The OTMP will be implemented for the life of the Development.	Management / Contractors / Employees	On-going	SSD 6917 Condition E3
A minimum of 420 on-site car parking spaces (including at least 10 spaces for people with disabilities at a rate of two per 100 parking spaces) will be available for use during operation of the Development.	Management		SSD 6917 (MOD 4) Condition E5
All trucks entering or leaving the site will have their loads covered.	Management / Contractors		SSD 6917 Condition E6

Environmental Management Control	Personnel Responsible	Timing / Frequency	References / Notes	
Trucks associated with the Development will not track dirt onto the public road network.	Management / Contractors	On-going	SSD 6917 Condition E6	
All internal roads, driveways and parking associated with the development will be maintained in accordance with the relevant standards and the latest versions of AS 2890.1, AS 2890.2 and AS/NZS 2890.6.			SSD 6917 Condition E8	
The swept path of the longest vehicle entering and exiting the site, as well as manoeuvrability through the site, will be maintained in accordance with AUSTRROADS Design Vehicles and Turning Path Templates.				
No vehicles will queue on the public road network.	Management / Contractors / Employees		SSD 6917 Condition E8	
Heavy vehicles associated with the Development will not park or stand on local roads or footpaths in the vicinity of the site.	Management / Contractors			
All vehicles will be wholly contained within the site before stopping.	Management / Contractors / Employees		SSD 6917 Condition E8	
All vehicles will enter and exit the site in a forward direction.	Management / Contractors / Employees			
All loading and unloading activities are to be carried out within the site.				
All loading areas and vehicle turning areas will be kept clear of any obstacle, including parked vehicles, at all times.	Management / Contractors		SSD 6917 Condition E70	
Traffic barriers will be maintained along trafficable areas adjacent to the TransGrid site frontage, to restrain B-double vehicles, generally in accordance with any road safety audit outcomes and the relevant Austroad and RMS design standards.				
All activities associated with the operation of the Development will be undertaken in a manner that does not restrict TransGrid from operating and maintaining its transmission towers.	Management / Contractors / Employees		OTMP Section 5.2	
All drivers are to operate vehicles in a manner consistent with the requirements of applicable Work Health and Safety (WHS) legislation.				
Heavy vehicles will use the Classified Road network wherever possible, with the use of local Council roads only as necessary.				OTMP Section 5.2.2
Vehicles turning right into driveways or side roads will do so from as close to the centreline of the carriageway while ensuring that motorists will not use the inside lane.				
Heavy vehicles (in excess of 4.5 Tonne GVM) or long vehicles (over 7.5 metres in length) will not stop on a length of road outside a built-up area, except on the shoulder of the road. In a built-up area where parking is permitted (for vehicles lighter than 4.5 Tonne GVM and under 7.5 metres in length), they must not stop for longer than one hour (excluding buses).				
All access and egress from individual sites will be in a forward direction at all times.		OTMP Section 5.3		

Environmental Management Control	Personnel Responsible	Timing / Frequency	References / Notes
Where practicable, temporary work areas and pedestrian paths (if applicable) will be physically separated from vehicle movements by way of traffic cones, bollards and/or temporary pedestrian fencing.	Management / Contractors	On-going	OTMP Section 5.5
A Transport Emergency Response Plan (TERP) is required prior to transporting dangerous goods.		Prior to transporting dangerous goods	OTMP Section 5.6
All vehicle operators will follow the <i>Driver Code of Conduct</i> .	Management / Contractors / Employees	On-going	OTMP Section 6
Vehicles will not be parked on-street.			OTMP Section 7.2
Trailers will be parked within their designated areas and will not be parked within circulation roadways and access roads			
The OTMP will be reviewed (and updated where necessary).	Management	If a new tenant occupies a Site	OTMP Section 8.1
All employees and sub-contractors will be provided with sufficient training so that they are familiar with the OTMP.		Prior to commencing operations	OTMP Section 8.2.1
All vehicles will not, in any manner, be knowingly overloaded.		On-going	

### 3.6 Waste

Oakdale South will operate in accordance with the *Waste Management Plan (WMP)* (SLR 2015) contained in **Appendix H**.

The waste streams to be generated on site will primarily comprise:

- General waste;
- Packaging wastes (i.e. cardboard, paper, plastic/shrink wrap, pallets);
- Office wastes;
- Amenity wastes; and
- Maintenance wastes.

**Table 11** lists the management controls to be implemented at Oakdale South to minimise waste generation and ensure each waste stream is appropriately managed and/or disposed of.

**Table 11 - Environmental Management Controls for Waste**

Environmental Management Control	Person Responsible	Timing / Frequency	References / Notes
All operational waste will be classified in accordance with the EPA's <i>Waste Classification Guidelines: Part 1 Classifying Waste</i> and disposed of to a facility that may lawfully accept the waste.	Management	On-going	SSD 6917 Condition E58
The amount of waste generated will be monitored throughout the life of the development.			SSD 6917 Condition E60
Investigation will be undertaken to minimise waste generated by the development.			

Environmental Management Control	Person Responsible	Timing / Frequency	References / Notes
Reasonable and feasible measures will be implemented to minimise waste generated by the development in accordance with the EPA's <i>NSW Waste Avoidance and Resource Recovery Strategy 2014-2021</i> .	Management		SSD 6917 Condition E60
Appropriate waste storage areas will be identified by the operator of each building and waste/recycling storage areas of an adequate size will be installed to accommodate all waste bins and recycling bales associated with the development.	Management / Contractors		
Sufficient space will be provided and maintained for the segregation and storage of varying waste types including provision for the collection of fluorescent tubes, smoke detectors, e-wastes and other recyclable resources.	Management / Contractors / Employees		WMP Section 6.4.1
Sufficient space will be provided and maintained for reuse items such as crates and pallets for occupational safety purposes			
Sufficient clearance will be provided to enable collection vehicles to access the bin storage area. Where possible, collection times should not coincide with peak operational delivery schedules.	Management / Contractors		WMP Section 6.4.2
<b>Contaminated/Hazardous Wastes:</b> <ul style="list-style-type: none"> <li>• All contaminated and hazardous wastes will be recycled at an appropriately licensed facility.</li> <li>• E-waste and batteries contain heavy metal contaminants and will be recycled at an appropriately licensed recycling facility.</li> <li>• Commercial-use smoke detectors will be returned to the supplier for disposal (it is a condition of the supplier's licence to sell smoke detectors) and not disposed of with general landfill waste as they contain small amounts of radioactive material.</li> </ul>		On-going	WMP Section 6.5.1
<b>Liquid Wastes:</b> <ul style="list-style-type: none"> <li>• Liquid, semi-liquids or moist substances will not be placed in waste containers, unless securely wrapped or contained to prevent the substance from leaking.</li> <li>• Any liquid wastes or dangerous goods wastes generated by the development will be disposed of by a suitably qualified contractor to an appropriately licensed disposal facility.</li> <li>• No liquid wastes or wash down waters will be disposed of via the stormwater drainage system.</li> <li>• Wastewater storage tanks will be carefully monitored to ensure overflow does not occur.</li> </ul>	Management / Contractors / Employees		WMP Section 6.5.2
<b>Stormwater Treatment:</b> <ul style="list-style-type: none"> <li>• All wastewater and stormwater treatment devices are required to be regularly maintained and cleaned to ensure these devices remain effective, with all solid and liquid wastes collected from these devices disposed of in accordance with this WMP.</li> </ul>	Management / Contractors		WMP Section 6.5.3



Environmental Management Control	Person Responsible	Timing / Frequency	References / Notes
Spills Management: <ul style="list-style-type: none"> <li>Containment measures for spillages will be provided at appropriate locations and in close proximity to employee car park areas, dangerous goods stores areas and main warehouse operation areas.</li> <li>Safety Data Sheets (SDS) should also be located nearby spill kit areas for advice on spillage clean up and disposal.</li> </ul>	Management		WMP Section 6.5.4
Signage: <ul style="list-style-type: none"> <li>Garbage and recycling bins must be clearly and correctly labelled at all times.</li> <li>Waste storage areas must have clear signage instructing cleaners and tenants how to correctly separate (if required).</li> <li>The location of, and directions to, waste storage areas must be well signposted.</li> <li>All hazards or potential dangers associated with the waste facilities will be clearly identified, especially those linked to compaction or other waste handling equipment.</li> <li>Emergency contact information will be displayed in case there are any issues with the waste and recycling systems/services in the building.</li> <li>All signage will conform to the relevant Australian Standard and the EPA's standard recycling signs.</li> </ul>	Management / Contractors	On-going	WMP Section 6.5.5
Management should routinely check waste sorting and storage areas for cleanliness, hygiene and OH&S issues.	Management		WMP Section 6.6
The WMP will be implemented throughout the life of the operation.	Management / Contractors / Employees		
The WMP will be updated on a regular basis to ensure the Plan remains applicable.		Annually	
Internal waste audits will be undertaken on a regular basis.	Management	Six months after commencing operations then on-going	
Cleaning and maintenance requirements for waste equipment will be undertaken.	Management / Contractors / Employees		
Bins will be monitored to ensure no overfilling occurs.			
Signage will be monitored and maintained to ensure it remains clean, clear and applicable.	Management	On-going	
Garbage holding areas and storage rooms will be kept tidy.	Management / Contractors / Employees		

### 3.7 Stormwater

Stormwater generated by Oakdale South will be managed in accordance with the *Stormwater Management Report (SWMR)* (AT&L 2017) contained in **Appendix I**. While the SWMR was prepared as part of the approval and construction phase of Oakdale South, the associated stormwater infrastructure is required to be maintained for the operational lifetime of the development.

The environmental controls in **Table 12** will be implemented to ensure the effective management of stormwater generated by Oakdale South.

**Table 12 - Environmental Management Controls for Stormwater**

Environmental Management Control	Personnel Responsible	Timing / Frequency	References / Notes
A program for maintenance and monitoring of stormwater quantity and quality will be maintained.	Management / Contractors / Employees	On-going	SSD 6917 Condition E13
All stormwater infrastructure will be maintained to ensure compliance with the pollutant removal targets in Part C3 - Water Management of the Penrith DCP.	Management / Contractors		
A 3m wide access track will be maintained around all stormwater basins to permit maintenance.	Management / Contractors / Employees		
The onsite bio-retention basins will be maintained in perpetuity.	Management / Contractors		
All chemicals, fuels and oils used on-site will be stored in appropriately bunded areas, as per the requirements of Australian Standards and the EPA's <i>Storing and Handling Liquids: Environmental Protection – Participants Handbook</i> .	Management / Contractors / Employees		
Inspect and remove all silt traps and outlet sumps - remove grates and screens then remove sediment/sludge build-up and check outlet pipes are clear.	Management / Contractors	Every 3 - 6 months	SWMR Section 6
Inspect and remove any blockages of orifices - remove grate and screen then inspect orifice.		Every 6 months	
Check the attachment of orifice plates to the wall of chamber and/or pit - remove the grate and screen then ensure plates are mounted securely, tighten fixings if required. Seal gaps as required.		Annually	
Check orifice diameters are correct and retain sharp edges - compare the diameter to the design (WAE drawings) and check the edge is not pitted or damaged.		Every 5 years	
Inspect the screen and clean - remove grates and then screens if screen require cleaning.		Every 6 months	
Check the attachment of the screens to the wall of the chamber or pit - remove grates and screens to ensure the screen fixings are secure. Repair as required.		Annually	
Check the screens for corrosion - remove grates and examine the screen for rust or corrosion, especially at corners or welds.			
Inspect walls (internal and external, if appropriate) for cracks or spalling - remove grates to inspect the internal walls and repair as required. Clear vegetation from the external walls if necessary and repair as required.			

Environmental Management Control	Personnel Responsible	Timing / Frequency	References / Notes
Inspect outlet sumps and remove any sediment/sludge (for all silt traps too) - remove grates and screens the remove sediment/sludge build-up and check orifices and outlet pipes are clear.	Management / Contractors	Every 6 months	SWMR Section 6
Inspect grates for damage or blockage (all grated pits) - check both sides of a grate (especially corners and welds) for corrosion, damage or blockage.		Every 6 months	
Inspect outlet pipe and then remove any blockage - remove grates and screens then ventilate underground storage if present. Check orifices and outlets and remove any blockages in the outlet pipe. Flush the outlet pipe to confirm it drains freely then check for sludge/debris on upstream side of the return line.		Annually	
Check step irons in pits - remove grate then examine the step irons and repair any corrosion or damage.		Every 6 months	
Check fixing of the step irons for all pits are secure - remove the grates and ensure the fixings are secure prior to placing weight on step iron.		Annually	
Inspect storage for subsidence near pits - check along the drainage lines and at the pits for subsidence which likely to indicate leakages.		On-going	
Ensure gross trap pollutants are maintained and cleaned to remove silt build up and gross pollutants - maintain as per Rocla Maintenance Guidelines.		SWMR Section 7.8.4	
All bio-retention basin maintenance requirements will be in accordance with <i>Water Sensitive Urban Design – Book 4</i> Maintenance Table 3 as produced by Landcom.		Monthly	
General maintenance and monitoring will be undertaken in accordance with Table 25 of the SWMR.		Fortnightly	
Weed invasions will be monitored in vegetated areas.		SWMR Section 7.8.7.2	
Weed invasions will be monitored in vegetated areas in times of extreme heat.			
The basins will be maintained and monitored for mosquito larvae.			
Liquid Wastes: <ul style="list-style-type: none"> <li>Liquid, semi-liquids or moist substances will not be placed in waste containers, unless securely wrapped or contained to prevent the substance from leaking.</li> <li>Any liquid wastes or dangerous goods wastes generated by the development will be disposed of by a suitably qualified contractor to an appropriately licensed disposal facility.</li> <li>No liquid wastes or wash down waters will be disposed of via the stormwater drainage system.</li> <li>Wastewater storage tanks will be carefully monitored to ensure overflow does not occur.</li> </ul>		SWMR Section 7.8.8.1	
Stormwater Treatment: <ul style="list-style-type: none"> <li>All stormwater treatment devices are required to be regularly maintained and cleaned to ensure these devices remain effective, with all solid and liquid wastes collected from these devices disposed of in accordance with the WMP.</li> </ul>		WMP Section 6.5.2	
		On-going	WMP Section 6.5.3

Environmental Management Control	Personnel Responsible	Timing / Frequency	References / Notes
Spills Management: <ul style="list-style-type: none"> <li>Containment measures for spillages will be provided at appropriate locations and in close proximity to employee car park areas, dangerous goods stores areas and main warehouse operation areas.</li> <li>Safety Data Sheets (SDS) should also be located nearby spill kit areas for advice on spillage clean up and disposal.</li> </ul>	Management	On-going	WMP Section 6.5.4

### 3.8 Air Quality

Air quality impacts associated with the operational phase of Oakdale South are anticipated to be negligible, with the main source of emissions likely to be exhaust emissions from heavy vehicles idling on-site. There is potential for wheel-generated dust from vehicles entering and exiting the site, however the local public road network and internal roads are all sealed.

The environmental controls in **Table 13** will be implemented to further minimise the potential for adverse air quality impacts associated with operational activities at Oakdale South.

**Table 13 - Environmental Management Controls for Air Quality**

Environmental Management Control	Person Responsible	Timing / Frequency	References / Notes
All plant and equipment will be maintained in a proper and efficient condition, and operated in a proper and efficient manner.	Management / Contractors	On-going	SSD 6917 Condition D27
Best management practice, including all reasonable and feasible mitigation measures, will be implemented to prevent and minimise dust and odour emissions from operation of the Development.	Management / Contractors / Employees		SSD 6917 Condition E48 and E49
Any visible off-site air pollution that occurs as a result of operation the Development will be minimised.	Management / Contractors		OTMP Section 3.3
All vehicles on-site will not exceed a speed limit of 60 kilometres per hour	Management / Contractors / Employees		
All vehicles and mobile plant will be switched off (i.e. not left idling) when not in use for an extended period of time.			

### 3.9 Biodiversity

As part of the development application for Oakdale South SSD 6917, a *Biodiversity Offset Strategy* (BOS) was prepared by Cumberland Ecology (2016). A copy of this BOS is contained in **Appendix J**.

Due to areas of native vegetation requiring clearing as part of the development works, an offset site has been established within the Oakdale South development. The offset site incorporates the Ropes Creek riparian corridor, which will be managed in perpetuity under a bio-banking agreement. The BOS details mitigation measures to manage potential environmental impacts to the offset site and these are listed in **Table 14**.

Riparian corridors associated with the development's watercourse realignment and a smaller section of Ropes Creek adjacent to Precinct 6 are not included in the offset site and biobanking agreement. These areas will be managed in accordance with the BMP prepared by écologique (2017). A copy of this BMP is contained in **Appendix D**

**Table 14 - Environmental Management Controls for Biodiversity**

Environmental Management Control	Person Responsible	Timing / Frequency	References / Notes	
Dumping will be managed by permanent fencing which prevents access along Ropes Creek.	Management	On-going	<i>Biodiversity Assessment Report</i> (Cumberland Ecology 2016) Section 6.2.2	
Noise will be contained within the warehouses on site to prevent impact to biodiversity.	Management / Contractors / Employees			
Noise will be managed in accordance with the conditioned limits.				
Light will be managed by directing street lighting eastward to provide light for access and security at the warehouses while preventing excess light spill into the riparian corridor.	Management / Contractors			
Pests will be managed to prevent occurrences at Oakdale South.				
No grazing will be undertaken in the offset site.	Management			
Weeds will be managed in the offset site.	Management / Contractors			
Fire management will be undertaken in the offset site.	Management			
No human disturbance will occur in the offset site.	Management / Contractors / Employees			
Remnant native vegetation and regrowth will be retained in the offset site.	Management			During the first 5 years
Replanting will be undertaken in the offset site where natural regeneration is not sufficient.		On-going		
Dead timber will be retained in the offset site.		During the first 5 years		
Erosion control will be implemented in the offset site.				
Rocks will be retained in the offset site.				
Forest Red Gum - Management Zones 1a, 1b, 2a, 2b & 2c (see Figure 4.3 of BOS): <ul style="list-style-type: none"> <li>Commercial apiaries will be excluded.</li> <li>Miscellaneous feral species will be excluded.</li> <li>Feral and/or abundant native herbivore species will be controlled.</li> </ul>	Management / Contractors	On-going		
Swamp Oak swamp forest - Management Zones 3a (see Figure 4.3 of BOS): <ul style="list-style-type: none"> <li>Feral pigs will be controlled.</li> <li>Commercial apiaries will be excluded.</li> <li>Miscellaneous feral species will be excluded.</li> <li>Feral and/or abundant native herbivore species will be controlled.</li> <li>Foxes will be controlled.</li> <li>Natural flow regimes will be maintained.</li> </ul>				
No grazing will be permitted in the biobanking area and all fencing will be maintained.	Management	On-going	BMP Section 1.1	
The Weed Management Plan for the biobanking area will be reviewed.		Every 4-6 years.	BMP Section 1.2	
The Fire Management Plan for the biobanking area will be reviewed.			BMP Section 1.3	
No fires will be lit in the biobanking area other than for the purpose of ecological burning.	Management / Contractors	On-going		

Environmental Management Control	Person Responsible	Timing / Frequency	References / Notes	
No human disturbance will occur in the biobanking area.	Management / Contractors	On-going	BMP Section 1.4	
No waste will be disposed of in the biobanking area.				
All fencing and signage will be maintained in the biobanking area.				
No native vegetation will be removed or burnt in accordance with the fire management plan for the biobanking area.			BMP Section 1.5	
Plantings and seeding will be managed in accordance with the BMP.				
No dead timber or rocks will be removed from the biobanking site.				BMP Sections 1.7 and 1.9
Fertilisers, pesticides and herbicides must not be applied on the biobanking site, except in accordance with the BMP.				BMP Section 2.3

### 3.10 Landscaping and Visual Amenity

The visual amenity of Oakdale South will be maintained in accordance with the LMP (Site Image 2016) and the VMP (ecologique 2017) contained in **Appendix B** and **Appendix C**, respectively.

The environmental controls in **Table 15** will be implemented to minimise the visual impact of the development.

**Table 15 - Environmental Management Controls for Landscaping and Visual Amenity**

Environmental Management Control	Person Responsible	Timing / Frequency	References / Notes
All site perimeter landscaping, will be maintained in accordance with the approved LMP for the life of the Development.	Management / Contractors	On-going	SSD 6917 Condition E65
Lighting associated with the Development will be maintained to comply with the latest version of <i>AS 4282 (NT) - Control of Obtrusive Effects of Outdoor Lighting</i> .	Management		SSD 6917 Condition E66
Lighting will be mounted, screened and directed in such a manner that it does not create a nuisance to surrounding properties or the public road network.			
A maintenance logbook which lists all landscape maintenance actions undertaken on site will be established and maintained.	Management / Contractors / Employees	Fortnightly	LMP Section 7.2
Maintenance requirements for landscaping will extend until such time as a minimum 80% survival rate for all plantings and a maximum five percent (5%) weed cover for the treated riparian corridor (controlled activity) is achieved.	Management / Contractors	Until 80% survival rate	
Failed plants will be replaced with matched species, size and location.		One Month of observing failure	
Mulch will be replenished upon observing deficiencies.		One Month of observing deficiencies	
Soil will be aerated by fork to a depth of at least 100mm.		Prior to placing new mulch	
Mulch beds will be topped up 50mm each year if required.		Annually if required	

Environmental Management Control	Person Responsible	Timing / Frequency	References / Notes
A 9 month slow release fertiliser will be applied each year if deemed required.	Management / Contractors	Annually if deemed required	LMP Section 7.2
Scour and erosion, and sediment or litter build-up will be monitored and maintained as per Council guidelines.		On-going	
Monitor overflow pits for structural integrity and blockage.	Management / Contractors / Employees	On-going	
Erosion inspection will be undertaken and any repairs undertaken.	Management	Inspect Monthly. Repair immediately	
Silt fences will be inspected and repair where necessary.		On-going	
All stakes and ties will be inspected and repaired where necessary.	Council (Dedicated Roads)	TBC by Council	
Stakes and ties will be removed as plants mature and are able to support themselves.		As plants mature and can support themselves	
All waste will be removed and disposed of at an appropriate disposal site.	Management / Contractors	Immediately upon detection	
All herbaceous weeds will be managed to be at very-low percentage cover levels, (as a minimum), or better.		Monthly or as required	
Pasture grasses will be prevented from spreading into any bushland zones by applying a spot glyphosate herbicide spray application on the 1m wide buffer zone.		Monthly or as required	
Maintenance weeding will be undertaken after the completion of primary works with an increase in maintenance hours occurring throughout the warmer growing months.		For 2 years	
Landscaping will be pruned as necessary to remove dead wood, improve plant shape and promote healthy vigorous new growth.		Inspect every 2 weeks and spray as necessary	
Spraying will be undertaken as appropriate upon detection of weeds, insect infestations or plant diseases. Do not spray if other non-chemical methods will achieve the same outcome.		Council (Dedicated Roads)	
Urgent works as identified by Management will be completed within 1 week (7 days) of notification. These may include clearing drains.	Management	Within 1 week	
Plants will be inspected, spent flowers and dead stalks removed as they become apparent.	Management / Contractors	Monthly or as required	
Gardens will be fertilised in accordance with fertiliser manufacturer's directions.		Every 3 months or as required	
Watering will be undertaken on site.		Where necessary / At least every 2 weeks	
Watering will be undertaken in the early morning or late afternoon to avoid excessive evaporation during the heat of the day.		On-going	

Environmental Management Control	Person Responsible	Timing / Frequency	References / Notes
Mowing and edging will be undertaken.	Management / Contractors	Summer = fortnightly Winter = monthly	LMP Section 7.2
Top-dressing will be undertaken.		Every 6 months	
Secondary weeding will be undertaken at intervals following the completion of primary weeding in reconstruction areas.		Every 4 weeks	
Maintenance weeding will be undertaken in reconstruction areas.		until 80% survival rate of plant with maximum 5% weed coverage.	

### 3.11 Hazards, Risks and Emergencies

A *Bushfire Emergency Evacuation Plan* (BEEP) has been prepared by Australian Bushfire Protection Planners (ABPP) (2017) to assist the owners/occupants at Oakdale South in the ongoing protection of life and property in the event of a bushfire and the subsequent need to enact emergency evacuation procedures. The BEEP details employee roles and responsibilities, evacuation strategies and emergency contact details, and is attached as **Appendix K**.

**Table 16** list the management strategies for hazards, risks and emergencies as contained in SSD 6917 and the BEEP.

**Table 16 - Environmental Management Controls for Hazards, Risks and Emergencies**

Environmental Management Control	Person Responsible	Timing / Frequency	References / Notes
<b>Dangerous Goods</b>			
The storage of dangerous goods will not exceed the thresholds outlined in the <i>Hazardous and Offensive Development Application Guidelines: Applying SEPP 33</i> .	Management / Contractors / Employees	On-going	SSD 6917 Condition E53
Dangerous goods, as defined by the <i>Australian Dangerous Goods Code</i> , will be stored and handled strictly in accordance with all relevant Australian Standards.			SSD 6917 Condition E54
All chemicals, fuels and oils used on-site will be stored in appropriately banded areas in accordance with the requirements of all relevant Australian Standards, and/or the EPA's <i>Storing and Handling of Liquids: Environmental Protection - Participants Handbook</i> .			SSD 6917 Condition E55
Spill kits will be provided and maintained on-site.	Management		
The actions specified on the relevant SDS will be implemented in the event of a minor spill/incident of a potentially hazardous material.	Management / Contractors / Employees		This OEMP Section 2.6
In the event of a major spill, the actions listed in Section 2.6 will be implemented.			



<b>Bushfire</b>			
An Emergency Planning Committee (EPC) will be established and maintained for each of the businesses within Oakdale South.	Management	As new businesses move in and on-going	BEEP Page 3
The BEEP will be reviewed.	Management & the EPC	Six months from commencing operations then every 2 years.	BEEP Section 1
A copy of the most up to date BEEP will be provided to the Fire & Rescue NSW, the Penrith Bushfire Management Committee and the Penrith Local Emergency Management Committee.	Management	On-going	
Fire weather will be monitored on a daily basis during the fire danger period (October to March)	Chief Fire Warden	Daily	BEEP Section 2
The progress and situation of bushfires in the local region will be monitored through contact with NSW Rural Fire Service.		On-going	
The BEEP and training will be maintained in conjunction with the EPC.			
The Emergency Services contact list will be updated regularly to ensure all contact details are correct and stored in the site office.			
An internal contact telephone number list will be updated regularly to ensure all contact details are correct and stored in the site office.			
An evacuees registration system will be established in an emergency event to check people into and out from the evacuation areas.			
All fire detection and suppression systems that are installed within the building will be certified.		Management / Chief Fire Warden	
The Deputy will be fully trained and prepared to take over the role if the Chief Warden is absent.			
Zone Wardens will be fully trained and responsible for the co-ordination of employees and visitors during emergencies.			
On-Site/Off-Site Safe Refuge Wardens will be fully trained and responsible for the coordination of employees and visitors at the On-Site and Off-Site Safe Refuge.			

## 4 MONITORING AND AUDITING

### 4.1 Monitoring

**Table 17** summarises the monitoring requirements for Oakdale South as set out in Development Consent SSD 6917 and relevant management plans.

**Table 17 - Monitoring Requirements**

Monitoring Requirement	Person Responsible	Timing / Frequency	References / Notes
<b>Energy Efficiency</b>			
The effectiveness of the energy efficiency measures implemented in accordance with the EER will be monitored and reported.	Management	Annually	SSD 6917 Condition E51
An energy usage review will be undertaken within the first few months of operation to ensure the EER is sufficient for the development's needs.		Within 3 months of commencing operation	EER Section 4.6.1
A breakdown of energy usage per month should be undertaken to measure the development's baseline energy use and assess what appliances, equipment and processes are consuming energy.		Monthly	
<b>Waste</b>			
All waste generated on the site will be classified in accordance with the EPA's <i>Waste Classification Guidelines</i> (DECCW 2009) and the volume of each waste stream will be monitored and recorded over the life of the development.	Management / Contractors / Employees	On-going	SSD 6917 Condition E60
<b>Stormwater</b>			
The onsite stormwater management system will be maintained and monitored as per Section 6 of the SWMR over the life of the development.	Management / Contractors	On-going	SSD 6917 Condition E13 and SWMR Section 6
<b>Biodiversity</b>			
Photographs of the biodiversity management zones will be taken in accordance with Section 5 of the BMP.	Management / Contractors	Annually	BMP Section 5

## 4.2 Reporting

**Table 18** summarises the reporting requirements for Oakdale South as set out in Development Consent SSD 6917 and relevant management plans.

**Table 18 - Reporting Requirements**

Reporting Requirement	Person Responsible	Timing / Frequency	References / Notes
<b>General Environmental Performance</b>			
Goodman will provide regular reporting on the environmental performance of Oakdale South on its website as per the reporting arrangements in any plans or programs approved under the conditions of SSD 6917.	Management	Annual	SSD 6917 Condition F7
Goodman will provide the following information on its website and keep the information up to date: <ul style="list-style-type: none"> <li>The EIS and RTS;</li> <li>All statutory approvals for the Development;</li> <li>All approved strategies, plans and programs;</li> <li>A complaints register, updated on an annual basis; and</li> <li>Any other matter required by the Secretary.</li> </ul>		On-going	SSD 6917 Condition F8
Goodman will report environmental performance internally through regular management meetings and 'toolbox talks'. Items to be discussed include: <ul style="list-style-type: none"> <li>Results of any monitoring activities undertaken during the previous period;</li> <li>Any environmental incidents that have occurred during the previous period, including the management/corrective actions taken; and</li> <li>Any complaints that have been received during the previous period, including any management/corrective actions taken.</li> </ul>		Quarterly or as needed	
<b>Incident Reporting</b>			
Goodman will "immediately" (or as soon as practical thereafter) notify the DPE and other relevant agencies upon detecting an exceedance of the limits / performance criteria in SSD 6917 or the occurrence of an incident that causes (or may cause) material harm to the environment.  Goodman will also provide a detailed report to the DPE and the other relevant agencies within 7 days of the date of the incident.	Management	Immediately upon detecting an exceedance of the limits/ performance criteria in SSD 6917 or the occurrence of an incident that causes (or may cause) material harm to the environment	SSD 6917 Condition F6 OEMP Section 2.7.3
<b>Stormwater</b>			
All on-going maintenance reports, contractor cleaning reports and certificates for the onsite stormwater management system will be provided to Council over the life of the development.	Management	On-going	SSD 6917 Condition E13 and SWMR Section 6
<b>Energy Efficiency</b>			
The effectiveness of the energy efficiency measures implemented in accordance with the EER will be monitored and reported.	Management	Annually	SSD 6917 Condition E51

### 4.3 Auditing

**Table 19** summarises the auditing requirements for Oakdale South as set out in Development Consent SSD 6917 and relevant management plans.

**Table 19 - Auditing Requirements**

Monitoring Requirement	Person Responsible	Timing / Frequency	References / Notes
An energy audit and management review will be undertaken on a yearly basis to ensure employees are following energy savings procedures correctly. Where audits show that energy savings procedures are not carried out effectively, additional employee training should be undertaken and signage and procedures re-examined.	Management	Annually	EER Section 4.6.1
Internal waste audits will be undertaken on a regular basis.		One month after commencing operations then annually	WMP Section 6.6

## 5 OEMP REVIEW

In accordance with condition F9 of Development Consent SSD 6917, within three months of:

- The determination of a modification; or
- The submission of an incident report under condition F6,

Goodman shall review, and if necessary revise this OEMP to the satisfaction of the Secretary.

Additionally, the OEMP will be reviewed and, if necessary, updated within three months of any of the following:

- Significant changes to the operation and management of the development;
- Where it is identified that the performance of Oakdale South is not meeting the objectives of the OEMP; or
- At the request of the DPE or other relevant government agency.

All employees and contractors will be informed of any revisions to the OEMP by Site Management during toolbox talks.

## 6 REFERENCES

AT&L (2017) *Oakdale South Development, Stormwater Management Report*

Ason (2017) *Operational Traffic Management Plan, Precinct-wide Operational Traffic Management Plan Oakdale South Estate*

Australian Bushfire Protection Planners (2017) *Bushfire Emergency Evacuation Plan, Oakdale South Industrial Estate Kemps Creek*

Cumberland Ecology (2016) *Oakdale South Estate State Significant Development Application, Biodiversity Assessment Report*  
Cumberland Ecology (2016) *Oakdale South Estate, Biodiversity Offset Strategy*

Ecologique (2017) *Biodiversity Management Plan*

Ecologique (2017) *Vegetation Management Plan*

Environment Protection Authority (2014) *Waste Classification Guidelines*

Goodman (2017) *SSD 6917: Oakdale South Industrial Estate - S.96 Application to Modify Condition E27 'Standard Construction Hours'*

Site Image (2016) *Estate Works, Oakdale South, Horsley Park, NSW, Landscape Management Plan*

SLR (2015) *Air Quality Impact Assessment, Oakdale South Estate*

SLR (2017) *Operational Noise Management Plan*

SLR (2017) *Energy Efficiency S.96 Report, Oakdale South, MOD 5 Precinct 1, Horsley Park*

SLR (2015) *Waste Management Plan, Oakdale South Development, Estate Road, Eastern Creek*

Urban Advisory Services (2015) *Environmental Impact Statement - Oakdale South Estate (State Significant Development Application Ref 6917)*

Urbis (2016) *Section 96 Modification Proposal - Oakdale South Industrial Estate SSD*

# APPENDIX A

# Development Consent

## Section 89E of the *Environmental Planning and Assessment Act 1979*

- As delegate of the Minister for Planning under delegation executed on 16 February 2015, I determine:
- (a) to grant consent to the Staged Development Application referred to in Schedule A subject to the Concept Proposal conditions in Schedules B and C and the Stage 1 Development Application conditions in Schedules D, E and F; and
  - (b) that pursuant to section 89D(2) of the *Environmental Planning and Assessment Act 1979*, I determine that any subsequent Development not being for the purpose of a warehouse or distribution centre with a capital investment value in excess of \$50 million is to be determined by the relevant consent authority and that Development ceases to be State significant development.



**Anthea Sargeant**  
**Executive Director**  
**Key Sites and Industry Assessments**

Sydney 26 October 2016

File: 15/04284

### SCHEDULE A

- Application No.:** SSD 6917
- Applicant:** Goodman Property Services (Aust) Pty Ltd
- Consent Authority:** Minister for Planning
- Land:** Lot 12 in Deposited Plan 1178389 and Lot 87 in Deposited Plan 752041, Kemps Creek, Penrith local government area.
- Development:** The Staged Development Application for the Oakdale South Industrial Estate comprised of:
- A Concept Proposal with:
    - 395,880 m<sup>2</sup> of GFA comprised of 376,295 m<sup>2</sup> of warehousing and 19,585 m<sup>2</sup> of ancillary office floor space;
    - six development precincts with a total of 15 building envelopes; and
    - conceptual lot layout, site levels, road layout, urban design controls, conceptual landscape designs and infrastructure arrangements.
  - A Stage 1 Development Application including:
    - staged subdivision;
    - construction of bulk and detailed earthworks;
    - construction of internal estate roads, water, sewer, telecommunications and gas infrastructure;
    - construction of stormwater management devices;
    - installation of estate landscaping; and
    - construction and operation of nine warehouse and distribution buildings across precincts 1, 4 and 5 as follows:



- Precinct 1: five warehouse buildings with a total GFA of 104,739 m<sup>2</sup>;
- Precinct 4: three warehouse buildings with a total GFA of 48,256 m<sup>2</sup>; and
- Precinct 5: one warehouse building with a GFA of 84,075 m<sup>2</sup>.

<b>DEFINITIONS</b>	<b>iii</b>
<b>SCHEDULE B CONDITIONS OF CONSENT FOR CONCEPT PROPOSAL</b>	<b>1</b>
Determination of Future Development Applications	1
Statutory Requirements	1
Terms of Consent	1
Modifications to the Concept Proposal	1
Limits of Consent	2
Legal Notices	3
Sustainability Management	3
Noise Limits	3
<b>SCHEDULE C CONDITIONS TO BE MET IN FUTURE DEVELOPMENT APPLICATIONS</b>	<b>4</b>
Development Contributions	4
Ecologically Sustainable Development	4
Sustainability Management Plan	4
Traffic and Access	4
Bushfire Protection	4
Noise and Vibration	5
Waste	5
Outdoor Lighting	5
Signage	5
Reflectivity	5
Road Upgrades	5
Stormwater Management	5
Salinity	5
Transmission Line Easement	5
<b>SCHEDULE D CONDITIONS OF CONSENT FOR THE STAGE 1 DA</b>	<b>6</b>
Obligation to Minimise Harm to the Environment	6
Development Description	6
Development In Accordance with Plans and Documents	6
Limits of Consent for Stage 1	6
Prescribed Conditions	7
Staging	7
Staged Submission of Plans or Programs	7
Evidence of Consultation	8
Dispute Resolution	8
Easements	8
Statutory Requirements	8
Construction Certificate Required	8
Structural Adequacy and Certification	8
Utilities and Services	9
Protection of Public Infrastructure	9
Compliance	9
Operation of Plant and Equipment	9
Developer Contributions	9
Subdivision	9
<b>SCHEDULE E ENVIRONMENTAL PERFORMANCE AND MANAGEMENT</b>	<b>11</b>
Traffic and Access	11
Water	13
Soils	14
Noise and Vibration	15
Aboriginal Heritage	17

Biodiversity	18
Air Quality	18
Energy Efficiency and Greenhouse Gases	19
Hazards and Risk	19
Contamination	19
Waste	19
Visual Amenity	20
Transmission Requirements	21
<b>SCHEDULE F ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING</b>	<b>22</b>
Environmental Management	22
Environmental Reporting	23
Access to Information	23
<b>APPENDIX 1 - SCHEDULE OF APPROVED CONCEPT PROPOSAL DRAWINGS</b>	<b>24</b>
<b>APPENDIX 2 - SCHEDULE OF APPROVED STAGE 1 DA DRAWINGS</b>	<b>25</b>
<b>APPENDIX 3 - MANAGEMENT AND MITIGATION MEASURES</b>	<b>30</b>
<b>APPENDIX 4 - NOISE RECEIVER LOCATIONS</b>	<b>35</b>
<b>APPENDIX 5 - DEED OF VARIATION</b>	<b>36</b>

## DEFINITIONS

Applicant	Goodman Property Services (Aust) Pty Ltd, its successors in title or any other person acting upon this consent
ARI	Average Recurrence Level
BCA	Building Code of Australia
CEMP	Construction Environmental Management Plan
Certifying Authority	Means a person who is authorised by or under section 109D of the <i>Environmental Planning and Assessment Act 1979</i> to issue certificates
Concept Proposal	The Concept Proposal comprised of 395,880 m <sup>2</sup> of GFA with 376,295 m <sup>2</sup> of warehousing and 19,585 m <sup>2</sup> of ancillary office floor space, six development precincts with a total of 15 building envelopes, and conceptual lot layout, site levels, road layout, urban design controls, conceptual landscape designs and infrastructure arrangements.
Construction	The demolition of buildings or works, the carrying out of works, including bulk and detailed earthworks and erection of buildings and other infrastructure covered by this consent
Council	Penrith City Council
Day	The period from 7 am to 6 pm on Monday to Saturday, and 8 am to 6 pm on Sundays and Public Holidays
Department Development	Department of Planning and Environment The development as described in the EIS, RTS known as SSD 6917 for the Oakdale South Industrial Estate, approved by this Development Consent and as described in Schedule A
EEC	Endangered Ecological Communities
EIS	Environmental Impact Statement titled ' <i>Environmental Impact Statement, Oakdale South Estate - State Significant Development Application</i> ', prepared by Urban Advisory Services, dated 4 November 2015
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPA	Environment Protection Authority
EPL	Environment Protection Licence under the <i>Protection of the Environment Operations Act 1997</i>
Evening	The period from 6 pm to 10 pm
Feasible	Feasible relates to engineering considerations and what is practical to build
GFA	Gross floor area
Heavy vehicle	Any vehicle with a gross vehicle mass of 5 tonnes or more
Heritage	Encompasses both Aboriginal and historic heritage including sites that predate European settlement, and a shared history since European settlement such as shared associations in pastoral landscapes as well as associations linked with the mission period
Heritage Item	An item as defined under the <i>Heritage Act 1977</i> , and assessed as being of local, State and/ or National heritage significance, and/or an Aboriginal Object or Aboriginal Place as defined under the <i>National Parks and Wildlife Act 1974</i>
Incident	A set of circumstances that: <ul style="list-style-type: none"> <li>• causes or threatens to cause material harm to the environment; and/or</li> <li>• breaches or exceeds the limits or performance measures/criteria in this consent</li> </ul>
INP	NSW Industrial Noise Policy, EPA 2000
Minister	Minister for Planning
Mitigation	Activities associated with reducing the impacts of the Development prior to or during those impacts occurring
NDA	Net Developable Area
Night	The period from 10 pm to 7 am on Monday to Saturday, and 10 pm to 8 am on Sundays and Public Holidays
OEH	Office of Environment and Heritage
Operation	Use of warehouse buildings for packing, loading and distribution of consumer goods
Penrith DCP	Penrith City Council's Development Control Plan 2014

POEO Act	<i>Protection of the Environment Operations Act 1997</i>
Reasonable	Reasonable relates to the application of judgement in arriving at a decision, taking into account: mitigation benefits, cost of mitigation versus benefits provided, community views and the nature and extent of potential improvements
Regulation, the	<i>Environmental Planning and Assessment Regulation 2000</i>
RMS	Roads and Maritime Services
RTS	Response to Submissions titled ' <i>Response to Submissions Oakdale South Estate, SSDA 15_6917</i> ', prepared by Urban Advisory Services, dated May 2016
Secretary	The Secretary of the Department of Planning and Environment, or nominee
Site	Land referred to in Schedule A
Stage 1 DA	The Stage 1 Development Application comprising staged subdivision, site wide bulk and detailed earthworks, construction of estate wide internal roads, water, sewer, telecommunications, gas, stormwater infrastructure, estate wide landscaping and construction and operation of nine warehouse and distribution buildings across precincts 1, 4 and 5.
TfNSW	Transport for New South Wales
Transmission towers	Two high voltage transmission towers (stanchions 11 and 12) located in TransGrid's transmission line easement within the site
VENM	Virgin Excavated Natural Material as defined in the <i>Protection of the Environment Operations Act 1997</i>
VPA	The Oakdale Central and Oakdale South, Horsley Park Voluntary Planning Agreement between the Minister for Planning, Goodman Property Services (Aust) Pty Ltd, BGAI 6 Pty Ltd, BGMG 8 Pty Ltd and BGAI 2 Pty Ltd executed on 12 March 2015

## SCHEDULE B CONDITIONS OF CONSENT FOR CONCEPT PROPOSAL

### DETERMINATION OF FUTURE DEVELOPMENT APPLICATIONS

- B1. In accordance with section 83B(3) of the EP&A Act, subsequent stages of the Development are to be subject of future Development Applications.
- B2. Future Development Applications are to be generally consistent with the terms of Development Consent SSD 6917 as described in Schedule A, and subject to the conditions in Schedules B to F.

### STATUTORY REQUIREMENTS

- B3. The Applicant shall ensure that all licences, permits, and approvals/consents are obtained as required by law and maintained as required throughout the life of the Development. No condition of this consent removes the obligation for the Applicant to obtain, renew or comply with such licences, permits or approvals/consents.

### TERMS OF CONSENT

- B4. The Applicant shall carry out the Development in accordance with the:
- (a) EIS and RTS;
  - (b) the letter titled '*Re: SSD6917 Oakdale South Industrial Estate, TransGrid Easement Flood Extents*', ref 14-193-ATL-TRANSGRID-L2, prepared by At&I, dated 18 May 2016 and all appendices;
  - (c) the Supplementary Response to Submissions titled '*Re: Oakdale South Estate SSDA\_6917*' and all annexures, prepared by Urban Advisory Services, dated 12 July 2016;
  - (d) the letter report titled '*Oakdale South Estate, Operational Noise Contours, Adverse Weather Conditions*', prepared by SLR, dated 13 July 2016;
  - (e) the letter titled '*Re: Oakdale South Estate – State Significant Development Application Ref. 6917*' and all annexures, prepared by Urban Advisory Services, dated 8 September 2016;
  - (f) the development layout plans and drawings listed at **Appendix 1**; and
  - (g) the Management and Mitigation Measures (see **Appendix 3**).
- B5. If there is any inconsistency between the plans and documents referred to above, the most recent document shall prevail to the extent of the inconsistency. However, the conditions of this consent shall prevail to the extent of any inconsistency.
- B6. The Applicant shall comply with any reasonable requirement(s) of the Secretary arising from the Department's assessment of:
- (a) any reports, plans or correspondence that are submitted in accordance with this consent; and
  - (b) the implementation of any actions or measures contained within these reports, plans or correspondence.

### MODIFICATIONS TO THE CONCEPT PROPOSAL

- B7. Within one month of the date of this consent, the Applicant shall submit revised Concept Proposal drawings to the Secretary for approval. The revised plans shall:
- (a) reflect the revised design of building 5A and the 30 metre earth bund wall along the segments of the southern property boundary located to the east and west of the TransGrid easement in drawings:
    - i) SKC241, issue P1, titled '*SSDA Layout Southern Boundary Plan Option A*', prepared by At&I, dated 2 September 2016;
    - ii) SKC246, issue P1, titled '*SSDA Layout Southern Boundary Plan*' prepared by At&I, dated 6 September 2016; and
    - iii) SKC247, issue P1, titled '*SSDA Layout Southern Boundary Sections*', prepared by At&I, dated 6 September 2016;

- (b) incorporate a minimum landscape setback of 10 m for the full length of the eastern property boundary of the Development;
- (c) reflect the changes to the alignment of Estate Road 3 on the following drawings submitted in Appendix B of the RTS:
  - i) SKC195 titled 'Jacfin Connection Plan', issue P1, prepared by At&I dated 19/4/2016; and
  - ii) SKC197 titled 'Amended Road 03 Layout SSDA', issue P1, prepared by At&I, dated 19/4/2016; and
- (d) be consistent with the maximum GFAs and balance of GFAs within each of the six development precincts approved by this consent.

**Note:** This condition does not pre-empt any connection to the adjacent Jacfin site.

## LIMITS OF CONSENT

- B8. This consent shall lapse five (5) years from the date from which it operates; unless the Development associated with the Stage 1 DA has physically commenced on the land to which this consent applies before or on the date on which the consent would otherwise lapse under section 95 of the EP&A Act.
- B9. The following limits apply to the Concept Proposal for the Development:
- (a) the maximum GFA for the land uses in the Development shall not exceed the limits outlined in **Table 1** below;
  - (b) the access road to Precinct 6 through the TransGrid easement and the car park associated with building 6A in drawing OAK MP 02 (M), titled 'SSDA Masterplan' dated 18 April 2016 is not approved;
  - (c) no loading docks, delivery bays or heavy vehicle movements are permitted along the southern property boundary; and
  - (d) the loading dock, heavy vehicle route and associated hardstand along the southern elevation of building 5A are not approved.

**Table 1: GFA Maximum for Concept Proposal**

Land Use	Maximum GFA (m <sup>2</sup> )
Total General Warehousing	376,295
Total Office	19,585
<b>Total GFA</b>	<b>395,880</b>

- B10. The Applicant shall ensure the Development is consistent with the development controls in **Table 2** below:

**Table 2: Development Controls**

Development Aspect	Control
Southern Link Road Setback	20 m
Internal Estate Roads Setback	7.5 m
Rear and side boundary setbacks to development adjacent to the Oakdale South Estate, excluding the southern property boundary	5 m
Boundary setbacks along the southern property boundary of the Oakdale South Estate	30 m
Side boundary setbacks within the Oakdale South Estate	0 m, subject to compliance with fire rating requirements
Height	15 m
Minimum lot size	5,000 m <sup>2</sup>
Minimum frontage	40 m (excluding cul-de-sacs) 35 m minimum lot width at the building line.
Site coverage	Maximum of 65 per cent

**Note:** The site coverage control excludes building awnings.

- B11. Notwithstanding the controls listed in Table 2 in Condition B10 above, no warehouse building in Precinct 4, 5 or 6 shall exceed a ridgeline height of 13.7 m.
- B12. The Applicant shall lodge the proposed revisions to the Penrith Development Control Plan 2014 (Penrith DCP), included within the RTS and as amended by the limits of this Development Consent to Council within 6 months of the date of this Development Consent.
- B13. A maximum of one illuminated sign is permitted on each elevation of each warehouse building. All illuminated signage shall be orientated away from residential receivers.
- B14. Underground car parking is not permitted on-site.
- B15. The Applicant shall provide bicycle racks, and amenity and change room facilities for cyclists in accordance with *Planning Guidelines for Walking and Cycling* (December, 2004), NSW Department of Infrastructure, Planning and Natural Resources; Roads and Traffic Authority.

## LEGAL NOTICES

- B16. Any advice or notice to the consent authority shall be served on the Secretary.

## SUSTAINABILITY MANAGEMENT

- B17. Prior to the issue of a Construction Certificate for the first warehouse building in Stage 1, the Applicant shall submit a **Sustainability Strategy** for the Development to the Secretary for approval. The strategy shall:
- detail which ESD initiatives and energy efficiency measures outlined in the Sustainability Report prepared by SLR, revision 3, dated 16 September 2015 will be implemented on-site;
  - confirm whether the rainwater harvesting measures identified in the *Civil, Stormwater and Infrastructure Services Strategy*, rev 5, report no 14-193-R001, prepared by At&, dated September 2015 and letter titled 'SSD 6917 Oakdale South Industrial Estate, WSUD', ref: 14-193-ATL-L003, prepared by At&I, dated 18 April 2016 will be implemented on-site;
  - identify the total greenhouse gas savings estimated to be achieved in comparison to a base case development (i.e. a development constructed in accordance with the minimum requirements of Section J of the BCA) if the measures proposed under the Sustainability Strategy are implemented; and
  - include a calculation of water requirements and measures incorporated to reduce water use.

## NOISE LIMITS

- B18. The Applicant shall ensure the Development does not exceed the noise limits provided in **Table 3** below and the receiver locations (L1, L2 and L3 shown in **Appendix 4**):

**Table 3: Project Specific Noise Limits dB(A)**

Location	Day	Evening	Night	
	L <sub>Aeq</sub> (15 minute)	L <sub>Aeq</sub> (15 minute)	L <sub>Aeq</sub> (15 minute)	L <sub>A1</sub> (1 minute)
L1 North of Warragamba Pipeline	37	37	37	47
L2 Horsley Park	39	39	39	49
L3 Kemp's Creek, Mt Vernon, Jacfin and Capitol Hill	40	40	40	48

**Note:** Noise generated by the Development is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy.



## SCHEDULE C CONDITIONS TO BE MET IN FUTURE DEVELOPMENT APPLICATIONS

### DEVELOPMENT CONTRIBUTIONS

- C1. Future Development Applications shall identify whether the provisions of Council's 94 Contributions Plan or any voluntary planning agreement(s) apply to the site.

### ECOLOGICALLY SUSTAINABLE DEVELOPMENT

- C2. Future development applications shall demonstrate how the Development incorporates the principles of ESD in the design, construction and on-going operation of the Development.

### SUSTAINABILITY MANAGEMENT PLAN

- C3. Future Development Applications must demonstrate compliance with the Sustainability Strategy approved under Condition B17.

### TRAFFIC AND ACCESS

- C4. Future Development Applications shall be accompanied by a detailed assessment of the traffic, and transport impacts on the surrounding road network and intersection capacity, and shall detail provisions demonstrating that sufficient loading/unloading, access and car parking has been provided having regard to the car parking rates approved under Condition C5 below, and details to promote non-car travel modes. The traffic and transport impact assessment shall also have specific regard to the scope and timing of road infrastructure works in the surrounding road network.
- C5. Car parking shall be provided in accordance with the following rates, unless evidence is provided in accordance with Part C10, section 10.5.1, C1) f) of the Penrith DCP:
- (a) 1 space per 300 m<sup>2</sup> of warehouse GFA;
  - (b) 1 space per 40 m<sup>2</sup> of office GFA; and
  - (c) 2 disabled spaces for every 100 car parking spaces.
- C6. To ensure that potential conflicts between heavy vehicles and light vehicles are minimised, future Development Applications shall include details demonstrating satisfactory arrangements have been made to separate heavy and light vehicle movements.
- C7. To ensure that sustainable transport modes are supported, all future Development Applications proposing the construction of new warehouse buildings shall include a **Sustainable Travel Plan**. All Sustainable Travel Plans shall identify the pedestrian and cyclist facilities proposed to service the proposed warehouse buildings.

### BUSHFIRE PROTECTION

- C8. Future Development Applications for warehouse buildings shall demonstrate compliance with the relevant provisions of *Planning for Bushfire Protection (PBP)* and the asset protection zones recommended in the *Oakdale South Estate Bushfire Protection Assessment*, prepared by Australian Bushfire Protection Planners Pty Ltd, dated July 2015.
- C9. Future Development Applications for warehouse buildings 3A, 3C, 6A and 6B shall demonstrate compliance with *Bushfire Construction Standard - A.S. 3959 - 2009* as recommended in the *Oakdale South Estate Bushfire Protection Assessment*, prepared by Australian Bushfire Protection Planners Pty Ltd, dated July 2015.
- C10. Future Development Applications for the construction of buildings shall demonstrate compliance with the BCA, as relevant.

## **NOISE AND VIBRATION**

- C11. Future Development Applications shall include a noise assessment identifying the noise and vibration impacts associated with the construction and operation of future warehouse buildings. The assessment must also identify whether appropriate acoustic amenity can be achieved at surrounding sensitive receivers and identify all mitigation measures, such as noise barriers, necessary to achieve compliance with the requirements of the project specific noise levels identified in Condition B18.

## **WASTE**

- C12. Future Development Applications shall include a **Waste Management Plan** prepared in accordance with the with the EPA's *Waste Classification Guidelines* (DECCW, 2009).

## **OUTDOOR LIGHTING**

- C13. Future Development Applications are to ensure compliance with *AS/N21158.3:1999 Pedestrian Area (Category P) Lighting* and *A54282: 1997 Control of Obtrusive Effects of Outdoor Lighting*.

## **SIGNAGE**

- C14. Future Development Applications shall include details of any external advertising signage and demonstrate compliance with the requirements of Condition B13 and *State Environmental Planning Policy No. 64 - Advertising and Signage*.

## **REFLECTIVITY**

- C15. The visible light reflectivity from building materials used in the façades of the buildings shall not exceed 20 per cent and shall be designed so as to minimise glare. A report demonstrating compliance with these requirements is to be submitted to the satisfaction of the Certifying Authority for each future warehouse building prior to the issue of the relevant Construction Certificate.

## **ROAD UPGRADES**

- C16. Future Development Applications shall identify whether any road upgrades are required as a result of the development works.

## **STORMWATER MANAGEMENT**

- C17. All future Development Applications shall demonstrate that the design of the warehouse buildings, plant and equipment and hardstand areas are consistent with the:
- Civil, Stormwater and Infrastructure Services Strategy*, rev 5, report no 14-193-R001, prepared by At&, dated September 2015;
  - Flood Impact Assessment: Oakdale South Industrial Estate*, ref: 59915094, prepared by Cardno, dated 16 September 2015; and
  - Letter report titled '*SSD6917 Oakdale South Industrial Estate, TransGrid Easement Flooding*', prepared by At&, ref: 14-193-ATL-L004, dated 18 April 2016 and all appendices.

## **SALINITY**

- C18. As part of future Development Applications, the Applicant shall implement the recommendations outlined in the Salinity Management Plan prepared by Pells Sullivan Meynink, reference PSM1541-113L Rev 3, dated 9 September 2015.

## **TRANSMISSION LINE EASEMENT**

- C19. As part of future Development Applications for the warehouse buildings located in Precincts 3 and 6, the Applicant shall demonstrate that the design of the warehouse buildings and hardstand allows accumulated stormwater to drain away from the TransGrid easement.

**SCHEDULE D**  
**CONDITIONS OF CONSENT FOR THE STAGE 1 DA**

**OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT**

- D1. In addition to meeting the specific performance criteria established under this consent, the Applicant shall implement all reasonable and feasible measures to prevent and/or minimise any harm to the environment that may result from the Development.

**DEVELOPMENT DESCRIPTION**

- D2. Development Consent is granted to the 'Stage 1 works' as described in Schedule A and the EIS, as amended by the RTS and the conditions contained in this Development Consent.

**DEVELOPMENT IN ACCORDANCE WITH PLANS AND DOCUMENTS**

- D3. The Applicant shall carry out the Development in accordance with the:
- (a) EIS and RTS;
  - (b) the letter titled '*Re: SSD6917 Oakdale South Industrial Estate, TransGrid Easement Flood Extents*', ref 14-193-ATL-TRANSGRID-L2, prepared by At&I, dated 18 May 2016 and all appendices;
  - (c) the Supplementary Response to Submissions titled '*Re: Oakdale South Estate SSDA\_6917*' prepared by Urban Advisory Services, dated 12 July 2016;
  - (d) the letter report titled '*Oakdale South Estate, Operational Noise Contours, Adverse Weather Conditions*', prepared by SLR, dated 13 July 2016;
  - (e) the letter titled '*Re: Oakdale South Estate – State Significant Development Application Ref. 6917*' and all annexures, prepared by Urban Advisory Services, dated 8 September 2016;
  - (f) drawings listed at **Appendix 2**; and
  - (g) the Management and Mitigation Measures (see **Appendix 3**).
- D4. If there is any inconsistency between the plans and documentation referred to above, the most recent document shall prevail to the extent of the inconsistency. However, the conditions of this consent prevail to the extent of any inconsistency.
- D5. The Applicant shall comply with any reasonable requirement(s) of the Secretary arising from the Department's assessment of:
- (a) any reports, plans or correspondence that are submitted in accordance with this consent; and
  - (b) the implementation of any actions or measures contained within these documents.
- D6. Within one month of the date of this consent, the Applicant shall submit revised architectural plans for the Stage 1 DA to the satisfaction of the Secretary. The revised plans shall:
- (a) be consistent earth bund wall along the southern property boundary and the revised design of building 5A as shown in the plans accompanying the letter titled '*Re: Oakdale South Estate – State Significant Development Application Ref. 6917*', prepared by Urban Advisory Services dated 8 September 2016; and
  - (b) be consistent with the maximum GFAs listed in Table 4 of this consent.

**LIMITS OF CONSENT FOR STAGE 1**

- D7. This consent lapses five (5) years after the date of determination, unless the Development has physically commenced on the land to which the consent applies before the date on which the consent would otherwise lapse under section 95 of the EP&A Act.
- D8. No building in Precincts 4 or 5 shall exceed a ridgeline height of 13.7 m.
- D9. This consent grants approval for the maximum GFAs for Precincts 1, 4 and 5 as detailed in **Table 4** below:

**Table 4: Maximum GFAs approved under Stage 1**

Precinct	Land Use	Maximum Total GFA (m <sup>2</sup> )
<b>Precinct 1</b>		
Lot 1A		21,949
Lot 1B		24,799
Lot 1C		28,108
Lot 1D		29,883
<b>TOTAL</b>		<b>104,739</b>
<b>Precinct 4</b>		
Lot 4A		16,676
Lot 4B		12,956
Lot 4C		18,624
<b>TOTAL</b>		<b>48,256</b>
<b>Precinct 5</b>		
Lot 5A		84,075
<b>TOTAL</b>		<b>84,075</b>
<b>Stage 1 GFA</b>	Warehousing	224,135
	Office	12,935
<b>TOTAL STAGE 1 GFA</b>		<b>237,070</b>

*Note: Lot 1A contains two separate warehouse buildings.*

## **PRESCRIBED CONDITIONS**

D10. The Applicant shall comply with all relevant prescribed conditions of Development Consent under Part 6, Division 8A of the Regulation.

## **STAGING**

D11. The Applicant may elect to construct and/ or operate the Development in stages. Where staging is proposed, the Applicant shall submit a **Staging Report** to the Secretary prior to the commencement of the first proposed stage. The Staging Report shall provide details of:

- (a) how the Development would be staged, including general details of work activities associated with each stage and the general timing of when each stage would commence; and
- (b) details of the relevant conditions of consent, which would apply to each stage and how these shall be complied with across and between the stages of the Development.

Where staging of the Development is proposed, these conditions of consent are only required to be complied with at the relevant time and to the extent that they are relevant to the specific stage(s).

*Note: These conditions do not relate to staged development within the meaning of section 83B.*

## **STAGED SUBMISSION OF PLANS OR PROGRAMS**

D12. With the approval of the Secretary, the Applicant may:

- (a) submit any strategy, plan or program required by this consent on a progressive basis; and/or
- (b) combine any strategy, plan or program required by this consent.

D13. If the submission of any strategy, plan or program is to be staged, then the relevant strategy, plan or program must clearly describe the specific stage to which the strategy, plan or program applies, the relationship of the stage to any future stages and the trigger for updating the strategy, plan or program. A clear relationship between the strategy, plan or program that is to be combined must be demonstrated.

## EVIDENCE OF CONSULTATION

- D14. Where consultation with any public authority is required by the conditions of this consent, the Applicant shall:
- (a) consult with the relevant public authority prior to submitting the required documentation to the Secretary, where required;
  - (b) submit evidence of this consultation as part of the relevant documentation required by the conditions of this consent to the Secretary; and
  - (c) include the details of any outstanding issues following this consultation upon submitting any documentation required by the conditions of this consent.

## DISPUTE RESOLUTION

- D15. In the event that a dispute arises between the Applicant and Council or a public authority, in relation to an applicable requirement in this consent or relevant matter relating to the Development, either party may refer the matter to the Secretary for resolution. The Secretary's determination of any such dispute shall be final and binding on the parties.

## EASEMENTS

- D16. The creation of easements for services, rights of carriageway and restrictions as to user are applicable under section 88E of the *Conveyancing Act 1919*, including (but not limited to) the following:
- (a) easements for sewer, water supply and drainage over all public services/infrastructure on private property;
  - (b) drainage easements are to be placed over all subsurface drains and inter allotment drainage, benefiting and burdening the property owners;
  - (c) maintenance of the subsurface drains is to be included in the 88E Instrument;
  - (d) restriction as to user and positive covenant relating to the:
    - (i) on-site detention system/s;
    - (ii) stormwater pre-treatment system/s; and
    - (iii) overland flow path works;
  - (e) a restriction to user for each lot requiring that at the commencement of building works, and in perpetuity, each affected lot shall be managed, in accordance with the drawing OAK MP 13 (C) titled '*Fire Protection Plan*', prepared by SBA Architects, dated 4 September 2015, to be endorsed by Fire and Rescue NSW and approved by the Secretary prior to issue of the Construction Certificate for Stage 1.

Any section 88E Instrument creating restrictions as to user, rights of carriageway or easements which benefit Council shall contain a provision enabling such restrictions, easements or rights of way to be revoked, varied or modified only with the consent of Council.

## STATUTORY REQUIREMENTS

- D17. The Applicant shall ensure that all necessary licences, permits and approvals are obtained and kept up-to-date as required throughout the life of the Development. No condition of this consent removes the obligation for the Applicant to obtain, renew or comply with such licences, permits or approvals.

## CONSTRUCTION CERTIFICATE REQUIRED

- D18. Prior to the commencement of any building and/or construction works, the Applicant must obtain a Construction Certificate from the Certifying Authority.

## STRUCTURAL ADEQUACY AND CERTIFICATION

- D19. The Applicant shall ensure that:
- (a) all new buildings and structures, and any alterations or additional to existing buildings and structures are constructed in accordance with the relevant requirements of the BCA; and

- (b) structural certification, from a suitably qualified engineer is provided for all structures, box culverts and pits greater than two metres in depth.

D20. Under Part 4A of the EP&A Act, the Applicant is required to obtain construction and occupation certificates for the proposed building works. Part 8 of the Regulation sets out the requirements for the certification of the Development.

#### **UTILITIES AND SERVICES**

D21. Prior to the construction of any utility works associated with the Development, the Applicant shall:

- (a) obtain relevant approvals from service providers; and
- (b) obtain written approval from Council prior to installing any utility lead in services within a public road within the Development site.

D22. Prior to the operation of the Development, the Applicant shall obtain a compliance certificate for water and sewerage infrastructure servicing of the site from Sydney Water Corporation under Section 73 of the *Sydney Water Act 1994*.

#### **PROTECTION OF PUBLIC INFRASTRUCTURE**

D23. Prior to the commencement of construction, the Applicant shall:

- (a) prepare a dilapidation report of the public infrastructure in the vicinity of the site (including roads, gutters and footpaths); and
- (b) submit a copy of this report to the Secretary and Council.

D24. The Applicant shall:

- (a) repair, or pay the full costs associated with repairing any public infrastructure that is damaged by the Development; and
- (b) relocate, or pay the full costs associated with relocating any infrastructure that needs to be relocated as a result of the Development.

#### **COMPLIANCE**

D25. The Applicant shall ensure that employees, contractors and sub-contractors are aware of, and comply with, the conditions of this consent relevant to their respective activities.

D26. The Applicant shall be responsible for any environmental impacts resulting from the actions of all persons that it invites onto the site, including contractors, sub-contractors and visitors.

#### **OPERATION OF PLANT AND EQUIPMENT**

D27. The Applicant shall ensure that all plant and equipment used for the Development is:

- (a) maintained in a proper and efficient condition; and
- (b) operated in a proper and efficient manner.

D28. The Applicant shall not operate any mobile plant and equipment which exceeds a height of 4.2 metres within the TransGrid transmission line easement. All construction plant and equipment that will operate within the transmission line easement shall be fitted with an earthing trail.

#### **DEVELOPER CONTRIBUTIONS**

D29. The Applicant shall provide all monetary contributions and/or works-in-kind under section 94EF of the EP&A Act, in accordance with the Voluntary Planning Agreement entered into between the Minister for Planning and Goodman Property Services (Aust) Pty Ltd, BGAI 6 Pty Ltd, BGMG 8 Pty Ltd, and BGAI 2 Pty Limited and executed on 12 March 2015 (VPA), as varied by the deed of variation referred to in condition D30 and as attached at Appendix 5.

D30. Within 30 Business Days of the date this Development Consent is approved, the Applicant must enter into a deed of variation with the Minister to vary the terms of the planning agreement

executed on 12 March 2015 by the Minister for Planning ABN 38 755 709 681, Goodman Property Services (Aust) Pty Ltd ACN 088 981 793, BGAI 6 Pty Ltd ACN 128 775 799, BGMG 8 Pty Ltd ACN 161 602 768 and BGAI 2 Pty Limited ACN 120 605 718 under section 93F of the *Environmental Planning and Assessment Act 1979*. The deed of variation must be in the terms of the written offer made by the Applicant to the Minister dated 12 September 2016, in connection with SSD 6917 and as attached at Appendix 5.

## **SUBDIVISION**

D31. The Applicant shall subdivide the site generally in accordance with the subdivision plan OAK MP 06 (G) titled '*Indicative Ultimate Lot Layout*', prepared by SBA Architects, dated 18/05/2016.

---

## SCHEDULE E ENVIRONMENTAL PERFORMANCE AND MANAGEMENT

### TRAFFIC AND ACCESS

#### Construction Traffic Management Plan

- E1. Prior to the commencement of construction, the Applicant shall prepare a **Construction Traffic Management Plan** (CTMP) for the Development to describe the management of traffic and access arrangements during construction. The CTMP shall at a minimum:
- (a) be prepared by a suitably qualified and experienced expert;
  - (b) be prepared in consultation with RMS, TransGrid and Council;
  - (c) be approved by the Secretary prior to the commencement of construction;
  - (d) detail the number and frequency of truck movements, size of trucks, vehicle routes and hours of construction;
  - (e) provide the estimated duration and staging of construction works;
  - (f) detail the access and parking arrangements for construction vehicles to ensure road and site safety, and demonstrate that there will be no queuing on the public road network;
  - (g) demonstrate how construction will be managed to ensure TransGrid can safely operate and maintain its transmission towers;
  - (h) outline when and where temporary traffic barriers will be erected to ensure the construction works will not affect the integrity TransGrid's transmission towers;
  - (i) demonstrate that access to private property will be maintained at all times; and
  - (j) include a Driver Code of Conduct that details traffic management measures to be implemented during construction and operation to:
    - (i) minimise the impacts of the Development on the local and regional road network;
    - (ii) minimise conflicts with other road users; and
    - (iii) ensure truck drivers use the specified routes.
- E2. The CTMP must be implemented for the full duration of the construction works.

#### Operational Traffic Management Plan

- E3. Prior to the issue of an Occupation Certificate for each building, the Applicant shall prepare and submit an **Operational Traffic Management Plan** (OTMP) for the development in consultation with Council and TfNSW, to the Secretary for approval. The OTMP must at a minimum:
- (a) be prepared by a suitably qualified and experienced expert;
  - (b) estimate the numbers and frequency of truck movements, sizes of trucks, vehicle routes and hours of operation;
  - (c) detail the access and parking arrangements for operational vehicles to ensure road and site safety, and demonstrate that there will be no queuing on the public road network;
  - (d) include detail of proposed truck parking to ensure this is managed in an orderly manner; and
  - (e) include a Driver Code of Conduct that details traffic management measures to be implemented during operation to:
    - (i) minimise impacts of the development on the local and regional road network;
    - (ii) minimise conflicts with other road users;
    - (iii) ensure truck drivers use specified routes and minimise traffic noise during night-time hours; and
    - (iv) manage/control pedestrian movements.
- E4. The Applicant must ensure that the OTMP (as revised and approved by the Secretary from time to time) is implemented for the life of the development.

#### Parking Provision

- E5. The Applicant shall provide a minimum of 1,256 on-site car parking spaces (including at least 26 spaces for people with disabilities at a rate of two per 100 parking spaces) for use during operation of the Development, distributed as shown in **Table 5** below.



**Table 5: Precinct Car Parking Provisions for Stage 1**

Precinct	Building	Minimum Car Parking Requirements
1	A	128
	B	143
	C	157
	D	169
4	A	122
	B	71
	C	140
5	A	326
<b>TOTAL</b>		<b>1,256</b>

### **Operating Conditions**

- E6. The Applicant shall ensure that:
- (a) all trucks entering or leaving the site with loads have their loads covered; and
  - (b) trucks associated with the Development do not track dirt onto the public road network.

### **Driveways and Retaining Walls**

- E7. As part of the relevant Construction Certificate for each warehouse building, the Applicant shall demonstrate that:
- (a) no driveways associated with warehousing and distribution buildings, water tanks and pump stations are located within the E2 zone; and
  - (b) all retaining walls are wholly located within private property and do not encroach into the road reserves.

### **Internal Roads, Queuing and Parking**

- E8. The Applicant shall ensure that:
- (a) internal roads, driveways and parking associated with the Development are constructed and maintained in accordance with the relevant standards and the latest versions of AS 2890.1, AS 2890.2 and AS/NZS 2890.6;
  - (b) the swept path of the longest vehicle entering and exiting the site, as well as manoeuvrability through the site, must be in accordance with *AUSTROADS Design Vehicles and Turning Path Templates*;
  - (c) the Development does not result in any vehicles queuing on the public road network;
  - (d) heavy vehicles associated with the Development do not park or stand on local roads or footpaths in the vicinity of the site;
  - (e) all vehicles are wholly contained on-site before being required to stop;
  - (f) all vehicles enter and exit the site in a forward direction;
  - (g) all loading and unloading of materials is carried out on-site; and
  - (h) the loading areas and turning areas in the car park are kept clear of any obstacles, including parked vehicles, at all times.
- E9. The Applicant shall provide bicycle racks, and amenity and change room facilities for cyclists in accordance with *Planning Guidelines for Walking and Cycling* (December 2004), NSW Department of Infrastructure, Planning and Natural Resources; Roads and Traffic Authority.

### **Roads Act Approval**

- E10. Prior to the commencement of construction works for any estate road(s) that connects to the existing public road network, the Applicant shall obtain approval for the works under section 138 of the *Roads Act 1993*.

## Road Design

E11. Final road design plans shall be prepared by a qualified practicing Civil Engineer and submitted to the satisfaction of Council prior to the commencement of construction of the estate roads. The road design plans shall demonstrate compliance with Council's engineering standards.

## Dedication - Internal Access Roads

E12. Following the issue of a Subdivision Certificate, the internal access roads shall be dedicated to the relevant roads authority. Prior to any dedication, the Applicant shall ensure that the construction of the internal access roads have been completed to the satisfaction of the relevant roads authority. Despite any formal dedication, the Applicant shall remain responsible for the maintenance of the road for the duration of the maintenance period, being 12 month from the date of dedication of the road to the roads authority.

## WATER

### Stormwater

E13. Prior to the commencement of construction, the Applicant shall prepare a **Stormwater Management Plan (SMP)** to the satisfaction of the Secretary. The SMP shall:

- (a) be prepared by a suitably qualified engineer prior to the commencement of the relevant works in consultation with Council;
- (b) be prepared generally in accordance with the:
  - (i) Penrith DCP - C3 Water Management;
  - (ii) Council's *Water Sensitive Urban Design (WSUD) Policy*;
  - (iii) Council's engineering design guidelines;
  - (iv) *Civil, Stormwater and Infrastructure Services Strategy*, rev 5, report no 14-193-R001, prepared by At&, dated September 2015;
  - (v) *Flood Impact Assessment: Oakdale South Industrial Estate*, ref: 59915094, prepared by Cardno, dated 16 September 2015;
  - (vi) Letter report titled '*SSD6917 Oakdale South Industrial Estate, TransGrid Easement Flooding*', prepared by At&, ref: 14-193-ATL-L004, dated 18 April 2016 and all appendices; and
  - (vii) OEH's *Managing Urban Stormwater: Soils and Construction Guideline*;
- (c) identify all building and roadworks to be constructed relevant to the Construction Certificate that the works relate to;
- (d) incorporate design plans and accompanying design notes, including any rainwater harvesting;
- (e) incorporate bio-swales, gross pollutant traps and stormwater pollutant filters;
- (f) describe the measures that would be implemented to maintain this infrastructure during the life of the Development, including:
  - (i) a program for maintenance and monitoring to ensure stormwater quantity and quality is maintained, and detail the procedures to be undertaken if any non-compliance is detected; and
  - (ii) all contractor's cleaning reports or certificates that will be provided to Council over the life of the Development; and
- (g) ensure all selected and maintained to ensure compliance with the pollutant removal targets in Part C3 – Water Management of the Penrith DCP.

E14. The Applicant shall carry out the Development in accordance with the SMP as approved by the Secretary (and as revised and approved by the Secretary from time to time), unless otherwise agreed by the Secretary.

E15. Whilst bulk and detailed earthworks are occurring on site, the Applicant shall ensure all bio-retention basins are utilised as temporary sediment control basins. The bio-retention basins shall not be converted into the final/ultimate basins until such time as all building and construction works within the relevant stage shown in drawing OAK MP 09 (F) titled '*Infrastructure Staging Plan (Indicative)*', prepared by SBA architects, dated 18 April 2016 are 90 per cent complete and the area within the relevant stage is stabilised.

- E16. The Applicant shall ensure that all temporary and permanent bio-retention basins, inclusive of the weir and berm levels, are located above the 100 year Average Recurrence Interval (ARI) flood level.
- E17. The Applicant shall ensure that any batter slopes or batter slopes of bio-retention basins steeper than 1 in 5 are vegetated. Where there are any non-vegetated batter slopes steeper than 1 in 5, the Applicant shall design the batter slopes to the satisfaction of Council.
- E18. Prior to the issue of any Construction Certificate for bulk or detailed earthworks, the Applicant shall provide the MUSIC modelling for the Development to Council.
- E19. The Applicant shall provide a 3 m wide access track around all stormwater basins to permit maintenance.
- E20. The Applicant shall maintain all bio-retention basins on-site in perpetuity.

### **Works-as-Executed Drawings – Stormwater Drainage**

- E21. On completion of the drainage works for each Lot under the Stage 1 DA, and prior to operation of any warehouse building, works-as-executed (WAE) plans certified by a Registered Surveyor shall be submitted to Council and the Department demonstrating that the drainage works have been completed in accordance with the approved plans. All relevant details are to be on the WAE plans and shall be marked in red on a copy of the original plan approved at the Construction Certificate stage.

### **Flooding**

- E22. All finished floor levels shall achieve a minimum 500 mm freeboard from the 100 year ARI flood level.

### **SOILS**

#### **Imported Soil**

- E23. Prior to commencing bulk earthworks, the Applicant shall prepare and submit a **Fill Importation Protocol**. The Protocol shall:
- (a) be prepared in consultation with Council; and
  - (b) ensure that any material imported and used as fill on the site:
    - (i) is VENM as defined in Schedule 1 of the POEO Act; or
    - (ii) meets the requirements of the EPA's *Excavated Natural Material Order 2014*, under the *Protection of the Environment Operations (Waste) Regulation 2014*.
- E24. The Applicant shall implement the Fill Importation Protocol approved under Condition E23 for the duration of bulk and detailed earthworks, and shall:
- (a) keep accurate records of the volume and type of fill to be used; and
  - (b) make these records available to the Secretary upon request.

#### **Erosion and Sediment Control**

- E25. During construction works, the Applicant shall implement and maintain best practice erosion and sediment control measures on-site, in accordance with the relevant requirements in the latest version of the *Managing Urban Stormwater: Soils and Construction Guideline* (Landcom).

#### **Salinity**

- E26. During construction works, the Applicant shall implement the recommendations outlined in the Salinity Management Plan prepared by Pells Sullivan Meynink, reference PSM1541-113L Rev 3, dated 9 September 2015.

## NOISE AND VIBRATION

### Construction Noise and Vibration

- E27. Construction activities associated with the Development shall be undertaken during the following hours:
- (a) 7:00 am to 6:00 pm Mondays to Fridays, inclusive; and
  - (b) 8:00 am to 1:00 pm Saturdays; and
  - (c) at no time on Sundays or public holidays.
- E28. Construction works outside of the standard construction hours identified in Condition E27 may be undertaken in the following circumstances:
- (a) construction works that generate noise that is:
    - (i) no more than 5 dB(A) above rating background level at any residence in accordance with the *Interim Construction Noise Guideline* (Department of Environment and Climate Change, 2009); and
    - (ii) no more than the noise management levels specified in Table 3 of the *Interim Construction Noise Guideline* (Department of Environment and Climate Change, 2009) at other sensitive receivers; or
  - (b) for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or
  - (c) where it is required in an emergency to avoid the loss of lives, property and/or to prevent environmental harm; or
  - (d) works approved through an EPL, or by the Secretary; or
  - (e) works as approved through the out-of-hours work protocol outlined in the CEMP as required by Condition F1.
- E29. Activities resulting in impulsive or tonal noise emission (such as rock breaking, rock hammering, pile driving) shall only be undertaken:
- (a) between the hours of 8:00 am to 5:00 pm Monday to Friday;
  - (b) between the hours of 8:00 am to 1:00 pm Saturday; and
  - (c) in continuous blocks not exceeding three hours each with a minimum respite from those activities and works of not less than one hour between each block.

For the purposes of this condition 'continuous' includes any period during which there is less than a one hour respite between ceasing and recommencing any of the work the subject of this condition.

- E30. The Development shall be constructed with the aim of achieving the following construction vibration goals:
- (a) for structural damage, the vibration limits set out in the German Standard *DIN 4150-3: Structural Vibration - effects of vibration on structures*; and
  - (b) for human exposure, the acceptable vibration values set out in the *Environmental Noise Management Assessing Vibration: A Technical Guideline* (Department of Environment and Conservation, 2006).
- E31. Wherever practical, piling activities must be undertaken using quieter alternative methods than impact or percussion piling, such as bored piles or vibrated piles.
- E32. Where feasible and reasonable, noise mitigation measures shall be implemented at the start of construction (or at other times during construction) to minimise construction noise impacts.

### Construction Noise Limits

- E33. The Development shall be constructed with the aim of achieving the construction noise management levels detailed in the *Interim Construction Noise Guideline* (Department of Environment and Climate Change, 2009). All feasible and reasonable noise mitigation measures shall be implemented and any activities that could exceed the construction noise management levels shall be identified and managed in accordance with the management and mitigation measures in the RTS.

*Note: The Interim Construction Noise Guideline identifies 'particularly annoying' activities that require the addition of 5dB(A) to the predicted level before comparing to the construction NML.*

### Construction Noise Management Plan

- E34. The Applicant shall prepare a **Construction Noise Management Plan (CNMP)** for the Development to manage high noise generating works. The CNMP shall:
- be prepared by a suitably qualified and experienced noise expert;
  - be approved by the Secretary prior to the commencement of construction;
  - describe procedures for achieving the noise management levels in the EPA's *Interim Construction Noise Guideline 2009*;
  - describe the measures to be implemented to manage high noise generating works such as piling, in close proximity to sensitive receivers;
  - include strategies that have been developed with the community for managing high noise generating works;
  - describe the community consultation undertaken to develop the strategies in e) above; and
  - include a complaints management system that would be implemented for the duration of the Development.

### Operational Noise Limits

- E35. The Applicant shall ensure that the noise generated by the operation of the Development does not exceed the noise limits set out in **Table 6** below.

**Table 6: Maximum Allowable Operational Noise Limits**

Location	Day	Evening	Night	
	L <sub>Aeq</sub> (15 minute)	L <sub>Aeq</sub> (15 minute)	L <sub>Aeq</sub> (15 minute)	L <sub>A1</sub> (1 minute)
L1 North of Warragamba Pipeline	37	37	37	47
L2 Horsley Park	39	39	39	49
L3 Kemps Creek, Mt Vernon, Jacfin and Capitol Hill	40	40	40	48

*Note: Noise generated by the Development is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy.*

### Noise Walls

- E36. The Applicant shall construct the noise walls shown in the RTS, prior to the commencement of operation of any part of the Development.

*Note: If construction of noise walls is to be staged, the Applicant shall submit a noise verification study to the satisfaction of the Secretary to demonstrate that the Development will comply with the noise limits in Condition E35 at all times.*

### Noise Verification – External Mechanical Plant

- E37. Prior to the construction of each warehouse building containing external mechanical plant, the Applicant shall prepare a **Noise Validation Report (NVR)** to demonstrate that operation of the mechanical plant meets the noise limits in Condition E35. The NVR shall:
- be prepared by an appropriately qualified and experienced noise expert;
  - be approved by the Secretary, prior to the installation of any external mechanical plant;
  - demonstrate that the location, design and operation of external mechanical plant would achieve the noise limits in Condition E35;
  - describe any acoustic treatments required to ensure compliance with the noise limits in Condition E35; and
  - if necessary, recommend, prioritise and implement measures to improve noise controls on-site to ensure the Development meets relevant criteria and protects off-site receivers from excess noise.

## Noise Management

- E38. The Applicant shall:
- (a) implement best management practice, including all reasonable and feasible measures to prevent and minimise noise and vibration during construction and operation of the Development (including low frequency noise and traffic noise);
  - (b) minimise the noise impacts of the Development during adverse meteorological conditions when noise criteria do not apply;
  - (c) maintain the effectiveness of any noise suppression equipment on plant at all times and ensure defective plant is not used operationally until fully repaired; and
  - (d) regularly assess noise monitoring data and relocate, modify and/or stop operations to ensure compliance with the relevant conditions of this consent.

## ABORIGINAL HERITAGE

- E39. In the event that impacts to Aboriginal Heritage Information Management System (AHIMS) sites 45-5-4528 (Oakdale South AS 3) and 45-5-4529 (Oakdale South AS 4) cannot be avoided, the Applicant shall undertake a salvage excavation prior to the commencement of bulk earthworks at the two AHIMS sites. In undertaking the salvage excavation, the Applicant shall prepare a salvage excavation methodology in consultation with the OEH and Aboriginal stakeholder groups.
- E40. The Applicant shall provide a copy of the final excavation report(s) required under Condition E39 to the Secretary and Council.
- E41. If any Aboriginal archaeological objects are uncovered which were not previously identified in the *Archaeological Test Excavation Report*, prepared by Artefact Heritage and dated September 2015 during construction works, the Applicant shall cease works immediately and notify the OEH and obtain any necessary approvals to continue the works. The Applicant shall comply with any request made by the OEH to cease works for the purpose of archaeological recording.

## EUROPEAN HERITAGE

### Archaeological Salvage

- E42. Prior to the commencement of bulk earthworks in Precinct 1, the Applicant shall:
- (a) submit an amended Archaeological Research Design and Excavation Methodology to take into account the potential State significant archaeology on-site to the satisfaction of the Heritage Council;
  - (b) nominate an Excavation Director to oversee all salvage excavation on-site. The Excavation Director shall be endorsed by the Heritage Council prior to any salvage excavation works occurring on-site;
  - (c) undertake a full salvage excavation of all relics associated with the Lochwood Estate, including outbuildings and supporting elements; and
  - (d) ensure that any salvaged relics are retained by the land owner in a nominated repository on-site.
- E43. Within 12 months of the completion of the archaeological investigation on-site site, the Applicant shall prepare a **Final Archaeological Excavation Report** in accordance with Heritage Council guidelines. The Final Archaeological Excavation Report shall be submitted to the Secretary and a copy provided to the Heritage Council of NSW and Council.

### Unexpected Finds Protocol

- E44. If substantial intact archaeological deposits and/or State significant relics which were not previously identified in the *Results of Non-Aboriginal Archaeological Test Excavation*, prepared by Artefact Heritage, dated September 2015, are discovered during construction, the Applicant shall:
- (a) immediately cease works in the affected area(s) and contact a suitably qualified and experienced archaeologist to assess the finds;

- (b) not commence work until the Heritage Council has confirmed works may continue within the affected area(s);
- (c) address any request for information made by the Heritage Council, and provide copies of this information to the Secretary; and
- (d) update any relevant plans or strategies, if required by the Secretary.

### **Interpretation Plan**

E45. Within 12 months of the completion of the Stage 1 DA works, the Applicant shall prepare Heritage Interpretation Plan addressing Aboriginal Cultural Heritage, the former Lochwood Estate and Lenore Closer Solder Settlement Scheme for the Secretary's approval. The Heritage Interpretation Plan shall be prepared in consultation with the Heritage Council and the OEH and include information obtained through the historical research and archaeological investigations of the subject land (Aboriginal and historic) to enable future users of the site to understand the sites history.

### **BIODIVERSITY**

#### **Offsets**

E46. Within 12 months of the date of this consent, or as otherwise agreed by the Secretary, the Applicant shall retire 160 ecosystem credits to offset the removal of native vegetation on-site.

#### **Vegetation Management Plan**

E47. Prior to the issue of any Construction Certificate that includes creek realignment works, the Applicant shall submit a revised **Vegetation Management Plan (VMP)**. The revised VMP shall;

- (a) be submitted to the satisfaction of the Secretary;
- (b) be prepared in consultation with the OEH;
- (c) remove any geographic overlap with Figure 4.3 in the *Biodiversity Offset Strategy*, prepared by Cumberland Ecology, dated 16 September 2015; and
- (d) be consistent with the management measures and recommendations of the draft Vegetation Management Plan prepared by EcoHort Pty Ltd, dated 31 August 2015.

*Note: The intent of this condition is to ensure the 5 year vegetation management restoration/rehabilitation measures proposed under the VMP are not included within the proposed biobank area to avoid precluding the creation of the proposed biobank site under clause 11 of the Threatened Species Conservation (Biodiversity Banking) Regulation 2008.*

### **AIR QUALITY**

E48. The Applicant shall:

- (a) implement best management practice, including all reasonable and feasible mitigation measures to prevent and minimise dust and odour emissions from operation of the Development; and
- (b) minimise any visible off-site air pollution that occurs as a result of construction and operation the Development.

#### **Dust Minimisation**

E49. The Applicant shall implement all reasonable and feasible measures to minimise dust and odour emissions generated during demolition, earthworks, construction and operation of the Development.

E50. During construction, the Applicant shall ensure that:

- (a) exposed surfaces and stockpiles are suppressed by regular watering;
- (b) all trucks entering or leaving the site with loads have their loads covered;
- (c) trucks associated with the Development do not track dirt onto the public road network;
- (d) public roads used by these trucks are kept clean; and

- (e) land stabilisation works are carried out progressively on-site to minimise exposed surfaces.

## ENERGY EFFICIENCY AND GREENHOUSE GASES

- E51. Prior to the issue of a Construction Certificate for each warehouse building, the Applicant shall submit a **Sustainability Management Plan** outlining the specific sustainability measures that will be installed in each warehouse. Each plan must:
- (a) be approved by the Secretary;
  - (b) be consistent with the Sustainability Strategy approved under Condition B17;
  - (c) confirm the total greenhouse gas savings achieved in comparison to a base case development (i.e. a development constructed in accordance with the minimum requirements of Section J of the BCA);
  - (d) include a calculation of water requirements and measures incorporated to reduce water use;
  - (e) include a program to monitor and report annually on the efficiency of the measures implemented; and
  - (f) ensure the Development will continue to operate at industry best practice over time.
- E52. The Applicant shall include all sustainability measures outlined in the approved Sustainability Management Plan(s) in the Construction Certificate drawings for each warehouse building prior to the issue of any Occupation Certificate.

## HAZARDS AND RISK

### Dangerous Goods

- E53. The storage of Dangerous Goods shall not exceed the thresholds outlined in the *Hazardous and Offensive Development Application Guidelines: Applying SEPP 33*.
- E54. Dangerous Goods, as defined by the *Australian Dangerous Goods Code*, shall be stored and handled strictly in accordance with all relevant Australian Standards.

### Bunding

- E55. The Applicant shall store all chemicals, fuels and oils used on-site in appropriately banded areas in accordance with the requirements of all relevant Australian Standards, and/or the EPA's *Storing and Handling of Liquids: Environmental Protection – Participants Handbook*.

## CONTAMINATION

- E56. Prior to the commencement of bulk or detailed earthworks, the Applicant shall prepare an **Unexpected Finds Protocol** to ensure that potentially contaminated material is appropriately managed. Any material identified as contaminated shall be disposed off-site, with the disposal location and results of testing submitted to Council, prior to its removal from the site.
- E57. The Applicant shall implement the Unexpected Finds Protocol developed under Condition E56 for the duration of works.

## WASTE

### Classification

- E58. The Applicant shall ensure that any waste generated on the site is classified in accordance with the EPA's *Waste Classification Guidelines* (DECCW, 2009), or any superseding document and disposed of to a facility that may lawfully accept the waste.



## Waste Management

- E59. The Applicant shall implement the Waste Management Plan at Appendix W of the EIS for the duration of construction works and for the operational life of the Development.
- E60. For the life of the Development, the Applicant shall:
- monitor the amount of waste generated by the Development;
  - investigate ways to minimise waste generated by the Development; and
  - implement reasonable and feasible measures to minimise waste generated by the Development in accordance with the EPA's *NSW Waste Avoidance and Resource Recovery Strategy 2014-2021*.

## VISUAL AMENITY

### Landscaping

- E61. Prior to the commencement of construction, the Applicant shall prepare and submit a **Landscape Management Plan** (LMP) to the satisfaction of the Secretary. The LMP shall:
- be prepared in consultation with Council and submitted to the Secretary;
  - ensure landscaping is undertaken in accordance with the Landscape Plans prepared by Site Image contained within the EIS as amended by the RTS and the letter titled 'Re: *Oakdale South Estate – State Significant Development Application Ref. 6917*' and all annexures, prepared by Urban Advisory Services, dated 8 September 2016; and
  - detail the management measures to be implemented for the maintenance of the perimeter landscape treatments along the southern and eastern boundaries, including the earth bund wall along the southern property boundary of the site, for the life of the Development.
- E62. The Applicant shall install the perimeter landscape treatments detailed in the RTS and the letter titled 'Re: *Oakdale South Estate – State Significant Development Application Ref. 6917*' and all annexures, prepared by Urban Advisory Services, dated 8 September 2016 so they provide:
- a minimum depth of 30 m along the section of the southern property boundary to the east and west of the TransGrid easement; and
  - a minimum depth of 10 m for the full length of the eastern property boundary.
- E63. Where practicable and feasible, the Applicant shall implement the perimeter landscape treatments prior to the commencement of construction, to ensure sufficient time for the establishment of a landscape buffer.
- E64. Within three months of the commencement of operation, other than the perimeter landscape treatments, the Applicant shall provide evidence to the satisfaction of the Secretary, demonstrating that the landscaping has been implemented in accordance with the LMP.
- E65. The Applicant shall maintain all site perimeter landscaping, in accordance with the approved LMP for the life of the Development.

### Lighting

- E66. The Applicant shall ensure that the lighting associated with the Development:
- complies with the latest version of *AS 4282 (INT) - Control of Obtrusive Effects of Outdoor Lighting*; and
  - is mounted, screened and directed in such a manner that it does not create a nuisance to surrounding properties or the public road network.

### Signage and Fencing

- E67. All signage and fencing shall be erected in accordance with the Development plans included in the EIS as amended by the RTS.

**Note:** *This condition does not apply to temporary construction-related and safety-related signage.*

- E68. Prior to the installation of signage on each warehouse building, the Applicant shall submit detailed plans of the façade signage and elevations of each warehouse building to the satisfaction of the Secretary, demonstrating the signage complies with the requirements of Condition B13.

### **Reflectivity**

- E69. The visible light reflectivity from building materials used in the facades of the buildings shall not exceed 20 per cent and shall be designed so as to minimise glare. A report demonstrating compliance with these requirements is to be submitted to the satisfaction of the Certifying Authority prior to the issue of the relevant Construction Certificate.

## **TRANSMISSION REQUIREMENTS**

### **Impacts During Construction and Operation**

- E70. To ensure that the integrity of the TransGrid transmission towers (including associated land and infrastructure) are not adversely affected during operation, the Applicant shall undertake the following works in consultation with TransGrid and to the satisfaction of the Secretary:
- (a) install and maintain traffic barriers along trafficable areas adjacent to the TransGrid site frontage, to restrain B-double vehicles, generally in accordance with any road safety audit outcomes and the relevant Austroad and RMS design standards; and
  - (b) ensure that all activities associated with the operation of the Development are undertaken in a manner that does not restrict TransGrid from operating and maintaining its transmission towers.
- E71. The Applicant shall ensure a 25 m horizontal clearance is maintained from each transmission tower leg at all times during construction and operation.
- E72. The Applicant shall notify TransGrid prior to any amendment or modifications to the proposed Development and obtain written approval from TransGrid for any amended or modified encroachment into the easement

### **Drainage**

- E73. Prior to the issue of any Construction Certificate for any infrastructure works within 30 m of the TransGrid transmission line easement, the Applicant shall:
- (a) design the easement drainage in consultation with and to the satisfaction of TransGrid, prior to the commencement of bulk or detailed earthworks adjacent to the easement; and
  - (b) provide details of the final easement drainage designs endorsed by TransGrid to the Secretary.
- E74. Prior to the issue of any Construction Certificate of any warehouse building adjacent to the TransGrid easement, the Applicant shall submit revised design drawings prepared in consultation with TransGrid demonstrating that stormwater accumulated on-site is directed away from the TransGrid easement, to the satisfaction of the Secretary.

### **Earthworks and Construction**

- E75. All works are to be carried out during construction in accordance with the NSW WorkCover *Work Near Overhead Powerlines Code of Practice 2006* and TransGrid's *Easement Guidelines for Third Party Development*. The Applicant shall:
- (a) notify TransGrid at least two weeks prior to the commencement of earthworks and construction of each stage of the Development;
  - (b) notify TransGrid at least two weeks prior to the commencement of any work within 30 m of the transmission towers;
  - (c) implement traffic control measures to ensure vehicles do not collide with the transmission towers; and
  - (d) not store or stockpile materials or soil within the easement at any time.

## SCHEDULE F ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING

### ENVIRONMENTAL MANAGEMENT

#### Construction Environmental Management Plan

- F1. Prior to the issue of a Construction Certificate, the Applicant shall prepare a **Construction Environmental Management Plan (CEMP)** to the satisfaction of the Secretary. The CEMP must:
- (a) be prepared by a suitable qualified and experienced person in consultation with Council and TransGrid;
  - (b) approved by the Secretary prior to the commencement of construction;
  - (c) identify all statutory approvals that apply to the Development;
  - (d) outline all environmental management practices and procedures to be followed during construction works associated with the Development;
  - (e) describe all activities to be undertaken on the site during construction of the Development, including a clear indication of construction stages;
  - (f) detail how the environmental performance of the construction works will be monitored, and what actions will be taken to address identified adverse environmental impacts;
  - (g) describe of the roles and responsibilities for all relevant employees involved in construction works associated with the Development; and
  - (h) include all sub-management plans required under Condition F2 of this consent.
- F2. As part of the CEMP required under Condition F1 of this consent, the Applicant shall append the following sub-management documents:
- (a) construction traffic management plan (see Condition E1);
  - (b) stormwater management plan (see Condition E13)
  - (c) fill importation protocol (see Condition E23);
  - (d) unexpected finds protocol (see Condition E56);
  - (e) landscape management (see Condition E61); and
  - (f) community consultation and complaints handling.
- F3. The approved CEMP (as revised and approved by the Secretary from time to time) must be implemented by the Applicant for the duration of the construction works.

#### Operational Environmental Management Plan

- F4. The Applicant shall prepare an **Operational Environmental Management Plan (OEMP)** for the development and be submitted to the satisfaction of the Secretary prior to the commencement of operations. The OEMP must:
- (a) provide the strategic framework for environmental management of the development;
  - (b) identify the statutory approvals that apply to the development;
  - (c) include a copy of all relevant management plans and monitoring requirements and programs relevant under this consent;
  - (d) outline all environmental management practices and procedures to be followed during operation;
  - (e) describe all activities to be undertaken on the site during operation;
  - (f) detail how the environmental performance of the operation of the development will be monitored, and what actions will be taken to address identified adverse environmental impacts;
  - (g) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the development;
  - (h) describe the procedures that will be implemented to:
    - (i) keep the local community and relevant agencies informed about the operation and environmental performance of the development;
    - (ii) receive, handle, respond to, and record complaints;
    - (iii) resolve any disputes that may arise during the course of the development;
    - (iv) respond to any non-compliance;
    - (v) respond to emergencies;
    - (vi) include copies of any strategies, plans and programs approved under the

- (vii) conditions of this consent; and
- (viii) a clear plan depicting all the monitoring required to be carried out under the conditions of this consent.

F5. The approved OEMP (as revised and approved by the Secretary from time to time) shall be implemented by the Applicant for the life of the Development.

## **ENVIRONMENTAL REPORTING**

### **Incident Reporting**

F6. Upon detecting an exceedance of the limits/performance criteria in this consent or the occurrence of an incident that causes (or may cause) material harm to the environment, the Applicant shall immediately (or as soon as practical thereafter) notify the Secretary and other relevant agencies of the exceedance/incident. Within seven days of the date of the incident, the Applicant shall provide the Secretary and any relevant agencies with a detailed report on the incident, and such further reports as may be requested.

### **Regular Reporting**

F7. The Applicant shall provide regular reporting on the environmental performance of the Development on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this consent.

## **ACCESS TO INFORMATION**

- F8. The Applicant shall make the following information publicly available on its website and keep the information up to date:
- (a) the EIS;
  - (b) the RTS;
  - (c) current statutory approvals for the Development;
  - (d) approved strategies, plans or programs;
  - (e) a complaints register, updated on an annual basis; and
  - (f) any other matter required by the Secretary.

**Note:** This condition does not require any confidential information to be made available to the public.

---

## APPENDIX 1 - SCHEDULE OF APPROVED CONCEPT PROPOSAL DRAWINGS

<b>Master Plan Drawings Prepared by SBA Architects</b>			
<b>Drawing No.</b>	<b>Rev.</b>	<b>Name of Plan</b>	<b>Date</b>
OAK MP 01	H	Cover Sheet	18/04/2016
OAK MP 02	M	SSDA Masterplan	18/04/2016
OAK MP 03	G	SSDA Stage 1 Development	18/04/2016
OAK MP 04	K	Precinct 1 Plan	18/04/2016
OAK MP 05	M	Precinct 4 & 5 Plan	05/07/2016
OAK MP 06	G	Indicative Ultimate Lot Layout	18/04/2016
OAK MP 07	H	Site Analysis Plan	18/04/2016
OAK MP 08	F	Existing Zoning	18/04/2016
OAK MP 09	F	Infrastructure Staging Plan	18/04/2016
OAK MP 10	F	Building Staging Plan (Indicative)	18/04/2016
OAK MP 11	G	Signage Precinct 1 Plan	18/04/2016
OAK MP 12	F	Signage Precinct 4 & 5 Plan	18/04/2016
OAK MP 13	D	Fire Protection Plan	18/04/2016
OAK MP 14	D	Vegetation Management Plan	18/04/2016
OAK MP 15	C	Fencing Plan	18/04/2016
<b>Concept Landscape Plans prepared by Site Image Landscape Architects</b>			
<b>Drawing No.</b>	<b>Rev.</b>	<b>Name of Plan</b>	<b>Date</b>
LR-003	B	Landscape Concept Master Plan	04/09/2015
LR-004	B	Typical Site Section	04/09/2015
LR-005	B	Vegetation Typologies	04/09/2016
LR-006	B	Typical Species List and Reference Table	04/09/2015
LR-007	B	Street Master Plan	04/09/2015
LR-008	B	Streetscape Typical Detail	04/09/2015
LR-009	B	Landscape Node 1 – Plan & Section	04/09/2015
LR-010	B	Landscape Node 2 – Plan/Section	04/09/2015
LR-011	B	Landscape Node 3 – Plan/Section	04/09/2015
LR-012	B	Signage Landscape Treatment	04/09/2015
<b>Proposed Service Strategy Drawings prepared by AT&amp;L</b>			
<b>Drawing No.</b>	<b>Rev.</b>	<b>Name of Plan</b>	<b>Date</b>
SKC149	P1	Sewer Strategy – Concept Scheme Plan	August 2015
SKC150	P1	Potable Water Strategy – Concept Scheme Plan	August 2015
SKC151	P1	High Voltage – Concept Scheme Plan	August 2015
SKC152	P1	Proposed Gas Main Strategy – Concept Scheme Plan	August 2015
SKC153	P1	Telecommunications Strategy – Concept Scheme Plan	August 2015
SKC154	P1	Proposed Rainwater Re-Use – Concept Scheme Plan	August 2015

## APPENDIX 2 - SCHEDULE OF APPROVED STAGE 1 DA DRAWINGS

Stage 1 Architectural Drawings Prepared by SBA Architects			
Drawing No.	Rev.	Name of Plan	Date
<b>Building 1A</b>			
OAK 1A DA 10	K	Proposed Industrial Facility - Building 1A – Site Plan/Floor Plan	18/04/2016
OAK 1A DA 11	E	Proposed Industrial Facility - Building 1A – Roof Plan	18/04/2016
OAK 1A Da 12	E	Proposed Industrial Facility - Building 1A – 1A Office 1&2 Floor Plans	18/04/2016
OAK 1A DA 13	D	Proposed Industrial Facility - Building 1A – Office 1A-3 Floor Plans	18/04/2016
OAK 1A DA 14	D	Proposed Industrial Facility - Building 1A – Office 1A-4 Floor Plan	18/04/2016
OAK 1A DA 15	D	Proposed Industrial Facility - Building 1A – Elevations/Sections 1A	18/04/2016
OAK 1A DA 16	D	Proposed Industrial Facility - Building 1A – Elevations Office 1A	18/04/2016
OAK 1A DA 17	D	Proposed Industrial Facility - Building 1A – Office Elevations 2	18/04/2016
OAK 1A DA 18	D	Proposed Industrial Facility - Building 1A – Elevations Office 3	18/04/2016
OAK 1A DA 19	D	Proposed Industrial Facility - Building 1A – Elevations Office 4	18/04/2016
<b>Building 1B</b>			
OAK 1B DA 20	J	Proposed Industrial Facility – Building 1B – Site Plan/Floor	18/04/2016
OAK 1B DA 21	E	Proposed Industrial Facility – Building 1B – Roof Plan	18/04/2016
OAK 1B DA 22	E	Proposed Industrial Facility – Building 1B – 1B Office Plan	18/04/2016
OAK 1B DA 24	E	Proposed Industrial Facility – Building 1B – Elevations 1B	18/04/2016
OAK 1B DA 25	E	Proposed Industrial Facility – Building 1B – Sections 1B	18/04/2016
OAK 1B DA 26	D	Proposed Industrial Facility – Building 1B – Elevations Office	18/04/2016
<b>Building 1C</b>			
OAK 1C DA 30	K	Proposed Industrial Facility – Building 1C – Site Plan/Floor Plan	18/04/2016
OAK 1C DA 31	E	Proposed Industrial Facility – Building 1C – Roof Plan	18/04/2016
OAK 1C DA 32	E	Proposed Industrial Facility – Building 1C – Office 1C-1 Floor Plans	18/04/2016
OAK 1C DA 33	E	Proposed Industrial Facility – Building 1C – 1C-2 Office Floor Plans	18/04/2016
OAK 1C DA 34	E	Proposed Industrial Facility – Building 1C – Elevations 1C	18/04/2016
OAK 1C DA 35	E	Proposed Industrial Facility – Building 1C – Sections 1C	18/04/2016
OAK 1C DA 36	D	Proposed Industrial Facility – Building 1C – Office Elevations 1	18/04/2016
OAK 1C DA 37	D	Proposed Industrial Facility – Building 1C – Office Elevations 2	18/04/2016
<b>Building 1D</b>			
OAK 1D DA 40	J	Proposed Industrial Facility – Building 1D – Site Plan/Floor Plan	18/04/2016
OAK 1D DA 41	E	Proposed Industrial Facility – Building 1D – Roof Plan	18/04/2016
OAK 1D DA 42	E	Proposed Industrial Facility – Building 1D – 1D – Office Floor Plans	18/04/2016
OAK 1D DA 44	E	Proposed Industrial Facility – Building 1D – Elevations 1D	18/04/2016
OAK 1D DA 45	E	Proposed Industrial Facility – Building 1D – Sections 1D	18/04/2016
OAK 1D DA 46	D	Proposed Industrial Facility – Building 1D – Office Elevations	18/04/2016
<b>Building 4A</b>			
OAK 4A DA 50	J	Proposed Industrial Facility – Building 4A – Site Plan/Floor Plan	04/09/2015
OAK 4A DA 51	D	Proposed Industrial Facility – Building 4A –Roof Plan	04/09/2015
OAK 4A DA 52	C	Proposed Industrial Facility – Building 4A – 4A Office Plan	04/09/2015
OAK 4A DA 54	D	Proposed Industrial Facility – Building 4A –Elevations 4A	04/09/2015
OAK 4A DA 55	D	Proposed Industrial Facility – Building 4A – Sections 4A	04/09/2015
OAK 4A DA 56	C	Proposed Industrial Facility – Building 4A –Elevations Office	04/09/2015
<b>Building 4B</b>			
OAK 4B DA 61	J	Proposed Industrial Facility – Building 4B – Site Plan/Floor Plan	04/09/2015
OAK 4B DA 61	D	Proposed Industrial Facility – Building 4B – Roof Plan	04/09/2015
OAK 4B DA 62	C	Proposed Industrial Facility – Building 4B – Office 4B Floor Plans	04/09/2015
OAK 4B DA 64	D	Proposed Industrial Facility – Building 4B – Elevations 4B	04/09/2015
OAK 4B DA 65	D	Proposed Industrial Facility – Building 4B – Sections 4B	04/09/2015
OAK 4B DA 66	C	Proposed Industrial Facility – Building 4B – Elevations Office	04/09/2015
<b>Building 4C</b>			
OAK 4C DA 70	J	Proposed Industrial Facility – Building 4C – Site Plan/Floor Plan	04/09/2015
OAK 4C DA 71	D	Proposed Industrial Facility – Building 4C – Roof Plan	04/09/2015
OAK 4C DA 72	C	Proposed Industrial Facility – Building 4C – 4C Office Plan	04/09/2015

OAK 4C DA 74	D	Proposed Industrial Facility – Building 4C –Elevations 4C	04/09/2015
OAK 4C DA 75	D	Proposed Industrial Facility – Building 4C – Sections 4C	04/09/2015
OAK 4C DA 76	C	Proposed Industrial Facility – Building 4C –Elevations Office	04/09/2015
<b>Building 5A</b>			
OAK 5A DA 80	J	Proposed Industrial Facility – Building 5A – Site Plan/Floor Plan	04/09/2015
OAK 5A DA 81	D	Proposed Industrial Facility – Building 5A – Roof Plan	04/09/2015
OAK 5A DA 82	C	Proposed Industrial Facility – Building 5A – 5A Ground Floor Office Floor Plan	04/09/2015
OAK 5A DA 83	C	Proposed Industrial Facility – Building 5A – First Floor Office Plan	04/09/2015
OAK 5A DA 84	D	Proposed Industrial Facility – Building 5A – Elevations 5A – Sheet 1	04/09/2015
OAK 5A DA 85	D	Proposed Industrial Facility – Building 5A – Elevations 5A – Sheet 2	04/09/2015
OAK 5A DA 86	D	Proposed Industrial Facility – Building 5A – Sections 5A	04/09/2015
OAK 5A DA 87	C	Proposed Industrial Facility – Building 5A – Elevations Office	04/09/2015
<b>Landscape Drawings Prepared by Site Image</b>			
<b>Drawing No.</b>	<b>Rev.</b>	<b>Name of Plan</b>	<b>Date</b>
LR-013	B	Stage 1 Development – Landscape Scope of Works	04/09/2015
ELW-001	B	Stage 1 Development Works – Landscape Plan	04/09/2015
ELW-002	B	Estate Landscape Works – Landscape Plan	04/09/2015
ELW-003	B	Estate Landscape Works – Landscape Plan	04/09/2015
ELW-004	B	Estate Landscape Works – Landscape Plan	04/09/2015
ELW-005	B	Estate Landscape Works – Landscape Plan	04/09/2015
ELW-006	B	Estate Landscape Works – Landscape Plan	04/09/2015
ELW-007	B	Estate Landscape Works – Typical Details & Plant Schedule	04/09/2015
LP1-001	B	Lot Landscaping – Precinct 1 – Landscape Plan 1:2000	04/09/2015
LP1-002	B	Lot Landscaping – Precinct 1 – Primary Presentational Frontage – Typical Landscape Detail Plan	04/09/2015
LP1-003	B	Secondary Presentational Frontage Plan – Typical Landscape Detail Plan	04/09/2015
LP1-004	B	Lot Landscaping – Precinct 1 – Planting Palette	04/09/2015
LP4-001	B	Lot Landscaping – Precinct 4 – Landscape Plan 1:2000	04/09/2015
LP4-002	B	Lot Landscaping – Precinct 4 – Primary Presentational Frontage – Typical Landscape Detail Plan	04/09/2015
LP4-003	B	Lot Landscaping – Precinct 4 - Secondary Presentational Frontage Plan – Typical Landscape Detail Plan	04/09/2015
LP4-004	B	Lot Landscaping – Precinct 4 – Planting Palette	04/09/2015
LP5-001	B	Lot Landscaping – Precinct 5 – Landscape Plan 1:2000	04/09/2015
LP5-002	B	Lot Landscaping – Precinct 5 – Presentational Entry – Typical Landscape Detail Plan	04/09/2015
LP5-003	B	Lot Landscaping – Precinct 5 – Presentational Entry – Typical Landscape Section	04/09/2015
LP5-004	B	Lot Landscaping – Precinct 5 – Primary Presentational Frontage – Typical Landscape Detail Plan	04/09/2015
LP5-005	B	Lot Landscaping – Precinct 5 – Planting Palette	04/09/2015
<b>Southern and Eastern Boundary Treatments Prepared by Site Image Landscape Architects</b>			
<b>Drawing No.</b>	<b>Rev.</b>	<b>Name of Plan</b>	<b>Date</b>
002	D	Key Plan – Typical Boundary Planting	03/05/2016
003	D	Section AA and Section BB – Southern Boundary	03/05/2016
004	D	Section CC – Eastern Boundary	03/05/2016
005	D	Section DD – Southern Boundary	03/05/2016
006	D	Section EE – Eastern Boundary	03/05/2016
<b>Stage 1 Civil Drawings Prepared by AT&amp;L Project Number 14-193</b>			
<b>Drawing No.</b>	<b>Rev.</b>	<b>Name of Plan</b>	<b>Date</b>
C1000	A	Cover Sheet and Locality Plan	03/09/2015
C1001	A	Drawing List	03/09/2015
C1002	A	General Notes	03/09/2015
C1003	A	General Arrangement Plan	03/09/2015

C1004	A	Typical Sections Sheet 1	03/09/2015
C1005	A	Typical Sections Sheet 2	03/09/2015
C1006	A	Typical Sections Sheet 3	03/09/2015
C1007	A	Typical Sections Sheet 4	03/09/2015
C1008	A	Typical Sections Sheet 5	03/09/2015
C1009	A	Typical Sections Sheet 6	03/09/2015
C1010	A	Typical Sections Sheet 7	03/09/2015
C1015	A	Typical Details Plan	03/09/2015
C1020	A	Bulk Earthworks Cut/Fill Plan	03/09/2015
C1021	A	Infrastructure Staging Plan	03/09/2015
C1031	A	Earthworks and Stormwater Plan Sheet 1	03/09/2015
C1232	A	Earthworks and Stormwater Plan Sheet 2	03/09/2015
C1033	A	Earthworks and Stormwater Plan Sheet 3	03/09/2015
C1034	A	Earthworks and Stormwater Plan Sheet 4	03/09/2015
C1035	A	Earthworks and Stormwater Plan Sheet 5	03/09/2015
C1036	A	Earthworks and Stormwater Plan Sheet 6	03/09/2015
C1037	A	Earthworks and Stormwater Plan Sheet 7	03/09/2015
C1038	A	Earthworks and Stormwater Plan Sheet 8	03/09/2015
C1039	A	Earthworks and Stormwater Plan Sheet 9	03/09/2015
C1040	A	Earthworks and Stormwater Plan Sheet 10	03/09/2015
C1041	A	Earthworks and Stormwater Plan Sheet 11	03/09/2015
C1042	A	Earthworks and Stormwater Plan Sheet 12	03/09/2015
C1043	A	Earthworks and Stormwater Plan Sheet 13	03/09/2015
C1051	A	Services and Utilities Coordination Plan Sheet 1	03/09/2015
C1052	A	Services and Utilities Coordination Plan Sheet 2	03/09/2015
C1053	A	Services and Utilities Coordination Plan Sheet 3	03/09/2015
C1054	A	Services and Utilities Coordination Plan Sheet 4	03/09/2015
C1055	A	Services and Utilities Coordination Plan Sheet 5	03/09/2015
C1056	A	Services and Utilities Coordination Plan Sheet 6	03/09/2015
C1057	A	Services and Utilities Coordination Plan Sheet 7	03/09/2015
C1058	A	Services and Utilities Coordination Plan Sheet 8	03/09/2015
C1059	A	Services and Utilities Coordination Plan Sheet 9	03/09/2015
C1060	A	Services and Utilities Coordination Plan Sheet 10	03/09/2015
C1061	A	Services and Utilities Coordination Plan Sheet 11	03/09/2015
C1062	A	Services and Utilities Coordination Plan Sheet 12	03/09/2015
C1063	A	Services and Utilities Coordination Plan Sheet 13	03/09/2015
C1071	A	Erosion and Sediment Control Plan Sheet 1	03/09/2015
C1072	A	Erosion and Sediment Control Plan Sheet 2	03/09/2015
C1073	A	Erosion and Sediment Control Plan Sheet 3	03/09/2015
C1074	A	Erosion and Sediment Control Plan Sheet 4	03/09/2015
C1075	A	Erosion and Sediment Control Plan Sheet 5	03/09/2015
C1076	A	Erosion and Sediment Control Plan Sheet 6	03/09/2015
C1077	A	Erosion and Sediment Control Plan Sheet 7	03/09/2015
C1078	A	Erosion and Sediment Control Plan Sheet 8	03/09/2015
C1079	A	Erosion and Sediment Control Plan Sheet 9	03/09/2015
C1080	A	Erosion and Sediment Control Plan Sheet 10	03/09/2015
C1081	A	Erosion and Sediment Control Plan Sheet 11	03/09/2015
C1082	A	Erosion and Sediment Control Plan Sheet 12	03/09/2015
C1083	A	Erosion and Sediment Control Plan Sheet 13	03/09/2015
C1084	A	Erosion and Sediment Details	03/09/2015
C1091	A	Pavement Plan Sheet 1	03/09/2015
C1092	A	Pavement Plan Sheet 2	03/09/2015
C1093	A	Pavement Plan Sheet 3	03/09/2015
C1094	A	Pavement Plan Sheet 4	03/09/2015
C1095	A	Pavement Plan Sheet 5	03/09/2015
C1201	A	Roadworks Plan Sheet 1	03/09/2015



C1202	A	Roadworks Plan Sheet 2	03/09/2015
C1203	A	Roadworks Plan Sheet 3	03/09/2015
C1204	A	Roadworks Plan Sheet 4	03/09/2015
C1205	A	Roadworks Plan Sheet 5	03/09/2015
C1206	A	Roadworks Plan Sheet 6	03/09/2015
C1207	A	Roadworks Plan Sheet 7	03/09/2015
C1208	A	Roadworks Plan Sheet 8	03/09/2015
C1209	A	Roadworks Plan Sheet 9	03/09/2015
C1210	A	Roadworks Plan Sheet 10	03/09/2015
C1211	A	Roadworks Plan Sheet 11	03/09/2015
C1212	A	Roadworks Plan Sheet 12	03/09/2015
C1221	A	Road Longitudinal; Sections Sheet 1	03/09/2015
C1222	A	Road Longitudinal; Sections Sheet 2	03/09/2015
C1223	A	Road Longitudinal; Sections Sheet 3	03/09/2015
C1224	A	Road Longitudinal; Sections Sheet 4	03/09/2015
C1241	A	Bio-Retention Basin A Detail Plan	03/09/2015
C1244	A	Bio-Retention Basin B Detail Plan	03/09/2015
C1247	A	Bio-Retention Basin C Detail Plan	03/09/2015
C1250	A	Bio-Retention Basin D Detail Plan	03/09/2015
C1261	A	Stormwater Culvert Plan and Sections	03/09/2015
C1301	A	Stormwater Catchment Plan	03/09/2015
C2000	A	On-Lot General Arrangement Plan	03/09/2015
C2100	A	Building 1A General Arrangement Plan	03/09/2015
C2105	A	Building 1A Siteworks and Stormwater Drainage Plan - Sheet 1	03/09/2015
C2106	A	Building 1A Siteworks and Stormwater Drainage Plan - Sheet 2	03/09/2015
C2107	A	Building 1A Siteworks and Stormwater Drainage Plan - Sheet 3	03/09/2015
C2108	A	Building 1A Siteworks and Stormwater Drainage Plan - Sheet 4	03/09/2015
C2110	A	Building 1A Pavement Plan	03/09/2015
C2200	A	Building 1B General Arrangement Plan	03/09/2015
C2205	A	Building 1B Siteworks and Stormwater Drainage Plan - Sheet 1	03/09/2015
C2206	A	Building 1B Siteworks and Stormwater Drainage Plan - Sheet 2	03/09/2015
C2207	A	Building 1B Siteworks and Stormwater Drainage Plan - Sheet 3	03/09/2015
C2208	A	Building 1B Siteworks and Stormwater Drainage Plan - Sheet 4	03/09/2015
C2210	A	Building 1B Pavement Plan	03/09/2015
C2300	A	Building 1C General Arrangement Plan	03/09/2015
C2305	A	Building 1C Siteworks and Stormwater Drainage Plan - Sheet 1	03/09/2015
C2306	A	Building 1C Siteworks and Stormwater Drainage Plan - Sheet 2	03/09/2015
C2307	A	Building 1C Siteworks and Stormwater Drainage Plan - Sheet 3	03/09/2015
C2308	A	Building 1C Siteworks and Stormwater Drainage Plan - Sheet 4	03/09/2015
C2310	A	Building 1C Pavement Plan	03/09/2015
C2400	A	Building 1D General Arrangement Plan	03/09/2015
C2405	A	Building 1D Siteworks and Stormwater Drainage Plan Sheet 1	03/09/2015
C2406	A	Building 1D Siteworks and Stormwater Drainage Plan Sheet 2	03/09/2015
C2407	A	Building 1D Siteworks and Stormwater Drainage Plan Sheet 3	03/09/2015
C2408	A	Building 1D Siteworks and Stormwater Drainage Plan Sheet 4	03/09/2015
C2410	A	Building 1D Pavement Plan	03/09/2015
C2500	A	Building 4A General Arrangement Plan	03/09/2015
C2505	A	Building 4A Sitework and Stormwater Drainage Plan Sheet 1	03/09/2015
C2506	A	Building 4A Sitework and Stormwater Drainage Plan Sheet 2	03/09/2015
C2508	A	Building 4A Pavement Plan	03/09/2015
C2600	A	Building 4B General Arrangement Plan	03/09/2015
C2605	A	Building 4B Sitework and Stormwater Drainage Plan Sheet 1	03/09/2015
C2606	A	Building 4B Sitework and Stormwater Drainage Plan Sheet 2	03/09/2015
C2608	A	Building 4B Pavement Plan	03/09/2015
C2700	A	Building 4C General Arrangement Plan	03/09/2015
C2705	A	Building 4C Sitework and Stormwater Drainage Plan Sheet 1	03/09/2015

C2706	A	Building 4C Sitework and Stormwater Drainage Plan Sheet 2	03/09/2015
C2708	A	Building 4C Pavement Plan	03/09/2015
C2800	A	Building 5A General Arrangement Plan	03/09/2015
C2805	A	Building 5A Sitework and Stormwater Drainage Plan Sheet 1	03/09/2015
C2806	A	Building 5A Sitework and Stormwater Drainage Plan Sheet 2	03/09/2015
C2807	A	Building 5A Sitework and Stormwater Drainage Plan Sheet 3	03/09/2015
C2808	A	Building 5A Sitework and Stormwater Drainage Plan Sheet 4	03/09/2015
C2809	A	Building 5A Sitework and Stormwater Drainage Plan Sheet 5	03/09/2015
C2810	A	Building 5A Sitework and Stormwater Drainage Plan Sheet 6	03/09/2015
C2811	A	Building 5A Sitework and Stormwater Drainage Plan Sheet 7	03/09/2015
C2812	A	Building 5A Sitework and Stormwater Drainage Plan Sheet 8	03/09/2015
C2814	A	Building 5A Pavement Plan	03/09/2015

**Oakdale South Watercourse Realignment Works Plans, prepared by AECOM, Drawing Set 60333552-DWG-WC**

Drawing No.	Rev.	Name of Plan	Date
1001	A	Watercourse Realignment Cover Sheet and Drawing Index	31/08/2015
1011	B	Watercourse Realignment Layout Plan Sheet 1	31/08/2015
1012	B	Watercourse Realignment Layout Plan Sheet 2	31/08/2015
1016	A	Watercourse Realignment Aerial Background Plan Sheet 1	31/08/2015
1017	A	Watercourse Realignment Aerial Background Plan Sheet 2	31/08/2015
1021	A	Watercourse Realignment Longitudinal Section	31/08/2015
1022	A	Watercourse Realignment Longitudinal Section - Stub	31/08/2015
1031	A	Watercourse Realignment Cross Sections - Watercourse 1 and Stub	31/08/2015
1036	A	Watercourse Realignment Cross Sections - Watercourse 2 Sheet 1	31/08/2015
1037	A	Watercourse Realignment Cross Sections - Watercourse 3 Sheet 2	31/08/2015
1041	A	Watercourse Realignment Rock Riffle Details Sheet 1	31/08/2015
1042	A	Watercourse Realignment Rock Riffle Details Sheet 2	31/08/2015
1043	A	Watercourse Realignment Rock Riffle Details Sheet 3	31/08/2015
1044	A	Watercourse Realignment Large Wood Debris Details	31/08/2015
1051	A	Watercourse Realignment Works Schedule	31/08/2015
1061	A	Watercourse Realignment Site Management Plan	31/08/2015

**Stormwater Plans prepared by AT&L in the Civil, Stormwater and Infrastructure Services Report at Appendix J of the EIS**

Drawing No.	Rev.	Name of Plan	Date
C1301	A	Stormwater Catchment Plan	3/09/2015
SKC008	P1	Existing Catchment Plan	25/08/2015

**TransGrid Easement Drainage Plans prepared by AT&L in Annexure A of the Supplementary RTS dated 18 May 2016**

Drawing No.	Rev.	Name of Plan	Date
SKC208	P1	TransGrid Easement Plan Sheet 1	17/5/2016
SKC209	P1	TransGrid Easement Plan Sheet 2	17/5/2016
SKC210	P1	Existing TransGrid Easement Sections	17/5/2016
SKC207	P1	Stormwater Catchment Plan	17/5/2016

## APPENDIX 3 - MANAGEMENT AND MITIGATION MEASURES (Source: RTS)

OSE - State Significant Development Application

### Consolidated Mitigation Measures

The collective measures required to mitigate the Impacts associated with the proposed works are detailed in the table below. These measures have been derived from the Impact assessment and response to submissions prepared in respect of the SSDA.

*OSE SSDA – Consolidated Summary of Mitigation Measures*

ISSUE	SSDA COMPONENT	MITIGATION AND MANAGEMENT
<b>Construction Management</b>		
General Construction Management	Stage 1 Development	- A CEMP to be prepared for the OSE Stage 1 Development capturing standard and specific management and mitigation measures as described in the SSDA, EIS and supporting technical documents.
<b>Operational Management</b>		
General Operational Management	Concept Proposal Stage 1 Precinct Development	- An OEMP to be prepared for the OSE capturing standard and specific operational management and mitigation measures as described in the SSDA, EIS and supporting technical documents.
<b>Transport</b>		
Construction Traffic	Stage 1 Development	- Preparation of a CTMP to form part of the CEMP addressing issues such as: <ul style="list-style-type: none"> <li>• Truck haul routes, delivery schedules and curfews;</li> <li>• Protocols for the management of construction traffic moving onto and off the site.</li> </ul>
<b>Urban Design and Visual</b>		
Site Layout and Design	Concept Proposal	- Future development of the OSE to proceed in accordance with the approved Development Concept Proposal and DCP.
Development Controls	Concept Proposal	- Design and development controls to be established for the OSE in the form of a DCP to guide future development on the site.
Visual Impact	Concept Proposal/Stage 1 Development	- Additional landscape planting to be introduced along the southern and eastern boundaries of the OSE to mitigate visual impacts on existing and proposed rural residential lands to the south and east of the site. - Landscaping of this boundary to be undertaken in accordance with the revised landscape plans included at Appendix D to the RTS. - Landscaping of the southern and eastern site boundaries to be implemented in the early stages of the development to maximise time for vegetation to mature as development on the site progresses. - Adoption of a colour pallet for exposed building elevations that compliments the natural colours of the surrounding landscape and inclusion of provisions with respect to the use of this pallet in the development controls for the site. - Design and development controls to be established for

ISSUE	SSDA COMPONENT	MITIGATION AND MANAGEMENT
		the OSE in the form of a DCP to guide future development on the site.
<b>Soils and Water</b>		
Water Usage	Stage 1 Development	<ul style="list-style-type: none"> <li>- Rainwater tanks to be provided for each development site with size determined in accordance with Penrith Council DCP requirements.</li> <li>- Irrigation and toilet flushing for development to be plumbed to rainwater tanks.</li> <li>- Consideration to be given to other possible rainwater reuse opportunities such as for truck washing.</li> <li>- Measures and considerations for the minimisation of water use during construction and operation to be incorporated into CEMP and OEMP as relevant.</li> </ul>
Soils	Stage 1 Development	<ul style="list-style-type: none"> <li>- Mitigation measures inherent to the civil design of the proposal.</li> <li>- Sedimentation and erosion control measures are proposed as detailed in Appendix E and J.</li> </ul>
Salinity	Stage 1 Development	<ul style="list-style-type: none"> <li>- A Salinity Management Plan has been prepared for the proposed development and is included in Appendix T.</li> <li>- Management measures described in the Salinity Management Plan to be adopted in the CEMP and OEMP as relevant.</li> </ul>
Contamination	Stage 1 Development	<ul style="list-style-type: none"> <li>- Identified areas of potential contamination to be subject to further investigation prior to the development of affected land.</li> </ul>
Earthworks	Stage 1 Development	<ul style="list-style-type: none"> <li>- Civil design achieves appropriate site levels with minimal impact upon hydrology.</li> <li>- Import of fill to be managed in accordance with CEMP.</li> <li>- Erosion and sediment controls included in SSDA package (Appendix E).</li> </ul>
Mineral Resources	Concept Proposal	<ul style="list-style-type: none"> <li>- No mitigation required provided that mining activities under the existing mining lease applying to land to the east of the site (ref. ML1636) would not be constrained by the OSE development.</li> </ul>
Surface Water	Stage 1 Development	<ul style="list-style-type: none"> <li>- Stormwater issues addressed through design measures incorporated into proposed development.</li> <li>- Stormwater management system designed to meet the requirements of Penrith Council's Engineering Works and WSUD guidelines and relevant NOW guidelines.</li> <li>- Detailed on-lot stormwater for future stages of the OSE to be designed and assessed under future applications.</li> </ul>
Groundwater	Stage 1 Development	<ul style="list-style-type: none"> <li>- Methods and management of any required dewatering required during construction works to be detailed in the CEMP.</li> </ul>

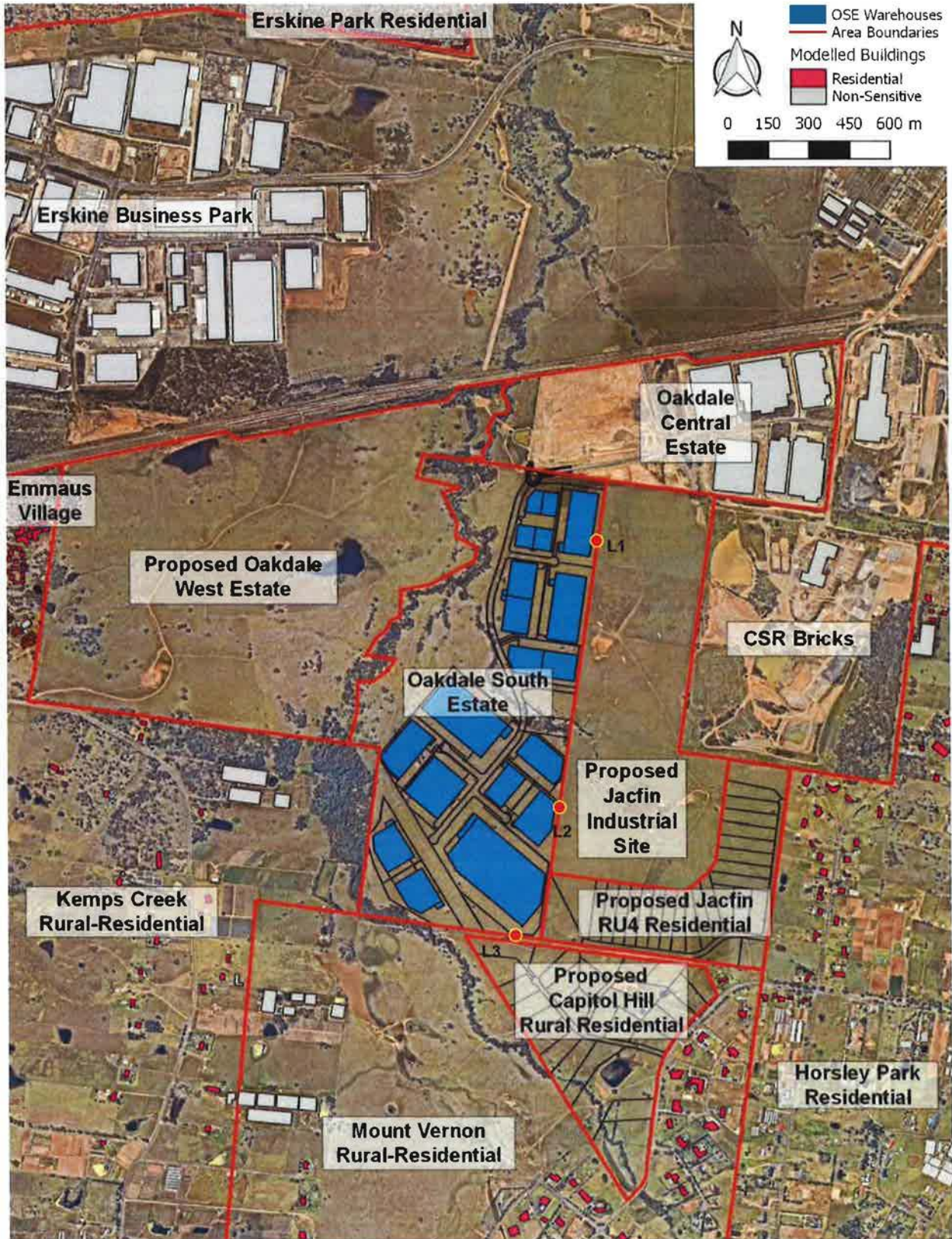
ISSUE	SSDA COMPONENT	MITIGATION AND MANAGEMENT
Flooding	Stage 1 Development	<ul style="list-style-type: none"> <li>- OSD designed to ensure that development does not increase stormwater peak flows in downstream areas for events up to and including 1:100 year ARI.</li> <li>- OSD designed to mitigate post-development flows to pre-development flows for peak ARI events.</li> <li>- Finished floor levels to have minimum 500mm freeboard to 100 year overland flows.</li> <li>- Flood impacts on Transgrid easement would be mitigated through minor compensatory earthworks on the floodplain to convey locally diverted flows. These works are detailed in the civil drawings at Appendix E.</li> </ul>
Water Quality	Stage 1 Development	<ul style="list-style-type: none"> <li>- Erosion and sediment controls as detailed in Appendix E and Appendix J to be implemented through CEMP.</li> <li>- Stormwater to be treated to compliant levels prior to discharge.</li> <li>- Gross Pollutant Trap (GPT) to be installed within each development site on the final downstream stormwater pit prior to discharge.</li> <li>- WSUD measures adopted to achieve target reductions for the OSE:                             <ul style="list-style-type: none"> <li>• 85% Total Suspended Solids</li> <li>• 60% Total Phosphorus</li> <li>• 45% Total Nitrogen</li> <li>• 90% Gross Pollutants</li> </ul> </li> </ul>
<b>Infrastructure</b>		
Capacity and Upgrades	Concept Proposal	<ul style="list-style-type: none"> <li>- Management of issues in respect of infrastructure capacity and upgrades is in the form of design responses described in Section 4.0 of the EIS.</li> </ul>
Delivery and Staging	Concept Proposal/Stage 1 Development	<ul style="list-style-type: none"> <li>- Management of issues in respect of infrastructure capacity and upgrades is in the form of design responses described in Section 4.0 of the EIS.</li> <li>- Staging of development of the OSE would be aligned with infrastructure and services delivery.</li> </ul>
Transgrid Easement	Concept Proposal/Stage 1 Development	<ul style="list-style-type: none"> <li>- Further consultation would be undertaken with Transgrid in relation to potential impacts and required mitigation.</li> </ul>
<b>Other Environmental Issues</b>		
Flora and Fauna	Concept Proposal Stage 1 Development	<ul style="list-style-type: none"> <li>- Implementation of the Biodiversity Offset Strategy for the site including:                             <ul style="list-style-type: none"> <li>• Formal establishment of a Biodiversity Offset Area as part of the OSE Concept Proposal as described in the EIS and supporting documents.</li> <li>• Biodiversity Offset Area to be established and managed under a BioBanking Agreement. A BioBanking Agreement Application for the site would be sought following approval of the SSDA.</li> <li>• Ecosystem credits to be acquired and retired to offset impacts to the HN528 EEC as part of the</li> </ul> </li> </ul>

ISSUE	SSDA COMPONENT	MITIGATION AND MANAGEMENT
		<p>proposal following approval of the SSDA.</p> <ul style="list-style-type: none"> <li>- Preparation of a Biodiversity Management Plan for the site to inform the CEMP and OEMP as relevant to manage potential impacts to biodiversity during construction and operation.</li> <li>- Finalisation and implementation of a VMP for the OSE addressing:               <ul style="list-style-type: none"> <li>• Restoration of retained areas of vegetation on the site including riparian corridors and the Biodiversity Offset Area;</li> <li>• Native grassland restoration to other areas of the site including road batters and outside batters of bio-retention basins; and</li> <li>• Ongoing maintenance and management of these areas in accordance with the provisions of the Biodiversity Offset Strategy.</li> </ul> </li> </ul>
Waterways and Riparian Lands		<ul style="list-style-type: none"> <li>- Realignment of Drainage Line to occur in accordance with design and management measures described in Appendix M including:               <ul style="list-style-type: none"> <li>• Retention of bank and bench vegetation where possible.</li> <li>• Provenance plant material to be used for planting where practicable.</li> <li>• Reinstatement of the realigned drainage line to a plant community type characteristic of the EEC Forest Red Gum – Rough-barked Apple grassy woodland.</li> </ul> </li> <li>- Ongoing management of riparian lands on the site to be in accordance with the Biodiversity Offset Strategy and VMP as described above.</li> </ul>
Construction Noise	Stage 1 Development	<ul style="list-style-type: none"> <li>- Construction hours to be limited to 7.00am-6.00pm Monday to Friday and 8.00am-1.00pm Saturdays.</li> <li>- Further noise management measures to be incorporated into the CEMP as appropriate.</li> </ul>
Operational Noise	Stage 1 Development	<ul style="list-style-type: none"> <li>- Construction of a five metre noise barrier on the retaining wall along the southern site boundary and along part of the eastern site boundary to the extent of the proposed rural-residential lands to mitigate potential noise impacts. The noise wall would be constructed behind the landscape setbacks to the southern and eastern boundaries.</li> <li>- Cumulative sound power levels of fixed plant for each building within the OSE to be limited to 100dBA.</li> <li>- Further assessment of potential operational noise impacts to be undertaken in respect of any specific</li> </ul>

ISSUE	SEDA COMPONENT	MITIGATION AND MANAGEMENT
		<p>operations proposed within the OSE with an atypical noise profile.</p> <ul style="list-style-type: none"> <li>- Assessment of future fixed plant to ensure specifications minimise noise emissions or apply local attenuation to manage potential noise impacts.</li> </ul>
Air Quality and Odour - Construction	Stage 1 Development	<ul style="list-style-type: none"> <li>- CEMP to include standard air quality control measures, contingency plans and response procedures and suitable reporting and performance monitoring procedures.</li> <li>- CEMP to include standard odour mitigation measures for construction including keeping excavation surfaces moist, covering excavation faces and/or stockpiles, use of soil vapour extraction systems and regular monitoring of discharges as appropriate.</li> </ul>
Air Quality and Odour - Operational	Stage 1 Development	<ul style="list-style-type: none"> <li>- Further assessment of potential air quality impacts to be undertaken in respect of any specific operations proposed within the OSE with an atypical air emissions profile.</li> <li>- Specific operations proposed within the OSE with the potential for generation of odour would be subject to further assessment.</li> </ul>
Indigenous heritage	Stage 1 Development	<ul style="list-style-type: none"> <li>- Archaeological salvage excavation and monitoring to be undertaken in the presence of relevant Aboriginal stakeholders prior to ground disturbance and excavation work in identified areas.</li> <li>- Results of detailed archaeological excavation and any suitable salvaged materials to be managed in accordance with the NPW Act and direction from relevant Aboriginal stakeholders.</li> </ul>
Non-indigenous heritage	Stage 1 Development	<ul style="list-style-type: none"> <li>- Archaeological salvage excavation and monitoring to be undertaken prior to ground disturbance and excavation work in the Lochwood Estate outbuildings area.</li> <li>- Results of detailed archaeological excavation and any suitable salvaged materials to be considered as part of heritage interpretation within the OSE development.</li> </ul>
Greenhouse Gas and Energy Efficiency	Stage 1 Development	<ul style="list-style-type: none"> <li>- Future stages of development within the OSE would be subject to assessment in relation to energy efficiency and greenhouse gas emissions.</li> </ul>
Waste Management - Construction	Stage 1 Development	<ul style="list-style-type: none"> <li>- Detailed construction waste minimisation and management measures to be included in the CEMP as described in Appendix W.</li> </ul>
Waste Management - Operations	Stage 1 Development	<ul style="list-style-type: none"> <li>- Detailed operational waste minimisation and management measures to be included in the OEMP as described in Appendix W.</li> </ul>

## APPENDIX 4 - NOISE RECEIVER LOCATIONS

Receiver Area	Sensitive Receivers within Area
L1 North of Warragamba Pipeline	Includes all rural-residential dwellings in Kemps Creek and the Emmaus Village residential complex.
L2 Horsley Park	Includes all residential and rural-residential dwellings in Horsley Park and Mount Vernon.
L3 Kemps Creek, Mt Vernon, Jacfin and Capitol Hill	Includes all residential dwellings in Erskine Park to the north.





## APPENDIX 5 - DEED OF VARIATION

Dated

## Deed of Variation to Planning Agreement

Parties

**Minister for Planning**  
(ABN 38 755 709681)

**Goodman Property Services (Aust) Pty Ltd**  
(ACN 088 981 793)

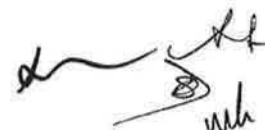
**BGAI 6 Pty Ltd**  
(ACN 128 775 799)

**BGMG 8 Pty Ltd**  
(ACN 161 602 768)

**BGAI 2 Pty Ltd**  
(ACN 120 605 718)

**The Austral Brick Co Pty Ltd**  
(ACN 000 005 550)

Felicity Rourke  
Norton Rose Fulbright Australia  
Grosvenor Place, 225 George Street  
Sydney NSW 2000  
Telephone: +61 (0)2 9330 8665  
nortonrosefulbright.com  
Our ref: 2836270

Handwritten signature and initials in black ink, appearing to be 'nrh'.

## Contents

1	Definitions and interpretation.....	2
2	Variation of Planning Agreement.....	2
3	Registration of this deed.....	4
4	General.....	4
5	Expenses.....	4
6	Variations not to affect accrued rights and obligations.....	5
7	Trustees.....	5
8	Confirmation.....	5
	Schedule I.....	1
	Schedule II.....	2
	Schedule III.....	3
	Schedule IV.....	6
	Schedule V.....	7

**This Deed** dated

**Parties**      **MINISTER FOR PLANNING** (ABN 38 755 709681)  
of Level 15, 52 Martin Place, Sydney NSW 2000  
(**Planning Minister**)

**GOODMAN PROPERTY SERVICES (AUST) PTY LTD** (ACN 088 981 793)  
of Level 17, 60 Castlereagh Street, Sydney NSW 2000  
(**GPS**);

**BGAI 6 PTY LTD** (ACN 128 775 799)  
of Level 17, 60 Castlereagh Street, Sydney NSW 2000  
(**Oakdale Central Landowner**);

**BGMG 8 PTY LTD** (ACN 161 602 768)  
of Level 17, 60 Castlereagh Street, Sydney NSW 2000  
(**Oakdale South Landowner**); and

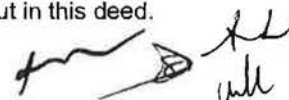
**BGAI 2 PTY LTD** (ACN 120 605 718)  
of Level 17, 60 Castlereagh Street, Sydney NSW 2000  
(**Erskine Park Landowner**)

(collectively **the Developers**)

**THE AUSTRAL BRICK CO PTY LTD** (ACN 000 005 550) of 738-780 Wallgrove  
Road, Horsley Park NSW 2175  
(**Austral**)

## **Introduction**

- A**      On 12 March 2015, the Planning Minister and the Developers entered into the Planning Agreement relating to the Oakdale Central and Oakdale South Industrial Estates. At the time of executing the Planning Agreement, GPS had not submitted a development application for the Oakdale South Development.
- B**      In September 2015, GPS lodged the SSD Application which is presently being assessed by the Department.
- C**      An additional land parcel known as Lot 87 is included in the land to which the SSD Application relates but is not land to which the Planning Agreement relates.
- D**      As a consequence of the development proposed in the SSD Application, GPS has proposed amendments to the Planning Agreement in an offer to the Planning Minister.
- E**      Lot 87 is owned by Austral. Austral has entered into an agreement with the Oakdale South Landowner granting the Oakdale South Landowner the right to develop Lot 87 and requiring Austral to transfer Lot 87 to the Oakdale South Landowner.
- F**      Austral will by means of this deed become a party to the Planning Agreement in its capacity as landowner of Lot 87.
- G**      The parties wish to vary the Planning Agreement as set out in this deed.



## **It is agreed**

### **1 Definitions and interpretation**

#### **1.1 Definitions**

In this deed:

- (1) **Lot 87** means Lot 87 in DP 752041;
- (2) **Planning Agreement** means the voluntary planning agreement entered into between the Minister and the Developers dated 12 March 2015; and
- (3) **SSD Application** means SSD Application No 6917, which seeks development consent for the staged development of the Oakdale South Development.

#### **1.2 Interpretation**

- (1) In this deed, unless the contrary intention appears:
  - (a) Expressions and phrases used but not defined in this deed will have the same meanings as they have in the Planning Agreement;
  - (b) Clause 1 of the Planning Agreement will apply to the interpretation and construction of this deed.

### **2 Variation of Planning Agreement**

#### **2.1 Variation**

The Planning Agreement is varied as set out in this clause 2.

#### **2.2 Introduction**

The text at para. B. in the Introduction to the Planning Agreement is replaced with the following:

"The Oakdale South Landowner owns the Oakdale South Land (except Lot 87, which will be transferred to the Oakdale South Landowner by Austral)."

#### **2.3 Clause 1.1 Definitions**

A reference in the Planning Agreement to:

- (1) 'Oakdale South Lot 1A' is replaced with 'Oakdale South Lot 1';
- (2) 'Oakdale South Lot 1B' is replaced with 'Oakdale South Lot 2';
- (3) 'Oakdale South Lot 2' is replaced with 'Oakdale South Lot 3';
- (4) 'Oakdale South Lot 3' is replaced with 'Oakdale South Lot 4';
- (5) 'Oakdale South Lot 4A' is replaced with 'Oakdale South Lot 5'; and
- (6) 'Oakdale South Lot 4B' is replaced with 'Oakdale South Lot 6'.

**2.4 Schedule 2 - Address for Service**

Schedule 2 of the Planning Agreement is varied to add the following:

**Austral**

Company: Austral Brick Co Pty Ltd

Contact: Susan Leppinus, Company Secretary

Address: 730 - 780 Wallgrove Road  
HORSLEY PARK NSW 2175

Facsimile No: (02) 9831 3771

**2.5 Schedule 3 – Land**

The table entitled "Land (clause 1.1)" at Schedule 3 of the Planning Agreement is deleted, and replaced with the table at Schedule 1 to this deed.

**2.6 Austral as a party to Planning Agreement**

- (1) Austral is added as a party to the Planning Agreement.
- (2) The Parties acknowledge and agree that:
  - (a) Austral will transfer Lot 87 to the Oakdale South Landowner within 90 days of the date of this deed, time being of the essence;
  - (b) Clause 10.2 of the Planning Agreement does not apply to the Dealing referred to in clause 2.6(2)(a) of this deed; and
  - (c) Once the Dealing referred to in clause 2.6(2)(a) of this deed has been completed and evidence of the registration under the Real Property Act of the transfer of Lot 87 to the Oakdale South Landowner has been provided to the Planning Minister's satisfaction, the Planning Agreement is further varied to:
    - (i) remove Austral as a party;
    - (ii) replace the words "The Austral Brick Co Pty Ltd" at Schedule 1 to this deed with "BGMG8 Pty Ltd"; and
    - (iii) reverse the variations at clause 2.2 and 2.4 of this deed.
  - (d) If the Dealing referred to in clause 2.6(2)(a) of this deed has not been completed within 90 days of the date of this deed, clauses 2.6(2)(b) and 2.6(2)(c) of this deed shall have no application.

**2.7 Annexure A – Oakdale Central and Oakdale South lots**

On and from the date of this deed, the plan entitled "Subdivision Plan – OAK SK119(B)" at Annexure A to the Planning Agreement:

- (1) has effect only insofar as it identifies the original lot references referred to in the Planning Agreement; but

- (2) otherwise is of no effect, and is replaced with the plan at Schedule II to this deed.

## 2.8 Monetary Contributions

- (1) The two tables at Clause 1(a) and Clause 1(b) of Schedule 4 of the Planning Agreement are deleted, and replaced with the two tables at Schedule III to this deed, respectively.
- (2) The text below the heading "Oakdale South" in the table entitled "Monetary Contribution Component estimates and offsets" which appears on the second page of Annexure B of the Planning Agreement is deleted, and replaced with the table at Schedule IV to this deed.

## 2.9 Altered Design of the Estate Road

- (1) The plan entitled "Oakdale Central + South – Monetary Contribution (Estimate) – OAK SK117(D)" at Annexure C to the Planning Agreement is deleted, and replaced with the plan at Schedule V to this deed.

## 3 Registration of this deed

### 3.1 Registration

- (1) As contemplated by section 93H of the Planning Act, the Developers agree to lodge this deed for registration under the Real Property Act in the relevant folios of the Register for all of the Oakdale Land within 10 Business Days after the date on which a counterpart of this deed which the Planning Minister has executed is returned to the Developer.
- (2) As contemplated by section 93H of the Planning Act, Austral agrees to lodge both this deed and the Planning Agreement for registration under the Real Property Act in the relevant folio for Lot 87 within 10 Business Days after the date on which a counterpart of this deed which the Planning Minister has executed is returned to Austral.
- (3) The Developers will provide the Planning Minister with a copy of the relevant folio of the Register and a copy of the registered dealing which provide evidence that clause 3.1(1) and clause 3.1(2) have been satisfied, within 10 Business Days after the date of registration.

## 4 General

- 4.1 This deed and the Planning Agreement constitute the entire agreement between the parties regarding the matters set out in it and supersede any prior representations, understandings or arrangements between the parties, whether orally or in writing.

## 5 Expenses

- 5.1 The Developers must pay their own, Austral's and the Planning Minister's reasonable legal costs and disbursements in connection with the negotiation, preparation, execution and carrying into effect of this deed.
- 5.2 The Developers must pay for all costs and expenses associated with the giving of public notice of this deed and the Explanatory Note in accordance with the Planning Regulation.

- 5.3 The Developers must pay all Taxes assessed on or in respect of this deed and any instrument or transaction required or contemplated by or necessary to give effect to this deed (including stamp duty and registration fees, if applicable).
- 5.4 The Developers must provide the Planning Minister with bank cheques in respect of the Planning Minister's costs pursuant to clauses 5.1 and 5.2 above:
- (1) where the Planning Minister has provided the Developer with written notice of the sum of such costs prior to execution, on the date of execution of this deed; or
  - (2) where the Planning Minister has not provided the Developer with prior written notice of the sum of such costs prior to execution, within 10 Business Days of demand by the Planning Minister for payment.

## **6 Variations not to affect accrued rights and obligations**

- 6.1 The variations to the Planning Agreement do not affect the validity or enforceability of the Planning Agreement as varied.
- 6.2 Nothing in this deed:
- (1) prejudices or adversely affects any right, power, authority, discretion or remedy arising under the Planning Agreement before the date of this deed; or
  - (2) discharges, releases or otherwise affects any liability or obligation arising under the Planning Agreement before the date of this deed.

## **7 Trustees**

Clause 11.3 and Schedule 7 of the Planning Agreement are incorporated as though fully set out in this Deed.

## **8 Confirmation**

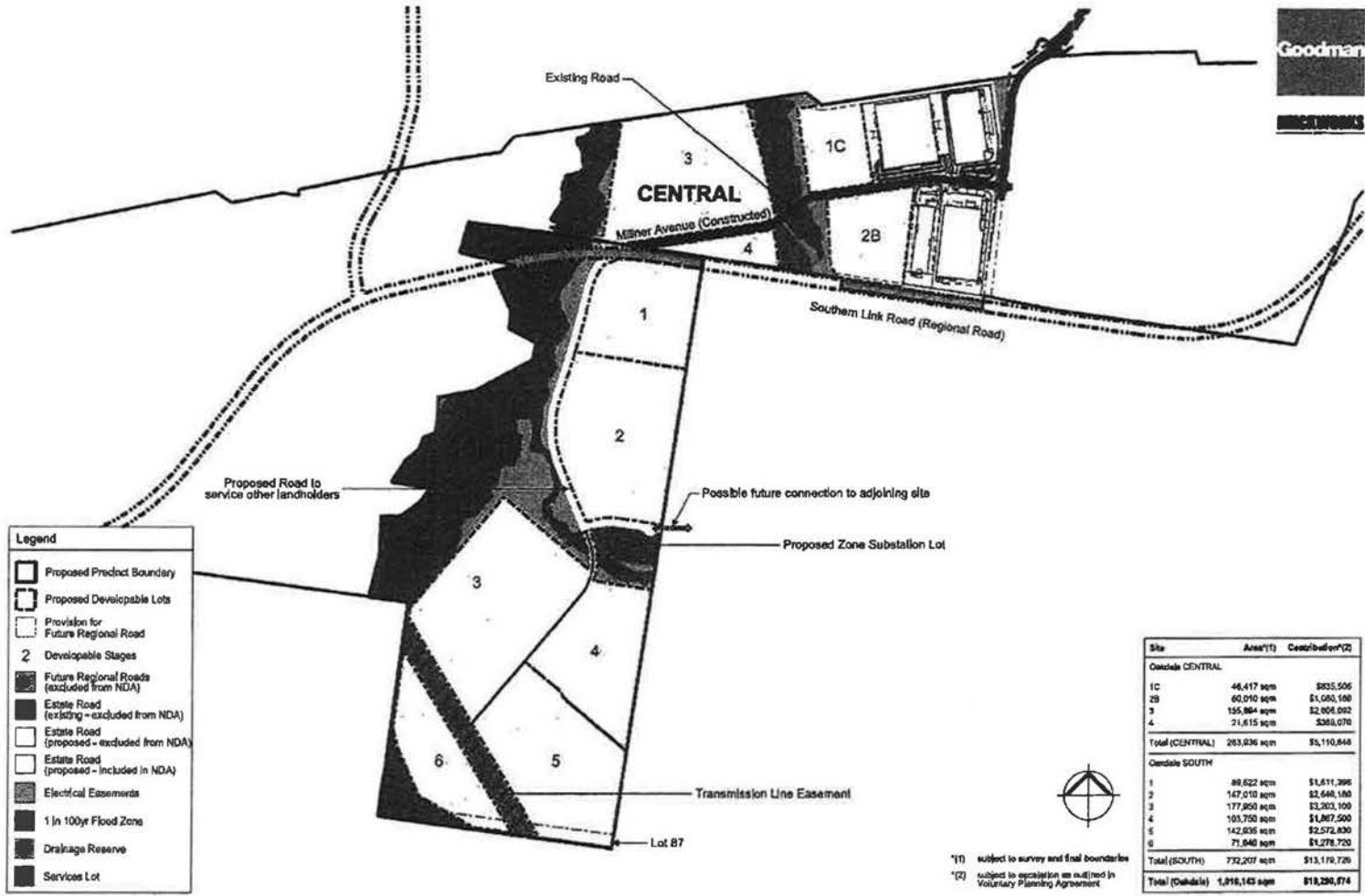
Each party is bound by the Planning Agreement as varied by this Deed.



## Schedule I

### Land (clause 1.1)

Land		Lot	Deposited Plan	Registered proprietor
Oakdale Land	Oakdale Central Land	21	1173181	BGAI 6 Pty Ltd
	Oakdale South Land	12	1178389	BGMG 8 Pty Ltd
		87	752041	The Austral Brick Co Pty Ltd
Erskine Park Land		1	1124329	BGAI2 Pty Ltd
		2	1124329	BGAI2 Pty Ltd
		3	1124329	BGAI2 Pty Ltd
		4	1124329	BGAI2 Pty Ltd
		5	1124329	BGAI2 Pty Ltd
		6	1124329	Ministerial Corporation



### Schedule III

1. (a)

Item	Monetary Contribution and Land Component	Amount / Value (subject to clause 2)	Indexation	Manner of Delivery	Timing
1.	The Monetary Contribution Component payable in relation to Oakdale Central Lot 1B ( <b>Oakdale Central Lot 1B Contribution</b> ).	\$1,058,400	Yes (see clause 3 of this Schedule 4)	Cash, bank cheque or electronic funds transfer.	Pursuant to clause 5 of this Schedule 4.
2.	The Monetary Contribution Component payable in relation to the Erskine Park Land ( <b>Erskine Park Contribution</b> ).	\$3,414,056	Yes (see clause 3 of this Schedule 4)	Cash, bank cheque or electronic funds transfer.	Pursuant to clause 5 of this Schedule 4.
3.	The Monetary Contribution Component payable in relation to Oakdale Central Lot 1C ( <b>Oakdale Central Lot 1C Contribution</b> ).	To be calculated pursuant to clause 2 of this Schedule 4.	Yes (see clause 3 of this Schedule 4)	Cash, bank cheque or electronic funds transfer.	Pursuant to clause 5 of this Schedule 4.
4.	The Monetary Contribution Component payable in relation to Oakdale Central Lot 2B ( <b>Oakdale Central Lot 2B Contribution</b> ).	To be calculated pursuant to clause 2 of this Schedule 4.	Yes (see clause 3 of this Schedule 4)	Cash, bank cheque or electronic funds transfer.	Pursuant to clause 5 of this Schedule 4.
5.	The Monetary Contribution Component payable in relation to Oakdale Central Lot 3 ( <b>Oakdale Central Lot 3 Contribution</b> ).	To be calculated pursuant to clause 2 of this Schedule 4.	Yes (see clause 3 of this Schedule 4)	Cash, bank cheque or electronic funds transfer.	Pursuant to clause 5 of this Schedule 4.
6.	The Monetary Contribution Component payable in relation to Oakdale Central Lot 4 ( <b>Oakdale Central Lot 4 Contribution</b> ).	To be calculated pursuant to clause 2 of this Schedule 4.	Yes (see clause 3 of this Schedule 4)	Cash, bank cheque or electronic funds transfer.	Pursuant to clause 5 of this Schedule 4.
7.	The Monetary Contribution	To be calculated	Yes (see clause 3 of	Cash, bank cheque or	Pursuant to clause 5 of

Item	Monetary Contribution and Land Component	Amount / Value (subject to clause 2)	Indexation	Manner of Delivery	Timing
	Component payable in relation to Oakdale South Lot 1 ( <b>Oakdale South Lot 1 Contribution</b> ).	pursuant to clause 2 of this Schedule 4.	this Schedule 4)	electronic funds transfer.	this Schedule 4.
8.	The Monetary Contribution Component payable in relation to Oakdale South Lot 2 ( <b>Oakdale South Lot 2 Contribution</b> ).	To be calculated pursuant to clause 2 of this Schedule 4.	Yes (see clause 3 of this Schedule 4)	Cash, bank cheque or electronic funds transfer.	Pursuant to clause 5 of this Schedule 4.
9.	The Monetary Contribution Component payable in relation to Oakdale South Lot 3 ( <b>Oakdale South Lot 3 Contribution</b> ).	To be calculated pursuant to clause 2 of this Schedule 4.	Yes (see clause 3 of this Schedule 4)	Cash, bank cheque or electronic funds transfer.	Pursuant to clause 5 of this Schedule 4.
10.	The Monetary Contribution Component payable in relation to Oakdale South Lot 4 ( <b>Oakdale South Lot 4 Contribution</b> ).	To be calculated pursuant to clause 2 of this Schedule 4.	Yes (see clause 3 of this Schedule 4)	Cash, bank cheque or electronic funds transfer.	Pursuant to clause 5 of this Schedule 4.
11.	The Monetary Contribution Component payable in relation to Oakdale South Lot 5 ( <b>Oakdale South Lot 5 Contribution</b> ).	To be calculated pursuant to clause 2 of this Schedule 4.	Yes (see clause 3 of this Schedule 4)	Cash, bank cheque or electronic funds transfer.	Pursuant to clause 5 of this Schedule 4.
12.	The Monetary Contribution Component payable in relation to Oakdale South Lot 6 ( <b>Oakdale South Lot 6 Contribution</b> ).	To be calculated pursuant to clause 2 of this Schedule 4.	Yes (see clause 3 of this Schedule 4)	Cash, bank cheque or electronic funds transfer.	Pursuant to clause 5 of this Schedule 4.

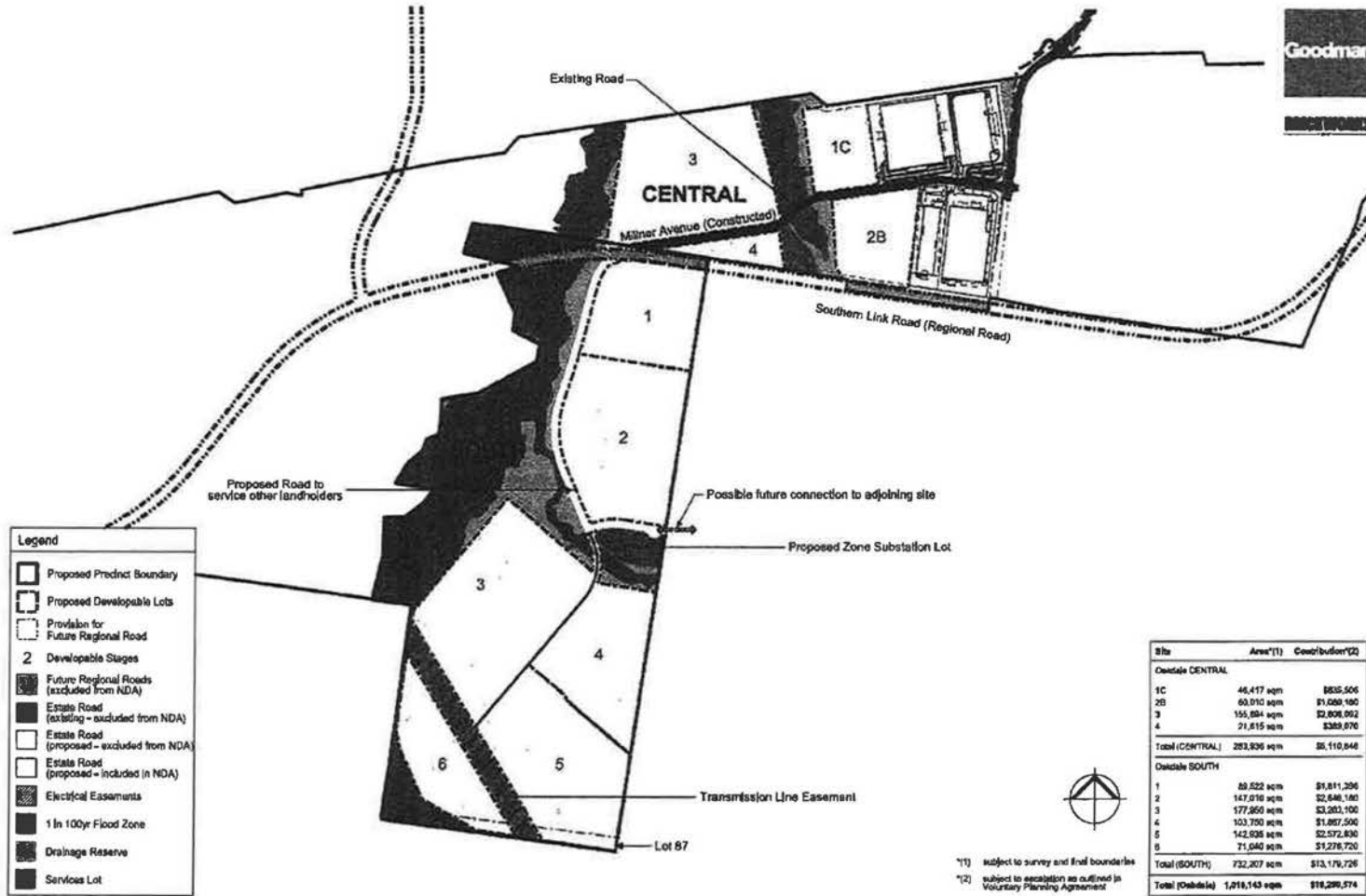
1. (b)

Land Component	Indicative NDA (as at date of this deed)	Indicative contribution amount (based on indicative NDA)
Oakdale Central Land		

<b>Land Component</b>	<b>Indicative NDA (as at date of this deed)</b>	<b>Indicative contribution amount (based on indicative NDA)</b>
Oakdale Central Lot 1C	4.6417 hectares	\$835,506 calculated pursuant to clause 2 of this Schedule 4.
Oakdale Central Lot 2B	6.001 hectares	\$1,080,180 calculated pursuant to clause 2 of this Schedule 4.
Oakdale Central Lot 3	15.5894 hectares	\$2,806,092 calculated pursuant to clause 2 of this Schedule 4.
Oakdale Central Lot 4	2.161 hectares	\$389,070 calculated pursuant to clause 2 of this Schedule 4.
<b>Oakdale South Land</b>		
Oakdale South Lot 1	8.9522 hectares	\$1,611,396 calculated pursuant to clause 2 of this Schedule 4
Oakdale South Lot 2	14.7010 hectares	\$2,646,180 calculated pursuant to clause 2 of this Schedule 4
Oakdale South Lot 3	17.7950 hectares	\$3,203,100 calculated pursuant to clause 2 of this Schedule 4
Oakdale South Lot 4	10.3750 hectares	\$1,867,500 calculated pursuant to clause 2 of this Schedule 4
Oakdale South Lot 5	14.2935 hectares	\$2,572,830 calculated pursuant to clause 2 of this Schedule 4
Oakdale South Lot 6	7.1040 hectares	\$1,278,720 calculated pursuant to clause 2 of this Schedule 4

#### Schedule IV

<b>Site</b>	<b>Land area (m2)</b>	<b>Contribution</b>
Site 1	89,522	\$1,611,396
Site 2	147,010	\$2,646,180
Site 3	177,950	\$3,203,100
Site 4	103,750	\$1,867,500
Site 5	142,935	\$2,572,830
Site 6	71,040	\$1,278,720
<b>Total (South)</b>	<b>732,207</b>	<b>\$13,179,726</b>
<b>TOTAL</b>	<b>1,016,143</b>	<b>\$21,704,630</b>



**Executed** as a deed.

**Signed sealed and delivered** for and on behalf of the **Minister for Planning** in the presence of:

_____ Signature of Witness	_____ Signature as delegate of the Minister for Planning
_____ Name of Witness in full	_____ Full name of delegate

**Signed, sealed and delivered** for and on behalf of **BGAI 6 Pty Ltd** (ABN 19 128 775 799) by its attorneys under a power of attorney dated 18/11/13 registered in NISW with in in the presence of: Book 4659 No 705

Susan Leppinos  
Signature of witness

SUSAN LEPPINOS  
Full name of witness

MA  
Signature of witness

Michelle Ban  
Full name of witness

Megan M Kublins  
Signature of attorney who declares that the attorney has not received any notice of the revocation of the power of attorney


MEGAN M KUBLINS  
Full name of attorney

Samantha Evans  
Signature of attorney who declares that the attorney has not received any notice of the revocation of the power of attorney

SAMANTHA EVANS  
Full name of attorney



Signed, sealed and delivered for and on behalf of **BGMG 8 Pty Ltd** (ABN 65 161 602 768) by its attorneys under a power of attorney dated 19/12/13 registered in NSW with B/K 4644 No 963 in the presence of:



Signature of witness

Andriana Birkic

Full name of witness

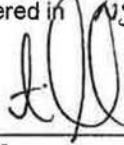


Signature of witness

Michelle Ban

Full name of witness

Signed, sealed and delivered for and on behalf of **BGAI 2 Pty Ltd** (ABN 49 120 605 718) by its attorneys under a power of attorney dated 18/11/13 registered in NSW with Book 4659 No 701 in the presence of:



Signature of witness

Andriana Birkic

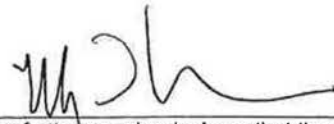
Full name of witness



Signature of witness

Michelle Ban

Full name of witness



Signature of attorney who declares that the attorney has not received any notice of the revocation of the power of attorney

MEGAN M KUBLINS

Full name of attorney



Signature of attorney who declares that the attorney has not received any notice of the revocation of the power of attorney

SAMANTHA EVANS

Full name of attorney



Signature of attorney who declares that the attorney has not received any notice of the revocation of the power of attorney

MEGAN M KUBLINS

Full name of attorney



Signature of attorney who declares that the attorney has not received any notice of the revocation of the power of attorney

SAMANTHA EVANS

Full name of attorney

Signed, sealed and delivered for and on behalf of Goodman Property Services (Aust) Pty Limited (ABN 40 088 981 793) by its attorneys under a power of attorney dated 18/12/06 registered in NSW with ~~with~~ in the presence of: BK 4502 No 75

*Michelle Ban*

Signature of witness

Michelle Ban

Full name of witness

Signature of witness

Full name of witness

*[Signature]*

Signature of attorney who declares that the attorney has not received any notice of the revocation of the power of attorney

SAMANTHA EVANS

Full name of attorney

Signature of attorney who declares that the attorney has not received any notice of the revocation of the power of attorney

Full name of attorney

Executed by The Austral Brick Co Pty Ltd ACN 000 005 550 in accordance with section 127 of the Corporations Act 2001:

*Susan Leppinuis*  
Director/company secretary

SUSAN LEPPINUIS  
Name of director/company secretary (BLOCK LETTERS)

*[Signature]*  
Director

Director

GRANT DONALD

Name of director (BLOCK LETTERS)

# Modification of Development Consent

## Section 96(2) of the *Environmental Planning and Assessment Act 1979*

As delegate for the Minister for Planning, under delegation executed on 16 February 2015, I approve the modification of the development consent referred to in Schedule 1, subject to the conditions outlined in Schedule 2.



Chris Ritchie  
Director  
Industry Assessments

Sydney 21 APRIL

2017

File: 16/11376

### SCHEDULE 1

<b>Application No:</b>	SSD 6917
<b>Applicant:</b>	Goodman Property Services (Aust) Pty Ltd
<b>Consent Authority:</b>	Minister for Planning
<b>Development:</b>	Oakdale South Industrial Estate, Lot 12 DP 1178389 and Lot 87 DP 752041, Kemps Creek, Penrith local government area
<b>Date of Original Consent:</b>	26 October 2016
<b>Modification:</b>	SSD 6917 MOD 1 - Concept Proposal and Stage 1 DA Layout including: <ul style="list-style-type: none"><li>• revised lot, building envelope and internal road layout under the Concept Proposal and Stage 1 DA;</li><li>• addition of a 5,800 m<sup>2</sup> amenity lot;</li><li>• amended subdivision layout;</li><li>• an increase of the total developable area for the estate from 70.28 ha to 71.33 ha;</li><li>• amended bulk earthworks, estate infrastructure and landscaping works;</li><li>• amended creek re-alignment works;</li><li>• construction of extended noise walls; and</li><li>• removal of all warehouse building construction in precincts 3, 4 and 5 from the Stage 1 DA.</li></ul>

### SCHEDULE 2

The Development Consent is modified as follows:

#### In Schedule A: Administrative Conditions

1. Delete and replace the description of the approved development as follows:

<b>Development:</b>	The Staged Development Application for the Oakdale South Industrial Estate comprised of:  A Concept Proposal with: <ul style="list-style-type: none"><li>• 331,311 m<sup>2</sup> of GFA comprised of 316,596 m<sup>2</sup> of warehousing GFA and 14,715 m<sup>2</sup> of ancillary office floor spaces;</li><li>• six development precincts with a total of 15 building envelopes; and</li><li>• conceptual subdivision and lot layout, site levels, road layout, design controls, landscape designs and infrastructure arrangements.</li></ul>
---------------------	--

A Stage 1 Development Application including:

- staged subdivision;
- construction of bulk and detailed earthworks;
- construction of internal estate roads, water, sewer, telecommunications and gas infrastructure;
- construction of stormwater management devices;
- installation of estate landscaping; and
- construction and operation of five warehouse and distribution buildings across precinct 1 with a total GFA of 104,739 m<sup>2</sup>.

#### In the list of definitions

2. Delete and replace the following items in the list of definitions in alphabetical order as follows:

Concept Proposal	The Concept Proposal comprised of 331,331 m <sup>2</sup> of GFA with 316,596 m <sup>2</sup> of warehousing and 14,715 m <sup>2</sup> of ancillary office floor space, six development precincts with a total of 15 building envelopes, and conceptual lot layout, site levels, road layout, urban design controls, conceptual landscape designs and infrastructure arrangements
Development	The development as described in the EIS, RTS known as SSD 6917 for the Oakdale South Industrial Estate, approved by this Development Consent and as described in Schedule A and modified by the section 96(2) modification application (SSD 6917 MOD 1)
Stage 1 DA	The Stage 1 Development Application comprising staged subdivision, site wide bulk and detailed earthworks, construction of estate wide internal roads, water, sewer, telecommunications, gas, stormwater infrastructure, estate wide landscaping and construction and operation of five warehouse and distribution buildings in precinct 1
VPA	The Oakdale Central and Oakdale South, Horsley Park Voluntary Planning Agreement between the Minister for Planning, Goodman Property Services (Aust) Pty Ltd, BGAI 6 Pty Ltd, BGMG 8 Pty Ltd and BGAI 2 Pty Ltd executed on 12 March 2015 and amended by the Deed of Variation in connection with SSD 6917 dated 22 December 2016

3. Insert the following new definition in the list of definitions in alphabetical order:

SSD 6917 MOD 1	The section 96(2) modification application lodged by the Applicant on 18 November 2016 to amend the Concept Proposal and Stage 1 DA layouts of the Oakdale South Industrial Estate and all supporting documentation
----------------	---

#### In Schedule B: Conditions of Consent for Concept Proposal

4. Delete and replace Condition B4 as follows:

- B4. The Applicant shall carry out the Development in accordance with the:
- (a) EIS and RTS;
  - (b) the letter titled '*Re: SSD6917 Oakdale South Industrial Estate, TransGrid Easement Flood Extents*', ref 14-193-ATL-TRANSGRID-L2, prepared by At&I, dated 18 May 2016 and all appendices;
  - (c) the Supplementary Response to Submissions titled '*Re: Oakdale South Estate SSDA\_6917*' and all annexures, prepared by Urban Advisory Services, dated 12 July 2016;
  - (d) the letter report titled '*Oakdale South Estate, Operational Noise Contours, Adverse Weather Conditions*', prepared by SLR, dated 13 July 2016;
  - (e) the letter titled '*Re: Oakdale South Estate - State Significant Development Application Ref. 6917*' and all annexures, prepared by Urban Advisory Services, dated 8 September 2016;
  - (f) the section 96(2) Modification Application SSD 6917 MOD 1 prepared by Urbis, dated 4 November 2016 and all supporting documentation;
  - (g) the development layout plans and drawings listed at **Appendix 1**; and
  - (h) the Management and Mitigation Measures at **Appendix 3**.

5. Delete Condition B7(c) and rename Condition B7(d) to B7(c).

6. Insert new Condition B7A as follows:

- B7A. Within one month of the date of determination of SSD 6917 MOD 1, the Applicant shall submit revised Concept Proposal drawings, to the satisfaction of the Secretary, which show the cul-de-sac of Estate Road 03 extended to the eastern property boundary of the site.

7. Delete and replace Condition B9 and Table 1 as follows:

B9. The following limits apply to the Concept Proposal for the Development:

- (a) the maximum GFA for the land uses in the Development shall not exceed the limits outlined in **Table 1** below;
- (b) no car parking is permitted in TransGrid easement;
- (c) no loading docks, delivery bays or heavy vehicle movements are permitted along the southern property boundary;
- (d) the loading dock, heavy vehicle route and associated hardstand along the southern elevation of building 5A are not approved; and
- (e) the portion of land zoned E2 – Environmental Conservation located on the north eastern corner of Lot 3A between estate road 01 and estate road 06 shall be used for landscaping purposes only.

**Table 1: GFA Maximum for Concept Proposal**

Land Use	Maximum GFA (m <sup>2</sup> )
Total General Warehousing	316,596
Total Office	14,715
<b>Total GFA</b>	<b>331,311</b>

**In Schedule C: Conditions to be met in future Development Applications**

8. Delete and replace Condition C3 as follows:

C3. Future Development Applications must demonstrate compliance with the Sustainability Strategy approved under Condition B17. Alternatively, future Development Applications may include a development specific Sustainability Management Plan which demonstrates compliance with Condition B17, items (a) to (d).

9. Delete and replace Condition C8 as follows:

C8. Future Development Applications for warehouse buildings shall demonstrate compliance with:

- (a) the relevant provisions of *Planning for Bushfire Protection 2006*; and
- (b) the asset protection zones recommended in the report titled *Estate Bushfire Protection Assessment, Section 96 Application for the Modification of the Approved Oakdale Industrial Estate - South*, prepared by Australian Bushfire Protection Planners Pty Ltd, dated September 2016.

10. Delete and replace Condition C9 as follows:

C9. Future Development Applications for warehouse buildings shall demonstrate compliance with Bushfire Construction Standard - AS. 3959 - 2009 as recommended in the report titled *Estate Bushfire Protection Assessment, Section 96 Application for the Modification of the Approved Oakdale Industrial Estate - South*, prepared by Australian Bushfire Protection Planners Pty Ltd, dated September 2016.

11. Delete and replace Condition C17 as follows:

C17. All future Development Applications shall demonstrate that the design of the warehouse buildings, plant and equipment and hardstand areas are consistent with the:

- (a) *Civil, Stormwater and Infrastructure Services Strategy*, rev 10, report no 14-193-R001, prepared by At&I, dated September 2016;
- (b) *Flood Impact Assessment: Oakdale South Industrial Estate*, ref: 59914136, prepared by Cardno, dated 11 July 2016; and
- (c) Letter report titled '*SSD6917 Oakdale South Industrial Estate, TransGrid Easement Flooding*', prepared by At&I, ref: 14-193-ATL-L004, dated 18 April 2016 and all appendices.

12. Insert new Condition C20 as follows:

**Amenities Lot**

C20. Any Development Application to develop the amenities lot located to the north of Lot 3A must only provide for small-scale local services such as commercial, retail and community facilities (including child care facilities) that service or support the needs of local employment-generating uses.

**In Schedule D: Conditions of Consent for the Stage 1 DA**

13. Delete and replace Condition D2 as follows:

D2. Development Consent is granted to the 'Stage 1 works' as described in Schedule A, the conditions contained in this Development Consent and the EIS, as amended by the RTS and SSD 6917 MOD 1.

14. Delete and replace Condition D3 as follows:

D3. The Applicant shall carry out the Development in accordance with the:

- (a) EIS and RTS;
- (b) the letter titled 'Re: SSD6917 Oakdale South Industrial Estate, TransGrid Easement Flood Extents', ref 14-193-ATL-TRANSGRID-L2, prepared by At&I, dated 18 May 2016 and all appendices;
- (c) the Supplementary Response to Submissions titled 'Re: Oakdale South Estate SSDA\_6917' and all annexures, prepared by Urban Advisory Services, dated 12 July 2016;
- (d) the letter report titled 'Oakdale South Estate, Operational Noise Contours, Adverse Weather Conditions', prepared by SLR, dated 13 July 2016;
- (e) the letter titled 'Re: Oakdale South Estate - State Significant Development Application Ref. 6917' and all annexures, prepared by Urban Advisory Services, dated 8 September 2016;
- (f) the section 96(2) Modification Application SSD 6917 MOD 1 prepared by Urbis, dated 4 November 2016 and all supporting documentation;
- (g) the development layout plans and drawings listed at **Appendix 1**; and
- (h) the Management and Mitigation Measures at **Appendix 3**.

15. Delete and replace the table in Condition D9 as follows:

D9. This consent grants approval for the maximum GFAs for Precinct 1 as detailed in **Table 4** below.

**Table 4: Maximum GFAs approved under Stage 1**

Precinct	Land Use	Maximum GFA (m <sup>2</sup> )
Precinct 1		
Lot 1A		21,949
Lot 1B		24,799
Lot 1C		28,108
Lot 1D		29,883
Stage 1 GFA	Warehousing	99,760
	Office	4,979
<b>Total</b>		<b>104,739</b>

*Note: Lot 1A contains two separate warehouse buildings.*

16. Delete and replace Condition D16 as follows:

D16. The creation of easements for services, rights of carriageway and restrictions as to user are applicable under section 88E of the *Conveyancing Act 1919*, including (but not limited to) the following:

- (a) easements for sewer, water supply and drainage over all public services/infrastructure on private property;
- (b) drainage easements are to be placed over all subsurface drains and inter allotment drainage, benefiting and burdening the property owners;
- (c) maintenance of the subsurface drains is to be included in the 88E Instrument;
- (d) restriction as to user and positive covenant relating to the:
  - (i) on-site detention system/s;
  - (ii) stormwater pre-treatment system/s; and
  - (iii) overland flow path works;
- (e) an updated restriction to user for each affected lot in accordance with defensible spaces plan shown in Appendix 6.

Any section 88E Instrument creating restrictions as to user, rights of carriageway or easements which benefit Council shall contain a provision enabling such restrictions, easements or rights of way to be revoked, varied or modified only with the consent of Council.

17. Delete and replace Condition D30 as follows:

D30. Within 30 business days of the date SSD 6917 MOD 1 is approved, the Applicant must enter into a deed of variation with the Minister to vary the terms of the planning agreement executed on 12 March 2015

by the Minister for Planning ABN 38 755 709 681, Goodman Property Services (Aust) Pty Ltd ACN 088 981 793, BGAI 6 Pty Ltd ACN 128 775 799, BGMG 8 Pty Ltd ACN 161 602 768 and BGAI 2 Pty Limited ACN 120 605 718 and as previously varied by the deed of variation dated 22 December 2016 under section 93F of the *Environmental Planning and Assessment Act 1979*. The deed of variation must be in the terms of the written offer made by the Applicant to the Minister dated 23 January 2017, in connection with SSD 6917 MOD 1 and as attached at Appendix 5.

18. Delete and replace Condition D31 as follows:

D31. The Applicant shall subdivide the site on a staged basis, in accordance with the subdivision plan OAK MP 06 (K) Indicative Ultimate Lot Layout, prepared by SBA Architects, dated 28 September 2016.

#### In Schedule E: Environmental Performance and Management

19. Delete and replace Condition E5 as follows:

E5. The Applicant shall provide a minimum of 591 on-site car parking spaces (including at least 12 spaces for people with a disability at a rate of two per 100 parking spaces) for use during operation of the Development, distributed as shown in **Table 5** below.

**Table 5: Precinct Car Parking Provisions for Stage 1**

Precinct	Building	Minimum Car Parking Requirement
1	A	124
	B	143
	C	157
	D	167
<b>Total</b>		<b>591</b>

20. Delete and replace Condition E15 as follows.

E15. Whilst bulk and detailed earthworks are occurring on site, the Applicant shall ensure that all bio-retention basins are to be utilised as temporary sediment control basins. The bio-retention basins shall not be converted into the final/ultimate basins until such time as all building and construction works within the relevant stage shown in drawing OAK MP 09 (H) titled '*Infrastructure Staging Plan (Indicative)*', prepared by SBA architects, dated 28 September 2016 are 90 per cent complete and the area within the relevant stage is stabilised.

21. Delete and replace Condition E35 as follows:

E35. The Applicant shall operate the Stage 1 DA in a manner that ensures the Oakdale South Industrial Estate complies with the noise limits for the Concept Proposal set in Condition B18 of this Development Consent.

22. Delete and replace Condition E36 as follows:

E36. The Applicant shall construct the noise walls shown in the RTS and as amended by SSD 6917 MOD 1, prior to the commencement of operation of any part of the Development.

**Note:** If the construction of noise walls is to be staged, the Applicant shall submit a noise verification study to the satisfaction of the Secretary to demonstrate that the Development will comply with the noise limits in Condition B18 at all times.

23. Delete and replace Condition E37 as follows:

E37. Within three months of the commencement of operation of each warehouse building containing external mechanical plant, the Applicant shall undertake noise testing and prepare a **Noise Validation Report (NVR)** to demonstrate that operation of the mechanical plant and equipment meets the noise limits in Condition B18. The NVR shall:

- be prepared by an appropriately qualified and experienced noise expert;
- be approved by the Secretary, prior to the installation of any external mechanical plant;
- demonstrate that the location, design and operation of external mechanical plant would achieve the noise limits in Condition B18;
- describe any acoustic treatments required to ensure compliance with the noise limits in Condition B18; and

- (e) if necessary, recommend, prioritise and implement measures to improve noise controls on-site to ensure the Development meets relevant criteria and protects off-site receivers from excess noise.

24. Delete and replace Condition E63 as follows:

E63. Following the completion of finished boundary levels and retaining walls and prior to the commencement of construction of warehouse buildings in precincts 4 and 5, or as otherwise agreed by the Secretary, the Applicant shall implement the perimeter landscape treatments along the outside boundaries of precincts 4 and 5 to ensure sufficient time for the establishment of a landscape buffer.

25. Insert new Condition E76 as follows:

**BUSHFIRE PROTECTION**

E76. Prior to the commencement of operation, the Applicant shall prepare a Bushfire Emergency Evacuation Plan, in consultation with the Rural Fire Service that complies with section 4.2.7 of *Planning for Bushfire Protection 2006*, to the satisfaction of the Secretary. The Bushfire Emergency Evacuation Plan shall form part of the OEMP.

**In Schedule F: Environmental Management, Reporting and Auditing**

26. Insert new Condition F9 as follows:

**Revision of Strategies, Plans and Programs**

- F9. Within three months of:  
 (a) the determination of a modification; or  
 (b) the submission of an incident report under Condition F6,

the Applicant shall review, and if necessary revise, the strategies, plans, and programs required under this consent to the satisfaction of the Secretary.

*Note: This is to ensure the strategies, plans and programs are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the Development.*

**In the Appendices**

27. Delete and replace the table in Appendix 1 - Approved Concept Proposal Drawings as follows:

<b>Master Plan Drawings Prepared by SBA Architects</b>			
<b>Drawing No.</b>	<b>Rev.</b>	<b>Name of Plan</b>	<b>Date</b>
OAK MP 01	R	Cover Sheet	16/01/2017
OAK MP 02	EE	SSDA Masterplan	16/02/2017
OAK MP 03	P	SSDA Stage 1 Development	15/02/2017
OAK MP 04	M	Precinct 1 Plan	16/01/2017
OAK MP 06	L	Indicative Ultimate Lot Layout	27/02/2017
OAK MP 07	L	Site Analysis Plan	16/01/2017
OAK MP 08	L	Existing Zoning	28/09/2016
OAK MP 09	H	Infrastructure Staging Plan (Indicative)	28/09/2016
OAK MP 10	K	Building Staging Plan (Indicative)	16/01/2017
OAK MP 11	J	Signage Precinct 1 Plan	28/09/2016
OAK MP 13	J	Bushfire Protection Plan	16/01/2017
OAK MP 14	L	Restoration Zones	16/01/2017
OAK MP 15	G	Fencing Plan	16/01/2017
<b>Concept Landscape Plans prepared by Site Image Landscape Architects</b>			
<b>Drawing No.</b>	<b>Rev.</b>	<b>Name of Plan</b>	<b>Date</b>
LR-003	G	Landscape Concept Master Plan	16/01/2017
LR-004	G	Typical Landscape Site Section	16/01/2017
LR-005	G	Southern Boundary and Landscape Section	16/01/2017
LR-006	G	Eastern Boundary Landscape Section	16/01/2017
LR-007	G	Vegetation Typologies	16/01/2017
LR-008	G	Typical Species List and Reference Table	16/01/2017
LR-009	G	Street Tree Master Plan	16/01/2017
LR-010	G	Streetscape Typical Detail	16/01/2017



LR-011	E	Landscape Node 1 – Plan & Section	18/07/2016
LR-012	G	Landscape Node 2 – Plan / Section	16/01/2017
LR-013	G	Stage 1 Development	16/01/2017
Proposed Services Strategy Drawings prepared by At&I			
Drawing No.	Rev.	Name of Plan	Date
SKC149	P2	Sewer Strategy – Concept Scheme Plan	August 2015
SKC150	P2	Potable Water Strategy – Concept Scheme Plan	August 2015
SKC151	P2	High Voltage – Concept Scheme Plan	August 2015
SKC152	P2	Proposed Gas Main Strategy – Concept Scheme Plan	August 2015
SKC153	P2	Telecommunications Strategy – Concept Scheme Plan	August 2015
SKC154	P2	Proposed Rainwater Re-Use – Concept Scheme Plan	August 2015

28. Delete and replace the table in Appendix 2 – Schedule of Approved Stage 1 DA Drawings as follows:

Stage 1 DA Architectural Drawings Prepared by SBA Architects			
Drawing No.	Rev.	Name of Plan	Date
Building 1A			
OAK 1A DA 10	K	Proposed Industrial Facility - Building 1A – Site Plan/Floor Plan	18/04/2016
OAK 1A DA 11	E	Proposed Industrial Facility - Building 1A – Roof Plan	18/04/2016
OAK 1A DA 12	E	Proposed Industrial Facility - Building 1A – 1A Office 1&2 Floor Plans	18/04/2016
OAK 1A DA 13	D	Proposed Industrial Facility - Building 1A – Office 1A-3 Floor Plans	18/04/2016
OAK 1A DA 14	D	Proposed Industrial Facility - Building 1A – Office 1A-4 Floor Plan	18/04/2016
OAK 1A DA 15	D	Proposed Industrial Facility - Building 1A – Elevations/Sections 1A	18/04/2016
OAK 1A DA 16	D	Proposed Industrial Facility - Building 1A – Elevations Office 1A	18/04/2016
OAK 1A DA 17	D	Proposed Industrial Facility - Building 1A – Office Elevations 2	18/04/2016
OAK 1A DA 18	D	Proposed Industrial Facility - Building 1A – Elevations Office 3	18/04/2016
OAK 1A DA 19	D	Proposed Industrial Facility - Building 1A – Elevations Office 4	18/04/2016
Building 1B			
OAK 1B DA 20	J	Proposed Industrial Facility – Building 1B – Site Plan/Floor	18/04/2016
OAK 1B DA 21	E	Proposed Industrial Facility – Building 1B – Roof Plan	18/04/2016
OAK 1B DA 22	E	Proposed Industrial Facility – Building 1B – 1B Office Plan	18/04/2016
OAK 1B DA 24	E	Proposed Industrial Facility – Building 1B – Elevations 1B	18/04/2016
OAK 1B DA 25	E	Proposed Industrial Facility – Building 1B – Sections 1B	18/04/2016
OAK 1B DA 26	D	Proposed Industrial Facility – Building 1B – Elevations Office	18/04/2016
Building 1C			
OAK 1C DA 30	K	Proposed Industrial Facility – Building 1C – Site Plan/Floor Plan	18/04/2016
OAK 1C DA 31	E	Proposed Industrial Facility – Building 1C – Roof Plan	18/04/2016
OAK 1C DA 32	E	Proposed Industrial Facility – Building 1C – Office 1C-1 Floor Plans	18/04/2016
OAK 1C DA 33	E	Proposed Industrial Facility – Building 1C – 1C-2 Office Floor Plans	18/04/2016
OAK 1C DA 34	E	Proposed Industrial Facility – Building 1C – Elevations 1C	18/04/2016
OAK 1C DA 35	E	Proposed Industrial Facility – Building 1C – Sections 1C	18/04/2016
OAK 1C DA 36	D	Proposed Industrial Facility – Building 1C – Office Elevations 1	18/04/2016
OAK 1C DA 37	D	Proposed Industrial Facility – Building 1C – Office Elevations 2	18/04/2016
Building 1D			
OAK 1D DA 40	J	Proposed Industrial Facility – Building 1D – Site Plan/Floor Plan	18/04/2016
OAK 1D DA 41	E	Proposed Industrial Facility – Building 1D – Roof Plan	18/04/2016
OAK 1D DA 42	E	Proposed Industrial Facility – Building 1D – 1D – Office Floor Plans	18/04/2016
OAK 1D DA 44	E	Proposed Industrial Facility – Building 1D – Elevations 1D	18/04/2016
OAK 1D DA 45	E	Proposed Industrial Facility – Building 1D – Sections 1D	18/04/2016
OAK 1D DA 46	D	Proposed Industrial Facility – Building 1D – Office Elevations	18/04/2016
Stage 1 DA Landscape Plans prepared by Site Image Landscape Architects			
Drawing No.	Rev.	Name of Plan	Date
ELW-001	G	Stage 1 Development Works	16/01/2017
ELW-002	G	Estate Landscape Works	16/01/2017
ELW-003	G	Estate Landscape Works	16/01/2017
ELW-004	G	Estate Landscape Works	16/01/2017
ELW-005	G	Estate Landscape Works	16/01/2017
ELW-006	G	Estate Landscape Works	16/01/2017
ELW-007	G	Estate Landscape Works	16/01/2017
ELW-008	G	Estate Landscape Works	16/01/2017
ELW-009	G	Estate Landscape Works	16/01/2017
ELW-010	G	Estate Landscape Works - Typical Landscape Details & Plan Schedule	16/01/2017
ELW-011	G	Estate Landscape Works - Typical Landscape Details	16/01/2017
LP1-001	G	Lot Landscaping - Precinct 1 - Landscaping Plan	16/01/2017

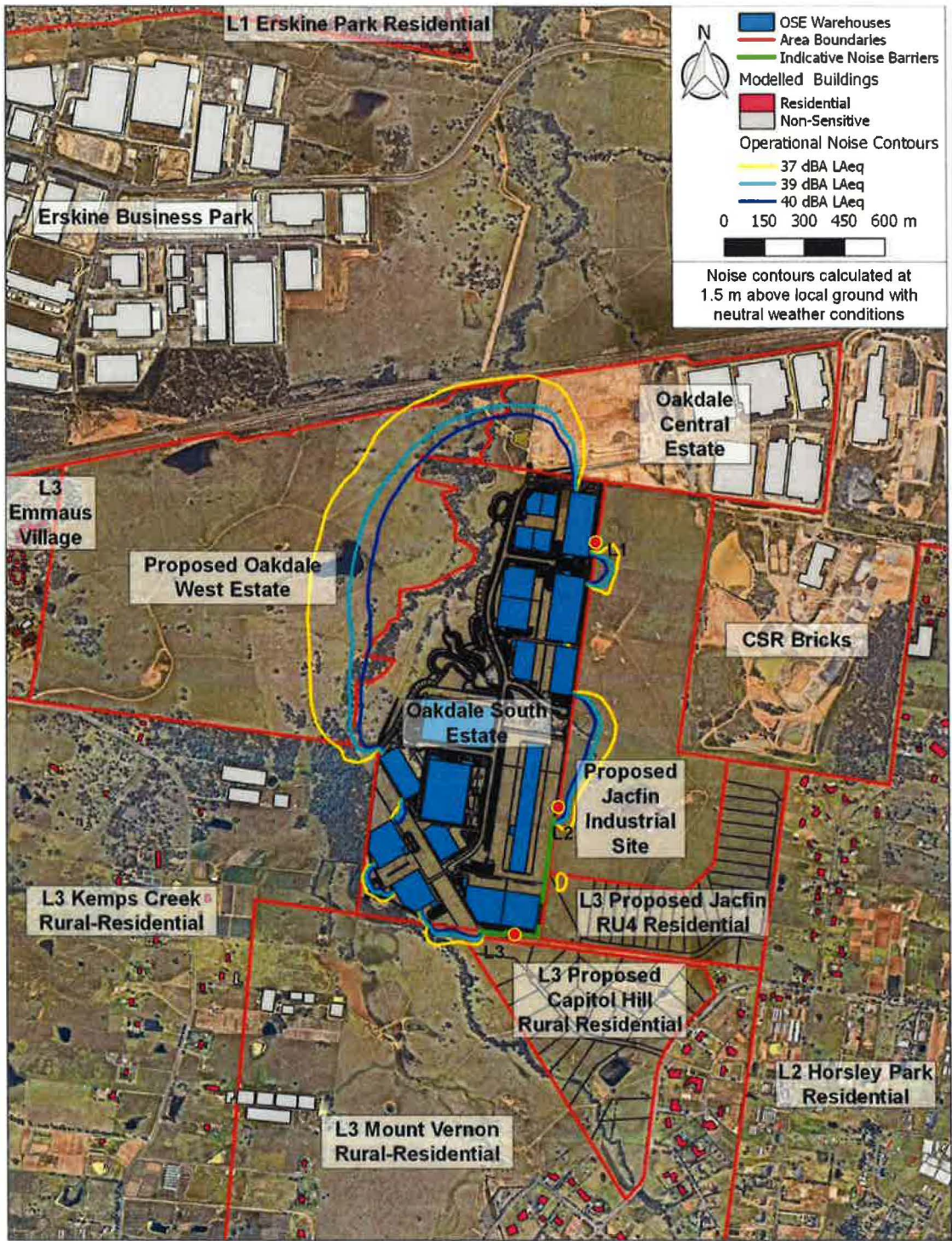
LP1-002	G	Lot Landscaping - Precinct 1 - Primary Presentational Frontage - Typical Landscape Plan	16/01/2017
LP1-003	G	Road 2 Presentational Frontage - Typical Landscape Detail	16/01/2017
LP1-004	G	Lot Landscaping - Precinct 1 - Planting Palette	16/01/2017
Stage 1 Civil Drawings prepared by At&I			
Drawing No.	Rev.	Name of Plan	Date
C1000	C	Cover Sheet and Locality Plan	19/09/2016
C1001	C	Drawing List	19/09/2016
C1002	C	General Notes	19/09/2016
C1003	C	General Arrangement Plan	19/09/2016
C1004	C	Typical Sections Sheet 1	19/09/2016
C1005	C	Typical Sections Sheet 2	19/09/2016
C1006	C	Typical Sections Sheet 3	19/09/2016
C1007	C	Typical Sections Sheet 4	19/09/2016
C1008	C	Typical Sections Sheet 5	19/09/2016
C1009	C	Typical Sections Sheet 6	19/09/2016
C1010	C	Typical Sections Sheet 7	19/09/2016
C1015	C	Typical Details Plan	19/09/2016
C1020	C	Bulk Earthworks Cut/Fill Plan	19/09/2016
C1021	C	Infrastructure Staging Plan	19/09/2016
C1031	C	Earthworks and Stormwater Plan Sheet 1	19/09/2016
C1232	C	Earthworks and Stormwater Plan Sheet 2	19/09/2016
C1033	C	Earthworks and Stormwater Plan Sheet 3	19/09/2016
C1034	C	Earthworks and Stormwater Plan Sheet 4	19/09/2016
C1035	C	Earthworks and Stormwater Plan Sheet 5	19/09/2016
C1036	C	Earthworks and Stormwater Plan Sheet 6	19/09/2016
C1037	C	Earthworks and Stormwater Plan Sheet 7	19/09/2016
C1038	C	Earthworks and Stormwater Plan Sheet 8	19/09/2016
C1039	C	Earthworks and Stormwater Plan Sheet 9	19/09/2016
C1040	C	Earthworks and Stormwater Plan Sheet 10	19/09/2016
C1041	C	Earthworks and Stormwater Plan Sheet 11	19/09/2016
C1042	C	Earthworks and Stormwater Plan Sheet 12	19/09/2016
C1043	C	Earthworks and Stormwater Plan Sheet 13	19/09/2016
C1051	C	Services and Utilities Coordination Plan Sheet 1	19/09/2016
C1052	C	Services and Utilities Coordination Plan Sheet 2	19/09/2016
C1053	C	Services and Utilities Coordination Plan Sheet 3	19/09/2016
C1054	C	Services and Utilities Coordination Plan Sheet 4	19/09/2016
C1055	C	Services and Utilities Coordination Plan Sheet 5	19/09/2016
C1056	C	Services and Utilities Coordination Plan Sheet 6	19/09/2016
C1057	C	Services and Utilities Coordination Plan Sheet 7	19/09/2016
C1058	C	Services and Utilities Coordination Plan Sheet 8	19/09/2016
C1059	C	Services and Utilities Coordination Plan Sheet 9	19/09/2016
C1060	C	Services and Utilities Coordination Plan Sheet 10	19/09/2016
C1061	C	Services and Utilities Coordination Plan Sheet 11	19/09/2016
C1062	C	Services and Utilities Coordination Plan Sheet 12	19/09/2016
C1063	C	Services and Utilities Coordination Plan Sheet 13	19/09/2016
C1071	C	Erosion and Sediment Control Plan Sheet 1	19/09/2016
C1072	C	Erosion and Sediment Control Plan Sheet 2	19/09/2016
C1073	C	Erosion and Sediment Control Plan Sheet 3	19/09/2016
C1074	C	Erosion and Sediment Control Plan Sheet 4	19/09/2016
C1075	C	Erosion and Sediment Control Plan Sheet 5	19/09/2016
C1076	C	Erosion and Sediment Control Plan Sheet 6	19/09/2016
C1077	C	Erosion and Sediment Control Plan Sheet 7	19/09/2016
C1078	C	Erosion and Sediment Control Plan Sheet 8	19/09/2016
C1079	C	Erosion and Sediment Control Plan Sheet 9	19/09/2016
C1080	C	Erosion and Sediment Control Plan Sheet 10	19/09/2016
C1081	C	Erosion and Sediment Control Plan Sheet 11	19/09/2016
C1082	C	Erosion and Sediment Control Plan Sheet 12	19/09/2016
C1083	C	Erosion and Sediment Control Plan Sheet 13	19/09/2016
C1084	C	Erosion and Sediment Details	19/09/2016
C1091	C	Pavement Plan Sheet 1	19/09/2016
C1092	C	Pavement Plan Sheet 2	19/09/2016
C1093	C	Pavement Plan Sheet 3	19/09/2016
C1094	C	Pavement Plan Sheet 4	19/09/2016

C1095	C	Pavement Plan Sheet 5	19/09/2016
C1201	C	Roadworks Plan Sheet 1	19/09/2016
C1202	C	Roadworks Plan Sheet 2	19/09/2016
C1203	C	Roadworks Plan Sheet 3	19/09/2016
C1204	C	Roadworks Plan Sheet 4	19/09/2016
C1205	C	Roadworks Plan Sheet 5	19/09/2016
C1206	C	Roadworks Plan Sheet 6	19/09/2016
C1207	C	Roadworks Plan Sheet 7	19/09/2016
C1208	C	Roadworks Plan Sheet 8	19/09/2016
C1209	C	Roadworks Plan Sheet 9	19/09/2016
C1210	C	Roadworks Plan Sheet 10	19/09/2016
C1211	C	Roadworks Plan Sheet 11	19/09/2016
C1212	C	Roadworks Plan Sheet 12	19/09/2016
C1213	B	Roadworks Plan Sheet 13	19/09/2016
C1214	B	Roadworks Plan Sheet 14	19/09/2016
C1215	B	Roadworks Plan Sheet 15	19/09/2016
C1221	C	Road Longitudinal; Sections Sheet 1	19/09/2016
C1222	C	Road Longitudinal; Sections Sheet 2	19/09/2016
C1223	C	Road Longitudinal; Sections Sheet 3	19/09/2016
C1224	C	Road Longitudinal; Sections Sheet 4	19/09/2016
C1241	C	Bio-Retention Basin A Detail Plan	19/09/2016
C1244	C	Bio-Retention Basin B Detail Plan	19/09/2016
C1247	C	Bio-Retention Basin C Detail Plan	19/09/2016
C1250	C	Bio-Retention Basin D Detail Plan	19/09/2016
C1253	B	Bio-Retention Basin E Detail Plan	19/09/2016
C1261	C	Stormwater Culvert Plan and Sections	19/09/2016
C1301	C	Stormwater Catchment Plan	19/09/2016
C2000	C	On-Lot General Arrangement Plan	19/09/2016
C2100	C	Building 1A General Arrangement Plan	19/09/2016
C2105	C	Building 1A Siteworks and Stormwater Drainage Plan - Sheet 1	19/09/2016
C2106	C	Building 1A Siteworks and Stormwater Drainage Plan - Sheet 2	19/09/2016
C2107	C	Building 1A Siteworks and Stormwater Drainage Plan - Sheet 3	19/09/2016
C2108	C	Building 1A Siteworks and Stormwater Drainage Plan - Sheet 4	19/09/2016
C2110	C	Building 1A Pavement Plan	19/09/2016
C2200	C	Building 1B General Arrangement Plan	19/09/2016
C2205	C	Building 1B Siteworks and Stormwater Drainage Plan - Sheet 1	19/09/2016
C2206	C	Building 1B Siteworks and Stormwater Drainage Plan - Sheet 2	19/09/2016
C2207	C	Building 1B Siteworks and Stormwater Drainage Plan - Sheet 3	19/09/2016
C2208	C	Building 1B Siteworks and Stormwater Drainage Plan - Sheet 4	19/09/2016
C2210	C	Building 1B Pavement Plan	19/09/2016
C2300	C	Building 1C General Arrangement Plan	19/09/2016
C2305	C	Building 1C Siteworks and Stormwater Drainage Plan - Sheet 1	19/09/2016
C2306	C	Building 1C Siteworks and Stormwater Drainage Plan - Sheet 2	19/09/2016
C2307	C	Building 1C Siteworks and Stormwater Drainage Plan - Sheet 3	19/09/2016
C2308	C	Building 1C Siteworks and Stormwater Drainage Plan - Sheet 4	19/09/2016
C2310	C	Building 1C Pavement Plan	19/09/2016
C2400	C	Building 1D General Arrangement Plan	19/09/2016
C2405	C	Building 1D Siteworks and Stormwater Drainage Plan Sheet 1	19/09/2016
C2406	C	Building 1D Siteworks and Stormwater Drainage Plan Sheet 2	19/09/2016
C2407	C	Building 1D Siteworks and Stormwater Drainage Plan Sheet 3	19/09/2016
C2408	C	Building 1D Siteworks and Stormwater Drainage Plan Sheet 4	19/09/2016
C2410	C	Building 1D Pavement Plan	19/09/2016
<b>Noise Wall Plans prepared by At&amp;I</b>			
<b>Drawing No.</b>	<b>Rev.</b>	<b>Name of Plan</b>	<b>Date</b>
SKC313	P2	Retaining Wall RW05 Plan and Profile Sheet 1	17/01/2017
SKC314	P2	Retaining Wall RW05 Plan and Profile Sheet 2	17/01/2017
SKC315	P2	Retaining Wall RW05 Plan and Profile Sheet 3	17/01/2017
<b>Oakdale South Water Course Realignment Works Plans prepared by AECOM Drawing Set 60333552-DRG-WC</b>			
<b>Drawing No.</b>	<b>Rev.</b>	<b>Name of Plan</b>	<b>Date</b>
1001	D	Watercourse Realignment and Cover Sheet	22/07/2016
1011	E	Watercourse Realignment Layout Plan Sheet 1	22/07/2016
1012	E	Watercourse Realignment Layout Plan Sheet 2	22/07/2016
1016	D	Watercourse Realignment Aerial Background Plan Sheet 1	22/07/2016

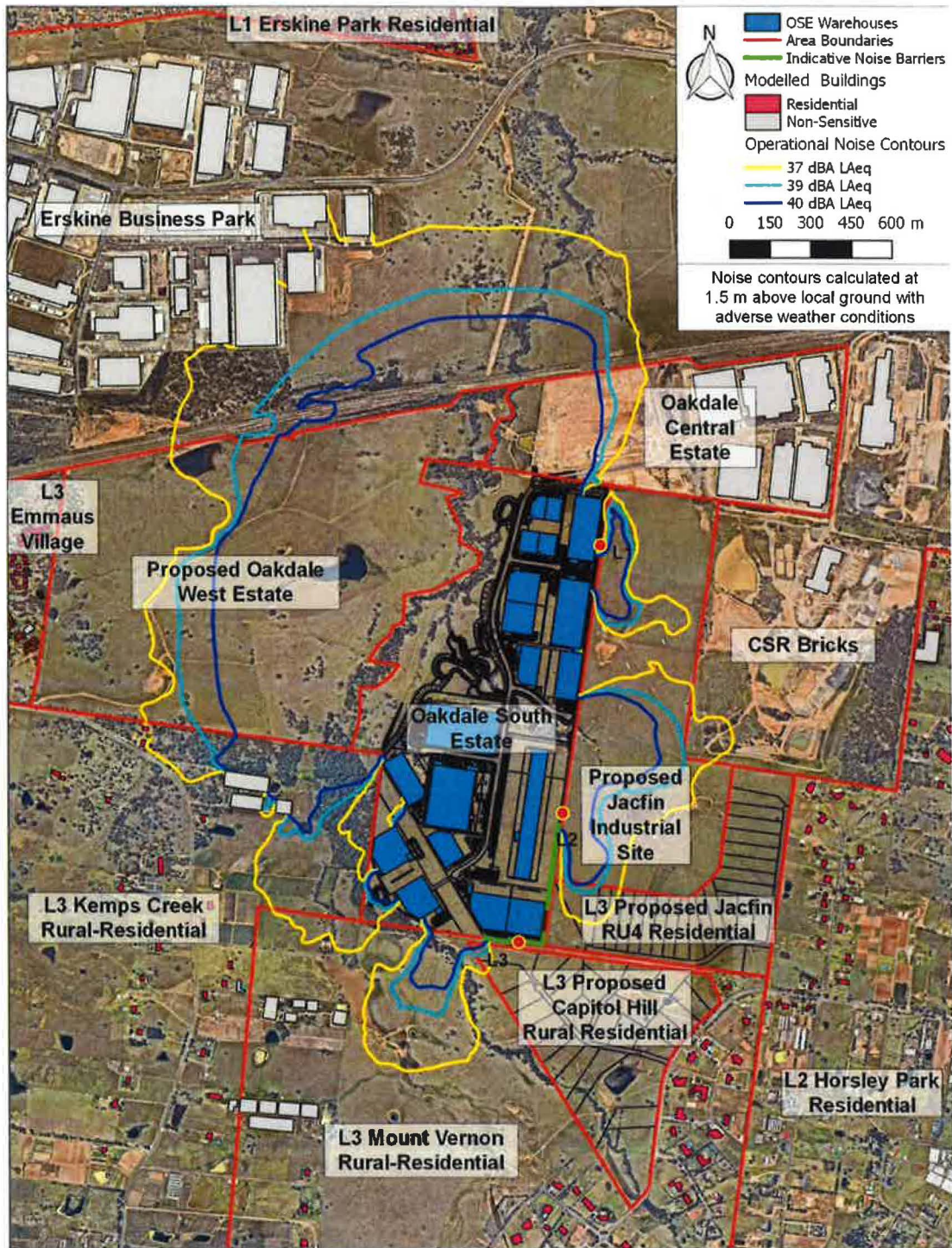
1017	D	Watercourse Realignment Aerial Background Plan Sheet 2	22/07/2016
1021	C	Watercourse Realignment Longitudinal Section	19/05/2016
1022	C	Watercourse Realignment Longitudinal Section - Stub	19/05/2016
1031	C	Watercourse Realignment Cross Sections – Watercourse 1 and Stub	19/05/2016
1036	A	Watercourse Realignment Cross Sections – Watercourse 2	19/05/2016
1037	A	Watercourse Realignment Cross Sections – Watercourse 3 Sheet 2	31/08/2015
1041	C	Watercourse Realignment Rock Riffle Details Sheet 1	19/05/2016
1042	B	Watercourse Realignment Rock Riffle Details Sheet 2	12/05/2016
1043	A	Watercourse Realignment Rock Riffle Details Sheet 3	31/08/2015
1044	C	Watercourse Realignment Large Woody Debris Details	19/05/2016
1051	E	Watercourse Realignment Works Schedule	22/07/2016
1061	D	Watercourse Realignment Site Management Plan	22/07/2016
1070	C	Planting Layout Plan – Sheet 1	22/07/2016
1071	C	Planting Layout Plan – Sheet 2	22/07/2016
1075	B	Planting Schedule – Sheet 1	22/07/2016
1076	C	Planting Schedule – Sheet 2	22/07/2016
1077	B	Planting Schedule – Sheet 3	22/07/2016
1078	A	Planting Schedule – Sheet 4	22/07/2016
1080	A	Planting Details – Sheet 1	22/07/2016
<b>Stormwater Plans prepared by At&amp;I</b>			
<b>Drawing No.</b>	<b>Rev.</b>	<b>Name of Plan</b>	<b>Date</b>
C1301	A	Stormwater Catchment Plan	3/09/2015
SKC008	P1	Existing Catchment Plan	25/08/2015
SKC191	P8	SSDA to S96 Comparison Sketch	29/07/2016
<b>TransGrid Easement Drainage Plans prepared by At&amp;I in Annexure A of the Supplementary RTS dated 18 May 2016</b>			
<b>Drawing No.</b>	<b>Rev.</b>	<b>Name of Plan</b>	<b>Date</b>
SKC208	P1	TransGrid Easement Plan Sheet 1	17/05/2016
SKC209	P1	TransGrid Easement Plan Sheet 2	17/05/2016
SKC210	P1	Existing TransGrid Easement Sections	17/05/2016
SKC207	P1	Stormwater Catchment Plan	17/05/2016

29. Delete and replace the table and figure in Appendix 4 as follows:

<b>Receiver Area</b>	<b>Sensitive Receivers within Area</b>
L1 North of the Pipeline	Includes all residential dwellings in Erskine Park.
L2 Horsley Park	Includes all residential and rural-residential dwellings in Horsley Park.
L3 Kemps Creek, Mount Vernon, Jacfin and Capitol Hill	Includes all residential and rural-residential dwellings in Mt Vernon, Kemps Creek (including the Emmaus Village residential complex), and residential dwellings in the Jacfin and Capitol Hill subdivisions once constructed and occupied.



- Note 1: 37 dBA LAeq noise contour (yellow) corresponds to the noise limit for residences in L1.  
 Note 2: 39 dBA LAeq noise contour (light blue) corresponds to the noise limit for residences in L2.  
 Note 3: 40 dBA LAeq noise contour (dark blue) corresponds to the noise limit for residences in L3.



- Note 1: 37 dBA LAeq noise contour (yellow) corresponds to the noise limit for residences in L1.  
 Note 2: 39 dBA LAeq noise contour (light blue) corresponds to the noise limit for residences in L2.  
 Note 3: 40 dBA LAeq noise contour (dark blue) corresponds to the noise limit for residences in L3.

30. Delete and replace Appendix 5 - Deed of Variation as follows:

**APPENDIX 5 – SECOND DEED OF VARIATION**

# **Second Deed of Variation to Oakdale Central and Oakdale South, Horsley Park Planning Agreement**

Parties

**Minister for Planning**  
(ABN 38 755 709681)

**Goodman Property Services (Aust) Pty Ltd**  
(ACN 088 981 793)

**BGAI 6 Pty Ltd**  
(ACN 128 775 799)

**BGMG 8 Pty Ltd**  
(ACN 161 602 768)

**BGAI 2 Pty Ltd**  
(ACN 120 605 718)

Reference: VPA # 6807 Variation # 8039

**Contents**

1 Definitions and interpretation.....1

2 Variation of Planning Agreement.....2

3 Registration of this deed.....3

4 General.....3

5 Expenses.....3

6 Variations not to affect accrued rights and obligations.....3

7 Trustees.....4

8 Confirmation.....4

Schedule I.....5

Schedule II.....6

Schedule III.....7

Schedule IV.....8

Execution pages.....9

Annexure: Conformed Planning Agreement.....12



## Date

**Parties**      **MINISTER FOR PLANNING** (ABN 38 755 709681)  
of Level 15, 52 Martin Place, Sydney NSW 2000  
(**Planning Minister**)

**GOODMAN PROPERTY SERVICES (AUST) PTY LTD** (ACN 088 981 793)  
of Level 17, 60 Castlereagh Street, Sydney NSW 2000  
(**GPS**);

**BGAI 6 PTY LTD** (ACN 128 775 799)  
of Level 17, 60 Castlereagh Street, Sydney NSW 2000  
(**Oakdale Central Landowner**);

**BGMG 8 PTY LTD** (ACN 161 602 768)  
of Level 17, 60 Castlereagh Street, Sydney NSW 2000  
(**Oakdale South Landowner**); and

**BGAI 2 PTY LTD** (ACN 120 605 718)  
of Level 17, 60 Castlereagh Street, Sydney NSW 2000  
(**Erskine Park Landowner**)

(collectively **the Developers**)

## Introduction

- A**      On 12 March 2015, the Planning Minister and the Developers entered into the Planning Agreement relating to the Oakdale Central and Oakdale South Industrial Estates.
- B**      On 22 December 2016, the Planning Agreement was varied by the First Variation Deed.
- C**      Lot 87 was transferred to the Oakdale South Landowner within 90 days of the date of the First Variation Deed.
- D**      GPS has proposed further amendments to the Planning Agreement in an offer to the Planning Minister, in connection with the Oakdale South SSD Mod 1 Application.
- E**      The parties have agreed to further vary the Planning Agreement, as set out in this deed.

## It is agreed

### 1      **Definitions and interpretation**

#### 1.1    **Definitions**

In this deed:

- (1)      **First Variation Deed** means the 'Deed of Variation to Planning Agreement' dated 22 December 2016.
- (2)      **Lot 87** means Lot 87 in DP 752041.

- (3) **Oakdale South SSD Consent** means the SSD Consent No 6917 determined on 26 October 2016, for the staged development of the Oakdale South Development.
- (4) **Oakdale South SSD Mod 1 Application** means Application No. SSD 6917 MOD 1, being the application lodged on behalf of the Developers on 4 November 2016 seeking to modify the Oakdale South SSD Consent.
- (5) **Planning Agreement** means the voluntary planning agreement entered into between the Minister and the Developers dated 12 March 2015, as varied by the First Variation Deed.

## 1.2 Interpretation

In this deed, unless the contrary intention appears:

- (1) expressions and phrases used but not defined in this deed will have the same meanings as they have in the Planning Agreement;
- (2) clause 1 of the Planning Agreement will apply to the interpretation and construction of this deed.

## 2 Variation of Planning Agreement

### 2.1 Variation

On and from the date of this deed, the Planning Agreement is varied as set out in this clause 2.

### 2.2 Clause 1.1 Definitions

The definition of 'Oakdale South Lot 3' in clause 1.1 is replaced with:

**Oakdale South Lot 3** means the lots within the Oakdale South Development which are marked '3A', '3B' and '3C' on the plan of subdivision at Annexure A.

### 2.3 Annexure A – Oakdale Central and Oakdale South lots

The plans at Annexure A to the Planning Agreement and Schedule II to the First Variation Deed are of no effect, and are replaced with the plan at Schedule I to this deed.

### 2.4 Annexure C - Altered Design of the Estate Road

On and from the date of this deed, the plan at Annexure C to the Planning Agreement is of no effect and is replaced with the plan at Schedule II to this deed.

### 2.5 Monetary Contributions

- (1) The table at Clause 1(b) of Schedule 4 to the Planning Agreement is deleted, and replaced with the table at Schedule III to this deed.
- (2) The table entitled "Monetary Contribution Component estimates and offsets" which appears on the second page of Annexure B (being the page numbered 65), is deleted, and replaced with the table at Schedule IV to this deed.

### **3 Registration of this deed**

#### **3.1 Registration**

- (1) As contemplated by section 93H of the Planning Act, the Developers agree to lodge this deed for registration under the Real Property Act in the relevant folios of the Register for all of the Oakdale Land within 10 Business Days after the date on which a counterpart of this deed which the Planning Minister has executed is returned to the Developer.
- (2) The Developers will provide the Planning Minister with a copy of the relevant folio of the Register and a copy of the registered dealing which provide evidence that clause 3.1(1) has been satisfied, within 10 Business Days after the date of registration.

### **4 General**

- 4.1 This deed and the Planning Agreement constitute the entire agreement between the parties regarding the matters set out in those documents and supersede any prior representations, understandings or arrangements between the parties, whether orally or in writing.

### **5 Expenses**

- 5.1 The Developers must pay their own, and the Planning Minister's reasonable legal costs and disbursements in connection with the negotiation, preparation, execution and carrying into effect of this deed.
- 5.2 The Developers must pay for all costs and expenses associated with the giving of public notice of this deed and the Explanatory Note in accordance with the Planning Regulation.
- 5.3 The Developers must pay all Taxes assessed on or in respect of this deed and any instrument or transaction required or contemplated by or necessary to give effect to this deed (including stamp duty and registration fees, if applicable).
- 5.4 The Developers must provide the Planning Minister with bank cheques in respect of the Planning Minister's costs pursuant to clauses 5.1 and 5.2 above:
  - (1) where the Planning Minister has provided the Developer with written notice of the sum of such costs prior to execution, on the date of execution of this deed; or
  - (2) where the Planning Minister has not provided the Developer with prior written notice of the sum of such costs prior to execution, within 10 Business Days of demand by the Planning Minister for payment.

### **6 Variations not to affect accrued rights and obligations**

- 6.1 The variations to the Planning Agreement do not affect the validity or enforceability of the Planning Agreement as varied.
- 6.2 Nothing in this deed:
  - (1) prejudices or adversely affects any right, power, authority, discretion or remedy arising under the Planning Agreement before the date of this deed; or

- (2) discharges, releases or otherwise affects any liability or obligation arising under the Planning Agreement before the date of this deed.

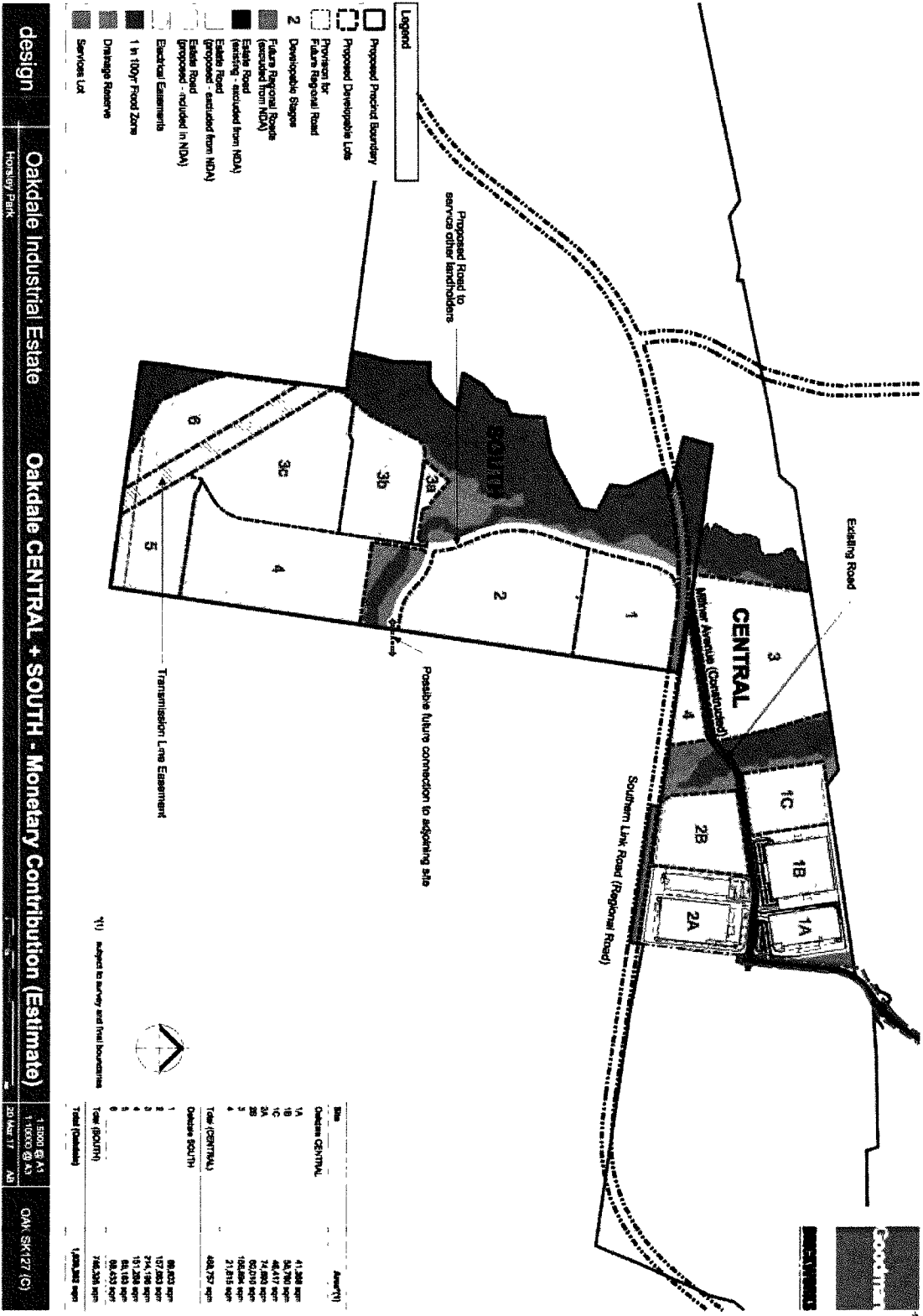
## **7 Trustees**

Clause 11.3 and Schedule 7 of the Planning Agreement are incorporated as though fully set out in this deed.

## **8 Confirmation**

Each party is bound by the Planning Agreement as varied by this deed.

# Schedule I





### Schedule III

Land Component	Indicative NDA (as at date of this deed)	Indicative contribution amount (based on indicative NDA)
<b>Oakdale Central Land</b>		
Oakdale Central Lot 1C	4.6417 hectares	\$835,506 calculated pursuant to clause 2 of this Schedule 4.
Oakdale Central Lot 2B	6.001 hectares	\$1,080,180 calculated pursuant to clause 2 of this Schedule 4.
Oakdale Central Lot 3	15.5894 hectares	\$2,806,092 calculated pursuant to clause 2 of this Schedule 4.
Oakdale Central Lot 4	2.161 hectares	\$389,070 calculated pursuant to clause 2 of this Schedule 4.
<b>Oakdale South Land</b>		
Oakdale South Lot 1	8.9603 hectares	\$1,612,854 calculated pursuant to clause 2 of this Schedule 4
Oakdale South Lot 2	15.7663 hectares	\$2,837,934 calculated pursuant to clause 2 of this Schedule 4
Oakdale South Lot 3	21.4196 hectares	\$3,855,528 calculated pursuant to clause 2 of this Schedule 4
Oakdale South Lot 4	15.1268 hectares	\$2,722,824 calculated pursuant to clause 2 of this Schedule 4
Oakdale South Lot 5	6.5163 hectares	\$1,172,934 calculated pursuant to clause 2 of this Schedule 4
Oakdale South Lot 6	6.8433 hectares	\$1,231,794 calculated pursuant to clause 2 of this Schedule 4

## Schedule IV

Site	Land area (m <sup>2</sup> )	Contribution
<b>Erskine Park</b>		
Interlink Contribution	N/A	<b>\$3,414,056</b>
<b>Oakdale Central</b>		
Site 1C	46,417	\$835,506
Site 2B	60,010	\$1,080,180
Site 3	155,894	\$2,806,092
Site 4	21,615	\$389,070
<b>Total (Central)</b>	<b>283,936</b>	<b>\$5,110,848</b>
<b>Oakdale South</b>		
Site 1	89,603	\$1,612,854
Site 2	157,663	\$2,837,934
Site 3 (being 3A, 3B and 3C)	214,196	\$3,855,528
Site 4	151,268	\$2,722,824
Site 5	65,163	\$1,172,934
Site 6	68,433	\$1,231,794
<b>Total (South)</b>	<b>746,326</b>	<b>\$13,433,868</b>
<b>TOTAL</b>	<b>1,032,262</b>	<b>\$21,958,772</b>



**Execution pages**

**Executed** as a deed.

**Signed sealed and delivered** for and on behalf of the **Minister for Planning** in the presence of:

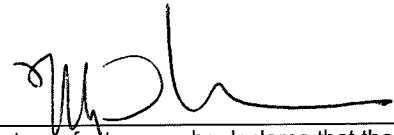
Signature of Witness

Signature as delegate of the Minister for Planning

Name of Witness in full

Full name of delegate

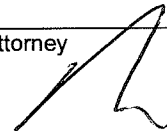
**Signed, sealed and delivered** for and on behalf of **BGAI 6 Pty Ltd** (ABN 19 128 775 799) by its attorneys under a power of attorney dated 18/11/13 registered in Jurisdiction NSW with No. 705 in the presence of:  
Book 4659



Signature of attorney who declares that the attorney has not received any notice of the revocation of the power of attorney


MEGAN M KUBLINS

Full name of attorney



Signature of attorney who declares that the attorney has not received any notice of the revocation of the power of attorney

RICHARD WILSON



Signature of witness

Melissa Goldring

Michelle Ban

Full name of witness

Full name of attorney

**Signed, sealed and delivered** for and on behalf of **BGMG 8 Pty Ltd** (ABN 65 161 602 768) by its attorneys under a power of attorney dated 5/10/16 registered in Jurisdiction NSW with No. 692 in the presence of:  
Book 4715

M Goldring MB  
Signature of witness Michelle Ban

Melissa Goldring

Full name of witness

**Signed, sealed and delivered** for and on behalf of **BGAI 2 Pty Ltd** (ABN 49 120 605 718) by its attorneys under a power of attorney dated 14/10/16 registered in Jurisdiction NSW with No. 686 in the presence of:  
Book 4715

M Goldring MB  
Signature of witness Michelle Ban

Melissa Goldring

Full name of witness

[Signature]  
Signature of attorney who declares that the attorney has not received any notice of the revocation of the power of attorney

MEGAN M KUBLINS

Full name of attorney

[Signature]  
Signature of attorney who declares that the attorney has not received any notice of the revocation of the power of attorney

RICHARD WILSON

Full name of attorney

[Signature]  
Signature of attorney who declares that the attorney has not received any notice of the revocation of the power of attorney

MEGAN M KUBLINS

Full name of attorney

[Signature]  
Signature of attorney who declares that the attorney has not received any notice of the revocation of the power of attorney

RICHARD WILSON

Full name of attorney

**Signed, sealed and delivered** for and on behalf of **Goodman Property Services (Aust) Pty Limited** (ABN 40 088 981 793) by its attorneys under a power of attorney dated \_\_\_\_\_ registered in Jurisdiction \_\_\_\_\_ with No. \_\_\_\_\_ in the presence of:

\_\_\_\_\_  
Signature of attorney who declares that the attorney has not received any notice of the revocation of the power of attorney

\_\_\_\_\_  
Full name of attorney

\_\_\_\_\_  
Signature of witness

\_\_\_\_\_  
Full name of witness

**Annexure: Conformed Planning Agreement**

**(excluding the documents at Annexure B to the Planning Agreement behind the page numbered 67).**

# Oakdale Central and Oakdale South, Horsley Park

## Planning Agreement

Environmental Planning and Assessment Act 1979

Minister for Planning  
ABN 38 755 709681

Goodman Property Services (Aust) Pty Ltd  
ACN 088 981 793

BGAI 6 Pty Ltd  
ACN 128 775 799

BGMG 8 Pty Ltd  
ACN 161 602 768

BGAI 2 Pty Limited  
ACN 120 605 718

Clayton Utz  
Lawyers  
Level 15 1 Bligh Street  
Sydney NSW 2000  
GPO Box 9806  
Sydney NSW 2001  
Tel +61 2 9353 4000  
Fax +61 2 8220 6700  
[www.claytonutz.com](http://www.claytonutz.com)

Our reference 751/17849/80155083

## Contents

<b>1.</b>	<b>Definitions and interpretation</b> .....	<b>2</b>
1.1	Definitions .....	2
1.2	Interpretation.....	9
<b>2.</b>	<b>Operation and application of this deed</b> .....	<b>10</b>
2.1	Operation .....	10
2.2	Planning agreement under the Planning Act.....	10
2.3	Application .....	10
<b>3.</b>	<b>Application of Sections 94, 94A and 94EF of the Planning Act</b> .....	<b>10</b>
<b>4.</b>	<b>Development Contributions</b> .....	<b>11</b>
4.1	Developer to provide Development Contributions.....	11
4.2	Acknowledgement .....	11
4.3	Monetary Contribution .....	11
4.4	Works-in-Kind Contribution and Land Contribution .....	11
4.5	Adjustment for Special Infrastructure Contributions.....	14
4.6	Status and use of SIC Credits .....	16
<b>5.</b>	<b>Interest for late provision of Monetary Contribution</b> .....	<b>16</b>
<b>6.</b>	<b>Security</b> .....	<b>17</b>
<b>7.</b>	<b>Land ownership and registration of this deed</b> .....	<b>17</b>
7.1	Land ownership .....	17
7.2	Registration of deed .....	17
7.3	Release and discharge of deed.....	18
<b>8.</b>	<b>Dispute resolution</b> .....	<b>18</b>
8.1	Not commence.....	18
8.2	Written notice of dispute .....	18
8.3	Attempt to resolve.....	18
8.4	Mediation .....	18
8.5	Costs of alternative dispute resolution .....	18
8.6	Court proceedings .....	18
8.7	Use of information.....	19
8.8	Continued performance of obligations.....	19
8.9	No prejudice.....	19
<b>9.</b>	<b>GST</b> .....	<b>19</b>
9.1	Definitions .....	19
9.2	Intention of the parties .....	20
9.3	Reimbursements and similar payments .....	20
9.4	GST payable.....	20
9.5	Variation of GST .....	20
9.6	Exchange of non-monetary consideration.....	20
9.7	No Merger.....	20
<b>10.</b>	<b>Assignment</b> .....	<b>21</b>
10.1	Assignment of rights or benefits of this deed .....	21
10.2	Dealings with Oakdale Land.....	21
<b>11.</b>	<b>Capacity</b> .....	<b>22</b>
11.1	General warranties .....	22
11.2	Power of attorney.....	22
11.3	Trustees.....	22
<b>12.</b>	<b>General provisions</b> .....	<b>22</b>
12.1	Entire agreement.....	22

12.2	Variation.....	22
12.3	Waiver.....	22
12.4	Further assurances.....	23
12.5	Time for doing acts .....	23
12.6	Governing law and jurisdiction.....	23
12.7	Severance.....	23
12.8	Preservation of existing rights .....	23
12.9	No merger.....	23
12.10	Counterparts .....	23
12.11	Relationship of parties .....	23
12.12	Good faith .....	24
12.13	No fetter .....	24
12.14	Explanatory Note .....	24
12.15	Expenses and stamp duty .....	24
12.16	Notices .....	24
<b>Schedule 1</b>	.....	<b>26</b>
<b>Schedule 2</b>	.....	<b>27</b>
<b>Schedule 3</b>	.....	<b>29</b>
<b>Schedule 4</b>	.....	<b>30</b>
<b>Schedule 5</b>	.....	<b>47</b>
<b>Schedule 6</b>	.....	<b>53</b>
<b>Schedule 7</b>	.....	<b>56</b>
<b>Annexure A - Oakdale Central and Oakdale South lots</b>	.....	<b>63</b>
<b>Annexure B - OWR Upgrade Contribution</b>	.....	<b>64</b>
<b>Annexure C</b>	.....	<b>68</b>

**Date****Parties**

**MINISTER FOR PLANNING** (ABN 38 755 709 681) of Level 15, 52 Martin Place, Sydney, New South Wales, 2000 (**Planning Minister**)

**GOODMAN PROPERTY SERVICES (AUST) PTY LTD** (ACN 088 981 793) of level 17, 60 Castlereagh Street, Sydney, New South Wales, 2000 (**GPS**);

**BGAI 6 PTY LTD** (ACN 128 775 799) of Level 17, 60 Castlereagh Street, Sydney, New South Wales, 2000 (**Oakdale Central Landowner**);

**BGMG 8 PTY LTD** (ACN 161 602 768) of Level 17, 60 Castlereagh Street, Sydney, New South Wales, 2000 (**Oakdale South Landowner**); and

**BGAI 2 PTY LTD** (ACN 120 605 718) of Level 17, 60 Castlereagh Street, Sydney, New South Wales, 2000 (**Erskine Park Landowner**)

**Introduction**

- A. The Oakdale Central Landowner owns the Oakdale Central Land.
- B. The Oakdale South Landowner owns the Oakdale South Land.
- C. GPS is developing part of the Oakdale Land for the Oakdale South Development. As at the date of this deed, the Developers have not submitted a development application for the Oakdale South Development.
- D. GPS is developing part of the Oakdale Land for the Oakdale Central Development, jointly with related entities and with Brickworks Industrial Development Pty Limited. The Oakdale Central Concept Plan Approval and the Oakdale Central SSD Approval authorise parts of the Oakdale Central Development. In addition, GPS lodged the Oakdale Central SSD Application with the Planning Minister for part of the Oakdale Central Development but this application has not been determined as at the date of this deed.
- E. A related body corporate of GPS obtained the Oakdale Central Project Approval in respect of Oakdale Central Lot 1A and Oakdale Central Lot 2A, for part of the Oakdale Central Development. Oakdale Central Lot 1A and Oakdale Central Lot 2A are the subject of a separate Planning Agreement dated 25 March 2011 between GPS, the Oakdale Central Landowner and the Planning Minister, and the relevant development contributions under that Planning Agreement have been provided to the Planning Minister.
- F. The Erskine Park Landowner owns the Erskine Park Land (except the land for which the Ministerial Corporation is the registered proprietor). The Erskine Park Approval authorises parts of the Erskine Park Development.
- G. The Developers are prepared to make the Development Contributions to the Planning Minister for the provision of infrastructure for public purposes in connection with the Oakdale Central Development, the Oakdale South Development and the Erskine Park Development in accordance with this deed.
- H. The Developers have offered to enter into this deed with the Planning Minister to provide for and secure the Development Contributions.



It is agreed

## 1. Definitions and interpretation

### 1.1 Definitions

In this deed, unless the context clearly indicates otherwise:

**Acquisition Cost** means any loss, cost, expense, fee, charge, tax, rate, fine or penalty in connection with the acquisition by any person or the transfer to the Nominated Transferee (including any other transfers which occur prior to that transfer) of any Land Contribution.

**Actual Land Contribution Value** for a Land Contribution means the market value of that Land Contribution at the time of the transfer of that Land Contribution from the registered proprietor of that Land Contribution to the Nominated Transferee, as agreed between the parties or otherwise as determined in accordance with clause 12 of Schedule 4, to the extent that it does not exceed the Maximum Land Value (as provided by clause 6 of Schedule 4).

**Actual WIK Costs** for a WIK Contribution means the actual costs incurred by the Developers to provide that WIK Contribution, as agreed between the parties or otherwise as determined in accordance with clause 10 of Schedule 4, to the extent that it does not exceed the Maximum WIK Value (as provided by clause 6 of Schedule 4).

**Address for Service** for a party means the address, contact or facsimile number (as the case may be) of that party appearing in Schedule 2 or any new address, contact or facsimile number (as the case may be) notified by that party to all other parties as its new Address for Service.

**Authorisation** means a consent, approval, licence, permit, certificate or other form of statutory authorisation, and includes that authorisation as modified, varied or amended from time to time.

**Authority** means any Federal, State or local government or semi-governmental, statutory, judicial or public person, instrumentality or department.

**Bank Guarantee** means an irrevocable and unconditional undertaking:

- (a) by an Australian bank which is an eligible financial institution for the purposes of Treasury Circular NSW TC14/01 dated 24 January 2014 as amended, supplemented or substituted from time to time; and
- (b) on terms acceptable to the Planning Minister, in the Planning Minister's absolute discretion,

to pay the face value of that undertaking on demand.

**Base CPI** means the CPI number for the quarter ending:

- (a) for the Oakdale Central Lot 1B Contribution - 31 March 2013;
- (b) for the Erskine Park Contribution - 31 March 2007;
- (c) for each other Monetary Contribution Component - either:
  - (i) 31 March after the date on which this deed is executed; or
  - (ii) if the amount of the Monetary Contribution Component has been replaced by the amount of a SIC Amount in accordance with

clause 4.5(c)(iv) - 31 March before the date on which that replacement occurs;

- (d) for a SIC Credit - 31 March after the date on which the SIC Credit is generated in accordance with clause 4.5; and
- (e) for an Excess Contributions Credit - 31 March after the date on which the Excess Contributions Credit is generated in accordance with clause 14 of Schedule 4.

**Business Day** means any day that is not a Saturday, Sunday, gazetted public holiday or bank holiday in Sydney, and concludes at 5 pm on that day.

**Complying Development Certificate** has the same meaning as in the Planning Act.

**Construction Certificate** has the same meaning as in the Planning Act.

**Contributions Estimate Notice** has the meaning given to that expression in clause 8 of Schedule 4.

**CPI number** means the Sydney Consumer Price Index (All Groups) published by the Commonwealth Statistician, or if that index no longer exists, any similar index which the parties agree, acting reasonably, will apply.

**CPI Adjustment Date** means

- (a) for the Erskine Park Contribution - 1 July in each year after 31 March 2007;
- (b) for the Oakdale Central Lot 1B Contribution - 1 July in each year after 31 March 2013;
- (c) for each other Monetary Contribution Component - 1 July in each year after the date on which this deed is executed;
- (d) for a SIC Credit - 1 July in each year after the date on which the SIC Credit is generated in accordance with clause 4.5; and
- (e) for an Excess Contributions Credit - 1 July in each year after the date on which the Excess Contributions Credit is generated in accordance with clause 14 of Schedule 4.

**Current CPI** means the CPI number for the quarter ending immediately before 31 March in the relevant adjustment year.

**Dealing** has the meaning given to that expression in clause 10.2.

**Developers** means any or all of GPS, the Erskine Park Landowner, the Oakdale Central Landowner and the Oakdale South Landowner.

**Development Contribution** means a contribution to be provided by the Developers in accordance with clause 4 and the provisions of Schedule 4.

**Erskine Park Approval** means the project approval for application no MP06\_0253, granted by the Planning Minister under Part 3A of the Planning Act on 1 March 2007 for the Erskine Park Development.

**Erskine Park Contribution** means the Monetary Contribution Component of that name which is specified in the Monetary Contributions Table.

**Erskine Park Development** means the subdivision of the Erskine Park Land and associated works, the development of one of the subdivided lots as a liquor distribution centre, and dedication of part of the Erskine Park Land for biodiversity conservation purposes.

**Erskine Park Land** means the land identified as the Erskine Park Land in Schedule 3.

**Estimated Land Contribution Value** for a Land Contribution means the estimated value of that Land Contribution, as agreed between the parties or otherwise as determined in accordance with clause 8 of Schedule 4.

**Estimated WIK Costs** for a WIK Contribution means the cost estimate for providing that WIK Contribution, including reasonable contingencies, as agreed between the parties or otherwise as determined in accordance with clause 8 of Schedule 4.

**Excess Contributions Credit** has the meaning given to that expression in clause 14 of Schedule 4.

**Explanatory Note** means the note exhibited with a copy of this deed when this deed is made available for inspection by the public pursuant to the Planning Act, as required by the Planning Regulation.

**GST** includes amounts defined as "GST" under the GST law and:

- (a) amounts payable on account of a notional liability under Division 177 of the GST Act; and
- (b) "GST equivalents" payments under the *Intergovernmental Agreement Implementation (GST) Act 2000 (NSW)* (or similar payments under corresponding legislation of any other State or Territory).

**GST Act** means the A New Tax System (Goods and Services Tax) Act 1999 (Cth).

**GST law** has the same meaning as in the GST Act.

**Key Estimate Matters** has the meaning given to that expression in clause 8 of Schedule 4.

**Key Land Reconciliation Matters** has the meaning given to that expression in clause 12 of Schedule 4.

**Key Road Work Terms** has the meaning given to that expression in clause 4.4(d).

**Key WIK Reconciliation Matters** has the meaning given to that expression in clause 10 of Schedule 4.

**Land** means the Oakdale Land and the Erskine Park Land.

**Land Actual Contributions Report** has the meaning given to that expression in clause 12 of Schedule 4.

**Land Component** means a part of the Land in respect of which the Monetary Contributions Table specifies a Monetary Contribution Component.

**Land Contribution** means:

- (a) the land which is the subject of a WIK Contribution, and which is transferred or proposed for transfer (as the case may be) to a Nominated Transferee at no cost to the Planning Minister in accordance with clause 9 of Schedule 4, and in the case of the OWR Upgrade Contribution means:
  - (i) land currently owned by TransGrid;

- (ii) land currently owned by Sydney Catchment Authority; and
  - (iii) land currently owned by the Austral Brick Company Proprietary Limited, as described in Annexure B to this deed, each to be treated as a separate Land Contribution for the purposes of this deed; and
- (b) any additional land which the Developers transfer or propose to transfer (as the case may be), or procure another person to transfer to a Nominated Transferee at no cost to the Planning Minister in accordance with clause 9 of Schedule 4,

and which the Planning Minister approves for transfer in a WIK Approval.

**Land Contribution Difference** has the meaning given to that expression in clause 13 of Schedule 4.

**Liabilities** means claims, actions, demands, proceedings, losses, costs, expenses, fines, penalties and other liabilities (including legal costs on an indemnity basis).

**Maximum Land Contribution Value** for a Land Contribution means the maximum value for that Land Contribution for the purposes of this deed, as agreed between the parties or otherwise as determined in accordance with clause 8 of Schedule 4.

**Maximum WIK Value** for a WIK Contribution means the maximum value for that WIK Contribution for the purposes of this deed, as agreed between the parties or otherwise as determined in accordance with clause 8 of Schedule 4, and as revised from time to time in accordance with clause 9 of Schedule 4.

**Ministerial Corporation** means the Minister Administering the Environmental Planning and Assessment Act 1979, a corporation sole constituted under section 8 of the Planning Act.

**Monetary Contribution** means all of the total Monetary Contribution Components which are specified in the numbered items of the Monetary Contributions Table, as adjusted from time to time in accordance with this deed.

**Monetary Contribution Component** means a component of the Monetary Contribution which is specified as an item in the Monetary Contributions Table, as adjusted from time to time in accordance with this deed.

**Monetary Contribution Security** means the security which the Planning Minister holds, or is entitled to hold, from time to time under this deed as security for the payment of Monetary Contribution Components under this deed. It includes the Oakdale Central / Erskine Park Security and the Oakdale South Security.

**Monetary Contributions Table** means the table in clause 1(a) of Schedule 4.

**Net Developable Area** or **NDA** means the net developable area of a Land Component, as calculated in accordance with clause 2 of Schedule 4.

**Nominated Monetary Contribution Components** has the meaning given to that expression in clause 4 of Schedule 4.

**Nominated Transferee** has the meaning given to that expression in clause 9 of Schedule 4.

**Nominated WIK and Land Contribution** has the meaning given to that expression in clause 4 of Schedule 4.

**Oakdale Central Concept Plan Approval** means the concept plan in application no. MP08\_0065 for the Oakdale Central Development, as approved by the Planning Minister under Part 3A of the Planning Act on 2 January 2009.

**Oakdale Central Development** means the subdivision of the Oakdale Central Land into Oakdale Central Lot 1A, Oakdale Central Lot 1B, Oakdale Central Lot 2A, Oakdale Central Lot 1C, Oakdale Central Lot 2B, Oakdale Central Lot 3, Oakdale Central Lot 4 and other lots, and associated works, the development of two of the subdivided lots as a DHL Logistics Hub and associated infrastructure, the development of four of the remaining subdivided lots as warehouse distribution facilities with associated parking, and the dedication of part of the Oakdale Central Land for biodiversity conservation purposes.

**Oakdale Central Land** means the land identified as the Oakdale Central Land in Schedule 3.

**Oakdale Central Lot 1A** means the lot within the Oakdale Central Development which is marked 1A on the plan of subdivision at Annexure A.

**Oakdale Central Lot 1B** means the lot within the Oakdale Central Development which is marked 1B on the plan of subdivision at Annexure A.

**Oakdale Central Lot 1B Contribution** means the Monetary Contribution Component of that name which is specified in the Monetary Contributions Table.

**Oakdale Central Lot 1C** means the lot within the Oakdale Central Development which is marked 1C on the plan of subdivision at Annexure A.

**Oakdale Central Lot 2A** means the lot within the Oakdale Central Development which is marked 2A on the plan of subdivision at Annexure A.

**Oakdale Central Lot 2B** means the lot within the Oakdale Central Development which is marked 2B on the plan of subdivision at Annexure A.

**Oakdale Central Lot 3** means the lot within the Oakdale Central Development which is marked 3 on the plan of subdivision at Annexure A.

**Oakdale Central Lot 4** means the lot within the Oakdale Central Development which is marked 4 on the plan of subdivision at Annexure A.

**Oakdale Central Part 4 Consent** means development consent no. 1084.1/2011 for the construction of a warehouse distribution facility with associated parking and landscaping works on Oakdale Central Lot 1B as part of the Oakdale Central Development, granted by Fairfield City Council under Part 4 of the Planning Act on 12 August 2013.

**Oakdale Central Project Approval** means the major project approval MP08\_0066 for the establishment of a DHL Logistics Hub and associated infrastructure for the Oakdale Central Development, approved by the Planning Minister under Part 3A of the Planning Act on 2 January 2009.

**Oakdale Central SSD Application** means State Significant Development application no. SSD 6078 for the subdivision of part of the Oakdale Central Land, the construction of warehouse buildings on Oakdale Central Lot 1C, Oakdale Central Lot 2B and Oakdale Central Lot 3, and the upgrade of Old Wallgrove Road as part of the Oakdale Central Development, lodged with DP&E under Part 4 of the Planning Act, as amended from time to time.

**Oakdale Central / Erskine Park Security** has the meaning given to that expression in clause 2(a) of Schedule 5.

**Oakdale Central SSD Approval** means any approval granted under Part 4 of the Planning Act in respect of the Oakdale Central SSD Application.

**Oakdale Development** means the Oakdale Central Development and the Oakdale South Development.

**Oakdale Land** means the Oakdale Central Land and the Oakdale South Land, and which is identified in Schedule 3.

**Oakdale South Development** includes the subdivision and development of the Oakdale South Land for industrial, manufacturing, warehousing, storage, research, ancillary office, and small-scale local service uses, generally in accordance with the plan of subdivision at Annexure A provided that the number and identification marking of lots is as shown in that plan unless the Secretary in her absolute discretion agrees otherwise, the development of the associated infrastructure, parking and landscaping, and the dedication of part of the Oakdale South Land for biodiversity conservation purposes.

**Oakdale South Land** means the land identified as the Oakdale South Land in Schedule 3.

**Oakdale South Lot 1** means the lot within the Oakdale South Development which is marked 1A on the plan of subdivision at Annexure A.

**Oakdale South Lot 2** means the lot within the Oakdale South Development which is marked 1B on the plan of subdivision at Annexure A.

**Oakdale South Lot 3** means the lots within the Oakdale South Development which ~~is~~are marked 2-'3A', '3B' and '3C' on the plan of subdivision at Annexure A.

**Oakdale South Lot 4** means the lot within the Oakdale South Development which is marked 3 on the plan of subdivision at Annexure A.

**Oakdale South Lot 5** means the lot within the Oakdale South Development which is marked 4A on the plan of subdivision at Annexure A.

**Oakdale South Lot 6** means the lot within the Oakdale South Development which is marked 4B on the plan of subdivision at Annexure A.

**Oakdale South Preliminary Works** means:

- (a) infrastructure works which are carried out for the purpose of the OWR Upgrade Contribution; or
- (b) bulk earthworks and other site preparation works which do not include the laying of slabs or floors or the carrying out of any other works above the surface of the ground,

which the Secretary of the Department of Planning and Environment, in her absolute discretion, has certified in writing as "Oakdale South Preliminary Works".

**Oakdale South Security** has the meaning given to that term in clause 2(b) of Schedule 5.

**Oakdale Transferee** has the meaning given to that expression in clause 10.2.

**Occupation Certificate** has the same meaning as in the Planning Act.

**OWR Upgrade Contribution** means the WIK Contribution comprising the upgrade of Old Wallgrove Road as depicted in the drawings and as described at Annexure B.

**Planning Act** means the Environmental Planning and Assessment Act 1979 (NSW).

**Planning Agreement** has the same meaning as in the Planning Act.

**Planning Approval** means a development consent under Part 4 of the Planning Act or a project approval under (former) Part 3A of the Planning Act.

**Planning Regulation** means the Environmental Planning and Assessment Regulation 2000 (NSW).

**Practical Completion** for a WIK Contribution has the meaning given to that expression in a Road Works Agreement for that WIK Contribution.

**Real Property Act** means the Real Property Act 1900 (NSW).

**Register** means the Torrens title register maintained under the Real Property Act.

**Required Obligations** has the meaning given to that expression in clause 10.2.

**RMS** means Roads and Maritime Services, being the Authority constituted under section 46 of the Transport Administration Act 1988 (NSW).

**Roads Authority** has the same meaning as in the Roads Act 1993 (NSW).

**Road Works Agreement:**

- (a) means a works authorisation deed or other legally binding agreement between the Developers and RMS (or other relevant Roads Authority) which governs the carrying out and Practical Completion of a WIK Contribution; and
- (b) in the case of a Roads Authority other than RMS, includes an Authorisation granted by the Roads Authority under section 138 of the Roads Act 1993 (NSW) instead of such a deed or agreement, if the Secretary, in her absolute discretion, has certified that Authorisation in writing as a "Road Works Agreement" for the purposes of this deed.

**Secretary** means the Secretary of the Department of Planning and Environment.

**SIC Amount** has the meaning given to that expression in clause 4.5(b).

**SIC Credit** means a credit against other development contributions which:

- (a) is calculated in accordance with clause 4.5(d) or clause 14 of Schedule 4; and
- (b) is adjusted, and may be used, in accordance with clause 4.6.

**SIC Determination** means a determination by the Planning Minister of a Special Infrastructure Contribution for a special contributions area which includes the Oakdale Land.

**Special Infrastructure Contribution** means a contribution determined in accordance with section 94EE of the Planning Act which applies to development on any part of the Oakdale Land.

**Stage** of the Oakdale Central Development or the Oakdale South Development means the development of a Land Component in the Oakdale Central Development or the Oakdale South Development (as the case may be).

**Subdivision Certificate** has the same meaning as in the Planning Act.

**Tax** means a tax, duty (including stamp duty and any other transaction duty), levy, impost, charge, fee (including a registration fee) together with all interest, penalties, fines and costs concerning them.

**Trustee** means each person defined as a "Trustee" in a clause in Schedule 7.

**Western Sydney Employment Area** means the land to which State Environmental Planning Policy (Western Sydney Employment Area) 2009 applies.

**WIK** means works-in-kind.

**WIK Actual Contribution Report** has the meaning given to that expression in clause 10 of Schedule 4.

**WIK Approval** has the meaning given to that expression in clause 4.4(f).

**WIK Contribution** means:

- (a) the OWR Upgrade Contribution; and
- (b) any other road and related works the subject of a current WIK Proposal or a WIK Approval.

**WIK Contribution Difference** has the meaning given to that expression in clause 11 of Schedule 4.

**WIK and Land Contribution Security** has the meaning given to that expression in clause 2 of Schedule 5.

**WIK Proposal** has the meaning given to that expression in clause 4.4.

## 1.2 Interpretation

In this deed unless the context clearly indicates otherwise:

- (a) a reference to **Planning Minister** includes a reference to the Secretary and also a reference to any person nominated by the Planning Minister for the purposes of this deed specifically or for Planning Agreements to which the Planning Minister is a party generally;
- (b) a reference to **this deed** or another document means this deed or that other document as varied, supplemented, replaced, assigned or novated from time to time, and includes any document which varies, supplements, replaces, assigns or novates this deed or that other document;
- (c) a reference to **legislation** or a **legislative provision** includes any statutory modification, or substitution of that legislation or legislative provision and any subordinate legislation issued under that legislation or legislative provision;
- (d) a reference to a **body** or **authority** which ceases to exist is a reference to either a body or authority that the parties agree to substitute for the named body or authority or, failing agreement, to a body or authority having substantially the same objects as the named body or authority;
- (e) a reference to the **introduction**, a **clause**, **schedule** or **annexure** is a reference to the introduction, a clause, a schedule or an annexure to or of this deed;
- (f) **clause headings**, **the introduction** and the **Contents** are inserted for convenience only and do not form part of this deed;
- (g) the **schedules** form part of this deed;
- (h) a reference to a **person** includes a natural person, corporation, statutory corporation, partnership, the Crown or any other organisation or legal entity;
- (i) a reference to a **natural person** includes their personal representatives, successors and permitted assigns;
- (j) a reference to a **corporation** includes its successors and permitted assigns;



- (k) a reference to a right or obligation of a party is a reference to a right or obligation of that party under this deed;
- (l) an **obligation** or **warranty** on the part of 2 or more persons binds them jointly and severally and an obligation or warranty in favour of 2 or more persons benefits them jointly and severally;
- (m) a requirement to do any thing includes a requirement to cause that thing to be done and a requirement not to do any thing includes a requirement to prevent that thing being done;
- (n) **including** and **includes** are not words of limitation;
- (o) a word that is derived from a defined word has a corresponding meaning;
- (p) **monetary amounts** are expressed in Australian dollars;
- (q) the singular includes the plural and vice-versa;
- (r) words importing one gender include all other genders;
- (s) a reference to a thing includes each part of that thing; and
- (t) neither this deed nor any part of it is to be construed against a party on the basis that the party or its lawyers were responsible for its drafting.

---

## 2. Operation and application of this deed

### 2.1 Operation

This deed will commence on and from date this deed is signed by all the parties.

### 2.2 Planning agreement under the Planning Act

This deed constitutes a Planning Agreement within the meaning of section 93F of the Planning Act.

### 2.3 Application

This deed applies to:

- (a) the Oakdale Land excluding Oakdale Central Lot 1A and Oakdale Central Lot 2A;
- (b) the Erskine Park Land;
- (c) the Oakdale Development excluding development in respect of Oakdale Central Lot 1A and Oakdale Central Lot 2A; and
- (d) the Erskine Park Development.

---

## 3. Application of Sections 94, 94A and 94EF of the Planning Act

The application of sections 94, 94A and 94EF of the Planning Act is excluded to the extent stated in Schedule 1.

## 4. Development Contributions

### 4.1 Developer to provide Development Contributions

The Developers agree to provide, or procure the provision of, the Development Contributions to the Planning Minister in accordance with this clause 4 and the provisions of Schedule 4.

### 4.2 Acknowledgement

The Developers acknowledge and agree that the Planning Minister:

- (a) has no obligation to use or expend the Development Contributions for a particular purpose, and has not made any representation or warranty that she will use or expend the Development Contributions for any particular purpose; and
- (b) has no obligation to repay, or provide any compensation or payment for, the Development Contributions (noting that the provision of any credit to the Developer under clause 4.5 or Schedule 4 is not a repayment, compensation or payment); and
- (c) has not made any representation or warranty that, if the Development Contributions are transferred or provided in any way to another Authority, the Development Contributions will or must be used for any particular purpose by that or any other Authority.

### 4.3 Monetary Contribution

Subject to clause 4.4, the Developers must provide the Monetary Contribution to the Planning Minister:

- (a) in the amount which is:
  - (i) specified in the Monetary Contributions Table and indexed in the manner specified in the Monetary Contributions Table; or
  - (ii) calculated in the manner specified in the Monetary Contributions Table (which will incorporate indexation in the manner specified in the Monetary Contributions Table), if no amount is specified in the Monetary Contributions Table;
- (b) in the manner specified as the "Manner of Delivery" in the Monetary Contributions Table; and
- (c) at or before the time specified as the "Timing" in the Monetary Contributions Table.

### 4.4 Works-in-Kind Contribution and Land Contribution

- (a) The Developers may, by written notice to the Planning Minister in accordance with this clause 4.4, propose that the Developers provide a WIK Contribution and (if applicable) Land Contribution instead of providing one or more Monetary Contribution Components (including part of a Monetary Contribution Component) except the Oakdale Central Lot 1B Contribution, and as an offset for those Monetary Contribution Components (and part of a Monetary Contribution Component, if relevant), in accordance with this clause 4.4 and Schedule 4 (**WIK Proposal**).
- (b) If the Developers intend to submit a WIK Proposal to the Planning Minister, the Developers must give the Planning Minister 15 Business Days' written notice of that intention before submitting the WIK Proposal.

- (c) The Developers must, in the WIK Proposal:
- (i) describe the WIK Contribution which the Developers propose to provide;
  - (ii) specify the estimated cost of that WIK Contribution;
  - (iii) specify, for all of the land which is the subject of that WIK Contribution (**Relevant Land**) and any other Land Contribution in that WIK Proposal:
    - A. the title details of that land and a plan showing that land;
    - B. the registered proprietor of that land; and
    - C. the estimated value of that land;
  - (iv) confirm:
    - A. that one or more of the Developers is the registered proprietor of all of the Relevant Land and any other Land Contribution in that WIK Proposal; or
    - B. if one or more of the Developers is not the registered owner of any parts of the Relevant Land, that the Developers have obtained the written consent of each owner of each of those parts of the Relevant Land to the transfer of that part to the Nominated Transferee, on or before Practical Completion of the relevant WIK Contribution, either unconditionally or subject to valuation of the part (and if subject to valuation, the Developers must specify which part is subject to valuation and the terms on which the valuation issue is to be resolved);
  - (v) specify the Monetary Contribution Components (and part of a Monetary Contribution Component, if relevant) in respect of which the Developers are electing to provide the WIK Contribution and (if applicable) the Land Contribution as an offset; and
  - (vi) specify whether the provision of the WIK Contribution and (if applicable) the Land Contribution is intended to be a complete or partial offset for each of the specified Monetary Contribution Components and, if a partial offset, the amount of the proposed offset.
- (d) The Developers must, when providing the WIK Proposal, also provide:
- (i) a statement of the key terms which will be incorporated in the proposed Road Works Agreement for the relevant WIK Contribution, including:
    - A. the nature and amount of security to be provided for the WIK Contribution;
    - B. the definition of "Practical Completion" for the WIK Contribution; and
    - C. the process for achieving Practical Completion**(Key Road Work Terms)**; and
  - (ii) written evidence:

- A. that the Relevant Roads Authority agrees in principle to the provision of the WIK Contribution which is described in the WIK Proposal; and
- B. of the Relevant Roads Authority's comments on the Key Road Works Terms as described in the WIK Proposal,

and the following process will apply:

- (iii) the Planning Minister must notify the Developers in writing, within 20 Business Days after receiving a WIK Proposal and the material specified in clause 4.4(d)(i) and (ii), whether or not the Planning Minister agrees with those Key Road Work Terms;
  - (iv) if the Planning Minister notifies the Developers that the Planning Minister does not agree with those Key Road Work Terms, then the parties must negotiate in good faith and use their best endeavours to agree the Key Road Work Terms;
  - (v) if 20 Business Days (or such other period as the parties may agree) have passed since the Developers' statement of Key Road Work Terms and the material specified in clause 4.4(d)(ii) have been provided to the Planning Minister and the parties have not reached agreement on the Key Road Work Terms, then the Planning Minister may, within a further 10 Business Days, and if the Planning Minister has consulted with the relevant Roads Authority for the proposed Road Works Agreement, and by written notice to the Developers, determine the Key Road Work Terms which must be incorporated in the Road Works Agreement.
- (e) The Developers may withdraw a WIK Proposal at any time up to the date on which the Key Road Work Terms are agreed under clause 4.4(d)(iii) or 4.4(d)(iv) or the date which is 20 Business Days after or the Planning Minister provides notice of the Key Road Work Terms under clause 4.4(d)(v). If the Developers withdraw a WIK Proposal, then the Developers must provide the Monetary Contribution to the Planning Minister in accordance with this deed.
  - (f) If one of the dates specified in clause 4.4(d) has passed and the Planning Minister has not received a withdrawal of the WIK Proposal, then the Planning Minister may, in her absolute discretion, approve the WIK Contribution and (if applicable) the Land Contribution specified in the WIK Proposal, as varied to include the Key Road Work Terms as agreed or determined in accordance with clause 4.4(d) (**WIK Approval**).
  - (g) If the Planning Minister issues a WIK Approval for a WIK Contribution, the Developers must ensure that any Road Works Agreement with the relevant Roads Authority for that WIK Contribution incorporates the Key Road Work Terms agreed or determined in accordance with clause 4.4(d).
  - (h) To avoid doubt, the parties agree that the Developers may provide a WIK Contribution and (if applicable) Land Contribution as an offset for a Monetary Contribution Component even if the Monetary Contribution Component relates to a part of the Oakdale Development which has not been approved or carried out at the time at which the Developers submit a relevant WIK Proposal or any time after that.
  - (i) Despite anything in this clause 4.4 or in Schedule 4:
    - (i) the Developers cannot provide a WIK Contribution or Land Contribution as an offset for the Oakdale Central Lot 1B Contribution; and
    - (ii) the Developers cannot provide a WIK Contribution or Land Contribution as an offset for any Monetary Contribution Component relating to the

Oakdale Development until they have provided a WIK Contribution or Land Contribution as an offset for all of the Erskine Park Contribution.

- (j) The Planning Minister and the Developers acknowledge and agree that:
  - (i) the Planning Minister has issued a WIK Approval for the OWR Upgrade Contribution adopting the matters set out in Annexure B; and
  - (ii) the Planning Minister and the Developers have satisfied this clause 4.4 in respect of the OWR Upgrade Contribution.

#### 4.5 Adjustment for Special Infrastructure Contributions

- (a) Despite anything else in this deed, this clause 4.5 applies to the Oakdale Development (other than development on Oakdale Central Lot 1B) if the Planning Minister makes a SIC Determination after the execution of this deed.

This clause 4.5 applies to allow a Monetary Contribution Component to be re-calculated, or a SIC Credit to be claimed, whether a Planning Approval for the relevant part of the Oakdale Development is granted before or after the SIC Determination takes effect.

- (b) For the purposes of this clause 4.5:
  - (i) reference to a **SIC Amount** for a part of the Oakdale Development on any Land Component is a reference to the amount of a Monetary Contribution calculated in accordance with the SIC Determination for that part of the Oakdale Development as if a separate Planning Approval had been granted for that part and had imposed an obligation to make a Special Infrastructure Contribution in accordance with the SIC Determination; and
  - (ii) a SIC Amount is to be calculated as if it were due at the time that it is proposed to replace the Monetary Contribution Component with that amount in the Monetary Contributions Table, in the circumstances referred to in clause 4.5(c)(ii);
  - (iii) a SIC Amount is to be calculated as if it were due at the time the SIC Determination comes into effect, in the circumstances referred to in clause 4.5(d)(ii);
  - (iv) the SIC Determination, despite any terms to the contrary, is to be treated as applying to complying development; and
  - (v) except in clauses 4.5(e) and 4.5(f), a reference to a Monetary Contribution Component is a reference to the amount of the Monetary Contribution Component which would have been payable if it had not been reduced on the basis of any WIK Contributions and Land Contributions in accordance with clause 4 of Schedule 4.
- (c) If:
  - (i) the SIC Amount for a part of the Oakdale Development on any Land Component is less than the Monetary Contribution Component specified for that part of the Oakdale Development; and
  - (ii) the Developers either:
    - A. have not paid the Monetary Contribution Component that would be payable for that part of the Oakdale Development,

and that Monetary Contribution Component has not become due and payable, at the time the SIC Determination comes into effect; or

- B. have obtained one or more WIK Approvals to provide a WIK Contribution and (if applicable) Land Contribution instead of that Monetary Contribution Component (or part of that Monetary Contribution Component) in accordance with clause 4.4, but Practical Completion has not been achieved in respect of any of those WIK Contributions and Land Contributions at the time the SIC Determination takes effect,

then:

- (iii) the Developers may, by notice in writing to the Planning Minister, elect to substitute the SIC Amount for that Monetary Contribution Component in the Monetary Contributions Table; and
- (iv) if the Developers provide a notice under clause 4.5(c)(iii), then the amount of that Monetary Contribution Component is replaced in the Monetary Contributions Table with the SIC Amount, and is then reduced in accordance with clause 4 of Schedule 4 for each WIK Contribution and (if applicable) Land Contribution the subject of a WIK Approval which relates to that Monetary Contribution Component.

(d) If:

- (i) the SIC Amount for a part of the Oakdale Development on any Land Component is less than the amount of a Monetary Contribution Component specified for that part of the Oakdale Development; and
- (ii) the Developers either:
  - A. have paid in full the Monetary Contribution Component for that part of the Oakdale Development at the time the SIC Determination takes effect; or
  - B. have obtained one or more WIK Approvals to provide a WIK Contribution and (if applicable) Land Contribution instead of that Monetary Contribution Component (or part of that Monetary Contribution Component) in accordance with clause 4.4, and Practical Completion has been achieved in respect of all of those WIK Contributions and Land Contributions at the time the SIC Determination takes effect,

then the Developers will be entitled to a SIC Credit which:

- (iii) if it relates to a Monetary Contribution Component which has been paid - equals the amount of that Monetary Contribution Component less that SIC Amount;
- (iv) if it relates to a WIK Contribution and (if applicable) Land Contribution in respect of which Practical Completion has been achieved - is determined in accordance with clause 14 of Schedule 4; and
- (v) only becomes available to the Developers when the Planning Minister has issued a notice in writing confirming the amount of the SIC Credit.

- (e) To avoid doubt, nothing in this clause 4.5 affects the Developers' obligation to provide Monetary Contribution Components or WIK Contributions and Land Contributions, in accordance with this deed.
- (f) The SIC Amount (as may be reduced in accordance with clause 4 of Schedule 4) which replaces the Monetary Contribution Component in the Monetary Contributions Table is to be that amount as calculated by the Planning Minister in accordance with this clause 4.5 and notified to the Developers in writing.

#### 4.6 Status and use of SIC Credits

If the Developers are entitled to a SIC Credit under this deed:

- (a) the Developers must, by notice in writing to the Planning Minister, nominate which of them is to hold the SIC Credit, and the nominated Developer will be taken to be the holder of that SIC Credit, unless the SIC Credit is transferred to another person with the prior written consent of the Planning Minister;
- (b) the holder of the SIC Credit may, by notice in writing to the Planning Minister, use the SIC Credit to offset an obligation to provide development contributions to the Planning Minister, in respect of other development by the Developers or a company related to the Developers, within the Western Sydney Employment Area, in the amount (if the development contribution is a payment of money) or to a value (if the development contribution is the provision of works or land) which equals the amount of the SIC Credit as calculated in accordance with this deed; and
- (c) any SIC Credit which has been generated under this deed, and which has not been allocated for use in an executed Planning Agreement, will be adjusted on each CPI Adjustment Date until that SIC Credit has been allocated, using the following formula:

$$CC = PC \times \frac{\text{Current CPI}}{\text{Base CPI}}$$

Where

**CC** is the newly adjusted SIC Credit

the terms **Current CPI** and **Base CPI** are defined in clause 1.1

and **PC** means the amount of the SIC Credit on the date on which that SIC Credit was generated.

and a SIC Credit is taken to have been allocated under a Planning Agreement when the Planning Agreement provides for the use of the SIC Credit.

---

## 5. Interest for late provision of Monetary Contribution

- (a) If the Developers fail to provide a Monetary Contribution Component to the Planning Minister under this deed on the due date for provision of that Monetary Contribution Component, the Developers must also pay to the Planning Minister interest at a rate of 2% above the loan reference rate charged by the Commonwealth Bank of Australia from time to time.
- (b) Interest will be payable on the daily balance of amounts due from the due date for provision of those amounts until all outstanding amounts (including interest on those amounts) have been provided to the Planning Minister.

---

## 6. Security

The Developers have agreed to provide security to the Planning Minister for the Developers' obligations to provide the Development Contribution by:

- (a) registering this deed on the title to the Oakdale Land in accordance with clause 7; and
- (b) providing Bank Guarantees to the Planning Minister in accordance with the terms and procedures set out in Schedule 5.

---

## 7. Land ownership and registration of this deed

### 7.1 Land ownership

The Developers represent and warrant that, for each part of the Oakdale Land, one or more of the Developers is:

- (a) the registered proprietor of that part of the Oakdale Land, as specified in Schedule 3; and
- (b) legally and beneficially entitled to obtain all consents and approvals and to compel any person referred to in or contemplated by clause 7.2(b)(i) to assist, cooperate and to otherwise do all things necessary for the Developers to comply with their obligations under clause 7.2.

### 7.2 Registration of deed

- (a) As contemplated by section 93H of the Planning Act, the Developers agree to lodge this deed for registration under the Real Property Act in the relevant folios of the Register for all of the Oakdale Land within 10 Business Days after the date on which a counterpart of this deed which the Planning Minister has executed is returned to the Developer.
- (b) The Developers, at their own expense, will take all practical steps to procure:
  - (i) the consent of each person who:
    - A. has an estate or interest in the Oakdale Land which is registered under the Real Property Act; or
    - B. is seized or possessed of an estate or interest in the Oakdale Land,to the registration of this deed on the title to the Oakdale Land; and
  - (ii) the execution of any documents which are required to enable the registration of this deed on the title to the Oakdale Land; and
  - (iii) the production of the relevant certificates of title; and
  - (iv) the lodgement and registration of this deed, by the Registrar-General in the relevant folio of the Register,
- (c) The Developers will provide the Planning Minister with a copy of the relevant folio of the Register and a copy of the registered dealing within 10 Business Days after the date of registration of this deed.



### **7.3 Release and discharge of deed**

Once the Developers have satisfied all of their obligations under this deed, the Planning Minister agrees to do all things reasonably required by the Developers in order to have the Registrar-General remove this deed from the relevant folio of the Register.

---

## **8. Dispute resolution**

### **8.1 Not commence**

A party must not commence any court proceedings relating to a dispute under or in relation to the deed unless it has complied with this clause 8.

### **8.2 Written notice of dispute**

A party claiming that a dispute has arisen under or in relation to this deed must give written notice to the other parties specifying the nature of the dispute and requiring that the dispute be addressed in accordance with this clause 8.

### **8.3 Attempt to resolve**

On receipt of notice under clause 8.2, the parties must endeavour in good faith to resolve the dispute expeditiously using informal dispute resolution techniques (such as mediation, expert evaluation or other techniques).

### **8.4 Mediation**

If the parties do not either resolve the dispute or agree in writing as to:

- (a) the dispute resolution technique and procedures to be adopted;
- (b) the timetable for implementation of those procedures; or
- (c) the selection and remuneration of any independent person required for such technique,

within 21 Business Days of receipt of notice under clause 8.2 (or any other period agreed in writing by them) then, subject to clause 8.6, the parties must mediate the dispute in accordance with the Mediation Program of the Law Society of NSW. The parties must, as soon as possible, request the president of the Law Society of NSW or the president's nominee to select the mediator and determine the mediator's remuneration.

### **8.5 Costs of alternative dispute resolution**

Each party will be responsible for its own legal and other costs in relation to any process under this clause 8 but the parties must bear equally the costs of an independent person appointed under clause 8.4. This clause 8.5 does not apply to court proceedings.

### **8.6 Court proceedings**

If the dispute is not resolved within 60 Business Days after notice is given under clause 8.2 (or any other period agreed in writing by the parties) then any party which has complied with the provisions of this clause 8 may, by written notice to the other parties, terminate any dispute resolution process undertaken under this clause and may then commence court proceedings in relation to the dispute.

## 8.7 Use of information

The parties acknowledge the purpose of any exchange of information or documents or the making of any offer of settlement under this clause 8 is to attempt to resolve the dispute. No party may use any information or documents obtained through any dispute resolution process undertaken under this clause 8 for any purpose other than undertaking the dispute resolution process itself or an attempt to resolve the dispute.

## 8.8 Continued performance of obligations

Despite the existence of a dispute or any process under this clause 8, but subject to any order of a court or the agreement of the parties, the parties will (so far as it is reasonably practicable) continue to perform and comply with their respective obligations under this deed.

## 8.9 No prejudice

This clause 8 does not prejudice the right of a party to institute court proceedings for urgent injunctive or declaratory relief in relation to any matter arising out of or relating to this deed.

---

## 9. GST

### 9.1 Definitions

In this clause 9:

- (a) words and phrases used in this clause 9 that are defined in the GST Act have the same meaning as in that Act except that:
  - (i) **GST** has the meaning provided in clause 1.1;
  - (ii) **Supplier** means a party who makes a supply whether on behalf of another entity or otherwise; and
  - (iii) **Recipient** means a party who provides or is liable to provide consideration under this deed for a supply;
- (b) unless otherwise expressly stated, all consideration to be provided under any other provision of this deed is exclusive of GST. Any consideration that is specified to be inclusive of GST must not be taken into account in calculating the GST payable in relation to a supply for the purpose of this clause 9;
- (c) a reference to a supply is to a supply made under or in connection with this deed;
- (d) any part of a supply that is treated as a separate supply for GST purposes (including attributing GST payable to tax periods) will be treated as a separate supply for the purposes of this clause 9;
- (e) a reference to GST payable by the Supplier includes any GST payable by the representative member of any GST group of which the Supplier (or the entity on whose behalf the Supplier is acting) is a member; and
- (f) a reference to input tax credits includes input tax credits to which an entity is notionally entitled in accordance with Division 177 of the GST Act and a reference to input tax credits to which an entity is entitled includes any input tax credits to which the representative member of any GST group to which that entity may belong is entitled.

## 9.2 Intention of the parties

The parties intend that subject to the following paragraphs of clause 9:

- (a) Divisions 81 and 82 of the GST Act apply to the supplies made under and in respect of this deed; and
- (b) no additional amounts will be payable on account of GST and no tax invoices will be exchanged between the parties.

## 9.3 Reimbursements and similar payments

Any payment or reimbursement required to be made under this deed that is calculated by reference to an amount paid or incurred will be limited to the total amount less any input tax credit to which an entity is entitled for an acquisition to which the amount relates.

## 9.4 GST payable

Subject to clause 9.6, if the Supplier is or becomes liable to pay GST in respect of any supply:

- (a) the Recipient must pay to the Supplier an additional amount equal to the amount of GST payable on that supply (**GST Amount**);
- (b) the Supplier must issue a valid tax invoice to the Recipient in respect of that supply;
- (c) the GST Amount must be paid at the same time as the first part of any consideration is provided for that supply or on receipt of a valid tax invoice for the supply to which the GST amount relates, whichever is the later.

## 9.5 Variation of GST

If the GST Amount recovered by the Supplier from the Recipient under clause 9.4(a) for a supply differs for any reason from the amount of GST paid or payable by the Supplier on that supply, then the Recipient must pay to the Supplier on demand (or the Supplier credit the Recipient with) the amount of that difference. If any adjustment event occurs in relation to a supply, the Supplier must give the Recipient an adjustment note within 14 days after the date of the adjustment event.

## 9.6 Exchange of non-monetary consideration

- (a) To the extent that the consideration provided for the Supplier's taxable supply to which clause 9.4 applies is a taxable supply made by the Recipient (**Recipient Supply**), the GST Amount that would be otherwise be payable by the Recipient to the Supplier in accordance with clause 9.4 shall be reduced by the amount of GST payable by the Recipient on the Recipient Supply.
- (b) The Recipient must issue to the Supplier an invoice for any Recipient Supply on or before the time at which the Recipient must pay the GST Amount in accordance with clause 9.4 (or the time at which such GST Amount would have been payable in accordance with 9.4 but for the operation of clause 9.6(a)).

## 9.7 No Merger

This clause will not merge on completion or termination of this deed.

## 10. Assignment

### 10.1 Assignment of rights or benefits of this deed

- (a) None of the Developers may assign the rights or benefits of this deed to any person except:
- (i) to a related body corporate, after obtaining the consent of the Planning Minister, which the Planning Minister must not withhold if she is reasonably satisfied that the related body corporate has sufficient assets, resources and expertise to perform all of the assigning party's obligations under this deed; or
  - (ii) to any other person, with the prior consent of the Planning Minister, which the Planning Minister must not unreasonably condition or withhold.
- (b) The Planning Minister may require, as a condition of any consent given under clause 10.1(a), that the proposed assignor and assignee of rights or benefits of this deed enter into a deed with the Planning Minister and (if the Planning Minister wishes) the other parties to this deed, giving the Planning Minister such assurance of ongoing satisfaction of the proposed assignor's obligations under this deed as the Planning Minister (acting reasonably) considers appropriate.
- That assurance may include provisions under which the proposed assignee agrees to comply with the proposed assignor's obligations as if the proposed assignee were the proposed assignor (including the provision of appropriate security in accordance with Schedule 5 of this deed and other obligations which arose before the date of assignment) and to indemnify the Planning Minister in respect of any breach of this deed by the proposed assignor.
- (c) The Planning Minister may assign the rights and benefits of this deed in her absolute discretion, without the need for consent from any of the Developers.

### 10.2 Dealings with Oakdale Land

- (a) None of the Developers may sell, transfer, assign, dispose of or mortgage the whole or any part of the Oakdale Land (**Dealing**) unless, before a Developer enters into a Dealing with another person (**Oakdale Transferee**):
- (i) the Developer satisfies the Planning Minister (acting reasonably) that the proposed Oakdale Transferee is financially capable of complying with those of the Developer's obligations under this deed which the Planning Minister (acting reasonably) specifies, by notice in writing to the Developer, must be adopted by the Oakdale Transferee (**Required Obligations**);
  - (ii) the Oakdale Transferee signs a deed in favour of the Planning Minister under which the Oakdale Transferee agrees to comply with the Required Obligations as if it were the Developer (including the provision of appropriate security in accordance with Schedule 5 of this deed and other obligations which arose before the Dealing) and to indemnify the Planning Minister in respect of any breach of this deed by the Developer;
  - (iii) any default by the Developers has been remedied by the Developers, unless that default has been waived expressly by the Planning Minister; and
  - (iv) the Developer and the Oakdale Transferee pay the Planning Minister's reasonable costs in relation to that Dealing.

- (b) If the Developer enters into a Dealing and fully satisfies the requirements of clause 10.2(a) with respect to that Dealing, the Developer will be released from its obligations under this deed with respect to the land the subject of that Dealing.

---

## **11. Capacity**

### **11.1 General warranties**

Each party warrants to each other party that:

- (a) this deed creates legal, valid and binding obligations, enforceable against the relevant party in accordance with its terms; and
- (b) unless otherwise stated, it has not entered into this deed in the capacity of trustee of any trust.

### **11.2 Power of attorney**

If an attorney executes this deed on behalf of any party, the attorney declares that it has no notice of the revocation of that power of attorney.

### **11.3 Trustees**

Each Trustee enters into this deed in the capacity, and on the terms, relating to that Trustee which are set out in Schedule 7.

---

## **12. General provisions**

### **12.1 Entire agreement**

This deed constitutes the entire agreement between the parties regarding the matters set out in it and supersedes any prior representations, understandings or arrangements made between the parties, whether orally or in writing.

### **12.2 Variation**

- (a) This deed must not be varied except by a later written document executed by all parties.
- (b) The parties acknowledge that in circumstances where the Developers are entitled to a SIC Credit and the State adopts administrative arrangements which permit a refund of credit amounts, the parties will enter into negotiations to effect a variation of this deed to reflect the adopted administrative arrangements.
- (c) The parties acknowledge that in circumstances where there is any inconsistency between any provision of this deed and the conditions of the SSD Approval or any other development approval under the Planning Act in respect of the Oakdale Development which is granted after the date of this deed, the parties will enter into negotiations to effect a variation of this deed to conform the rights and obligations under the deed to the SSD Approval (or other development approval under the Planning Act) conditions (to the extent of the inconsistency).

### **12.3 Waiver**

A right created by this deed cannot be waived except in writing signed by the party entitled to that right. Delay by a party in exercising a right does not constitute a waiver of that right, nor will a waiver (either wholly or in part) by a party of a right operate as a subsequent waiver of the same right or of any other right of that party.

## 12.4 Further assurances

Each party must promptly execute all documents and do everything necessary or desirable to give full effect to the arrangements contained in this deed.

## 12.5 Time for doing acts

- (a) If:
- (i) the time for doing any act or thing required to be done; or
  - (ii) a notice period specified in this deed,
- expires on a day other than a Business Day, the time for doing that act or thing or the expiration of that notice period is extended until the following Business Day.
- (b) If any act or thing required to be done is done after 5 pm on the specified day, it is taken to have been done on the following Business Day.

## 12.6 Governing law and jurisdiction

- (a) The laws applicable in New South Wales govern this deed.
- (b) The parties submit to the non-exclusive jurisdiction of the courts of New South Wales and any courts competent to hear appeals from those courts.

## 12.7 Severance

If any clause or part of any clause is in any way unenforceable, invalid or illegal, it is to be read down so as to be enforceable, valid and legal. If this is not possible, the clause (or where possible, the offending part) is to be severed from this deed without affecting the enforceability, validity or legality of the remaining clauses (or parts of those clauses) which will continue in full force and effect.

## 12.8 Preservation of existing rights

The expiration or termination of this deed does not affect any right that has accrued to a party before the expiration or termination date.

## 12.9 No merger

Any right or obligation of any party that is expressed to operate or have effect on or after the completion, expiration or termination of this deed for any reason, will not merge on the occurrence of that event but will remain in full force and effect.

## 12.10 Counterparts

This deed may be executed in any number of counterparts. All counterparts taken together constitute one instrument.

## 12.11 Relationship of parties

Unless otherwise stated:

- (a) nothing in this deed creates a joint venture, partnership, or the relationship of principal and agent, or employee and employer between the parties; and

- (b) no party has the authority to bind any other party by any representation, declaration or admission, or to make any contract or commitment on behalf of any other party or to pledge any other party's credit.

## 12.12 Good faith

Each party must act in good faith towards all other parties and use its best endeavours to comply with the spirit and intention of this deed.

## 12.13 No fetter

Nothing in this deed shall be construed as requiring either the Planning Minister to do anything that would cause the Planning Minister to breach any of the Planning Minister's obligations at law and without limitation, nothing in this deed shall be construed as limiting or fettering in any way the discretion of the Planning Minister in exercising any of the Planning Minister's statutory functions, powers, authorities or duties.

## 12.14 Explanatory Note

The Explanatory Note must not be used to assist in construing this deed.

## 12.15 Expenses and stamp duty

- (a) The Developers must pay their own and the Planning Minister's reasonable legal costs and disbursements in connection with the negotiation, preparation, execution and carrying into effect of this deed.
- (b) The Developers must pay for all costs and expenses associated with the giving of public notice of this deed and the Explanatory Note in accordance with the Planning Regulation.
- (c) The Developer must pay all Taxes assessed on or in respect of this deed and any instrument or transaction required or contemplated by or necessary to give effect to this deed (including stamp duty and registration fees, if applicable).
- (d) The Developer must provide the Planning Minister with bank cheques in respect of the Planning Minister's costs pursuant to clauses 12.15(a) and 12.15(b) above:
  - (i) where the Planning Minister has provided the Developer with written notice of the sum of such costs prior to execution, on the date of execution of this deed; or
  - (ii) where the Planning Minister has not provided the Developer with prior written notice of the sum of such costs prior to execution, within 10 Business Days of demand by the Planning Minister for payment.

## 12.16 Notices

- (a) Any notice, demand, consent, approval, report, request or other communication (**Notice**) to be given under this deed must be in writing and must be given to the recipient at its Address for Service by being:
  - (i) hand delivered; or
  - (ii) sent by facsimile transmission; or
  - (iii) sent by prepaid ordinary mail within Australia.
- (b) A Notice is given if:

- (i) hand delivered - on the date of delivery; or
- (ii) sent by facsimile transmission during any Business Day - on the date that the sending party's facsimile machine records that the facsimile has been successfully transmitted; or
- (iii) sent by prepaid ordinary mail within Australia - on the date that is 2 Business Days after the date of posting.



**Schedule 1**

**Table 1 - Requirements under section 93F of the Planning Act (clause 2.2)**

The parties acknowledge and agree that the table set out below provides for certain terms, conditions and procedures for the purpose of this deed complying with the Planning Act.

<b>REQUIREMENT UNDER THE PLANNING ACT</b>	<b>THIS DEED</b>
<p><b>Planning instrument and/or project application - (section 93F(1))</b>                      The Developer has:</p> <p>(a) sought a change to an environmental planning instrument.</p> <p>(b) made, or proposes to make, a project/development application.</p> <p>(c) entered into an agreement with, or is otherwise associated with, a person, to whom paragraph (a) or (b) applies.</p>	<p>(a) No</p> <p>(b) Yes (GPS)</p> <p>(c) Yes (Oakdale Central Landowner and Oakdale South Landowner and Erskine Park Landowner)</p>
<p><b>Description of land to which this deed applies - (section 93F(3)(a))</b></p>	See Schedule 3
<p><b>Description of change to the environmental planning instrument to which this deed applies - (section 93F(3)(b))</b></p>	N/A
<p><b>The scope, timing and manner of delivery of contribution required by this deed - (section 93F(3)(c))</b></p>	See clause 4 and Schedule 4
<p><b>Applicability of sections 94 and 94A of the Planning Act - (section 93F(3)(d))</b></p>	The application of sections 94 and 94A is not excluded in respect of the Oakdale Development or the Erskine Park Development.
<p><b>Applicability of section 94EF of the Planning Act - (section 93F(3)(d))</b></p>	The application of section 94EF is excluded in respect of the Oakdale Development and the Erskine Park Development (except in relation to Oakdale Central Lot 1A and Oakdale Central Lot 2A).
<p><b>Consideration of benefits under this deed if section 94 applies - (section 93F(3)(e))</b></p>	No
<p><b>Mechanism for Dispute Resolution - (section 93F(3)(f))</b></p>	See clause 8
<p><b>Enforcement of this deed - (section 93F(3)(g))</b></p>	See clause 6
<p><b>Registration of the Planning Agreement - (section 93H)</b></p>	Yes (see clauses 6 and 7)
<p><b>No obligation to grant consent or exercise functions - (section 93F(10))</b></p>	See clause 12.13

**Schedule 2****Address for Service (clause 1.1)****Planning Minister**

Contact: The Secretary

Address: Department of Planning and Environment  
23-33 Bridge Street  
SYDNEY NSW 2000

Facsimile No: (02) 9228 6191

**GPS**

Company: Goodman Property Services (Aust) Pty Ltd

Contact: Samantha Evans, General Counsel Australia

Address: Level 17  
60 Castlereagh Street  
SYDNEY NSW 2000

Facsimile No: (02) 9230 7444

**Oakdale Central Landowner**

Company: BGAI 6 Pty Ltd

Contact: Samantha Evans, General Counsel Australia

Address: Level 17  
60 Castlereagh Street  
SYDNEY NSW 2000

Facsimile No: (02) 9230 7444

**Oakdale South Landowner**

Company: BGMG 8 Pty Ltd

Contact: Samantha Evans, General Counsel Australia

Address: Level 17  
60 Castlereagh Street  
SYDNEY NSW 2000

Facsimile No: (02) 9230 7444

**Erskine Park Landowner**

Company: BGAI 2 Pty Ltd  
Contact: Samantha Evans, General Counsel Australia  
Address: Level 17  
60 Castlereagh Street  
SYDNEY NSW 2000  
Facsimile No: (02) 9230 7444

Schedule 3

Land (clause 1.1)

Land		Lot	Deposited Plan	Registered proprietor
Oakdale Land	Oakdale Central Land	21	1173181	BGAI 6 Pty Ltd
	Oakdale South Land	12	1178389	BGMG 8 Pty Ltd
		<u>87</u>	<u>752041</u>	<u>BGMG 8 Pty Ltd</u>
Erskine Park Land		1	1124329	BGAI2 Pty Ltd
		2	1124329	BGAI2 Pty Ltd
		3	1124329	BGAI2 Pty Ltd
		4	1124329	BGAI2 Pty Ltd
		5	1124329	BGAI2 Pty Ltd
		6	1124329	Ministerial Corporation

**Schedule 4**

**Development Contributions (clause 4)**

**1. Development Contribution**

(a) The following table provides details of the Development Contribution.

<b>Item</b>	<b>Monetary Contribution and Land Component</b>	<b>Amount / Value (subject to clause 2)</b>	<b>Indexation</b>	<b>Manner of Delivery</b>	<b>Timing</b>
1.	The Monetary Contribution Component payable in relation to Oakdale Central Lot 1B ( <b>Oakdale Central Lot 1B Contribution</b> ).	\$1,058,400	Yes (see clause 3 of this Schedule 4)	Cash, bank cheque or electronic funds transfer.	Pursuant to clause 5 of this Schedule 4.
2.	The Monetary Contribution Component payable in relation to the Erskine Park Land ( <b>Erskine Park Contribution</b> ).	\$3,414,056	Yes (see clause 3 of this Schedule 4)	Cash, bank cheque or electronic funds transfer.	Pursuant to clause 5 of this Schedule 4.
3.	The Monetary Contribution Component payable in relation to Oakdale Central Lot 1C ( <b>Oakdale Central Lot 1C Contribution</b> ).	To be calculated pursuant to clause 2 of this Schedule 4.	Yes (see clause 3 of this Schedule 4)	Cash, bank cheque or electronic funds transfer.	Pursuant to clause 5 of this Schedule 4.
4.	The Monetary Contribution Component payable in relation to Oakdale Central Lot 2B ( <b>Oakdale Central Lot 2B Contribution</b> ).	To be calculated pursuant to clause 2 of this Schedule 4.	Yes (see clause 3 of this Schedule 4)	Cash, bank cheque or electronic funds transfer.	Pursuant to clause 5 of this Schedule 4.
5.	The Monetary Contribution Component payable in relation to Oakdale Central Lot 3 ( <b>Oakdale Central Lot 3 Contribution</b> ).	To be calculated pursuant to clause 2 of this Schedule 4.	Yes (see clause 3 of this Schedule 4)	Cash, bank cheque or electronic funds transfer.	Pursuant to clause 5 of this Schedule 4.
6.	The Monetary Contribution Component payable in relation to Oakdale Central Lot 4 ( <b>Oakdale Central Lot 4 Contribution</b> ).	To be calculated pursuant to clause 2 of this Schedule 4.	Yes (see clause 3 of this Schedule 4)	Cash, bank cheque or electronic funds transfer.	Pursuant to clause 5 of this Schedule 4.
7.	The Monetary Contribution Component payable in relation to Oakdale South Lot 1 ( <b>Oakdale</b>	To be calculated pursuant to clause 2 of this Schedule 4.	Yes (see clause 3 of this Schedule 4)	Cash, bank cheque or electronic funds transfer.	Pursuant to clause 5 of this Schedule 4.

Schedule 4

Item	Monetary Contribution and Land Component	Amount / Value (subject to clause 2)	Indexation	Manner of Delivery	Timing
	<b>South Lot 1 Contribution).</b>				
8.	The Monetary Contribution Component payable in relation to Oakdale South Lot 2 ( <b>Oakdale South Lot 2 Contribution</b> ).	To be calculated pursuant to clause 2 of this Schedule 4.	Yes (see clause 3 of this Schedule 4)	Cash, bank cheque or electronic funds transfer.	Pursuant to clause 5 of this Schedule 4.
9.	The Monetary Contribution Component payable in relation to Oakdale South Lot 3 ( <b>Oakdale South Lot 3 Contribution</b> ).	To be calculated pursuant to clause 2 of this Schedule 4.	Yes (see clause 3 of this Schedule 4)	Cash, bank cheque or electronic funds transfer.	Pursuant to clause 5 of this Schedule 4.
10.	The Monetary Contribution Component payable in relation to Oakdale South Lot 4 ( <b>Oakdale South Lot 4 Contribution</b> ).	To be calculated pursuant to clause 2 of this Schedule 4.	Yes (see clause 3 of this Schedule 4)	Cash, bank cheque or electronic funds transfer.	Pursuant to clause 5 of this Schedule 4.
11.	The Monetary Contribution Component payable in relation to Oakdale South Lot 5 ( <b>Oakdale South Lot 5 Contribution</b> ).	To be calculated pursuant to clause 2 of this Schedule 4.	Yes (see clause 3 of this Schedule 4)	Cash, bank cheque or electronic funds transfer.	Pursuant to clause 5 of this Schedule 4.
12.	The Monetary Contribution Component payable in relation to Oakdale South Lot 6 ( <b>Oakdale South Lot 6 Contribution</b> ).	To be calculated pursuant to clause 2 of this Schedule 4.	Yes (see clause 3 of this Schedule 4)	Cash, bank cheque or electronic funds transfer.	Pursuant to clause 5 of this Schedule 4.

(b) The following table provides the indicative NDA and indicative contribution amount for the Monetary Contribution Components in each of items 3-12 in the Monetary Contributions Table, as at the date of this deed. These indicative figures are subject to change in accordance with clause 2 of this Schedule 4.

Land Component	Indicative NDA (as at date of this deed)	Indicative contribution amount (based on indicative NDA)
<b>Oakdale Central Land</b>		
Oakdale Central Lot 1C	4.6417 hectares	\$835,506 calculated pursuant to clause 2 of this Schedule 4.
Oakdale Central Lot 2B	6.001 hectares	\$1,080,180 calculated pursuant to clause 2

## Schedule 4

Land Component	Indicative NDA (as at date of this deed)	Indicative contribution amount (based on indicative NDA)
		of this Schedule 4.
Oakdale Central Lot 3	15.5894 hectares	\$2,806,092 calculated pursuant to clause 2 of this Schedule 4.
Oakdale Central Lot 4	2.161 hectares	\$389,070 calculated pursuant to clause 2 of this Schedule 4.
<b>Oakdale South Land</b>		
Oakdale South Lot 1	<u>8.9603 hectares</u> <del>8.9522</del> hectares	<u>\$1,612,854 calculated pursuant to clause 2 of this Schedule 4</u> <del>\$1,611,396</del> calculated pursuant to clause 2 of this Schedule 4
Oakdale South Lot 2	<u>15.7663 hectares</u> <del>14.7010</del> hectares	<u>\$2,837,934 calculated pursuant to clause 2 of this Schedule 4</u> <del>\$2,646,180</del> calculated pursuant to clause 2 of this Schedule 4
Oakdale South Lot 3	<u>21.4196 hectares</u> <del>17.7950</del> hectares	<u>\$3,855,528 calculated pursuant to clause 2 of this Schedule 4</u> <del>\$3,203,100</del> calculated pursuant to clause 2 of this Schedule 4
Oakdale South Lot 4	<u>15.1268 hectares</u> <del>10.3750</del> hectares	<u>\$2,722,824 calculated pursuant to clause 2 of this Schedule 4</u> <del>\$1,867,500</del> calculated pursuant to clause 2 of this Schedule 4
Oakdale South Lot 5	<u>6.5163 hectares</u> <del>14.2935</del> hectares	<u>\$1,172,934 calculated pursuant to clause 2 of this Schedule 4</u> <del>\$2,572,830</del> calculated pursuant to clause 2 of this Schedule 4
Oakdale South Lot 6	<u>6.8433 hectares</u> <del>7.1040</del> hectares	<u>\$1,231,794 calculated pursuant to clause 2 of this Schedule 4</u> <del>\$1,278,720</del> calculated pursuant to clause 2 of this Schedule 4

## 2. Monetary Contribution

- (a) The parties acknowledge and agree that the Monetary Contribution is a cash contribution towards the provision of regional infrastructure within the Western Sydney Employment Area.
- (b) Each Monetary Contribution Component is subject to indexation in accordance with:
- (i) clause 3(a) of this Schedule 4 for the Erskine Park Contribution;
  - (ii) clause 3(b) of this Schedule 4 for the Oakdale Central Lot 1B Contribution;
  - (iii) clause 3(c) of this Schedule 4 for each other Monetary Contribution Component.

## Schedule 4

- (c) With the exception of the Erskine Park Contribution, and subject to clause 2(b) of this Schedule 4, each Monetary Contribution Component:
- (i) is to be calculated on the basis of \$180,000 per hectare of the NDA of the relevant Land Component (as calculated in accordance with this clause 2); and
  - (ii) is subject to any relevant reduction in accordance with clause 4 of this Schedule 4.
- (d) No earlier than 30 Business Days, and no later than 10 Business Days, prior to the date on which a Monetary Contribution Component is payable under clause 5(c) and 5(d) of this Schedule 4, or would be payable under clause 5(c) and 5(d) of this Schedule 4 if the Planning Minister had not approved a WIK Proposal to offset that Monetary Contribution Component in full under clause 4.4, the Developer must provide to the Planning Minister a written notice which:
- (i) specifies the amount of the Monetary Contribution Component owing as at that date, calculated in accordance with this deed, and explains the basis on which that amount has been determined; and
  - (ii) specifies the NDA for the Land Component to which that Monetary Contribution Component relates, as determined by an independent surveyor or other qualified person, who is appointed with the consent of the Planning Minister (such consent not to be withheld unreasonably); and
  - (iii) attaches a certification from that surveyor or other qualified person confirming that NDA.
- (e) Subject to clause 2(f) of this Schedule 4, the **NDA** of a Land Component is the area of that Land Component, measured in hectares, which:
- (i) is subject to a Planning Approval;
  - (ii) includes the area of any land which the Planning Approval for that Land Component authorises, or requires, to be used as a road, or reserved or dedicated as a public road, other than a road referred to in subclause (iii) or (iv);
  - (iii) does not include:
    - A. any area of the Land which forms part of the regional road network servicing the Western Sydney Employment Area;
    - B. the existing road identified in purple colour and marked 'Existing Road' on the plan at Annexure C (**Purple Road**);
  - (iv) to avoid doubt, does not include the area of any Land Component to be reserved, dedicated or otherwise set aside as, or for the purpose of, any of the following:
    - A. government school (within the meaning of the Education Act 1990 (NSW));
    - B. TAFE establishment;
    - C. emergency services facility;



## Schedule 4

- D. health services facility owned or operated by a public authority;
  - E. golf course;
  - F. passenger transport facility;
  - G. public reserve or drainage reserve (within the meaning of the Local Government Act 1993 (NSW));
  - H. public transport corridor (other than a road corridor);
  - I. public utility undertaking;
  - J. bus depot, whether or not owned or operated by a public authority;
  - K. recreation area;
  - L. roads, or other public amenities or public services, in connection with which development contributions have been imposed under section 94 or section 94A of the Planning Act or may be imposed in accordance with a contribution plan approved under section 94EA of the Planning Act, or may be imposed in accordance with a Planning Agreement with the relevant local council, and
  - M. roads or other infrastructure in connection with which Special Infrastructure Contributions have been, or may be, imposed in accordance with a SIC Determination.
- (v) does not include the following areas of any Land Component:
- A. any part of the Land Component to which the Planning Approval for the development on that Land Component relates that is at or below the level of a 1:100 ARI (average recurrent interval) flood event, if that part of the Land Component is unsuitable for that development by virtue of it being at or below that level,
  - B. any part of the Land Component to which the Planning Approval for the development on that Land Component relates that is identified as public open space in a development control plan or in a contributions plan approved under section 94EA of the Planning Act.
- (vi) is taken to be reduced by 0.1 hectare where the development of the Land Component comprises subdivision of land for the purpose only of creating a lot of more than 0.1 hectare in area to contain an existing lawful habitable dwelling;
- (vii) does not include any lot in a Land Component which the Secretary has, having regard to relevant planning controls, certified to the consent authority is a lot that will be further subdivided in accordance with further Planning Approval for the purpose of the orderly development of the land for urban purposes in the future; and

## Schedule 4

(viii) where the development of the Land Component involves the creation of a lot of land under a Planning Approval for that Land Component which includes (wholly or partly):

- A. land that is within the curtilage of a building listed on the State Heritage Register, or
- B. land that is within Zone E4 Environmental Living -

excludes the area of any such lot that is more than 0.1 hectare

(and for the purpose of this paragraph (viii), **curtilage**, in relation to a building, means the curtilage of that building, or that site of that building, as specified or described in the listing of the building on the State Heritage Register).

(f) If the Developers:

(i) demonstrate, to the Planning Minister's satisfaction, that the parts of the road marked in yellow on the plan in Annexure C and described on that plan as an "Estate Road" (**Yellow Road**) provides a public road connection from the road described on that plan as the "Southern Link Road" to a public road on land to the east of the Oakdale South Land; and

(ii) provide plans for the construction of the Yellow Road which are approved in principle by the relevant Roads Authority for construction,

then:

(iii) the Planning Minister must issue a written notice to the Developers stating that the Planning Minister accepts the parts of the Yellow Road which do not overlap with any other road are an NDA exclusion for this deed; and

(iv) those parts of the Yellow Road which are identified in the Planning Minister's notice will be excluded from the NDA of the next Land Component for which NDA is to be calculated after the date of the Planning Minister's notice.

### 3. Indexation of the Monetary Contribution

On each CPI Adjustment Date until provision of all Development Contributions in accordance with this deed, the total amount of each Monetary Contribution Component which is not paid in full, and for which Practical Completion of a WIK Contribution and (if applicable) Land Contribution the subject of a WIK Approval has not been achieved, will be adjusted using the following formula:

$$CC = PC \times \frac{\text{Current CPI}}{\text{Base CPI}}$$

Where

**CC** is the newly adjusted Monetary Contribution component

the terms **Current CPI** and **Base CPI** are defined in clause 1.1

and **PC** means:

## Schedule 4

- (a) for the Erskine Park Contribution - the amount of the Monetary Contribution specified for the Erskine Park Contribution in the Monetary Contributions Table;
- (b) for the Oakdale Central Lot 1B Contribution - the amount of the Monetary Contribution specified for the Oakdale Central Lot 1B Contribution in the Monetary Contributions Table, as may be reduced in accordance with this deed prior to that CPI Adjustment Date; and
- (c) for each other Monetary Contribution Component - either:
  - (i) \$180,000 multiplied by the number of hectares in the NDA of the relevant Land Component (as determined in accordance with clause 2 of this Schedule 4 or, if no determination has been made, as specified in the table in clause 1(b) of this Schedule 4), as may be reduced in accordance with this deed prior to that CPI Adjustment Date; or
  - (ii) if the amount of the Monetary Contribution Component has been replaced by the amount of a SIC Amount in accordance with clause 4.5(c)(iv) of this deed - the replacement amount, as may be reduced in accordance with this deed prior to that CPI Adjustment Date.

### 4. Reduction of a Monetary Contribution Component

Where:

- (a) the Developers have provided a WIK Proposal which specifies Monetary Contribution Components (**Nominated Monetary Contribution Components**) which the Developers propose be offset, or partially offset, by a WIK Contribution and, if applicable, a Land Contribution (**Nominated WIK and Land Contribution**) in accordance with clause 4.4 and clause 8 of this Schedule 4;
- (b) the Planning Minister has issued a WIK Approval for the offset of those Nominated Monetary Contribution Components by a Nominated WIK and Land Contribution;
- (c) the parties have agreed on Estimated WIK Costs and, if applicable, an Estimated Land Contribution Value, in accordance with clause 8 of this Schedule 4 for the Nominated WIK and Land Contribution before the Developers are required to provide any of the Nominated Monetary Contribution Components in accordance with clause 5 of this Schedule 4; and
- (d) the Developers have provided the Planning Minister with the WIK and Land Contribution Security in accordance with clause 2 of Schedule 5,

then:

- (e) the total amount of the Nominated Monetary Contribution Components will be reduced by:
  - (i) the amount of the Estimated WIK Costs; and
  - (ii) the amount of the Estimated Land Contribution Value,

on and from the date on which the Developers are required to provide the first of the Nominated Monetary Contribution Components whose due date under the Monetary Contributions Table has not yet occurred, in the following way:

- (iii) the Nominated Monetary Contribution Components will be reduced in the sequence in which they appear in the Monetary Contributions Table;

## Schedule 4

- (iv) a Nominated Monetary Contribution Component cannot be reduced to an amount which is less than \$0; and
- (v) to the extent that the total amount of the Estimated WIK Costs and the Estimated Land Contribution Value is less than the total amount of the Nominated Monetary Contribution Components, the last Monetary Contribution Component to be reduced may be reduced only partially; and
- (vi) to avoid any doubt, where a Monetary Contribution is reduced only partially, the Developers are required to provide the remaining part of the Monetary Contribution Component in accordance with clause 5 of this Schedule 4.

### 5. Provision of the Monetary Contribution

- (a) The Developers must provide to the Planning Minister the Oakdale Central Lot 1B Contribution upon the Developers signing this deed.
- (b) As soon as practicable and, in any event, within 20 Business Days, after payment of the Oakdale Central Lot 1B Contribution, the Planning Minister will return to the Developers the Bank Guarantee dated 14 June 2013 and issued by Westpac Banking Corporation in the sum of \$1,058,400, which the Developers provided to the Planning Minister in respect of the Oakdale Central Lot 1B Contribution (less any costs, charges, duties and Taxes payable).
- (c) Subject to clause 4 of this Schedule 4, the Developers must provide to the Planning Minister the Erskine Park Contribution, the Oakdale Central Lot 1C Contribution, the Oakdale Central Lot 2B Contribution, the Oakdale Central Lot 3 Contribution and the Oakdale Central Lot 4 Contribution:
  - (i) before any Occupation Certificate is issued for any part of the Oakdale Central Development;
  - (ii) before any Subdivision Certificate or Construction Certificate is issued for any part of the Oakdale South Development (except a Construction Certificate for any Oakdale South Preliminary Works); or
  - (iii) if any part of the Oakdale South Development (except any Oakdale South Preliminary Works) is to be carried out without the need for a Subdivision Certificate or a Construction Certificate, then both:
    - A. before that development is commenced; and
    - B. before any application for a Complying Development Certificate is made in respect of that development,
 whichever is earlier.
- (d) Subject to clause 4 of this Schedule 4, the Developers must provide to the Planning Minister the Monetary Contribution Component for each Stage of the Oakdale South Development:
  - (i) before any Subdivision Certificate or Construction Certificate is issued for that Stage or any later Stage of the Oakdale South Development (except a Construction Certificate for any Oakdale South Preliminary Works); or

## Schedule 4

(ii) if any part of that stage or any later stage Oakdale South Development (except any Oakdale South Preliminary Works) is to be carried out without the need for a Subdivision Certificate or a Construction Certificate, then both:

- C. before that development is commenced; and
- D. before any application for a Complying Development Certificate is made in respect of that development,

whichever is earlier.

(e) The parties agree that each of the requirements to provide a Monetary Contribution under clause 5(c) and clause 5(d) of this Schedule 4 is a restriction on the issue of:

- (i) an Occupation Certificate within the meaning of section 109H(2) of the Planning Act;
- (ii) a Subdivision Certificate within the meaning of section 109J(c1) of the Planning Act; and
- (iii) a Construction Certificate, within the meaning of section 109F of the Planning Act and clause 146A of the Planning Regulation.

### 6. WIK Contribution and Land Contribution

The parties acknowledge and agree that:

- (a) the WIK Contribution and Land Contribution are contributions towards the provision of regional infrastructure within the Western Sydney Employment Area;
- (b) the Actual WIK Costs for a WIK Contribution must not exceed the Maximum WIK Value for that WIK Contribution; and
- (c) the Actual Land Contribution Value for a Land Contribution must not exceed the Maximum Land Contribution Value for that Land Contribution.

### 7. Provision of WIK Contribution and Land Contribution

- (a) The parties acknowledge and agree that if the Planning Minister issues a WIK Approval for a WIK Contribution and (if applicable) a Land Contribution in accordance with clause 4.4, the process for determining the offset value of each of the WIK Contribution and the Land Contribution will follow a three step process, set out below in clauses 8, 9, 10 and (if applicable) 12 of this Schedule 4, which, in summary only, follows these steps:
  - (i) **(Step 1 - Estimates)** reaching agreement on, or otherwise having determined as outlined below, suitable estimates of the value of the WIK Contribution or the Land Contribution (as the case may be);
  - (ii) **(Step 2 - Delivery)** undertaking the necessary works to achieve Practical Completion of the WIK Contribution or complying with the necessary requirements to transfer, or procure the transfer of, the Land Contribution to the Nominated Transferee (as the case may be); and
  - (iii) **(Step 3 - Reconciliation)** reaching agreement on, or otherwise having determined as outlined below, a reconciliation of actual expenses incurred by the Developers for the WIK Contribution or the actual value

## Schedule 4

of the Land Contribution (as the case may be) with the applicable estimate agreed in Step 1 above.

### 8. Step 1- Contributions Estimates

- (a) Prior to commencing work for a WIK Contribution, the Developers must:
- (i) obtain all necessary Authorisations to carry out the works for that WIK Contribution;
  - (ii) enter into a Road Works Agreement for that WIK Contribution in accordance with clause 4.4(g);
  - (iii) give written notice to the Planning Minister (**Contributions Estimate Notice**) proposing, and seeking agreement to:
    - A. the Estimated WIK Costs, including reasonable contingencies;
    - B. the Maximum WIK Value;
    - C. the Estimated Land Contribution Value (if applicable);
    - D. the Maximum Land Contribution Value (if applicable); and
    - E. the relevant Monetary Contribution Components which the Developers propose to offset (in whole or in part),

**(Key Estimate Matters),**

and providing details of:

    - F. the Authorisations obtained to carry out the works for the WIK Contribution;
    - G. any security which the relevant Roads Authority requires for the WIK Contribution and (if applicable) the Land Contribution under the proposed Road Works Agreement; and
    - H. the provision of the WIK and Land Contribution Security;
  - (iv) provide a copy of the executed Road Works Agreement to the Planning Minister with the Contributions Estimate Notice; and
  - (v) give the Planning Minister written notice of the Developers' intention to provide a Contributions Estimate Notice at least 15 Business Days before they provide that Notice.
- (b) As soon as practicable after the Planning Minister has received a Contributions Estimate Notice, the parties must negotiate in good faith and use their best endeavours to agree on the Key Estimate Matters.
- (c) If the parties cannot agree on the Key Estimate Matters within 20 Business Days after the Planning Minister has received a Contributions Estimate Notice, either the Planning Minister or the Developers may refer the matter for expert determination in accordance with Schedule 6.

## Schedule 4

- (d) For the purposes of this clause 8 of Schedule 4, the Planning Minister and the Developers acknowledge and agree, as at the date of this deed, that the Key Estimate Matters for the OWR Upgrade Contribution, are as set out in Annexure B.

### 9. Step 2 - Delivery - Works-in-Kind Contribution and Land Contribution

- (a) The Developers must:
- (i) comply in all respects with the Road Works Agreement for a WIK Contribution;
  - (ii) notify the Planning Minister if the Developers become aware that there has been, or is likely to be, a non-compliance with the Road Works Agreement, specifying:
    - A. the nature of the non-compliance or likely non-compliance; and
    - B. how and when the Developers will ensure that the non-compliance is rectified or the likely non-compliance is avoided (as the case may be); and
  - (iii) give the Planning Minister written notice 40 Business Days prior to the date of Practical Completion of a WIK Contribution.
- (b) If, after the date on which the Key Estimate Matters have been agreed or determined in accordance with clause 8 of this Schedule 4, and prior to the date of Practical Completion of the WIK Contribution, the Developers become aware of any:
- (i) latent condition of the land the subject of the WIK Contribution; or
  - (ii) requirement of a third party (other than a contractor or subcontractor of a Developer) which the parties did not know, and could not reasonably have known, at the time of executing this deed,
- that will have a materially adverse impact on the Maximum WIK Value:
- (i) the parties agree to discuss, with the relevant Roads Authority, in good faith, the issue of whether a revised amount for the Maximum WIK Value should be adopted; and
  - (ii) if the Planning Minister, acting reasonably and having regard to those discussions, forms the view that the Maximum WIK Value should be increased by a specified amount as a result of that latent condition or third party requirement, the Planning Minister must, by written Notice to the Developers, increase the Maximum WIK Value accordingly.
- (c) If the Planning Minister issues a WIK Approval which relates to a Land Contribution (including the OWR Upgrade), the following applies:
- (i) Within 20 Business Days after the date on which the Key Estimate Matters have been agreed or determined in accordance with clause 8 of this Schedule 4, the Planning Minister must give notice to the Developers nominating the Ministerial Corporation or the Roads Authority as the person to which the Land Contribution is to be transferred (**Nominated Transferee**).

## Schedule 4

- (ii) The Developers must (at their cost) prepare and register a plan of subdivision to create a separate lot or lots for any Land Contribution.
- (iii) The Developers must:
  - A. procure the transfer of any Land Contribution to the Nominated Transferee for \$1; and
  - B. deliver to the Nominated Transferee:
    - 1) a form of transfer in respect of the Land Contribution executed by the registered proprietor of that land and in registrable form; and
    - 2) the certificates of title for the Land Contribution;
  - C. promptly comply, or procure compliance with, any requisitions raised by the Registrar-General in relation to the transfer of any Land Contribution; and
  - D. take any other necessary action (including paying stamp duty associated with the transfer or contract for sale) to give effect to the transfer of the title of the Land Contribution to the Nominated Transferee free of all encumbrances and affectations (including any, charge or liability for rates, Taxes and charges) except as agreed with the Nominated Transferee and the Planning Minister.
- (iv) The Developers will pay, or shall procure that the registered proprietor of the relevant land pays, all rates and Taxes owing in respect of any Land Contribution up to and including the date on which the Developers deliver the form of transfer and certificates of title for the Land Contribution to the Nominated Transferee, after which time the Nominated Transferee will be responsible for all rates and Taxes in relation to the land subject to the Land Contribution.
- (v) The Developers indemnify and agree to keep indemnified the Planning Minister and the Nominated Transferee from and against all Liabilities connected in any way to any contamination which existed on or before the date on which the Land Contribution is transferred to the Nominated Transferee.
- (vi) The Developers must:
  - A. ensure that the Land Contribution is transferred to the Nominated Transferee without the Planning Minister incurring any Acquisition Cost in connection with that Land Contribution or its acquisition or transfer; and
  - B. indemnify the Planning Minister in relation to any failure to comply with clause 9(c)(vi)A above.

### 10. Step 3 - WIK Contribution Reconciliation

- (a) Within 10 Business Days after Practical Completion of a WIK Contribution has been achieved, the Developers must submit a report to the Planning Minister (**WIK Actual Contribution Report**) which:



## Schedule 4

- (i) provides accounts for the actual costs incurred by the Developers in providing the WIK Contribution;
  - (ii) provides a reconciliation of the actual costs incurred by the Developers in providing the WIK Contribution with the Estimated WIK Costs and Maximum WIK Value, together with a report by an independent quantity surveyor who is appointed with the consent of the Planning Minister (such consent not to be withheld unreasonably) which supports that reconciliation;
  - (iii) specifies the amount of any WIK Contribution Difference, calculated in accordance with clause 11 of this Schedule 4.
- (b) As soon as practicable after the Planning Minister has received a WIK Actual Contribution Report, the parties must negotiate in good faith and use their best endeavours to agree on:
- (i) the Actual WIK Costs (which cannot exceed the Maximum WIK Value); and
  - (ii) if applicable, the WIK Contribution Difference
- for that WIK Contribution (**Key WIK Reconciliation Matters**).
- (c) If the parties cannot agree on the Key WIK Reconciliation Matters within 20 Business Days after the Planning Minister has received a WIK Actual Contribution Report, either the Planning Minister or the Developers may refer the matter for expert determination in accordance with Schedule 6.

### 11. WIK Top up Contribution

Where:

- (a) the amount of the Actual WIK Costs for a WIK Contribution, as agreed or determined in accordance with clause 10 of this Schedule 4;

is less than:

- (b) the amount of the Estimated WIK Costs for that WIK Contribution, as agreed or determined in accordance with clause 8 of this Schedule 4,

then:

- (c) the amount of the difference between (a) above and (b) above is the **WIK Contribution Difference**;
- (d) the Monetary Contributions Components which were reduced under clause 4 of this Schedule 4 in respect of that WIK Contribution are reinstated to the amount of the WIK Contribution Difference, in the reverse of the sequence in which they were reduced under clause 4 of this Schedule 4;
- (e) the reinstated parts of the Monetary Contribution Components are indexed in accordance with clause 3 of this Schedule 4 so that those parts represent the amount which they would have been if those parts had never been reduced under clause 4 of this Schedule 4;
- (f) if the date for provision of those reinstated parts of the Monetary Contribution Components has not passed, then the Developers must provide to the Planning

## Schedule 4

Minister those parts of the Monetary Contribution Components in accordance with clause 5 of this Schedule 4; and

- (g) if the date for provision of those reinstated parts of the Monetary Contribution Components has passed, then the Developers must provide to the Planning Minister those parts of the Monetary Contribution Components:
  - (i) within 20 Business Days after the date on which the WIK Contribution Difference is determined in accordance with this clause 11; and
  - (ii) in any event, before:
    - A. any further Subdivision Certificate, Construction Certificate or Occupation Certificate is issued for any part of the Oakdale South Development; and
    - B. any further application for a Complying Development Certificate is made in respect of any part of the Oakdale South Development,
- (h) The parties agree that each of the requirements to provide a Monetary Contribution under clause 11(g) of this Schedule 4 is a restriction on the issue of:
  - (i) an Occupation Certificate within the meaning of section 109H(2) of the Planning Act;
  - (ii) a Subdivision Certificate within the meaning of section 109J(c1) of the Planning Act; and
  - (iii) a Construction Certificate, within the meaning of section 109F of the Planning Act and clause 146A of the Planning Regulation.

### 12. Step 3 - Land Contribution Reconciliation

- (a) Within 5 Business Days after a Land Contribution has been transferred to the Nominated Transferee in accordance with clause 9(c) of this Schedule 4, the Developers must submit a report to the Planning Minister (**Land Actual Contribution Report**) which:
  - (i) provides a reconciliation of the value of the land the subject of the Land Contribution at the date of transfer with the Estimated Land Contribution Value and the Maximum Land Value, together with a report by an independent valuer who is appointed with the consent of the Planning Minister (such consent not to be withheld unreasonably) which supports that reconciliation;
  - (ii) specifies the amount of any Land Contribution, calculated in accordance with clause 13 of this Schedule 4.
- (b) As soon as practicable after the Planning Minister has received an Land Actual Contribution Report, the parties must negotiate in good faith and use their best endeavours to agree on:
  - (i) the Actual Land Contribution Value (which cannot exceed the Maximum Land Contribution Value); and
  - (ii) if applicable, the Land Contribution Difference

for that Land Contribution (**Key Land Reconciliation Matters**).

## Schedule 4

- (c) If the parties cannot agree on the Land Contribution Key Reconciliation Matters within 20 Business Days after the Planning Minister has received an Land Actual Contributions Report, either the Planning Minister or the Developers may refer the matter for expert determination in accordance with Schedule 6.

### 13. Land Top up Contribution

Where:

- (a) the amount of the Actual Land Contribution Value for a WIK Contribution, as agreed or determined in accordance with clause 12 of this Schedule 4;

is less than:

- (b) the amount of the Estimated Land Contribution Value for that WIK Contribution, as agreed or determined in accordance with clause 8 of this Schedule 4,

then:

- (c) the amount of the difference between (a) above and (b) above is the **Land Contribution Difference**;
- (d) the Monetary Contributions Components which were reduced under clause 4 of this Schedule 4 in respect of that Land Contribution are reinstated to the amount of the Land Contribution Difference, in the reverse of the sequence in which they were reduced under clause 4 of this Schedule 4;
- (e) the reinstated parts of the Monetary Contribution Components are indexed in accordance with clause 3 of this Schedule 4 so that those parts represent the amount which they would have been if those parts had never been reduced under clause 4 of this Schedule 4;
- (f) if the date for provision of those reinstated parts of the Monetary Contribution Components has not passed, then the Developers must provide to the Planning Minister those parts of the Monetary Contribution Components in accordance with clause 5 of this Schedule 4; and
- (g) if the date for provision of those reinstated parts of the Monetary Contribution Components has passed, then the Developers must provide to the Planning Minister those parts of the Monetary Contribution Components:
- (i) within 20 Business Days after the date on which the Land Contribution Difference is determined in accordance with this clause 13 of this Schedule 4; and
- (ii) in any event, before:
- A. any further Subdivision Certificate, Construction Certificate or Occupation Certificate is issued for any part of the Oakdale South Development; and
- B. any further application for a Complying Development Certificate is made in respect of any part of the Oakdale South Development,
- (h) The parties agree that each of the requirements to provide a Monetary Contribution under clause 13(g) of this Schedule 4 is a restriction on the issue of:

## Schedule 4

- (i) an Occupation Certificate within the meaning of section 109H(2) of the Planning Act;
- (ii) a Subdivision Certificate within the meaning of section 109J(c1) of the Planning Act; and
- (iii) a Construction Certificate, within the meaning of section 109F of the Planning Act and clause 146A of the Planning Regulation.

### 14. Credit for Excess Contributions

Where the sum of:

- (a) the Actual WIK Costs, as agreed or determined in accordance with clause 10 of this Schedule 4, for all of the WIK Contributions provided under this deed;
- (b) the Actual Land Contribution Value, as agreed or determined in accordance with clause 10 of this Schedule 4, for all of the Land Contributions provided under this deed; and
- (c) the total of the Monetary Contribution provided, or yet to be provided, by the Developers in accordance with this Schedule 4 (calculated as at the date of the agreement or determination of the Actual WIK Costs and (if applicable) the Actual Land Contribution Value under clause 10 of this Schedule 4 for the final WIK Contribution and (if applicable) the final Land Contribution which the Developer proposes to provide under this deed),

exceeds:

- (d) the Monetary Contributions which the Developers would have paid in accordance with this Schedule 4 if the Developers had not received any WIK Approvals (calculated as at the date of the agreement or determination of the Actual WIK Costs and (if applicable) the Actual Land Contribution Value under clause 10 of this Schedule 4 for the final WIK Contribution and (if applicable) the final Land Contribution which the Developer proposes to provide under this deed):

then:

- (e) the Developers will be entitled to a credit in the amount of:

the sum of items (a), (b) and (c) above

less

the amount of item (d) above

**(Excess Contributions Credit)**, but only when:

- (i) all the Monetary Contribution Components which this deed requires the Developers to pay have been paid;
- (ii) Practical Completion of all WIK the subject of all WIK Approvals has been achieved; and
- (iii) all requirements of the Road Works Agreements for WIK Contributions which relate to the completion of those WIK Contributions, or the standard and quality of those WIK Contributions as delivered, have been satisfied (including, for example, the expiry of all defects liability periods

**Schedule 4**

and the rectification of all defects to the satisfaction of the relevant roads authority), unless otherwise agreed with the Planning Minister;

- (f) clause 4.6 of this deed applies to the Excess Contributions Credit as if a reference in that clause to a SIC Credit were a reference to an Excess Contributions Credit, except that an Excess Contributions Credit may be used to offset development contributions for development on any other land which any of the Developers owns within the Western Sydney Employment Area; and
- (c) any Excess Contributions Credit which has been generated under this deed, and which has not been allocated for use in an executed Planning Agreement, will be adjusted on each CPI Adjustment Date until that SIC Credit has been allocated, using the following formula:

$$CC = PC \times \frac{\text{Current CPI}}{\text{Base CPI}}$$

Where

**CC** is the newly adjusted Excess Contributions Credit

the terms **Current CPI** and **Base CPI** are defined in clause 1.1

**PC** means the amount of the Excess Contributions Credit on the date on which that Excess Contributions Credit was generated

and an Excess Contributions Credit is taken to have been allocated under a Planning Agreement when the Planning Agreement provides for the use of the Excess Contributions Credit.

## Schedule 5

### Security (clause 6(b))

#### 1. Bank Guarantees

Each Bank Guarantee provided by the Developers under this Schedule 5 must:

- (a) name the "Minister for Planning and Department of Planning and Environment ABN 38 755 709 681" as the relevant beneficiaries; and
- (b) not have an expiry date.

#### 2. Developers to provide security

- (a) Upon execution of this deed, the Developers must provide to the Planning Minister one or more Bank Guarantees with a total face value equivalent to the sum of the Erskine Park Contribution, the Oakdale Central Lot 1C Contribution, the Oakdale Central Lot 2B Contribution, the Oakdale Central Lot 3 Contribution and the Oakdale Central Lot 4 Contribution, as security for the provision of those Monetary Contribution Components (**Oakdale Central / Erskine Park Security**).
- (b) The Developers must provide to the Planning Minister one or more Bank Guarantees with a total face value equivalent to the total of the Monetary Contribution Components for the Oakdale South Land (**Oakdale South Security**):
  - (i) before any Subdivision Certificate or Construction Certificate is issued for any part of the Oakdale South Development;
  - (ii) if any part of the Oakdale South Development is to be carried out without the need for a Subdivision Certificate or a Construction Certificate, then both:
    - A. before that development is commenced; and
    - B. before any application for a Complying Development Certificate is made in respect of that Development,
 whichever is earlier.
- (c) If the Planning Minister issues a WIK Approval in accordance with clause 4.4 of this deed, then the Developers must provide to the Planning Minister one or more Bank Guarantees with a total face value equivalent to the sum of the Estimated WIK Costs and 110% of the Estimated Land Contribution Value, as security for the provision of the approved WIK Contribution and, if applicable, Land Contribution (**WIK and Land Contribution Security**).
- (d) The WIK and Land Contribution Security must be provided:
  - (i) prior to the Nominated Monetary Contribution Components being reduced as an offset for the approved WIK Contribution and, if applicable, Land Contribution in accordance with clause 4 of Schedule 4; and
  - (ii) prior to the commencement of the approved WIK Contribution.
- (e) If the Developers are required to provide security to a Roads Authority under a Road Works Agreement in relation to a WIK Contribution and (if applicable) a Land Contribution, then the Developers must provide to the Planning Minister, on or before the date on which they are required to provide the WIK and Land

## Schedule 5

Contribution Security for that WIK Contribution and (if applicable) Land Contribution, evidence satisfactory to the Planning Minister (acting reasonably):

- (i) that the terms in the Road Works Agreement on which security must be provided for that WIK Contribution and (if applicable) Land Contribution are in accordance with the Key Road Work Terms;
  - (ii) of the amount of security which the Road Works Agreement requires for that WIK Contribution and (if applicable) Land Contribution, and whether it is at least the amount of the WIK and Land Contribution Security for that WIK Contribution and (if applicable) Land Contribution or only a proportion of the amount of the WIK and Land Contribution Security for that WIK Contribution and (if applicable) Land Contribution; and
  - (iii) that the security which the Road Works Agreement requires for that WIK Contribution and (if applicable) Land Contribution has been provided in full.
- (f) If the Developers have complied with clause 2(e) of this Schedule 5 for a WIK Contribution and (if applicable) a Land Contribution, then the amount of the WIK and Land Contribution Security which the Developers need to provide under clause 2(c) and clause 2(d) of this Schedule 5 is reduced by the amount of the security which the Developers have provided to the Roads Authority under the relevant Road Works Agreement for the WIK Contribution and (if applicable) Land Contribution.
- (g) If the Developers have complied with clauses 2(c) and 2(d) (in each case, where the time for compliance with that clause has arisen), or clauses 2(e) and 2(f), of this Schedule 5 for a WIK Contribution and (if applicable) Land Contribution, then the amount of Monetary Contribution Security which the Developers are required to provide under this deed is reduced by the same amount as the reduction of the Monetary Contribution Components for that WIK Contribution and (if applicable) Land Contribution, pursuant to clause 4 of Schedule 4.
- (h) The parties agree that the requirements to provide the Oakdale South Security under clause 2(b) of this Schedule 5, the WIK and Land Contribution Security under clause 2(c) and clause 2(d) of this Schedule 5, and the evidence specified in clause 2(e) of this Schedule 5, are a restriction on the issue of:
- (i) a Subdivision Certificate within the meaning of section 109J(c1) of the Planning Act; and
  - (ii) a Construction Certificate, within the meaning of section 109F of the Planning Act and clause 146A of the Planning Regulation.
- (i) The Developers must ensure that, at any given time, the value of the security which the Planning Minister holds under this deed is for a total of:
- (i) the amounts of Monetary Contribution Security which this deed requires the Developers to provide in accordance with this deed at that time; and
  - (ii) the amounts of all WIK and Land Contribution Security which the Developers are required to provide in accordance with this deed at that time,

so that the Planning Minister is always in a position to make claims on the security which the Planning Minister would be entitled to make under this deed in the circumstances described in clause 4 of this Schedule 5.

## Schedule 5

- (j) If the value of the security which the Planning Minister holds is for less than that total (for example, if the total increases as a result of a CPI adjustment), the Developers must provide further Bank Guarantees to cover the shortfall in value within 10 Business Days after the shortfall occurs.

### 3. Planning Minister entitled to retain security

- (a) The Planning Minister will be entitled to retain the Monetary Contribution Security for the provision of a Monetary Contribution Component in accordance with this deed until the Developers have satisfied in full their obligations relating to the provision of that Monetary Contribution Component in accordance with this deed.
- (b) Subject to clause 3(c) of this Schedule 5, the Planning Minister will be entitled to retain the relevant part of the WIK and Land Contribution Security for a WIK Contribution until the earlier of the following (**Relevant Retention Date**):
- (i) if the WIK Contribution is provided under a single Road Works Agreement, then the Relevant Retention Date is the date of Practical Completion of that WIK Contribution;
  - (ii) if the WIK Contribution is provided under more than one Road Works Agreement, then the Relevant Retention Date for the part of the WIK and Land Contribution Security which relates to the part of WIK Contribution under a Road Works Agreement is the date of Practical Completion of that part of that WIK Contribution under that Road Works Agreement; and
  - (iii) if the Developers are required to provide evidence to the Planning Minister under clause 2(e) of this Schedule 5, then the Relevant Retention Date for the amount of the WIK and Land Contribution Security for which the Developers provide satisfactory evidence under that clause is the date on which the Planning Minister (acting reasonably) notifies the Developers in writing that the Planning Minister is satisfied with the evidence which the Developers have provided.
- (c) If any part of the WIK and Land Contribution Security relates to a Land Contribution, then the Planning Minister will be entitled to retain that part of the WIK and Land Contribution Security up to an amount which is equal to 110% of the Estimated Land Contribution Value for a Land Contribution to which that security relates until the earlier of:
- (i) the date of registration of the transfer of that Land Contribution to the Nominated Transferee;
  - (ii) if the Planning Minister (acting reasonably) notifies the Developers in writing on or before the date of registration that the Planning Minister believes that she may incur some Acquisition Cost in connection with that Land Acquisition, the date on which the Planning Minister (acting reasonably) notifies the Developers in writing that she no longer has that belief.

### 4. Calls upon security

- (a) The Planning Minister may call upon any Monetary Contribution Security where the Developers have failed to comply with;
- (i) clause 2 of this Schedule 5; or



## Schedule 5

- (ii) the obligations in this deed to provide a Monetary Contribution Component at or before the time specified in this deed,

and the Planning Minister may retain monies obtained from that security and apply those monies towards the costs and expenses incurred by the Planning Minister in rectifying such failures by the Developers.

- (b) The Planning Minister may call upon any WIK and Land Contribution Security:

- (i) where the Developers have failed:

- A. to provide a WIK Contribution on or before the date required under this deed (including, if a date is specified in the relevant Road Works Agreement, that date);
- B. to transfer, or procure the transfer of, a Land Contribution to the Nominated Transferee on or before the date required under this deed (including, if a date is specified in the relevant Road Works Agreement, that date) and in accordance with this deed;
- C. otherwise to comply with this deed in relation to a WIK Contribution or a Land Contribution; or
- D. to provide security to ensure that at all times the value of the security held by the Planning Minister for all approved WIK Contributions and Land Contributions is for a face value at least equivalent to the sum of the Estimated WIK Costs and that Estimated Land Contribution Value for those WIK Contributions and Land Contributions; or

- (ii) to recover any Acquisition Cost which the Planning Minister may incur in connection with a Land Contribution (including any compensation or other amount payable in connection with an acquisition of that Land Contribution),

and the Planning Minister may retain monies obtained from any WIK and Land Contribution Security and apply those monies towards either the costs and expenses incurred by the Planning Minister in rectifying any such failures by the Developers or providing reasonable compensation for any failures or recovering any such Acquisition Cost (as the case may be).

- (c) Prior to calling upon any security provided by the Developers under this Schedule 5, the Planning Minister must give the Developers not less than 10 Business Days' written notice.
- (d) In the case of a call upon any WIK and Land Contribution Security to recover any amount in relation to a Land Contribution pursuant to clause 4(b) of this Schedule 5:
- (i) the Developers may elect within the notice period in clause 4(c) of this Schedule 5 to pay to the Planning Minister an amount equivalent to the amount of the call; and
  - (ii) if payment is made by the Developers in accordance with clause 4(d)(i) of this Schedule 5 within 5 Business Days of such an election by the Developers, the Planning Minister shall no longer be entitled to call upon the Security in relation to that Land Contribution.
- (e) If the Planning Minister:

## Schedule 5

(i) calls upon any security in accordance with this clause 4 of this Schedule 5; and

(ii) applies all or part of the monies obtained from that call in the manner authorised in this clause 4 of this Schedule 5,

then:

(iii) the Planning Minister must notify the Developers in writing of the amount of the call; and

(iv) promptly after receiving that notice, the Developers must provide to the Planning Minister replacement security to ensure that the Developers comply with clause 2(i) of this Schedule 5.

### 5. Release of the Bank Guarantees

(a) If:

(i) the circumstances described in:

A. clause 3(a) of this Schedule 5 for the Monetary Contribution Security; or

B. clause 3(b) of this Schedule 5 for the WIK and Land Contribution Security; or

have occurred;

(ii) the Developers provide the Planning Minister with a written notice containing:

A. evidence that those circumstances have occurred;

B. a request for return of the Bank Guarantees for the security to which those circumstances relate; and

C. evidence that, if those Bank Guarantees are returned, the Developers will still comply with clause 2(i) of this Schedule 5; and

(iii) the Planning Minister is satisfied that:

A. those circumstances have occurred; and

B. if the Planning Minister returns those Bank Guarantees, the Developers will still comply with clause 2(i) of this Schedule 5,

then the Planning Minister must promptly return those Bank Guarantees (less any costs, charges, duties and Taxes payable), or the remainder of the monies secured by those Bank Guarantees, to the Developers.

(b) If the Developers believe that the amount of security which they have provided exceeds the amount of security which they are required to provide under this Schedule 5, then they may, by written notice to the Planning Minister:

(i) provide a detailed reconciliation of:

**Schedule 5**

- A. the amount and type of security which the Planning Minister currently holds under this deed; with
  - B. the amount and type of security which the Developers believe the Planning Minister is entitled to hold under this deed;
- (ii) provide a detailed explanation for any difference in amount and type of security which the reconciliation shows, and documents to support that explanation;
  - (iii) provide a proposal to resolve that difference.
- (c) The Planning Minister must, within 20 Business Days after receiving a notice in accordance with clause 5(b) of this Schedule 5, provide the Developers with a written notice stating:
    - (i) whether the Planning Minister agrees with the Developers' reconciliation and proposal; and
    - (ii) if not, reasons for the disagreement.
  - (d) If the Planning Minister disagrees with the Developers' reconciliation and proposal, the Planning Minister and the Developers must use their best endeavours to meet and resolve the disagreement.
  - (e) If the parties agree, or it is determined in accordance with this deed, that the Planning Minister holds security in an amount which is different from the amount which the Planning Minister is entitled to hold under this deed, the parties, acting reasonably, must do what is necessary to resolve the difference, so that the situation described in clause 2(i) of this Schedule 5 is maintained.
  - (f) The release of a Bank Guarantee under this Schedule 5 may involve the substitution of a Bank Guarantee with another Bank Guarantee having a different face value.

## Schedule 6

### Expert Determination (Schedule 6)

#### 1. Application of this Schedule 6

- (a) This Schedule applies if the parties cannot agree on the Key Estimate Matters in accordance with clause 8 of Schedule 4, the Key WIK Reconciliation Matters in accordance with clause 10 of Schedule 4, or Key Land Reconciliation Matters in accordance with clause 12 of Schedule 4.
- (b) A party who wishes to refer a matter for expert determination in accordance with this deed must provide a written notice to the other parties which specifies the issues which that party wishes to have determined by an expert in accordance with this Schedule 6.

#### 2. Agreement on or nomination of expert

- (a) If a notice has been given under clause 1(b) of this Schedule 6, the parties must use all reasonable endeavours to agree on a person who is independent of all the parties, and is qualified in fields which are relevant to the determination of the issues specified in the notice, as the expert to determine the issues .
- (b) If the parties have not reached agreement on an expert within 10 Business Days after a notice has been given under clause 1(b) of this Schedule 6:
  - (i) any party may, by written notice (a copy of which the party must provide to the other parties), request the president of the Law Society of NSW or the president's delegate to nominate an expert; and
  - (ii) if a notice is issued in accordance with clause 2(b)(i) of this Schedule 6, each of the Planning Minister and one of the Developers may propose three persons for the president to consider in nominating an expert.

#### 3. Appointment of expert

- (a) The parties must use their best endeavours to finalise the terms of the expert's retainer as soon as possible and, in any event, within 10 Business Days after the expert has been agreed or nominated under clause 2 of this Schedule 6.
- (b) If the expert appointed under clause 3(a) of this Schedule 6 dies or resigns, or the parties agree to replace the expert, before the expert issues a determination under this Schedule 6, then clauses 2 and 3(a) of this Schedule 6 re-apply as if a notice was given under clause 1(a) of Schedule 6 in respect of the same issues on the day on which all parties become aware that the expert has died or resigned or they agree to replace the expert.
- (c) If the expert becomes aware at any stage of any circumstance that might reasonably be considered to adversely affect the expert's capacity to act independently or impartially:
  - (i) the expert must inform the parties immediately; and
  - (ii) in much circumstances, the appointment of the expert will terminate unless the parties agree otherwise; and
  - (iii) if they agree to replace the expert, the parties must promptly do all things necessary to do so, unless the expert resigns before the parties have terminated the expert's engagement.

## Schedule 6

### 4. Role and powers of the expert

The parties acknowledge and agree that the expert should, and they will use their best endeavours to ensure that expert will:

- (a) act as an expert and not as an arbitrator;
- (b) act independently of the parties, and act fairly and impartially as between the parties, giving each party a reasonable opportunity of presenting its case and countering any arguments of any opposing party, and a reasonable opportunity to make submissions on the matters for expert determination and the procedure for the expert determination;
- (c) proceed in any matter he or she thinks fit;
- (d) determine whether it is appropriate to co-opt legal or other technical expertise to assist his or her coordination of the dispute;
- (e) conduct any investigation which he or she considers necessary to resolve the dispute;
- (f) examine such documents, and interview such persons, as he or she may require; and
- (g) make such directions for the conduct of the expert determination as he or she considers necessary.

### 5. Steps leading to commencement of expert determination

The parties agree to comply with any procedural directions the expert may give in the preparation for or in the course of a preparatory conference

### 6. Representation and attendance

During any conference or any stage of the expert determination, the parties may be represented by a legal representative and other persons with information or knowledge relevant to the expert determination.

### 7. Obligation of parties

The parties shall take all reasonable steps for the expeditious and cost-effective conduct of the expert determination. These steps include, but are not limited to, complying without delay with any direction or ruling by the expert as to the procedural or evidentiary matters.

### 8. Confidentiality

The parties must do, and must ensure that their representatives do, and must use their best endeavours to ensure that the expert and his or her representatives do, the following:

- (a) keep confidential any information which is provided to the expert and the other parties in the course of the expert determination process on the basis that it is confidential; and
- (b) not disclose or otherwise use that information other than for the purposes of the expert determination.

## Schedule 6

### 9. Determination of expert

- (a) The parties acknowledge and agree that determination of the expert, in order to be valid under this deed:
- (i) must be in writing, accompanied by reasons;
  - (ii) subject to subclause (b) below, will be final and binding on the parties; and
  - (iii) is not an arbitration within the meaning of any statute.
- (b) If the determination of the expert contains a clerical mistake, an error arising from an accidental inclusion or omission, a material miscalculation of figures, a material mistake in the description of any person, matter or thing, or a defect of form, then:
- (i) the party which noticed the relevant matter must notify the other parties in writing promptly,
  - (ii) the parties must use their best endeavours to ensure that the expert corrects the determination within 10 Business Days after they receive notice under clause 9(b) of this Schedule 6; or
  - (iii) if the expert does not correct the determination within that time, the parties may agree to appoint a substitute expert in accordance with the procedures established by clause 2 of this Schedule 6.

### 10. Costs

Each party will:

- (a) bear its own costs in respect of any preparation and/or representation at any expert determination; and
- (b) pay one-half of the expert's costs and any incidental costs of facilitating the expert determination.

### 11. No suspension of contractual obligations

The referral of a dispute for expert determination under this Schedule 6 does not suspend the contractual obligations of the parties under this deed.

### 12. No prejudice

This Schedule 6 does not prejudice the right of a party to institute court proceedings for urgent injunctive or declaratory relief in relation to any matter arising out of or relating to this deed.

## Schedule 7

### 1. Limitation of Trustee's liability – Erskine Park Landowner

#### (a) Definitions

In this clause:

**Assets** includes all assets, property and rights real and personal of any value whatsoever of the Trust.

**Trust** means BGAI Erskine Trust

**Trustee** means BGAI 2 Pty Limited

**Trustee's Capacity** means as trustee of the Trust

#### (b) Capacity

The Trustee's liability under this document is limited to the Trustee's Capacity and the Trustee is not liable in any other capacity.

#### (c) Limitation

Subject to clause 1(e) of this Schedule 7, the liability of the Trustee in respect of any cause of action, claim or loss arising:

- (i) under or in connection with this document;
- (ii) in connection with any transaction, conduct or any other agreement contemplated by this document; or
- (iii) under or in connection with (to the extent permitted by law) any representation or undertaking given or to be given in connection with this document,

(each, a **Trust Claim**), is limited to the Assets. The right of the parties other than the Trustee to recover any amount in respect of any (and all) Trust Claims is limited to a right to recover an amount not exceeding the amount which the Trustee is entitled and able to recover from the Assets (after taking account of the costs of exercising its right of indemnity or exoneration) and if, after exercise of those rights, any such amount remains outstanding, no further Trust Claim may be made against the Trustee personally.

#### (d) Acknowledgment of limitations

The parties other than the Trustee agree and acknowledge that they must not, in respect of any Trust Claim:

- (i) subject to clause 1(e) of this Schedule 7, bring proceedings against the Trustee in its personal capacity;
- (ii) seek to appoint an administrator or liquidator to the Trustee;
- (iii) commence the winding-up, dissolution or administration of the Trustee; or
- (iv) appoint a receiver, receiver and manager, administrative receiver or similar official to all or any of the assets of the Trustee,

## Schedule 7

except to the extent that the steps taken affect any Assets or the Trustee's right of recourse against, and indemnity from, the Assets and nothing else.

(e) **Exception**

If the Trustee acts negligently, fraudulently, with wilful misconduct or in breach of trust with a result that:

- (i) the Trustee's right of indemnity, exoneration or recoupment of the Assets; or
- (ii) the actual amount recoverable by the Trustee in exercise of those rights,

is reduced in whole or in part or does not exist, then to the extent that such right or the amount so recoverable is reduced or does not exist, the Trustee may be personally liable.

## 2. Limitation of Trustee's liability –Oakdale Central Landowner

(a) **Definitions**

In this clause:

**Assets** includes all assets, property and rights real and personal of any value whatsoever of the Trust.

**Trust** means BGAI1 Oakdale Trust

**Trustee** means BGAI 6 Pty Limited

**Trustee's Capacity** means as trustee of the Trust

(b) **Capacity**

The Trustee's liability under this document is limited to the Trustee's Capacity and the Trustee is not liable in any other capacity.

(c) **Limitation**

Subject to clause 2(e) of this Schedule 7, the liability of the Trustee in respect of any cause of action, claim or loss arising:

- (i) under or in connection with this document;
- (ii) in connection with any transaction, conduct or any other agreement contemplated by this document; or
- (iii) under or in connection with (to the extent permitted by law) any representation or undertaking given or to be given in connection with this document,

(each, a **Trust Claim**), is limited to the Assets. The right of the parties other than the Trustee to recover any amount in respect of any (and all) Trust Claims is limited to a right to recover an amount not exceeding the amount which the Trustee is entitled and able to recover from the Assets (after taking account of the costs of exercising its right of indemnity or exoneration) and if, after exercise of those rights, any such amount remains outstanding, no further Trust Claim may be made against the Trustee personally.



## Schedule 7

### (d) Acknowledgment of limitations

The parties other than the Trustee agree and acknowledge that they must not, in respect of any Trust Claim:

- (i) subject to clause 2(e) of this Schedule 7, bring proceedings against the Trustee in its personal capacity;
- (ii) seek to appoint an administrator or liquidator to the Trustee;
- (iii) commence the winding-up, dissolution or administration of the Trustee; or
- (iv) appoint a receiver, receiver and manager, administrative receiver or similar official to all or any of the assets of the Trustee,

except to the extent that the steps taken affect any Assets or the Trustee's right of recourse against, and indemnity from, the Assets and nothing else.

### (e) Exception

If the Trustee acts negligently, fraudulently, with wilful misconduct or in breach of trust with a result that:

- (i) the Trustee's right of indemnity, exoneration or recoupment of the Assets; or
- (ii) the actual amount recoverable by the Trustee in exercise of those rights,

is reduced in whole or in part or does not exist, then to the extent that such right or the amount so recoverable is reduced or does not exist, the Trustee may be personally liable.

## 3. Limitation of Trustee's liability –Oakdale South Landowner

### (a) Definitions

In this clause:

**Assets** includes all assets, property and rights real and personal of any value whatsoever of the Trust.

**Trust** means BGMG1 Oakdale South Trust

**Trustee** means BGMG 8 Pty Limited

**Trustee's Capacity** means as trustee of the Trust

### (b) Capacity

The Trustee's liability under this document is limited to the Trustee's Capacity and the Trustee is not liable in any other capacity.

### (c) Limitation

Subject to clause 3(e) of this Schedule 7, the liability of the Trustee in respect of any cause of action, claim or loss arising:

- (i) under or in connection with this document;

## Schedule 7

- (ii) in connection with any transaction, conduct or any other agreement contemplated by this document; or
- (iii) under or in connection with (to the extent permitted by law) any representation or undertaking given or to be given in connection with this document,

(each, a **Trust Claim**), is limited to the Assets. The right of the parties other than the Trustee to recover any amount in respect of any (and all) Trust Claims is limited to a right to recover an amount not exceeding the amount which the Trustee is entitled and able to recover from the Assets (after taking account of the costs of exercising its right of indemnity or exoneration) and if, after exercise of those rights, any such amount remains outstanding, no further Trust Claim may be made against the Trustee personally.

(d) **Acknowledgment of limitations**

The parties other than the Trustee agree and acknowledge that they must not, in respect of any Trust Claim:

- (i) subject to clause 3(e) of this Schedule 7, bring proceedings against the Trustee in its personal capacity;
- (ii) seek to appoint an administrator or liquidator to the Trustee;
- (iii) commence the winding-up, dissolution or administration of the Trustee; or
- (iv) appoint a receiver, receiver and manager, administrative receiver or similar official to all or any of the assets of the Trustee,

except to the extent that the steps taken affect any Assets or the Trustee's right of recourse against, and indemnity from, the Assets and nothing else.

(e) **Exception**

If the Trustee acts negligently, fraudulently, with wilful misconduct or in breach of trust with a result that:

- (i) the Trustee's right of indemnity, exoneration or recoupment of the Assets; or
- (ii) the actual amount recoverable by the Trustee in exercise of those rights,

is reduced in whole or in part or does not exist, then to the extent that such right or the amount so recoverable is reduced or does not exist, the Trustee may be personally liable.

**EXECUTED AS A DEED**

**Signed sealed and delivered** for and on behalf of the **Minister for Planning** in the presence of:

\_\_\_\_\_  
Signature of Witness

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Name of Witness in full

\_\_\_\_\_  
CAROLYN MCNALLY

Secretary General of the Department of Planning and Environment as delegate of the Minister for Planning

**Signed, sealed and delivered** for and on behalf of **BGAI 6 Pty Ltd** (ABN 19 128 775 799) by its attorneys under a power of attorney dated 18 November 2013 registered in New South Wales with No.705 Book No. 4659 in the presence of:

\_\_\_\_\_

Signature of attorney who declares that the attorney has not received any notice of the revocation of the power of attorney

\_\_\_\_\_  
Full name of attorney

\_\_\_\_\_  
Signature of witness

\_\_\_\_\_  
Signature of attorney who declares that the attorney has not received any notice of the revocation of the power of attorney

\_\_\_\_\_  
Full name of witness

\_\_\_\_\_  
Full name of attorney

**Signed, sealed and delivered** for and on behalf of **BGMG 8 Pty Ltd** (ABN 65 161 602 768) by its attorneys under a power of attorney dated 19 February 2013 registered in New South Wales with No. 963 Book No. 4644 in the presence of:

\_\_\_\_\_  
Signature of attorney who declares that the attorney has not received any notice of the revocation of the power of attorney

\_\_\_\_\_  
Full name of attorney

\_\_\_\_\_  
Signature of witness

\_\_\_\_\_  
Signature of attorney who declares that the attorney has not received any notice of the revocation of the power of attorney

\_\_\_\_\_  
Full name of witness

\_\_\_\_\_  
Full name of attorney

**Signed, sealed and delivered** for and on behalf of **BGAI 2 Pty Ltd** (ABN 49 120 605 718) by its attorneys under a power of attorney dated 18 November 2013 registered in New South Wales with No. 701 Book No. 4659 in the presence of:

\_\_\_\_\_  
Signature of attorney who declares that the attorney has not received any notice of the revocation of the power of attorney

\_\_\_\_\_  
Full name of attorney

\_\_\_\_\_  
Signature of witness

\_\_\_\_\_  
Signature of attorney who declares that the attorney has not received any notice of the revocation of the power of attorney

\_\_\_\_\_  
Full name of witness

\_\_\_\_\_  
Full name of attorney

**Signed, sealed and delivered** for and on behalf of **Goodman Property Services (Aust) Pty Limited** (ABN 40 088 981 793) by its attorneys under a power of attorney dated 18 December 2006 registered in New South Wales with No. 75 Book No. 4507 in the presence of:

\_\_\_\_\_  
Signature of attorney who declares that the attorney has not received any notice of the revocation of the power of attorney

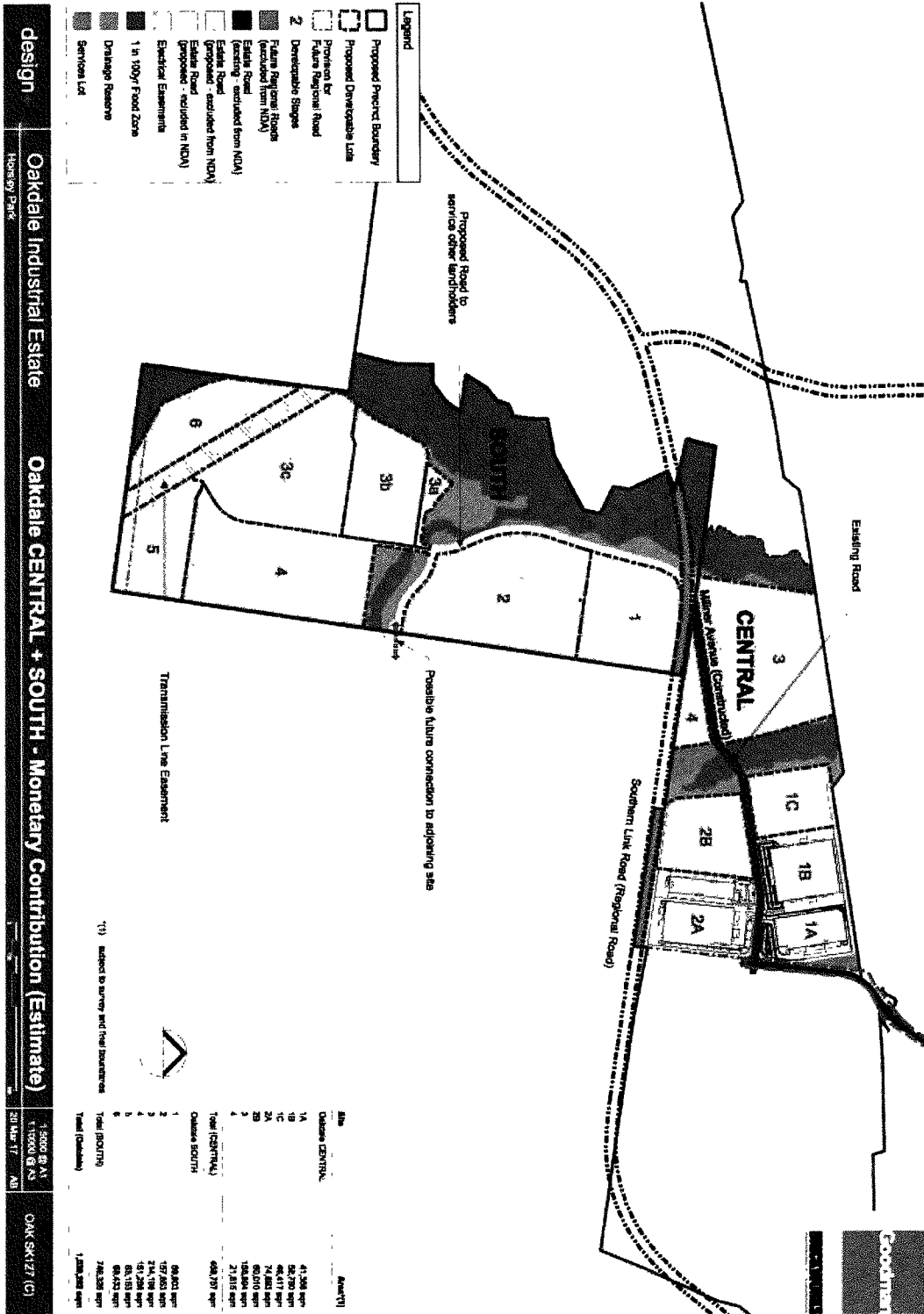
\_\_\_\_\_  
Full name of attorney

\_\_\_\_\_  
Signature of witness

\_\_\_\_\_  
Full name of witness

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Annexure A - Oakdale Central and Oakdale South lots



## Annexure B - OWR Upgrade Contribution

### Description

The OWR Upgrade Contribution is the construction of an upgrade to Old Wallgrove Road, which includes the following works:

- upgrade of the existing roadway from a one lane (each way) to a two lane (each way) carriage way with a central median, kerb and guttering on either side;
- traffic signalisation at intersections;
- landscape verge and pedestrian footpath;
- street lighting; and
- land acquisition and dedication to the relevant Roads Authority,

as set out in the drawings and documents listed in the table below and attached to this Annexure B.

Drawing No.	Description	Revision	Date
C350	Old Wallgrove Road Upgrade - General Arrangement Plan	Rev E	08 August 2014
C351	Old Wallgrove Road - Plan and Longitudinal Section - Sheet 1	Rev E	08 August 2014
C352	Old Wallgrove Road - Plan and Longitudinal Section - Sheet 2	Rev E	08 August 2014
C353	Link Road - Plan and Longitudinal Section - Sheet 3	Rev D	08 August 2014
C354	Old Wallgrove Road - Plan and Longitudinal Section - Sheet 4	Rev E	08 August 2014
C355	Old Wallgrove Road - Plan and Longitudinal Section - Sheet 5	Rev E	08 August 2014
C356	Old Wallgrove Road - Plan and Longitudinal Section - Sheet 6	Rev E	08 August 2014
C357	Old Wallgrove Road - Plan and Longitudinal Section - Sheet 7	Rev E	08 August 2014
C358	Typical Sections	Rev F	08 August 2014
C359	Typical Bridge Crossing Section	Rev D	08 August 2014
C360	Land Acquisition Plan	Rev H	08 August 2014
R002	OWR Upgrade - Road Design Report	Rev 07	August 2014

**Estimated and Maximum WIK Contribution and Land Contribution values**

Estimated WIK Costs	\$15,439,075
Estimated Land Contribution Value	\$1,364,750
Total estimated contribution costs and value	\$16, 803,825
Maximum WIK Value	\$20,795,484
Maximum Land Contribution Value	\$1,641,875
Total maximum contribution costs and value	\$22,437,359

**Land Contribution details**

Title details	Registered proprietor	Land area (m <sup>2</sup> )	Area to be acquired (m <sup>2</sup> )	Consent to transfer?	Estimated value
Lot 13 DP 1157491	TransGrid	437,101	4,790	Yes	\$479,000
Lot 6, DP 229769		212,212			
Lot 7, DP 229769	Sydney Catchment Authority	16,878	1,170	In principle	\$117,000
Lot 1, DP 87907		10,700			
Lot 1, DP 843901	The Austral Brick Company Proprietary Limited	884,022	5,125	Yes	\$768,750
<b>Totals</b>		1,560,913	11,085		\$1,364,750

**Monetary Contribution Component estimates and offsets**

Site	Land area (m <sup>2</sup> )	Contribution
<b>Erskine Park</b>		
Interlink Contribution	N/A	\$3,414,056
<b>Oakdale Central</b>		
Site 1C	46,417	\$835,506
Site 2B	60,010	\$1,080,180
Site 3	155,894	\$2,806,092
Site 4	21,615	\$389,070
<b>Total (Central)</b>	<b>283,936</b>	<b>\$5,110,848</b>
<b>Oakdale South</b>		
Site 1	<del>89,603</del> 89,522	<del>\$1,612,854</del> \$1,611,396
Site 2	<del>157,663</del> 147,040	<del>\$2,837,934</del> \$2,646,180
Site 3 (being 3A, 3B and 3C)	<del>214,196</del> 177,950	<del>\$3,855,528</del> \$3,203,100
Site 4	<del>151,268</del> 103,750	<del>\$2,722,824</del> \$1,867,500
Site 5	<del>65,163</del> 142,935	<del>\$1,172,934</del> \$2,572,830
Site 6	<del>68,433</del> 71,040	<del>\$1,231,794</del> \$1,278,720
<b>Total (South)</b>	<b><del>746,326</del> 732,207</b>	<b><del>\$13,433,868</del> \$13,179,726</b>
<b>TOTAL</b>	<b><del>1,032,262</del> 1,016,143</b>	<b><del>\$21,958,772</del> \$21,704,630</b>



**Key Road Work Terms**

<b>Term</b>	<b>RMS</b>	<b>Fairfield City Council</b>	<b>Blacktown City Council</b>
Relevant document	"Major" or "Minor" Works Authorisation Deed (WAD)	Section 138 Roads Act Consent  (The Secretary acknowledges and agrees that, for the purposes of the OWR Upgrade, the Section 138 Roads Act Consent will constitute a "Road Works Agreement").	Section 138 Roads Act Consent  (The Secretary acknowledges and agrees that, for the purposes of the OWR Upgrade, the Section 138 Roads Act Consent will constitute a "Road Works Agreement").
Practical Completion	Issue of Notice of Practical Completion not later than 19 October 2016	Issue of Engineering Compliance Certificate not later than 19 October 2016	Issue of Engineering Compliance Certificate not later than 19 October 2016
Process for achieving Practical Completion	<p>Unless otherwise agreed in writing with RMS and the Secretary (in her absolute discretion):</p> <ul style="list-style-type: none"> <li>The Developer is to give RMS 20 Business Days' notice prior to anticipated Practical Completion.</li> <li>The Developer is to give RMS notice when it considers Practical Completion has been achieved.</li> <li>RMS is to inspect and determine that Practical Completion has been achieved, and issue a Notice of Practical Completion.</li> </ul>	<p>Unless otherwise agreed in writing with Fairfield City Council and the (in her absolute discretion):</p> <p>All conditions of the Section 138 Roads Act Consent must be satisfied prior to issue of an Engineering Compliance Certificate.</p>	<p>Unless otherwise agreed in writing with Blacktown City Council and the Secretary (in her absolute discretion):</p> <p>All conditions of the Section 138 Roads Act Consent must be satisfied prior to issue of an Engineering Compliance Certificate.</p>

<p>Security (Provision of security under a Road Works Agreement may reduce the amount of security which the Developers need to provide under clauses 2(c) and clause 2(d) of Schedule 5 - see clauses 2(e) and 2(f) of Schedule 5).</p>	<p>Unless otherwise agreed in writing with RMS and the Secretary (in her absolute discretion):</p> <p><b>Amount of security:</b> The cost of completing the works under the WAD and satisfying the Developer's other obligations under the WAD.</p> <p><b>Provision of security:</b> To be provided to RMS, in a form acceptable to RMS, prior to commencing the construction of the works under the WAD.</p> <p><b>Release of security:</b> To be returned 12 months after Practical Completion.</p>	<p>Unless otherwise agreed in writing with Fairfield City Council and the Secretary (in her absolute discretion):</p> <p><b>Amount of security:</b> The value equivalent to 10% of the project cost.</p> <p><b>Provision of security:</b> Provision of a maintenance bond to Fairfield City Council following the submission of Works as Executed Plans.</p> <p><b>Release of security:</b> To be returned 12 months after Practical Completion.</p> <p>(Note: To avoid any doubt, provision of the above security will not reduce the amount of security which the Developers need to provide under clauses 2(c) and clause 2(d) of Schedule 5. However if the Section 138 Roads Act Consent requires security to be provided prior to commencing the construction of the works, the provision of that security may reduce the amount of security which the Developers need to provide under clauses 2(c) and clause 2(d) of Schedule 5 - see clauses 2(e) and 2(f) of Schedule 5).</p>	<p>Unless otherwise agreed in writing with Blacktown City Council and the Secretary (in her absolute discretion):</p> <p><b>Amount of security:</b> The value equivalent to 10% of the project cost.</p> <p><b>Provision of security:</b> Provision of a maintenance bond to Blacktown City Council following the submission of Works as Executed Plans.</p> <p><b>Release of security:</b> To be returned 12 months after Practical Completion.</p> <p>(Note: To avoid any doubt, provision of the above security will not reduce the amount of security which the Developers need to provide under clauses 2(c) and clause 2(d) of Schedule 5. However if the Section 138 Roads Act Consent requires security to be provided prior to commencing the construction of the works, the provision of that security may reduce the amount of security which the Developers need to provide under clauses 2(c) and clause 2(d) of Schedule 5 - see clauses 2(e) and 2(f) of Schedule 5).</p>
---	---	--	--

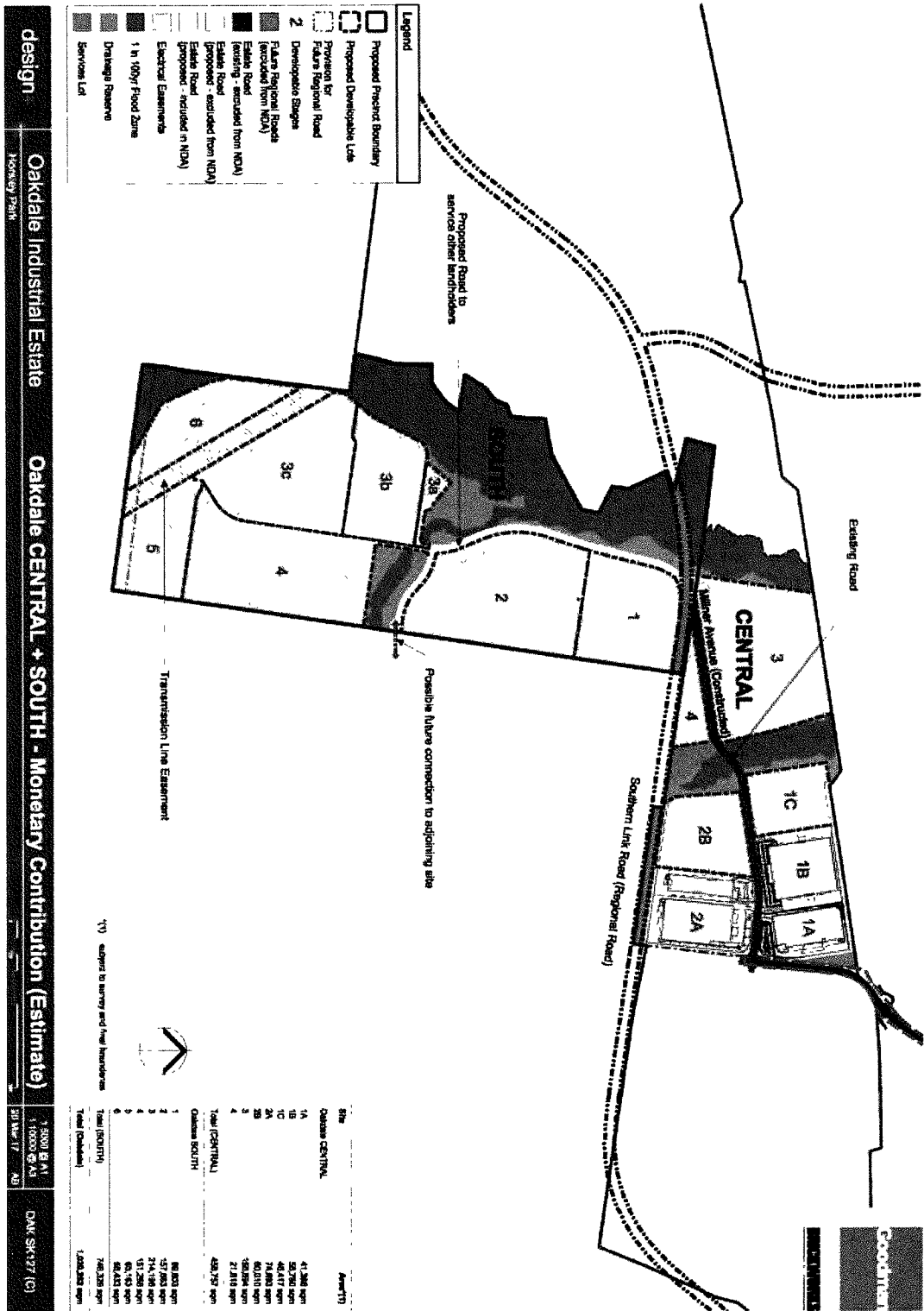
**Authorisations required for OWR Upgrade WIK Contribution**

The Authorisations include:

- State Significant Development Approval;
- Section 138 Roads Act Consent;
- Construction Certificate (if required by the State Significant Development Approval).

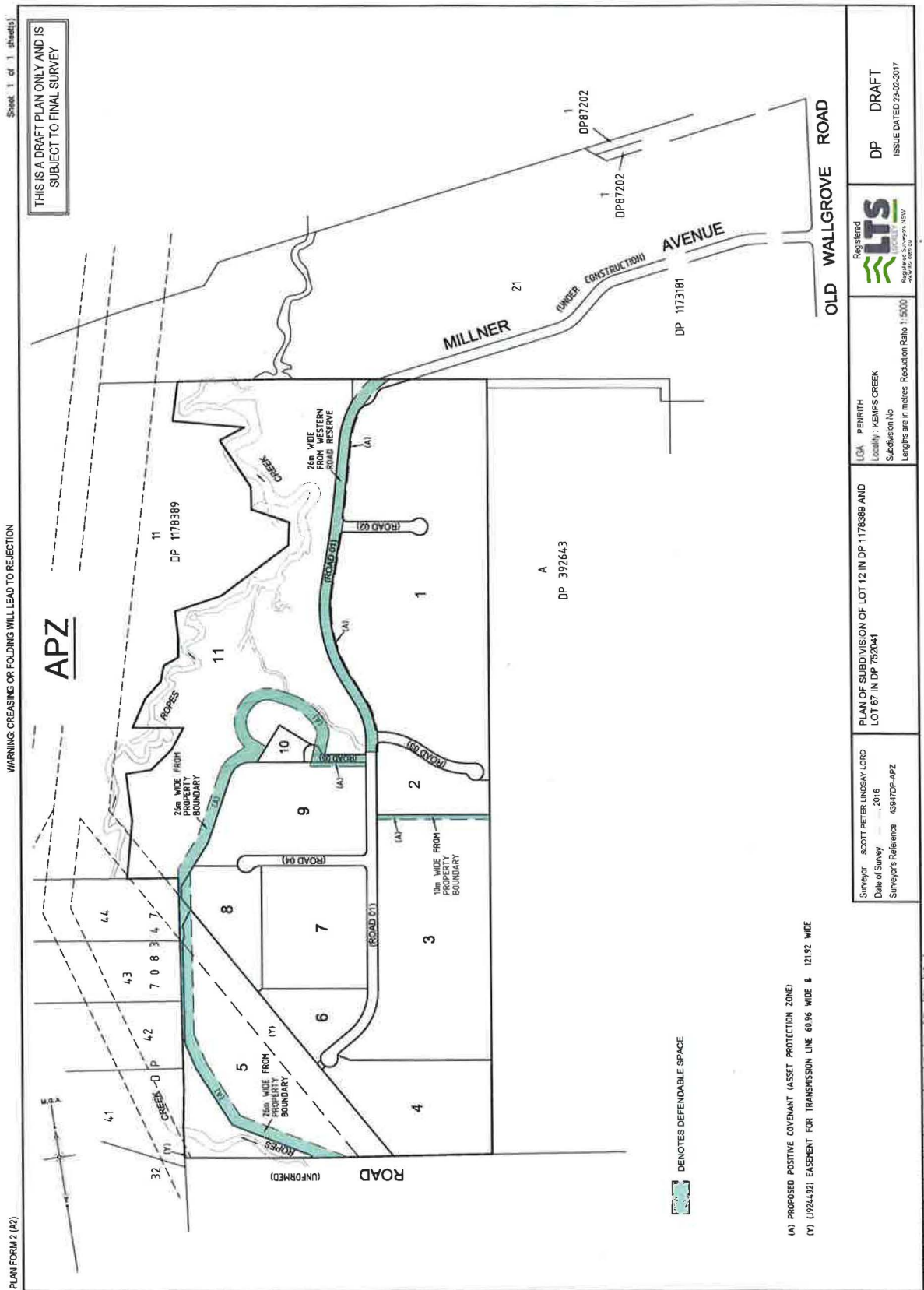
**[Note: Refer to the sheets behind page 67, at Annexure B to the Planning Agreement]**

Annexure C



31. Insert new Appendix 6 – Updated Defendable Spaces Plan as follows:

**APPENDIX 6 – UPDATED DEFENDABLE SPACES PLAN**



End of Notice of Modification (SSD 6917 MOD 1)

# Modification of Development Consent

## Section 96(1A) of the *Environmental Planning and Assessment Act 1979*

As delegate for the Minister for Planning, under delegation executed on 16 February 2015, I approve the modification of the development consent referred to in Schedule 1, subject to the conditions outlined in Schedule 2.

Anthea Sargeant  
**Executive Director**  
**Key Sites and Industry Assessments**

Sydney 5 October, 2017

File: 17/05468

### SCHEDULE 1

<b>Application No:</b>	SSD 6917
<b>Applicant:</b>	Goodman Property Services (Aust) Pty Ltd
<b>Consent Authority:</b>	Minister for Planning
<b>Development:</b>	Oakdale South Industrial Estate, Lot 12 DP 1178389 and Lot 87 DP 752041, Kemps Creek, Penrith local government area
<b>Date of Original Consent:</b>	26 October 2016
<b>Modification:</b>	SSD 6917 MOD 3 – Extended construction hours to permit temporary out of hours fill importation in precincts 1 and 2 of the Stage 1 Development Application

### SCHEDULE 2

This consent is modified as follows:

#### In the list of definitions

- Delete and replace the following items in the list of definitions in alphabetical order as follows:

Development	The development as described in the EIS, RTS known as SSD 6917 for the Oakdale South Industrial Estate, approved by this Development Consent and as described in Schedule A and modified by the section 96(2) modification application (SSD 6917 MOD 1) and the section 96(1A) modification application (SSD 6917 MOD 3)
-------------	--
- Insert the following new definitions in the list of definitions in alphabetical order as follows:

SSD 6917 MOD 3	The section 96(1A) modification application lodged by the Applicant on 5 April 2017 to temporarily extend the permissible construction hours for fill importation under the Stage 1 DA, excluding the proposed amendments to the management at Appendix E of the modification application
Out of Hours Fill Importation Activities	The temporary importation of fill material as part of the bulk earthworks phase of construction including transport, unloading, spreading and compacting fill material on-site in work zones labelled 1A, 1B, 1C, 1D and 2A as shown in <b>Appendix 7</b>

## In Schedule D: Conditions of Consent for the Stage 1 DA

3. Delete and replace Condition D2 as follows:

D2. Development Consent is granted to the 'Stage 1 works' as described in Schedule A, the conditions contained in this Development Consent and the EIS, as amended by the RTS, SSD 6917 MOD 1 and SSD 6917 MOD 3.

4. Delete and replace Condition D3 as follows:

D3. The Applicant shall carry out the Development in accordance with the:

- (a) EIS and RTS;
- (b) the letter titled '*Re: SSD6917 Oakdale South Industrial Estate, Trans Grid Easement Flood Extents*', ref 14-193-ATL-TRANSGRID-L2, prepared by At&I, dated 18 May 2016 and all appendices;
- (c) the Supplementary Response to Submissions titled '*Re: Oakdale South Estate SSDA\_6917*' and all annexures, prepared by Urban Advisory Services, dated 12 July 2016;
- (d) the letter report titled '*Oakdale South Estate, Operational Noise Contours, Adverse Weather Conditions*', prepared by SLR, dated 13 July 2016;
- (e) the letter titled '*Re: Oakdale South Estate - State Significant Development Application Ref. 6917*' and all annexures, prepared by Urban Advisory Services, dated 8 September 2016;
- (f) the section 96(2) Modification Application SSD 6917 MOD 1, prepared by Urbis, dated 4 November 2016 and all supporting documentation;
- (g) the section 96(1A) Modification Application SSD 6917 MOD 3, prepared by Goodman, dated 5 April 2017 and all supporting documentation, excluding Appendix E;
- (h) the development layout plans and drawings listed at **Appendix 1**; and
- (i) the Management and Mitigation Measures at **Appendix 3**.

5. Insert new Condition E27A as follows:

### Out of Hours Fill Importation

E27A. In addition to the construction hours detailed in Condition E27 above, the Applicant may undertake fill importation activities that meets the imported soil requirements under Condition B23, in work zones 1A, 1B, 1C, 1D and 2A, within precincts 1 and 2 of the Stage 1 DA, as shown in **Appendix 7** between the hours of 8:00 PM to 4:00 AM, Mondays to Fridays inclusive for a period of four months in the following staged manner:

- (a) Stage 1 – 60 deliveries per night for two weeks;
- (b) Stage 2 – 120 deliveries per night for two weeks; and
- (c) Stage 3 – 200 to 300 deliveries per night for 4 months or until bulk earthworks levels in precincts 1 and 2 under the Stage 1 DA are achieved, whichever is sooner.

6. Insert new Condition E27B as follows:

E27B. Under the stages for out of hours fill importation described in Condition E27A above, the Applicant shall not progress from Stage 1 to Stage 2 and from Stage 2 to Stage 3, except in accordance with an approval granted by the Secretary, in accordance with conditions E27D and E27E.

7. Insert new Condition E27C as follows:

E27C. Prior to the commencement of out of hours fill importation activities, the Applicant shall notify the Secretary of the date on which the Stage 1 out of hours fill importation activities works detailed under Condition E27A(a) above will commence. As part of this notification, the Applicant shall, to the satisfaction of the Secretary:

- a) demonstrate that erosion and sedimentation control measures in accordance with *Managing Urban Stormwater: Soils and Construction Guideline* (Landcom); and
- b) submit any erosion and sediment control plans prepared under the approved Construction Environmental Management Plan required by Condition C1.

8. Insert new Condition E27D as follows:

E27D. The Applicant may apply to the Secretary for approval to increase the number of fill importation deliveries from 60 deliveries per night to 120 deliveries per night if:

- (a) the Applicant submits a compliance report of the Stage 1 out of hours fill importation activities, to the satisfaction of the Secretary. The Stage 1 compliance report must:

- (i) provide the results of noise monitoring against the noise management levels under Condition E27F; and
- (ii) confirm the number of delivery trucks during the relevant stage of fill importation activities; and
- (iii) provide details of any complaints received and the measures taken to address the complaints.

9. Insert new Condition E27E as follows:

E27E. The Applicant may apply to the Secretary for approval to increase the number of fill importation deliveries from 120 deliveries per night to a maximum of 300 deliveries per night if:

- (a) the Applicant submits a compliance report of the Stage 2 out of hours fill importation activities, to the satisfaction of the Secretary. The Stage 2 compliance report must:
  - (i) provide the results of noise monitoring against the noise management levels under Condition E27F; and
  - (ii) confirm the number of delivery trucks during the relevant stage of fill importation activities; and
  - (iii) provide details of any complaints received and the measures taken to address the complaints.

10. Insert new Condition E27F as follows:

E27F. The Applicant must ensure the noise generated by out of hours fill importation activities undertaken in the hours detailed in Condition E27A above does not exceed the noise management levels set out in **Table 5A** below.

**Table 5A: Noise Management Levels for Out of Hours Fill Importation Activities**

Approximate Noise Catchment	Construction Noise Management Levels (LAeq <sub>15 minute</sub> )		Sleep Disturbance (LA1, 1 Minute)
	Evening (6 PM to 10 PM)	Night (10 PM to 7 AM)	
L1 - North of the Pipeline	37	37	47
L2 - Horsley Park	39	39	49
L3 - Kemps Creek, Mount Vernon, Jacfin and Capitol Hill	38	38	48

11. Insert new Condition E27G as follows:

E27G. Should the noise monitoring compliance reports required by conditions E27D or E27E above show exceedances in the noise management levels detailed under Condition E27F, or if any complaints are received which the Secretary determines are valid, the Applicant must cease out of hours fill importation activities for the relevant stage where exceedances occurred, or as otherwise agreed by the Secretary.

12. Insert new condition E27H as follows:

E27H. For the duration of Stage 3 fill importation activities under Condition E27(c), the Applicant must submit a noise monitoring compliance report demonstrating compliance with the noise management levels detailed under Condition E27F, to the satisfaction of the Secretary every two weeks until 4 months is complete or until bulk earthworks levels in precincts 1 and 2 under the Stage 1 DA are achieved, whichever is sooner.

13. Insert new condition E27I as follows:

E27I. Should any of the noise monitoring compliance reports submitted for Stage 3 fill importation activities show exceedances in the noise management levels detailed under Condition E27F, or if any complaints are received which the Secretary determines are valid, the Applicant must cease out of hours fill importation activities, or as otherwise agreed by the Secretary.

14. Insert new Condition E27J as follows:

E27J. While undertaking fill importation activities during the construction hours detailed in Condition E27A above, the Applicant must:

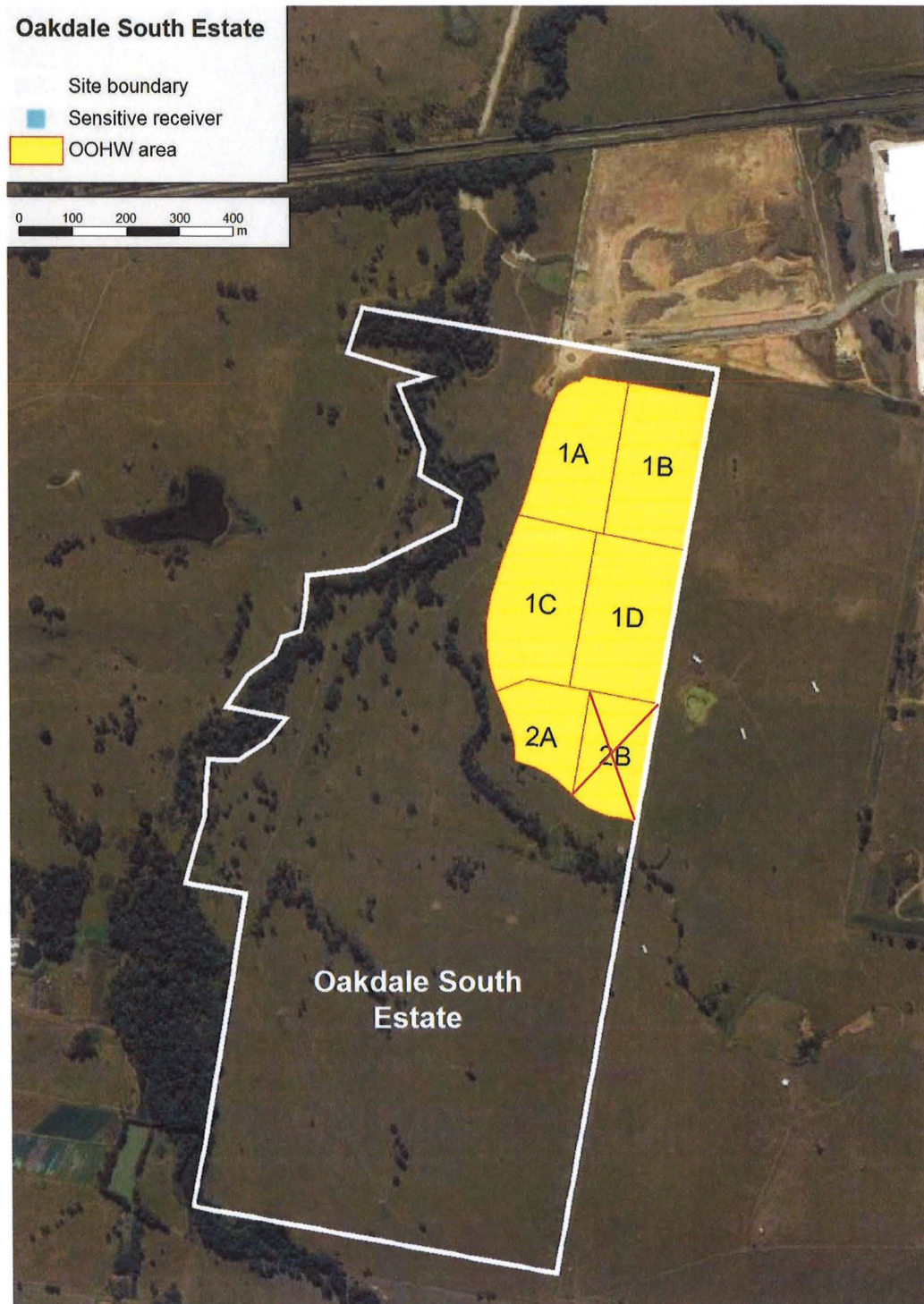
- (a) undertake noise monitoring at points L1, L2 and L3 shown in **Appendix 4**;
- (b) not undertake works in zone 2B as depicted in **Appendix 7**;
- (c) not use a D10 bulldozer at any time;
- (d) not undertake fill importation in more than one work zone at any time consisting of work zones 1A, 1B, 1C, 1D or 2A as shown in **Appendix 7**; and
- (e) implement the management and mitigation measures detailed in SSD 6917 MOD 3.

15. Delete and replace Condition E33 as follows:

E33. The Development shall be constructed with the aim of achieving the construction noise management levels detailed in the *Interim Construction Noise Guideline* (Department of Environment and Climate Change, 2009). All feasible and reasonable noise mitigation measures shall be implemented and any activities that could exceed the construction noise management levels shall be identified and managed in accordance with the management and mitigation measures in the RTS and SSD 6917 MOD 3.

16. Insert new Appendix 7 – Work Zones for Out of Hours Fill Importation:

### APPENDIX 7: Work Zones for Out of Hours Fill Importation



End of Modification - SSD 6917 MOD 3



# Modification of Development Consent

## Section 96(1A) of the *Environmental Planning and Assessment Act 1979*

As delegate for the Minister for Planning, under delegation executed on 11 October 2017, I approve the modification of the development consent referred to in Schedule 1, subject to the conditions outlined in Schedule 2.



Chris Ritchie  
Director  
Industry Assessments

Sydney 18 DECEMBER 2017

File: OBJ17/07474

### SCHEDULE 1

<b>Application No:</b>	SSD 6917
<b>Applicant:</b>	Goodman Property Services (Aust) Pty Ltd
<b>Consent Authority:</b>	Minister for Planning
<b>Development:</b>	Oakdale South Industrial Estate, Lot 12 DP 1178389 and Lot 87 DP 752041, Kemps Creek, Penrith local government area
<b>Date of Original Consent:</b>	26 October 2016
<b>Modification:</b>	SSD 6917 MOD 4 – Concept Proposal and Stage 1 DA including: <ul style="list-style-type: none"><li>• revised lot, building envelope and internal road layout under the Concept Proposal and Stage 1 DA;</li><li>• amended car parking and access arrangements at Precincts 1 and 2;</li><li>• amended subdivision layout;</li><li>• a decrease in the total developable area for the estate from 71.33 hectares to 70.89 hectares;</li><li>• an increase in the total gross floor area for the estate from 331,311 m<sup>2</sup> to 336,735 m<sup>2</sup>;</li><li>• addition of fire trails; and</li><li>• amended bulk earthworks, drainage catchments and landscaping works.</li></ul>

### SCHEDULE 2

This consent is modified as follows:

#### In the list of definitions

1. Delete and replace the following items in the list of definitions in alphabetical order as follows:

Concept Proposal The Concept Proposal comprised of 336,735m<sup>2</sup> of GFA comprised of 321,249m<sup>2</sup> of warehousing GFA and 15,486m<sup>2</sup> of ancillary office floor spaces, six development precincts with a total of 15 building envelopes, and conceptual lot layouts, site levels, road layout, urban design controls, conceptual landscape designs and infrastructure arrangements

- Development The development as described in the EIS, RTS known as SSD 6917 for the Oakdale South Industrial Estate, approved by this Development Consent and as described in Schedule A and modified by the section 96(2) modification application (SSD 6917 MOD 1), the section 96(1A) modification application (SSD 6917 MOD 3) and the section 96(1A) application (SSD 6917 MOD 4)
- Stage 1 DA The Stage 1 Development Application comprising staged subdivision, site wide bulk and detailed earthworks, construction of estate wide internal roads, water, sewer, telecommunications, gas, stormwater infrastructure, estate wide landscaping and construction and operation of four warehouse and distribution buildings in Precinct 1

2. Insert the following new definition in the list of definitions in alphabetical order as follows:

SSD 6917 MOD 4 The section 96(1A) modification application lodged by the Applicant on 29 June 2017 to amend the Concept Proposal and Stage 1 DA layouts, estate road network and landscaping of the Oakdale South Industrial Estate and all supporting documentation

**In Schedule B: Condition of Consent for Concept Proposal**

3. Delete Condition B4 and replace with the following:

B4. The Applicant shall carry out the Development in accordance with the:

- (a) EIS and RTS;
- (b) the letter titled '*Re: SSD6917 Oakdale South Industrial Estate, Trans Grid Easement Flood Extents*', ref 14-193-ATL-TRANSGRID-L2, prepared by At&I, dated 18 May 2016 and all appendices;
- (c) the Supplementary Response to Submissions titled '*Re: Oakdale South Estate SSDA\_6917*' and all annexures, prepared by Urban Advisory Services, dated 12 July 2016;
- (d) the letter report titled '*Oakdale South Estate, Operational Noise Contours, Adverse Weather Conditions*', prepared by SLR, dated 13 July 2016;
- (e) the letter titled '*Re: Oakdale South Estate - State Significant Development Application Ref. 6917*' and all annexures, prepared by Urban Advisory Services, dated 8 September 2016;
- (f) the section 96(2) Modification Application SSD 6917 MOD 1, prepared by Urbis, dated 4 November 2016 and all supporting documentation;
- (g) the section 96(1A) Modification Application SSD 6917 MOD 3, prepared by Goodman, dated 5 April 2017 and all supporting documentation, excluding Appendix E;
- (h) the section 96(1A) Modification Application SSD 6917 MOD 4, prepared by Urbis, reference: "Oakdale South MOD 4\_Final" and all supporting documentation;
- (i) the development layout plans and drawings listed at **Appendix 1**; and
- (j) the Management and Mitigation Measures at **Appendix 3**.

4. Delete Condition B9 and replace with the following:

B9. The following limits apply to the Concept Proposal for the Development:

- (a) the maximum GFA for the land uses in the Development shall not exceed the limits outlined in **Table 1** below;
- (b) no car parking is permitted in TransGrid easement;
- (c) no loading docks, delivery bays or heavy vehicle movements are permitted along the southern property boundary;
- (d) the loading dock, heavy vehicle route and associated hardstand along the southern elevation of building 5A are not approved; and
- (e) the portion of land zoned E2 – Environmental Conservation located on the north eastern corner of Lot 3A between estate road 01 and estate road 06 shall be used to landscaping purposes only.

Land Use	Maximum GFA (m <sup>2</sup> )
Total General Warehousing	321,249
Total Office	15,486
<b>Total GFA</b>	<b>336,735</b>

5. Insert new Condition B19 and as follows:

B19. A 26 metre asset protection zone (APZ) is to be provided along the eastern boundary of Biodiversity Lot 1 and the northern boundaries of Biodiversity Lot 2 and Lot 3 and a 10 meter APZ is to be provided along

the southern boundary of Biodiversity Lot 2 as shown on the plan titled 'Bushfire Protection Plan' OAK MP 13 (N) prepared by SBA Architects dated 2 August 2017. APZs are to be maintained in accordance with 'Planning for Bushfire Protection 2006' and the NSW Rural Fire Service's document 'Standards for Asset Protection Zones'.

6. Insert new Condition B20 as follows:

B20. Water, electricity and gas are to comply with section 4.1.3 of 'Planning for Bush Fire Protection 2006'.

7. Insert new Condition B21 as follows:

B21. Public Road access shall comply with section 4.1.3(1) of Planning for Bush Fire Protection 2006.

8. Insert new Condition B22 as follows:

B22. Fire trails shall comply with section 4.1.3(3) of Planning for Bush Fire Protection 2006.

#### **In Schedule C: Conditions to be met in future Development Applications**

9. Delete Condition C17 and replace with the following:

C17. All future Development Applications shall demonstrate that the design of the warehouse buildings, plant and equipment and hardstand areas are consistent with the:

- (a) *Civil, Stormwater and Infrastructure Services Strategy*, rev 11, report no 14-193-R001, prepared by At&I, dated June 2017;
- (b) *Flood Impact Assessment: Oakdale South Industrial Estate*, ref: 59914136, prepared by Cardno, dated 11 July 2016; and
- (c) Letter report titled '*SSD6917 Oakdale South Industrial Estate, TransGrid Easement Flooding*', prepared by At&I, ref: 14-193-ATL-L004, dated 18 April 2016 and all appendices.

#### **In Schedule D: Conditions of consent for the Stage 1 DA**

10. Delete and replace Condition D2 as follows:

D2. Development Consent is granted to the 'Stage 1 works' as described in Schedule A, the conditions contained in this Development Consent and the EIS, as amended by the RTS, SSD 6917 MOD 1, SSD 6917 MOD 3 and SSD 6917 MOD 4.

11. Delete and replace Condition D3 as follows:

D3. The Applicant shall carry out the Development in accordance with the:

- (a) EIS and RTS;
- (b) the letter titled '*Re: SSD6917 Oakdale South Industrial Estate, Trans Grid Easement Flood Extents*', ref 14-193-ATL-TRANSGRID-L2, prepared by At&I, dated 18 May 2016 and all appendices;
- (c) the Supplementary Response to Submissions titled '*Re: Oakdale South Estate SSDA\_6917*' and all annexures, prepared by Urban Advisory Services, dated 12 July 2016;
- (d) the letter report titled '*Oakdale South Estate, Operational Noise Contours, Adverse Weather Conditions*', prepared by SLR, dated 13 July 2016;
- (e) the letter titled '*Re: Oakdale South Estate - State Significant Development Application Ref. 6917*' and all annexures, prepared by Urban Advisory Services, dated 8 September 2016;
- (f) the section 96(2) Modification Application SSD 6917 MOD 1, prepared by Urbis, dated 4 November 2016 and all supporting documentation;
- (g) the section 96(1A) Modification Application SSD 6917 MOD 3, prepared by Goodman, dated 5 April 2017 and all supporting documentation, excluding Appendix E;
- (h) the section 96(1A) Modification Application SSD 6917 MOD 4, prepared by Urbis, reference: "Oakdale South MOD 4\_Final" and all supporting documentation;
- (i) the development layout plans and drawings listed at **Appendix 1**; and
- (j) the Management and Mitigation Measures at **Appendix 3**.

12. Delete and replace condition D9 as follows:

D9. The total maximum GFA for Precinct 1 must not exceed 92,769 m<sup>2</sup>.

13. Delete and replace Condition D31 as follows:

D31. The Applicant shall subdivide the site on a staged basis, in accordance with the subdivision plan OAK MP 06 (N) titled Indicative Ultimate Lot Layout, prepared by SBA architects, dated 11 May 2017.

14. Insert new Condition D32 as follows:

D32. Construction of the northern, southern and western elevation(s) and roof of building 1C shall comply with Sections 3 and 8 (BAL 40) Australian Standard AS3959-2009 'Construction of buildings in bush fire-prone areas' or NASH Standard (1.7.14 updated) 'National Standard and Steel Framed Construction in Bushfire Areas – 2014' as appropriate and section A3.7 Addendum Appendix 3 of 'Planning for Bush Fire Protection 2006'.

15. Insert new Condition D33 as follows:

D33. Construction of the eastern elevation(s) of building 1C shall comply with section 3 and section 7 (BAL 29) Australian Standard AS3959-2009 'Construction of buildings in bush fire-prone areas' or NASH Standard (1.7.14 updated) 'National Standard Steel Framed Construction in Bushfire Areas – 2014' as appropriate and A3.7 Addendum Appendix 3 or 'Planning for Bushfire Protection 2006'.

16. Insert new Condition D34 as follows:

D34. Construction of the northern, southern and western elevation(s) and roof of building 1A shall comply with Sections 3 and 6 (BAL 19) Australian Standard AS3959-2009 'Construction of buildings in bush fire-prone areas' or NASH Standard (1.7.14 updated) 'National Standard and Steel Framed Construction in Bushfire Areas – 2014' as appropriate and section A3.7 Addendum Appendix 3 of 'Planning for Bush Fire Protection 2006'.

17. Insert new Condition D35 as follows:

D35. Construction of the eastern elevation(s) of building 1A shall comply with section 3 and section 7 (BAL 12.5) Australian Standard AS3959-2009 'Construction of buildings in bush fire-prone areas' or NASH Standard (1.7.14 updated) 'National Standard Steel Framed Construction in Bushfire Areas – 2014' as appropriate and A3.7 Addendum Appendix 3 or 'Planning for Bushfire Protection 2006'.

18. Insert new Condition D36 as follows:

D36. Landscaping of the site shall comply with the principles of Appendix 5 of 'Planning for Bushfire Protection 2006'.

19. Insert new Condition D37 as follows:

D37. The external walls of all buildings, including attachments, must comply with the relevant requirements of the NCC. Prior to the issue of a Construction Certificate and Occupation Certificate the Certifying Authority must:

- (a) be satisfied that suitable evidence is provided to demonstrate that the products and systems proposed for use or used in the construction of external walls including finishes and claddings such as synthetic or aluminium composite panels comply with the relevant requirements of the NCC; and
- (b) ensure that the documentation relied upon in the approval processes include an appropriate level of detail to demonstrate compliance with the NCC as proposed and as built.

A copy of the documentation required under (b) must be provided to the Secretary within 7 days of being accepted by the Certifying Authority.

#### **In Schedule E: Environmental Performance and Management**

20. Delete and replace Condition E5 as follows:

E5. The Applicant shall provide a minimum of 420 on-site car parking spaces (including at least 10 spaces for people with a disability at a rate of two per 100 parking spaces) for use during operation of the Development, distributed as shown in **Table 5** below.

**Table 5: Precinct Car Parking Provisions for Stage 1**

Precinct	Building	Minimum Car Parking Requirement
1	A	59
	B	76
	C	138
	D	149
<b>Total</b>		<b>420</b>

21. Delete and replace Condition E15 as follows

E15. Whilst bulk and detailed earthworks are occurring on site, the Applicant shall ensure all bio-retention basins are to be utilised as temporary sediment control basins. The bio-retention basins shall not be converted into the final/ultimate basins until such time as all building and construction works within the relevant stage shown in drawing OAK MP 09 (J) titled '*Infrastructure Staging Plan (Indicative)*', prepared by SBA Architects, dated 28 April 2017 are 90 per cent complete and the area within the relevant stage is stabilised.

22. Delete and replace Condition E43 as follows:

E43. Within 15 months of the completion of the archaeological investigation on-site, the Applicant shall prepare and submit to the Secretary a final archaeological excavation report in accordance with Heritage Councils guidelines. A copy of the final report is to be provided to the Heritage Council of NSW and Penrith City Council.

23. Delete and replace Condition E61 as follows:

E61. Prior to the commencement of construction, the Applicant shall prepare and submit a **Landscape Management Plan** (LMP) to the satisfaction of the Secretary. The LMP shall:

- (a) be prepared in consultation with Council and submitted to the Secretary;
- (b) ensure landscaping is undertaken in accordance with the Landscape Plans prepared by Site Image contained within the EIS as amended by the RTS and the letter titled '*Re: Oakdale South Estate – State Significant Development Application Red. 6917*' and all annexures, prepared by Urban Advisory Services, dated 8 September 2016 and the Landscape Plans prepared by Site Image contained within the Modification Report as amended by the RTS prepared by Urbis, reference: "Oakdale South MOD 4\_Final";
- (c) ensure that provisions are made for landscaping at the western boundary of Lot 1A to be established prior to the commencement of works for Building 1A;
- (d) detail the management measures to be implemented for the maintenance of the perimeter landscape treatments along the southern and eastern boundaries, including the earth bund wall along the southern property boundary of the site, for the life of the Development; and
- (e) detail the management measures to be implemented for the maintenance of the internal landscaping, for the life of the development.

24. Delete and replace Condition E76 as follows:

E76. Prior to the commencement of operation, the Applicant shall prepare a Bushfire Emergency Evacuation Plan, in consultation with the Rural Fire Service that complies with section 4.2.7 of '*Planning for Bush Fire Protection 2006*' and '*Development Planning – A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan December 2014*', to the satisfaction of the Secretary. The Bushfire Emergency Evacuation Plan shall form part of the OEMP.

25. Insert new Condition E77 as follows:

E77. Safety devices shall be installed within Lot 1A to ensure the safety of motorists and pedestrians within the car parking area. This should include, but not be limited to, safety mirrors, clear delineation of vehicle and the pedestrian areas including safety railing and safety lighting.

#### **In the Appendices**

26. Delete and replace the table in Appendix 1 – Approved Concept Proposal Drawings as follows:

Master Plan Drawings Prepared by SBA Architects			
Drawing No.	Rev.	Name of Plan	Date
OAK MP 01	BB	Cover Sheet	28/06/2017
OAK MP 02	RR	SSDA Masterplan	17/10/2017
OAK MP 03	S	SSDA Stage 1 Development	19/06/2017
OAK MP 04	T	Precinct 1 Plan	19/06/2017
OAK MP 06	N	Indicative Ultimate Lot Layout	11/05/2017
OAK MP 07	N	Site Analysis Plan	19/06/2017
OAK MP 08	N	Existing Zoning	19/06/2017
OAK MP 09	J	Infrastructure Staging Plan	28/04/2017
OAK MP 10	P	Building Staging Plan (Indicative)	06/11/2017
OAK MP 11	N	Signage Precinct 1 Plan	03/08/2017
OAK MP 13	N	Fire Protection Plan	02/08/2017
OAK MP 14	P	Restoration Zones	19/06/2017
OAK MP 15	K	Fencing Plan	19/06/2017
OAK MP 16	C	SSDA Masterplan	19/06/2017
Concept Landscape Plans prepared by Site Image Landscape Architects			
Drawing No.	Rev.	Name of Plan	Date
LR-003	N	Landscape Concept Master Plan	27/09/2017
LR-004	N	Typical Site Section	27/09/2017
LR-005	N	Southern Boundary Landscape Section	27/09/2017
LR-006	N	Eastern Boundary Landscape Section	27/09/2017
LR-007	N	Vegetation Typologies	27/09/2017
LR-008	N	Typical Species List and Reference Table	27/09/2017
LR-009	N	Street Tree Master Plan	27/09/2017
LR-010	N	Streetscape Typical Detail	27/09/2017
LR-011	N	Landscape Node 1 – Plan & Section	27/09/2017
LR-012	N	Landscape Node 2 – Plan/Section	27/09/2017
LR0013	N	Stage 1 Development – Landscape Scope of Works	27/09/2017
Proposed Service Strategy Drawings prepared by AT&L			
Drawing No.	Rev.	Name of Plan	Date
SKC149	P1	Sewer Strategy – Concept Scheme Plan	August 2015
SKC150	P1	Potable Water Strategy – Concept Scheme Plan	August 2015
SKC151	P1	High Voltage – Concept Scheme Plan	August 2015
SKC152	P1	Proposed Gas Main Strategy – Concept Scheme Plan	August 2015
SKC153	P1	Telecommunications Strategy – Concept Scheme Plan	August 2015
SKC154	P1	Proposed Rainwater Re-Use – Concept Scheme Plan	August 2015

27. Delete and replace the table in Appendix 2 – Schedule of Approved Stage 1 Drawings as follows:

Stage 1 Architectural Drawings Prepared by SBA Architects			
Drawing No.	Rev.	Name of Plan	Date
<b>Building 1A</b>			
OAK 1A DA 10	Q	Proposed Industrial Facility - Building 1A – Site Plan/Floor Plan	03/08/2017
OAK 1A DA 11	H	Proposed Industrial Facility - Building 1A – Roof Plan	17/10/2017
OAK 1A DA 12	G	Proposed Industrial Facility - Building 1A – 1A Office Floor Plans	12/05/2017
OAK 1A DA 15	H	Proposed Industrial Facility - Building 1A – Elevations/Sections 1A	19/06/2017
OAK 1A DA 16	F	Proposed Industrial Facility - Building 1A – Elevations Office 1A	19/06/2017
<b>Building 1B</b>			
OAK 1B DA 20	T	Proposed Industrial Facility – Building 1B – Site Plan/Floor	28/06/2017
OAK 1B DA 21	F	Proposed Industrial Facility – Building 1B – Roof Plan	10/07/2017
OAK 1B DA 22	G	Proposed Industrial Facility – Building 1B – 1B Office Plan	16/06/2017
OAK 1B DA 24	Q	Proposed Industrial Facility – Building 1B – Elevations 1B	28/06/2017
OAK 1B DA 25	J	Proposed Industrial Facility – Building 1B – Sections 1B	28/06/2017
OAK 1B DA 26	H	Proposed Industrial Facility – Building 1B – Elevations Office	28/06/2017
<b>Building 1C</b>			
OAK 1C DA 30	P	Proposed Industrial Facility – Building 1C – Site Plan/Floor Plan	16/06/2017
OAK 1C DA 31	G	Proposed Industrial Facility – Building 1C – Roof Plan	16/06/2017
OAK 1C DA 32	F	Proposed Industrial Facility – Building 1C – Office 1C-1 Floor Plans	28/04/2017
OAK 1C DA 33	G	Proposed Industrial Facility – Building 1C – 1C-2 Office Floor Plans	12/05/2017
OAK 1C DA 34	H	Proposed Industrial Facility – Building 1C – Elevations 1C	09/06/2017
OAK 1C DA 36	E	Proposed Industrial Facility – Building 1C – Office Elevations 1	28/04/2017

OAK 1C DA 37	E	Proposed Industrial Facility – Building 1C – Office Elevations 2	28/04/2017
<b>Building 1D</b>			
OAK 1D DA 40	L	Proposed Industrial Facility – Building 1D – Site Plan/Floor Plan	12/05/2017
OAK 1D DA 41	G	Proposed Industrial Facility – Building 1D – Roof Plan	12/05/2017
OAK 1D DA 42	G	Proposed Industrial Facility – Building 1D – 1D – Office Floor Plans	12/05/2017
OAK 1D DA 43	B	Proposed Industrial Facility – Building 1D – Office 2 Floor Plans	12/05/2017
OAK 1D DA 44	H	Proposed Industrial Facility – Building 1D – Elevations 1D	09/06/2017
OAK 1D DA 45	F	Proposed Industrial Facility – Building 1D – Sections 1D	28/04/2017
OAK 1D DA 46	E	Proposed Industrial Facility – Building 1D – Elevations Office 1	28/04/2017
OAK 1D DA 47	A	Proposed Industrial Facility – Building 1D – Elevations Office 2	28/04/2017
<b>Landscape Drawings Prepared by Site Image</b>			
<b>Drawing No.</b>	<b>Rev.</b>	<b>Name of Plan</b>	<b>Date</b>
LR-013	N	Stage 1 Development – Landscape Scope of Works	27/09/2017
ELW-001	N	Stage 1 Development Works – Landscape Plan	27/09/2017
ELW-002	N	Estate Landscape Works – Landscape Plan	27/09/2017
ELW-003	N	Estate Landscape Works – Landscape Plan	27/09/2017
ELW-004	N	Estate Landscape Works – Landscape Plan	27/09/2017
ELW-005	N	Estate Landscape Works – Landscape Plan	27/09/2017
ELW-006	N	Estate Landscape Works – Landscape Plan	27/09/2017
ELW-007	N	Estate Landscape Works – Landscape Plan	27/09/2017
ELW-008	N	Estate Landscape Works – Landscape Plan	27/09/2017
ELW-009	N	Estate Landscape Works – Landscape Plan	27/09/2017
ELW-010	N	Estate Landscape Works – Typical Details & Plant Schedule	27/09/2017
ELW-011	N	Estate Landscape Works – Typical Landscape Details	27/09/2017
LP1-001	N	Lot Landscaping – Precinct 1	27/09/2017
LP1-002	N	Lot Landscaping – Precinct 1 – Primary Presentational Frontage – Typical Landscape Detail Plan	27/09/2017
LP1-003	N	Road 2 Presentational Frontage – Typical Landscape Detail Plan	27/09/2017
LP1-004	N	Lot Landscaping – Precinct 1 – Planting Palette	27/09/2017
<b>Southern and Eastern Boundary Treatments Prepared by Site Image Landscape Architects</b>			
<b>Drawing No.</b>	<b>Rev.</b>	<b>Name of Plan</b>	<b>Date</b>
002	D	Key Plan – Typical Boundary Planting	03/05/2016
003	D	Section AA and Section BB – Southern Boundary	03/05/2016
004	D	Section CC – Eastern Boundary	03/05/2016
005	D	Section DD – Southern Boundary	03/05/2016
006	D	Section EE – Eastern Boundary	03/05/2016
<b>Stage 1 Civil Drawings Prepared by AT&amp;L Project Number 14-193</b>			
<b>Drawing No.</b>	<b>Rev.</b>	<b>Name of Plan</b>	<b>Date</b>
C1000	A	Cover Sheet and Locality Plan	03/09/2015
C1001	E	Drawing List	05/05/2017
C1002	A	General Notes	03/09/2015
C1003	F	General Arrangement Plan	05/05/2017
C1004	A	Typical Sections Sheet 1	03/09/2015
C1005	A	Typical Sections Sheet 2	03/09/2015
C1006	A	Typical Sections Sheet 3	03/09/2015
C1007	E	Typical Sections Sheet 4	05/05/2017
C1008	A	Typical Sections Sheet 5	03/09/2015
C1009	A	Typical Sections Sheet 6	03/09/2015
C1010	A	Typical Sections Sheet 7	03/09/2015
C1015	A	Typical Details Plan	03/09/2015
C1020	E	Bulk Earthworks Cut/Fill Plan	15/05/2017
C1021	E	Infrastructure Staging Plan	05/05/2017
C1031	A	Earthworks and Stormwater Plan Sheet 1	03/09/2015
C1232	A	Earthworks and Stormwater Plan Sheet 2	03/09/2015
C1033	A	Earthworks and Stormwater Plan Sheet 3	03/09/2015
C1034	A	Earthworks and Stormwater Plan Sheet 4	03/09/2015
C1035	A	Earthworks and Stormwater Plan Sheet 5	03/09/2015
C1036	E	Earthworks and Stormwater Plan Sheet 6	05/05/2017
C1037	E	Earthworks and Stormwater Plan Sheet 7	05/05/2017
C1038	E	Earthworks and Stormwater Plan Sheet 8	05/05/2017
C1039	A	Earthworks and Stormwater Plan Sheet 9	03/09/2015
C1040	A	Earthworks and Stormwater Plan Sheet 10	03/09/2015
C1041	E	Earthworks and Stormwater Plan Sheet 11	05/05/2017
C1042	E	Earthworks and Stormwater Plan Sheet 12	05/05/2017

C1043	E	Earthworks and Stormwater Plan Sheet 13	05/05/2017
C1051	A	Services and Utilities Coordination Plan Sheet 1	03/09/2015
C1052	A	Services and Utilities Coordination Plan Sheet 2	03/09/2015
C1053	A	Services and Utilities Coordination Plan Sheet 3	03/09/2015
C1054	A	Services and Utilities Coordination Plan Sheet 4	03/09/2015
C1055	A	Services and Utilities Coordination Plan Sheet 5	03/09/2015
C1056	E	Services and Utilities Coordination Plan Sheet 6	05/05/2017
C1057	E	Services and Utilities Coordination Plan Sheet 7	05/05/2017
C1058	E	Services and Utilities Coordination Plan Sheet 8	05/05/2017
C1059	A	Services and Utilities Coordination Plan Sheet 9	03/09/2015
C1060	A	Services and Utilities Coordination Plan Sheet 10	03/09/2015
C1061	E	Services and Utilities Coordination Plan Sheet 11	05/05/2017
C1062	E	Services and Utilities Coordination Plan Sheet 12	05/05/2017
C1063	A	Services and Utilities Coordination Plan Sheet 13	03/09/2015
C1071	A	Erosion and Sediment Control Plan Sheet 1	03/09/2015
C1072	A	Erosion and Sediment Control Plan Sheet 2	03/09/2015
C1073	A	Erosion and Sediment Control Plan Sheet 3	03/09/2015
C1074	A	Erosion and Sediment Control Plan Sheet 4	03/09/2015
C1075	A	Erosion and Sediment Control Plan Sheet 5	03/09/2015
C1076	E	Erosion and Sediment Control Plan Sheet 6	05/05/2017
C1077	E	Erosion and Sediment Control Plan Sheet 7	05/05/2017
C1078	E	Erosion and Sediment Control Plan Sheet 8	05/05/2017
C1079	A	Erosion and Sediment Control Plan Sheet 9	03/09/2015
C1080	A	Erosion and Sediment Control Plan Sheet 10	03/09/2015
C1081	E	Erosion and Sediment Control Plan Sheet 11	05/05/2017
C1082	E	Erosion and Sediment Control Plan Sheet 12	05/05/2017
C1083	E	Erosion and Sediment Control Plan Sheet 13	05/05/2017
C1084	A	Erosion and Sediment Details	03/09/2015
C1091	A	Pavement Plan Sheet 1	03/09/2015
C1092	A	Pavement Plan Sheet 2	03/09/2015
C1093	A	Pavement Plan Sheet 3	03/09/2015
C1094	E	Pavement Plan Sheet 4	05/05/2017
C1095	E	Pavement Plan Sheet 5	05/05/2017
C1201	A	Roadworks Plan Sheet 1	03/09/2015
C1202	E	Roadworks Plan Sheet 2	05/05/2017
C1203	A	Roadworks Plan Sheet 3	03/09/2015
C1204	E	Roadworks Plan Sheet 4	05/05/2017
C1205	A	Roadworks Plan Sheet 5	03/09/2015
C1206	A	Roadworks Plan Sheet 6	03/09/2015
C1207	A	Roadworks Plan Sheet 7	03/09/2015
C1208	A	Roadworks Plan Sheet 8	03/09/2015
C1209	A	Roadworks Plan Sheet 9	03/09/2015
C1210	E	Roadworks Plan Sheet 10	05/05/2017
C1211	E	Roadworks Plan Sheet 11	05/05/2017
C1212	A	Roadworks Plan Sheet 12	03/09/2015
C1216	B	Roadworks Plan Sheet 16	05/05/2017
C1221	E	Road Longitudinal; Sections Sheet 1	05/05/2017
C1222	A	Road Longitudinal; Sections Sheet 2	03/09/2015
C1223	E	Road Longitudinal; Sections Sheet 3	05/05/2017
C1224	A	Road Longitudinal; Sections Sheet 4	03/09/2015
C1225	B	Road Longitudinal; Sections Sheet 5	05/05/2017
C1241	A	Bio-Retention Basin A Detail Plan	03/09/2015
C1244	E	Bio-Retention Basin B Detail Plan	05/05/2017
C1247	A	Bio-Retention Basin C Detail Plan	03/09/2015
C1250	A	Bio-Retention Basin D Detail Plan	03/09/2015
C1261	A	Stormwater Culvert Plan and Sections	03/09/2015
C1301	E	Stormwater Catchment Plan	05/05/2017
C1311	A	Road 07 Sight Distance Plan	05/05/2017
C2000	B	On-Lot General Arrangement Plan	22/06/2017
C2100	B	Building 1A General Arrangement Plan	22/06/2017
C2105	B	Building 1A Siteworks and Stormwater Drainage Plan - Sheet 1	22/06/2017
C2106	B	Building 1A Siteworks and Stormwater Drainage Plan - Sheet 2	22/06/2017
C2107	B	Building 1A Siteworks and Stormwater Drainage Plan - Sheet 3	22/06/2017
C2108	B	Building 1A Siteworks and Stormwater Drainage Plan - Sheet 4	22/06/2017



C2110	B	Building 1A Pavement Plan	22/06/2017
C2200	B	Building 1B General Arrangement Plan	22/06/2017
C2205	B	Building 1B Siteworks and Stormwater Drainage Plan - Sheet 1	22/06/2017
C2206	B	Building 1B Siteworks and Stormwater Drainage Plan - Sheet 2	22/06/2017
C2207	B	Building 1B Siteworks and Stormwater Drainage Plan - Sheet 3	22/06/2017
C2208	B	Building 1B Siteworks and Stormwater Drainage Plan - Sheet 4	22/06/2017
C2210	B	Building 1B Pavement Plan	22/06/2017
C2300	B	Building 1C General Arrangement Plan	22/06/2017
C2305	B	Building 1C Siteworks and Stormwater Drainage Plan - Sheet 1	22/06/2017
C2306	B	Building 1C Siteworks and Stormwater Drainage Plan - Sheet 2	22/06/2017
C2307	B	Building 1C Siteworks and Stormwater Drainage Plan - Sheet 3	22/06/2017
C2308	B	Building 1C Siteworks and Stormwater Drainage Plan - Sheet 4	22/06/2017
C2310	B	Building 1C Pavement Plan	22/06/2017
C2400	B	Building 1D General Arrangement Plan	22/06/2017
C2405	B	Building 1D Siteworks and Stormwater Drainage Plan Sheet 1	22/06/2017
C2406	B	Building 1D Siteworks and Stormwater Drainage Plan Sheet 2	22/06/2017
C2407	B	Building 1D Siteworks and Stormwater Drainage Plan Sheet 3	22/06/2017
C2408	B	Building 1D Siteworks and Stormwater Drainage Plan Sheet 4	22/06/2017
C2410	B	Building 1D Pavement Plan	22/06/2017
C2500	A	Building 4A General Arrangement Plan	03/09/2015
C2505	A	Building 4A Sitework and Stormwater Drainage Plan Sheet 1	03/09/2015
C2506	A	Building 4A Sitework and Stormwater Drainage Plan Sheet 2	03/09/2015
C2508	A	Building 4A Pavement Plan	03/09/2015
C2600	A	Building 4B General Arrangement Plan	03/09/2015
C2605	A	Building 4B Sitework and Stormwater Drainage Plan Sheet 1	03/09/2015
C2606	A	Building 4B Sitework and Stormwater Drainage Plan Sheet 2	03/09/2015
C2608	A	Building 4B Pavement Plan	03/09/2015
C2700	A	Building 4C General Arrangement Plan	03/09/2015
C2705	A	Building 4C Sitework and Stormwater Drainage Plan Sheet 1	03/09/2015
C2706	A	Building 4C Sitework and Stormwater Drainage Plan Sheet 2	03/09/2015
C2708	A	Building 4C Pavement Plan	03/09/2015
C2800	A	Building 5A General Arrangement Plan	03/09/2015
C2805	A	Building 5A Sitework and Stormwater Drainage Plan Sheet 1	03/09/2015
C2806	A	Building 5A Sitework and Stormwater Drainage Plan Sheet 2	03/09/2015
C2807	A	Building 5A Sitework and Stormwater Drainage Plan Sheet 3	03/09/2015
C2808	A	Building 5A Sitework and Stormwater Drainage Plan Sheet 4	03/09/2015
C2809	A	Building 5A Sitework and Stormwater Drainage Plan Sheet 5	03/09/2015
C2810	A	Building 5A Sitework and Stormwater Drainage Plan Sheet 6	03/09/2015
C2811	A	Building 5A Sitework and Stormwater Drainage Plan Sheet 7	03/09/2015
C2812	A	Building 5A Sitework and Stormwater Drainage Plan Sheet 8	03/09/2015
C2814	A	Building 5A Pavement Plan	03/09/2015
<b>Oakdale South Watercourse Realignment Works Plans, prepared by AECOM, Drawing Set 60333552-DWG-WC</b>			
<b>Drawing No.</b>	<b>Rev.</b>	<b>Name of Plan</b>	<b>Date</b>
1001	A	Watercourse Realignment Cover Sheet and Drawing Index	31/08/2015
1011	B	Watercourse Realignment Layout Plan Sheet 1	31/08/2015
1012	B	Watercourse Realignment Layout Plan Sheet 2	31/08/2015
1016	A	Watercourse Realignment Aerial Background Plan Sheet 1	31/08/2015
1017	A	Watercourse Realignment Aerial Background Plan Sheet 2	31/08/2015
1021	A	Watercourse Realignment Longitudinal Section	31/08/2015
1022	A	Watercourse Realignment Longitudinal Section - Stub	31/08/2015
1031	A	Watercourse Realignment Cross Sections - Watercourse 1 and Stub	31/08/2015
1036	A	Watercourse Realignment Cross Sections - Watercourse 2 Sheet 1	31/08/2015
1037	A	Watercourse Realignment Cross Sections - Watercourse 3 Sheet 2	31/08/2015
1041	A	Watercourse Realignment Rock Riffle Details Sheet 1	31/08/2015
1042	A	Watercourse Realignment Rock Riffle Details Sheet 2	31/08/2015
1043	A	Watercourse Realignment Rock Riffle Details Sheet 3	31/08/2015
1044	A	Watercourse Realignment Large Wood Debris Details	31/08/2015
1051	A	Watercourse Realignment Works Schedule	31/08/2015
1061	A	Watercourse Realignment Site Management Plan	31/08/2015
<b>Stormwater Plans prepared by AT&amp;L in the Civil, Stormwater and Infrastructure Services Report at Appendix J of the EIS</b>			
<b>Drawing No.</b>	<b>Rev.</b>	<b>Name of Plan</b>	<b>Date</b>
C1301	E	Stormwater Catchment Plan	05/05/2017
SKC008	P1	Existing Catchment Plan	25/08/2015

**TransGrid Easement Drainage Plans prepared by AT&L in Annexure A of the Supplementary RTS dated 18 May 2016**

<b>Drawing No.</b>	<b>Rev.</b>	<b>Name of Plan</b>	<b>Date</b>
SKC208	P1	TransGrid Easement Plan Sheet 1	17/5/2016
SKC209	P1	TransGrid Easement Plan Sheet 2	17/5/2016
SKC210	P1	Existing TransGrid Easement Sections	17/5/2016
SKC207	P1	Stormwater Catchment Plan	17/5/2016

# Modification of Development Consent

## Section 96(1) of the *Environmental Planning and Assessment Act 1979*

As delegate for the Minister for Planning, under delegation executed on 11 October 2017, I approve the modification of the development consent referred to in Schedule 1, subject to the conditions outlined in Schedule 2.



Chris Ritchie  
Director  
Industry Assessments

Sydney 23 NOVEMBER 2017

File: 17/14129

### SCHEDULE 1

<b>Application No:</b>	SSD 6917
<b>Applicant:</b>	Goodman Property Services (Aust) Pty Ltd
<b>Consent Authority:</b>	Minister for Planning
<b>Development:</b>	Oakdale South Industrial Estate, Lot 12 DP 1178389 and Lot 87 DP 752041, Kemps Creek, Penrith local government area
<b>Date of Original Consent:</b>	26 October 2016
<b>Modification:</b>	SSD 6917 MOD 5 – Administrative changes to Condition E37 regarding the timeframe to submit noise verification reports to the Secretary of the Department of Planning and Environment and to Condition E27A.

### SCHEDULE 2

This consent is modified as follows:

#### In Schedule E: Environmental Performance

1. Delete Condition E37 and replace as follows:

##### **Noise Verification – External Mechanical Plant**

- E37. Within three months of the commencement of operation of each warehouse building containing external mechanical plant, the Applicant shall undertake noise testing and prepare a Noise Validation Report (NVR) to demonstrate that operation of the mechanical plant and equipment meets the noise limits in Condition B18. The NVR shall:
- (a) be prepared by an appropriately qualified and experienced noise expert;
  - (b) be approved by the Secretary;
  - (c) demonstrate that the location, design and operation of external mechanical plant would achieve the noise limits in Condition B18;
  - (d) demonstrate any acoustic treatments required to ensure compliance with the noise limits in Condition B18; and
  - (e) if necessary, recommend, prioritise and implement measures to improve noise controls on-site to ensure the Development meets relevant criteria and protects off-site receivers from excess noise.

2. Delete Condition E27A and replace as follows:

E27A. In addition to the construction hours detailed in Condition E27 above, the Applicant may undertake fill importation activities that meets the imported soil requirements under Condition E23, in work zones 1A,

1B, 1C, 1D and 2A, within precincts 1 and 2 of the Stage 1 DA, as shown in **Appendix 7** between the hours of 8:00 PM to 4:00 AM, Mondays to Fridays inclusive for a period of four months in the following staged manner:

- (a) Stage 1 – 60 deliveries per night for two weeks;
- (b) Stage 2 – 120 deliveries per night for two weeks; and
- (c) Stage 3 – 200 to 300 deliveries per night for 4 months or until bulk earthworks levels in precincts 1 and 2 under the Stage 1 DA are achieved, whichever is sooner.

---

**End of Modification (SSD 6917 MOD 5)**

# APPENDIX B



Landscape Architects

# Estate Works Oakdale South, Horsley Park, NSW

## LANDSCAPE MANAGEMENT PLAN

Prepared by	Site Image NSW Pty Ltd
Prepared for	Goodman
Project number	SS15-3057
Date	22.08.2016

Document Issue	Description	Date
A	For Comment	22.08.2016
B	Amendments	20.09.216

## 1.0 PLANT ESTABLISHMENT AND MAINTENANCE

### 1.1 Generally

The Landscape Contractor shall rectify defects during installation and that become apparent in the works under normal use for the duration of the contract Defects Liability Period (DLP).

After the DLP, the implemented landscape treatments **must be managed for the life of the development.**

The landscape maintenance/ management works shall include, but not be limited to, the following:

- Replacing failed plants;
- Pruning;
- Insect and pest control;
- Fertilising;
- Maintaining mulch;
- Mowing;
- Watering;
- Weeding;
- Rubbish removal; and
- Cleaning of the surrounding areas.

### 1.2 Logbook

Keep a Maintenance Logbook recording when and what maintenance work has been done and what materials, including chemical materials, have been used.

The records shall show when and where identified chemicals were used and why.

Submit the initial logbook for inspection prior to Practical Completion.  
Record all major events and activities in the logbook.

Make the logbook available for inspection on request.

### 1.3 Plants

Trees, shrubs and groundcovers shall at all times display healthy vigorous growth. Spent flower heads or stalks shall be removed immediately following flowering.

**Replace failed plants:** A "failed" plant may not mean complete death of soft tissue but failure due to poor growth, appearance, or unacceptable time for plant to re-establish new growth following damage or vandalism.

Replacement plants shall be in a similar size and quality and identical species or variety to the plant that has failed.

Replacement of plants shall be at the cost of the Landscape Contractor unless advised otherwise. If the cause of the failure is due to a controllable situation then correct the situation prior to replacing plants.

Failure of a plant shall be at the sole discretion of the Landscape Architect.

### 1.4 Pruning

Whatever pruning work is requested by the Landscape Architect shall be performed, including any pruning of damaged growth or miscellaneous pruning considered as beneficial to the condition of the plants.

All pruning works shall be undertaken in a manner equal to acceptable horticultural practice.

## 1.5 Spraying

Avoid spraying:

- if ever possible;
- in wet weather;
- if wet weather is imminent;
- if target plants are still wet after rain;
- in windy weather; and
- if adjacent desirable species are too close to the target plants to be avoided.

Immediately report to the Project Manager any evidence of intensive weed infestation, insect attack or disease amongst plant material. Submit all proposals to apply chemicals and obtain approval before starting this work.

When approved, spray with herbicide, insecticide, fungicide as appropriate in accordance with the manufacturers' recommendations. Record in the logbook all relevant details of spraying activities including:

- Product brand / manufacturer's name,
- Chemical / product name,
- Chemical contents,
- Application quantity and rate,
- Date of application and location,
- Results of application, and
- Use approval authority.

## 1.6 Fertilising

Fertilise gardens with a proprietary slow release fertiliser applied in accordance with the manufacturer's directions and recommendations. Record in the logbook all relevant details of fertilising including:

- Product brand / manufacturer's name,
- Fertiliser / product name,
- Application quantity and rate, and
- Date of application and location.

## 1.7 Stakes and Ties

Adjust and replace as required to ensure plants remain correctly staked. Remove those not required at the end of the planting establishment period (Defects Liability Period).

## 1.8 Mulched Surfaces

Maintain the surface in a clean, tidy and weed free condition and reinstate the mulch as necessary to ensure correct depth as before specified.

## 1.9 Hydro mulching

Refer to AECOM specification.

## 1.10 Mowing and Top Dressing

Mow the turf to maintain a grass height of between 30-50mm. Do not remove more than one third of the grass height at any one time. Remove grass clippings from the site after each mowing.

Top dress to a maximum of 10mm as necessary to fill depressions and hollows in the surface.

## 1.11 Irrigation and Watering

Maintain the irrigation system to sure that each individual plant receives the required amount of water to maintain healthy and vigorous growth, adjust and rectify as required.



Provide additional watering, if necessary.

### **1.12 Erosion Control Measures**

Where necessary, maintain the erosion control devices in a tidy and weed free condition and reinstate as necessary to ensure control measures are effective where deemed necessary.

### **1.13 Weeding and Rubbish Removal**

During the plant establishment period remove by hand, rubbish and weed growth that may occur or re-occur throughout all planted, mulched and paved areas.

The contractor shall target weeds that are capable of producing a major infestation of unwanted plants by seed distribution.

Whenever possible, time weed removal to precede flowering and seed set.

### **1.14 Urgent Works**

Notwithstanding anything to the contrary in the Contract, the Project Manager may instruct the Landscape Contractor to perform urgent maintenance works that place the completed contract works at risk.

If the Landscape Contractor fails to carry out the work within seven (7) days of such notice, the Project Manager (or representative) reserves the right without further notice to employ others to carry out such urgent and specified work and charge the cost to the Landscape Contractor.

Such work shall include but not limited to the inspection and clearing of drains in the pavement and gardens.

### **1.15 Completion**

A final inspection shall be made by the Project Manager, Landscape Contractor and Landscape Architect before the completion of the Plant Establishment Maintenance Period (Defects Liability Period).

Any items requiring rectification shall be repaired before completion of the relevant works and finally approved prior to certification.

In accordance with the *Guidelines for controlled activities – Vegetation Management Plans* (DWE 2008), maintenance requirements should extend for a minimum of two years after the completion of works (i.e. Practical Completion or PC). Prior to handover, the contractor(s) responsible for the Planting Establishment Period (PEP – as defined in the Oakdale Central VMP) will be required to submit all maintenance records, progress reports and a final monitoring report (i.e. 2nd Annual Monitoring Report). The final monitoring report shall provide a summary of all works undertaken during the PEP and what ongoing bush regeneration or other maintenance tasks, and their frequency, are anticipated over the following two year period.

### 7.2 Maintenance Schedule

Table	ACTIVITY	FREQUENCY						ACTION Daily, Weekly, Monthly
		D	W	2W	3W	M	3or6M	
1	Logbook	+		+		+		Complete a logbook entry every day at site and at least every two weeks. All actions listed below require a logbook entry. Upon request, make the logbook available for inspection. Submit copies of new entries in the logbook to the Contract Administrator on a monthly basis. Please note that more frequent, short, occasional inspection should result in less maintenance work when problems are observed earlier than they might otherwise have been seen. Maintenance requirements should extend for a minimum of two years after the completion of works or until such time as a minimum 80% survival rate for all plantings and a maximum five percent (5%) weed cover for the treated riparian corridor (controlled activity) is achieved. Maps or diagrams which identify the proposed riparian area, existing vegetation, vegetation to be retained, vegetation to be cleared, footprint of construction activities, areas of proposed revegetation etc should be prepared
2	Plant replacement			+		+		Inspect and replace failed plants within 2 weeks of observation of failure. Match species, size (original) and location of new with old.
3	Mulch			+		+		Inspect and replace mulch deficiencies within 2 weeks of observation. Prior to placing new mulch aerate the soil by fork turning to a depth of at least 100mm, roughly level the soil and then place mulch. Do not disturb major plant roots while aerating soil. It can be expected that mulch will have significantly broken-down after an estimated 12-month period following initial application. It is therefore recommended that all mulch beds are topped-up with a 50mm layer of woodchip/leaf mulch (Compliant with AS 4454) at this stage. This should be accompanied by a topdressing application of a 9-month, slow release, low phosphorous fertiliser to ensure that semi-established plantings do not suffer as a result of potential nitrogen draw-down that may be associated with the application of the 50mm mulch layer at the 12-month period.
4	Hydromulching							Refer to AECOM specification.

5	Bioretention							Maintenance as per Penrith City Council guidelines, including: Monitoring for scour and erosion, and sediment or litter build-up. Weed removal and plant re-establishment. Monitoring overflow pits for structural integrity and blockage.
5	Erosion control			+				Inspect every two weeks and repair ground, soil and mulch immediately. Maintain erosion control device as necessary. Silt fencing installed for sediment control purposes to the east of the tributary. Silt fencing should be regularly inspected and repaired or reinstalled as necessary.
6	Stakes and ties			+				Inspect every two weeks, adjust and/or replace as necessary but remove as plants mature and are able to support themselves.
7	Weed and rubbish removal			+				Inspect and remove immediately upon observation. Leave no waste on site. Dispose of waste material at a designated waste disposal site. All herbaceous weeds should be managed to be at very-low percentage cover levels, (as a minimum), or better. Pasture grasses should be prevented from spreading into any bushland zones by applying a spot glyphosate herbicide spray application on the 1-metre wide buffer zone, on a monthly basis or as required. Maintenance weeding for a period of 24 months after the completion of primary works with an increase in maintenance hours occurring throughout the warmer growing months. All weeding works should be in accordance with the <b>Aims and Summary of Proposed Bushland Reconstruction Works</b> in the <b>Oakdale South VMP</b>
8	Pruning			+				Inspect every 2 weeks and prune as necessary to remove dead wood, improve plant shape and promote healthy vigorous new growth.
9	Spraying			+				Inspect every 2 weeks and action as necessary. Do not spray if other non-chemical methods will satisfy the need to remove insects. Spray for disease control only when absolutely necessary.
10	Urgent works		+					Complete within 1 week (7 days) of notification. Inspect and clear drains.
11	Planting and fertilising			+			3m+	Inspect every 2 weeks and remove spent flowers and dead stalks as they become apparent. Fertilise gardens every 3 months or other frequency in accordance with fertiliser manufacturer's directions.

12	Watering	+		+				Water when and where necessary every day at site and at least every 2 weeks generally. Do not allow soil and plants to dehydrate. Allow for prolonged rain, windy and dry periods. Water in the early morning or late afternoon to avoid excessive evaporation during the heat of the day.
13	Mowing, top-dressing and edging			+		+	6m+	Summer fortnightly. Winter monthly. Top-dress 6 monthly.

\*Maintenance Schedule and Landscape Specification to be read in conjunction with vegetation management plan

# APPENDIX C



# Oakdale South Estate

## Vegetation Management Plan

prepared for

Goodman Property  
Services (Aust.) Pty Ltd

écologique | environmental consulting

# Oakdale South Estate – Vegetation Management Plan

prepared for

## Goodman Property Services (Aust.) Pty Ltd

This document has been prepared for the benefit of Goodman Property Services (Aust.) Pty Ltd. No liability is accepted by **écologique** with respect to its use by any other person.

This disclaimer shall apply notwithstanding that the report may be made available to other persons for an application for permission or approval to fulfil a legal requirement.

## Document control

### Prepared by

Kathryn Duchatel

BSc. Env. CEnvP EIANZ #691



18/12/2017

### écologique

12 Wanganella Street, Balgowlah NSW 2093

0437 821 110 | [eco\\_logique@optusnet.com.au](mailto:eco_logique@optusnet.com.au)

## Revision Schedule

Rev No	Date	Description	Issued to
1	18/12/2017	Draft for review	Goodman

## Executive Summary

Goodman Property Services (Aust) Pty Ltd (Goodman) are currently developing approximately 117 hectares (ha) under State significant development approval (SSD 6917).

The Oakdale South development (SSD 6917) comprises a Concept Proposal and Stage 1 Development Application. Consent for the Stage 1 DA approved: the removal of 3.58 ha of native vegetation; the filling of two tributaries of Ropes Creek; and the realignment of Drainage Line 1.

Development approval was granted subject to the implementation of the following plans and strategy (as relevant to Biodiversity):

- Biodiversity Assessment Report (Cumberland Ecology, 2016a)
- Biodiversity Offsetting Strategy (Cumberland Ecology, 2016b);
- Watercourse Realignment Works Plans (AECOM, 2016); and
- Vegetation Management Plan (Ecohort, 2015).

Since this time, the Vegetation Management Plan (Ecohort, 2015) has been the subject of two approved amendments (Ecohort 2016 & 2017) in response to: submissions made by the NSW Office of Environment (OEH); and to accommodate future tenant's site layout requirements (SSD 6917 MOD 1).

Initially OEH raised concerns that the 2015 Vegetation Management Plan (VMP) could be perceived as an 'existing obligation' and potentially prejudice the creation of a biodiversity offset area at Oakdale South.

The subsequent 2016 and 2017 versions of the VMP removed the geographic overlap between the VMP management zones and biodiversity offset area, enabling construction certification and the development to proceed in December 2016.

During consultation with the Department of Planning (the Department) and OEH it was agreed that the geographic boundaries would eventually be removed via a S96 modification to ensure that the proposed offset area and riparian corridor lands are managed comprehensively.

This Vegetation Management Plan (VMP) has been prepared to support the submission for S96 modification to SSD 6917. The modification seeks to formalise the various biodiversity management areas, such that:

1. The main area of the Ropes Creek riparian zone is incorporated into the biodiversity offset area (BOA) and will be managed in perpetuity under the relevant Biodiversity Management Action Plan and biobanking agreement, and
2. The amended VMP applies only to the riparian zones of the watercourse realignment and a smaller section of the Ropes Creek riparian corridor adjacent to Precinct 6, which is disjunct from the main Ropes Creek riparian zone (as they occur within Oakdale South).

This VMP does not change the intent of the restoration/reconstruction measures recommended by Ecohort (2015). Rather it only affects the boundaries and responsibility of various management zones as outlined in Section 1.3 and shown in Figure 2-1 (i.e. basin, landscape, landscape screening, biodiversity offsetting and VMP management areas).



# Contents

- 1. Introduction .....1
- 1.1 Background .....1
- 1.2 Consent Conditions .....1
  - 1.2.1 Biodiversity Offset Strategy .....1
  - 1.2.2 Watercourse Realignment Works Plans .....2
  - 1.2.3 Vegetation Management Plan .....2
  - 1.2.4 SSD 6917 MOD 1 Consent Conditions.....3
- 1.3 Purpose of this VMP .....4
- 1.4 VMP Objectives .....5
- 2. Site Extent and Features .....6
- 2.1 Area to which this VMP applies .....6
  - 2.1.1 Watercourse realignment .....6
  - 2.1.2 Ropes Creek adjacent Precinct 6.....6
- 2.2 Existing Vegetation.....8
  - 2.2.1 Watercourse realignment .....8
  - 2.2.2 Ropes Creek .....9
  - 2.2.2 Threatened species and ecological communities .....10
  - 2.2.3 Threatening processes .....10
- 3. Restoration Approach .....12
- 3.1 Overview .....12
- 3.2 Assisted bushland rehabilitation/reconstruction measures .....12
- 3.3 Reconstruction through revegetation.....13
- 3.4 Management zones.....13
  - 3.4.1 Zone 1 watercourse realignment .....13
  - 3.4.2 Zone 2 Ropes Creek adjacent Precinct 6.....13
- 4. VMP Implementation .....16
- 4.1 Management Zone 1 .....16
- 4.2 Management Zone 2 .....17
- 4.3 Weed control .....18
  - 4.3.1 Primary weeding .....18
  - 4.3.2 Secondary weeding .....18
  - 4.3.3 Maintenance weeding .....18
- 4.4 Soil amelioration .....19
- 4.5 Mulching.....19

4.6 Planting program.....19

    4.6.1 Plant procurement.....19

    4.6.2 Planting procedure.....20

    4.6.3 Practical completion .....20

    4.6.4 Planting establishment /defects liability.....20

4.7 Performance measures .....20

4.8 Compliance certification .....21

Appendix A. Weed Species .....23

Appendix B. Planting Schedule .....28

## Tables

Table 2-2. Oakdale South VMP weed species, categories and management measures (HRCC 2017) ..11

Table 4-1. Summary of watercourse realignment works and responsibilities .....16

Table 4-2. Summary of VMP watercourse realignment works.....17

## Figures

Figure 1-1. SSD 6917 MOD 1 VMP areas (left) and amended VMP areas (right) .....4

Figure 1-2. Typical riparian cross section (extract from the guidelines).....5

Figure 2-1. Location of the OEMP Management Zones.....7

Figure 3-1. Zone1 WR management zones .....14

Figure 3-2. Zone2 RC management zones .....15

# 1. Introduction

## 1.1 Background

Goodman Property Services (Aust) Pty Ltd (Goodman) were granted a Staged Development Application consent for the Oakdale South Industrial Estate, by the Department of Planning and Environment (the Department) on 26th October 2016. The development is State significant development (SSD) pursuant to section 89C of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The Oakdale South Industrial Estate (Oakdale South) is located in the suburb of Kemps Creek in the Penrith local government area (LGA). The site is also located in Precinct 8 of the Western Sydney Employment Area (WSEA) which is strategically identified industrial land under State Environmental Planning Policy (Western Sydney Employment Area) 2009 (WSEA SEPP).

Oakdale South covers approximately 117 hectares (ha) of land which is predominantly zoned IN1 – General Industrial and land zoned E2 – Environmental Protection under the WSEA SEPP. Lands zoned as E2 are associated with remnant vegetation and riparian corridors of Ropes Creek and its tributaries.

The development (SSD 6917) comprises a Concept Proposal and Stage 1 Development Application. Consent for the Stage 1 DA approved: the removal of 3.58 ha of native vegetation; the filling of two tributaries of Ropes Creek; and the realignment of Drainage Line 1.

## 1.2 Consent Conditions

Consent for the Stage 1 DA approved the removal of 3.58 ha of native vegetation, the filling of two tributaries of Ropes Creek, and the realignment of Drainage Line 1 to accommodate the proposed estate road layout.

Development approval was granted subject to the implementation of the following plans and strategy (as relevant to Biodiversity):

- Biodiversity Assessment Report (Cumberland Ecology, 2016a)
- Biodiversity Offsetting Strategy (Cumberland Ecology, 2016b);
- Watercourse Realignment Works Plans (AECOM, 2015); and
- Vegetation Management Plan (Ecohort, 2015).

### 1.2.1 Biodiversity Offset Strategy

The Secretary's Environmental Assessment Requirements (SEARs) issued on 22 April 2015 for the SSDA required that an assessment of impacts on the site's flora and fauna be undertaken in accordance with the Framework for Biodiversity Assessment (2014) and proposed measures to avoid, mitigate or offset any significant impacts be undertaken in accordance with the then draft Biodiversity Offset Policy for Major Projects.

A Biodiversity Assessment Report (BAR) was prepared for the proposal (Cumberland Ecology, 2015a), which identified the plant community types (PCTs) that were removed as a result of the development, and calculated and offset requirement of 160 ecosystem credits.

Consent condition E46 required that:

*Within 12 months of the date of this consent, or as otherwise agreed by the Secretary, the Applicant shall retire 160 ecosystem credits to offset the removal of native vegetation on-site.*

The Biodiversity Offsetting Strategy (Cumberland Ecology, 2015b) specifies how Goodman will retire the 160 ecosystem credits, which in summary includes:

- Purchasing and retiring 13 ecosystem credits; and
- Establishing a biodiversity offset area adjacent to the development footprint of the Stage 1 DA, which will enable the retirement of the 147 ecosystem credit balance.

Goodman were granted an extension to the 12 month timeframe on 25 October 2017 by the Department, with the retirement of 160 ecosystem credits now due by the 26 January 2018.

### 1.2.2 Watercourse Realignment Works Plans

The Oakdale South Watercourse Realignment Works Plans (AECOM 2015) Drawing Set 60333552 have: informed the design of the master plan; the EIS prepared for the SSDA; and formed the basis of later detailed construction drawings and specifications, with the watercourse riparian zone addressed specifically within the Vegetation Management Plan prepared by Ecohort (2015).

### 1.2.3 Vegetation Management Plan

The Vegetation Management Plan (VMP) (Ecohort, 2015) was submitted as part of the SSDA documentation by Goodman to demonstrate how the construction impacts associated with the filling of two tributaries of Ropes Creek and the realignment of Drainage Line 1 would be managed.

The VMP was prepared commensurate with the NSW Department of Primary Industries -Water (DPIW) guidelines for controlled activities on waterfront land, specifically the “Guidelines for vegetation management plans on waterfront land” (July 2012).

Controlled activities carried out in, on or under waterfront land are regulated by the *Water Management Act 2000* (WM Act). However, it should be noted that:

1. Under Part 4 Division 4.1 Section 89J of the EP&A Act, controlled activity approval is not required for SSD proposals,
2. Preparation of the VMP was not a requirement identified in the SEARs or submissions made by DPIW during the preparation of the SEARs, and
3. In addition to the riparian restoration works associated with the watercourse realignment, the VMP addressed the main riparian zone of Ropes Creek whilst acknowledging that this zone was intended to be an integral component of the proposed biodiversity offset area.

During the assessment of SSD 6917, the NSW Office of Environment and Heritage (OEH) requested the five year vegetation management restoration / rehabilitation measures proposed under the VMP not be included in the proposed biodiversity offset area to avoid precluding the creation of the proposed biobank site under clause 11 of the *Threatened Species Conservation (Biodiversity Banking) Regulation 2008*.

In response the Department amended consent condition E47 to the following:

*Prior to the issue of any Construction Certificate that includes the creek realignment works, the Applicant shall submit a revised Vegetation Management Plan (VMP). The revised VMP:*

- (a) Be submitted to the satisfaction of the Secretary*
- (b) Be prepared in consultation with the OEH*
- (c) Remove any geographic overlap with Figure 4.3 in the Biodiversity Offset Strategy, prepared by Cumberland Ecology, dated 16 September 2015, and*
- (d) Be consistent with the management measures and recommendations of the draft VMP prepared by EcoHort Pty Ltd dated 31 August 2015.*

*Note: the intention of Condition E47 was to ensure the 5yr vegetation management restoration / rehabilitation measures proposed under the VMP were not included in the proposed biobank area to avoid precluding the creation of the proposed biobank site under clause 11 of the Threatened Species Conservation (Biodiversity Banking) Regulation 2008*

Clause 11(e) of the Biodiversity Banking Regulation excludes land from being designated as a biobank site if there is an existing conservation obligation for the purpose of complying with requirements imposed by or under any Act (including the requirements of any authority granted by a public authority under any Act).

By separating the geographic overlap of the VMP and the biodiversity offset area, the Department was able to condition the implementation of the VMP without prejudicing the creation of the biodiversity offset area under the BioBanking Regulation. The works would therefore not constitute an 'existing obligation' other than the 5 year vegetation management measures in the riparian corridor to which the VMP applies, which would have otherwise been required by the consent in order to be consistent with the application of the guidelines as if they were to apply.

During consultation conducted to meet condition E47, OEH advised it preferred an approach where the VMP encompassed both the proposed offset area and riparian corridor to ensure the lands are managed comprehensively.

To clarify this arrangement, Goodman submitted an amended VMP (Ecohort 2016), which details the VMP and biodiversity offset areas (i.e. with the geographic overlap removed) as shown in Figure 1-1.

The amended VMP (Ecohort 2016) identified the intent to eventually removed the geographic boundaries between the VMP and biodiversity offset areas via a S96 modification in consultation with OEH, and a separate BioBanking agreement entered into that includes the VMP management zones (as relevant to the main riparian zone of Ropes Creek).

The VMP (Ecohort 2016) was approved by the Department in December 2016 subject to minor amendments (such as provision of updated figures, removal of references to on-going management requirements after a 5 year period).

A revised VMP (Ecohort 2017), which provided the amendments required by the Department in December 2016 was submitted and approved as part of the SSD 6917 MOD 1 (refer Section 1.2.4).

#### **1.2.4 SSD 6917 MOD 1 Consent Conditions**

On 21 April 2017, the Department granted approval for amendments to the Concept Proposal and Stage 1 DA layouts to accommodate future tenant's site layout requirements for access, loading and unloading and building orientation (SSD 6917 MOD 1).

The approved amendments increased the area of site clearing by approximately 0.42 ha. The clearing did not impact on native vegetation but did impact on exotic grassland which is part of the biodiversity offset area. The result has been a reduction in the total number of ecosystem credits generated in the proposed offset area. However there is still sufficient ecosystem credits generated to offset the 147 ecosystem credits required.

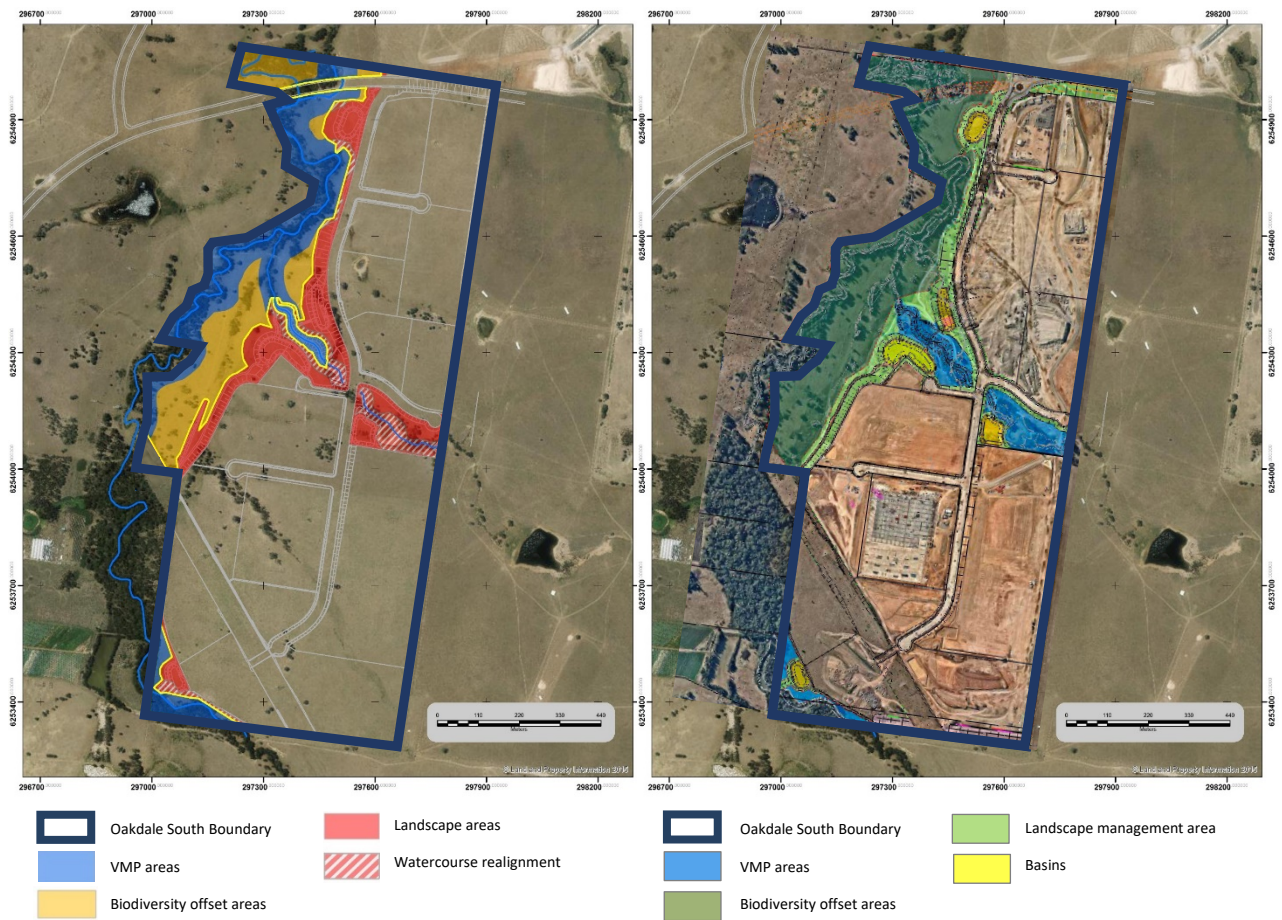


Figure 1-1. SSD 6917 MOD 1 VMP areas (left) and amended VMP areas (right)

### 1.3 Purpose of this VMP

This VMP has been prepared to support the submission for a modification to SSD 6917. The modification seeks to formalise the various biodiversity management areas, such that:

3. The main area of the Ropes Creek riparian zone is incorporated into the biodiversity offset area (BOA) and will be managed in perpetuity under the relevant Biodiversity Management Action Plan and biobanking agreement, and
4. The amended VMP applies only to the riparian zones of the watercourse realignment and a smaller section of the Ropes Creek riparian corridor adjacent to Precinct 6, which is disjunct from the main Ropes Creek riparian zone (as they occur within Oakdale South).

SSD 6917 consent condition F4 requires the preparation of an Operational Environmental Management Plan (OEMP) prior to the commencement of Oakdale South operations. The OEMP provides the strategic framework for environmental management at the Oakdale South and outlines all environmental management practices and procedures to be followed. Relevantly, this VMP is one of several supporting management plans to the OEMP.

## 1.4 VMP Objectives

The specific objectives of this VMP align with those prescribed by DPIW guidelines for (July 2012) “vegetation management plans on waterfront land” (the guidelines). The main objective being to provide a stable watercourse and riparian corridor which will emulate local native vegetation communities. Figure 1-2 provides a schematic of a typical riparian cross section extracted from the guidelines.

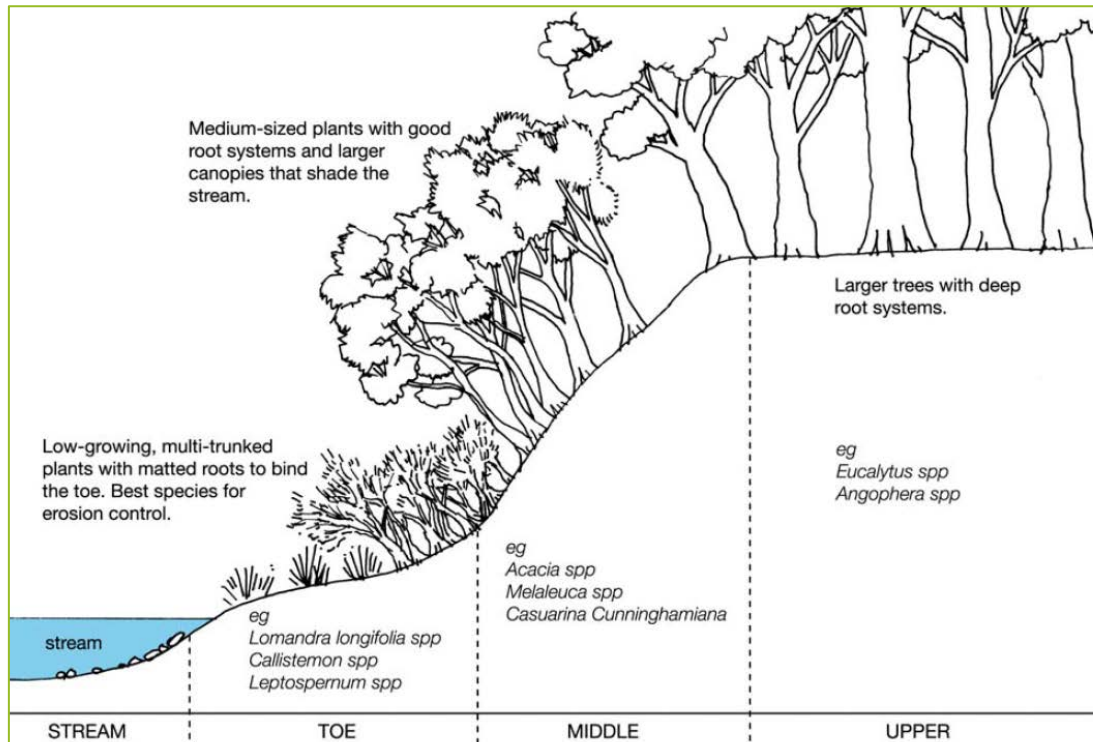


Figure 1-2. Typical riparian cross section (extract from the guidelines)

Specific issues that need to be addressed within the VMP include:

- Conserve and protect environmentally sensitive areas and biodiversity values;
- Restore and rehabilitate degraded bushland and areas of significant vegetation;
- Ensure the protection of threatened species, populations or ecological communities;
- Limit the impact of development upon existing native vegetation;
- Provide habitat connectivity and fauna corridors;
- Promote sustainable vegetation management;
- Undertake responsive site management and landscaping to ensure that bushland values are conserved; and
- Specify appropriate environmental protection works to enhance the ecological and bushland amenity value of the site.

## 2. Site Extent and Features

### 2.1 Area to which this VMP applies

Oakdale South contains approximately 34.8 hectares of non-developable land that are reserved for biodiversity conservation and various landscaping treatments. How each area will be managed are detailed in separate management plans which support an overarching OEMP. These areas are shown in Figure 2-1 and include the following:

Basin Management Plan	1.8 ha
Landscape Management Plan	6.3 ha
Landscape Boundary Screening Plan	2.8 ha
<b>Vegetation Management Plan –this plan</b>	<b>4.8 ha</b>
Biodiversity Management Plan	19.2 ha
	<b>34.8 ha</b>

The VMP applies to an area of approximately 4.8 hectares, which comprises two separate management areas shown on Figure 2-1, as follows:

- Watercourse realignment (approximately 3.9 ha); and
- Ropes Creek adjacent Precinct 6 (approximately 0.9 ha).

#### 2.1.1 Watercourse realignment

The realigned watercourse is a 1<sup>st</sup> order stream and tributary to Ropes Creek. Its realignment was required to enable a local perimeter road to be incorporated into Oakdale South, as well as providing a location to construct bio-retention basins (specifically Basins C and E). A single road crossing has been included in the waterway design, which consists of a single culvert structure under Estate Road 01. A temporary crossing located near the eastern boundary of the site will be decommissioned and be restored in accordance with this VMP.

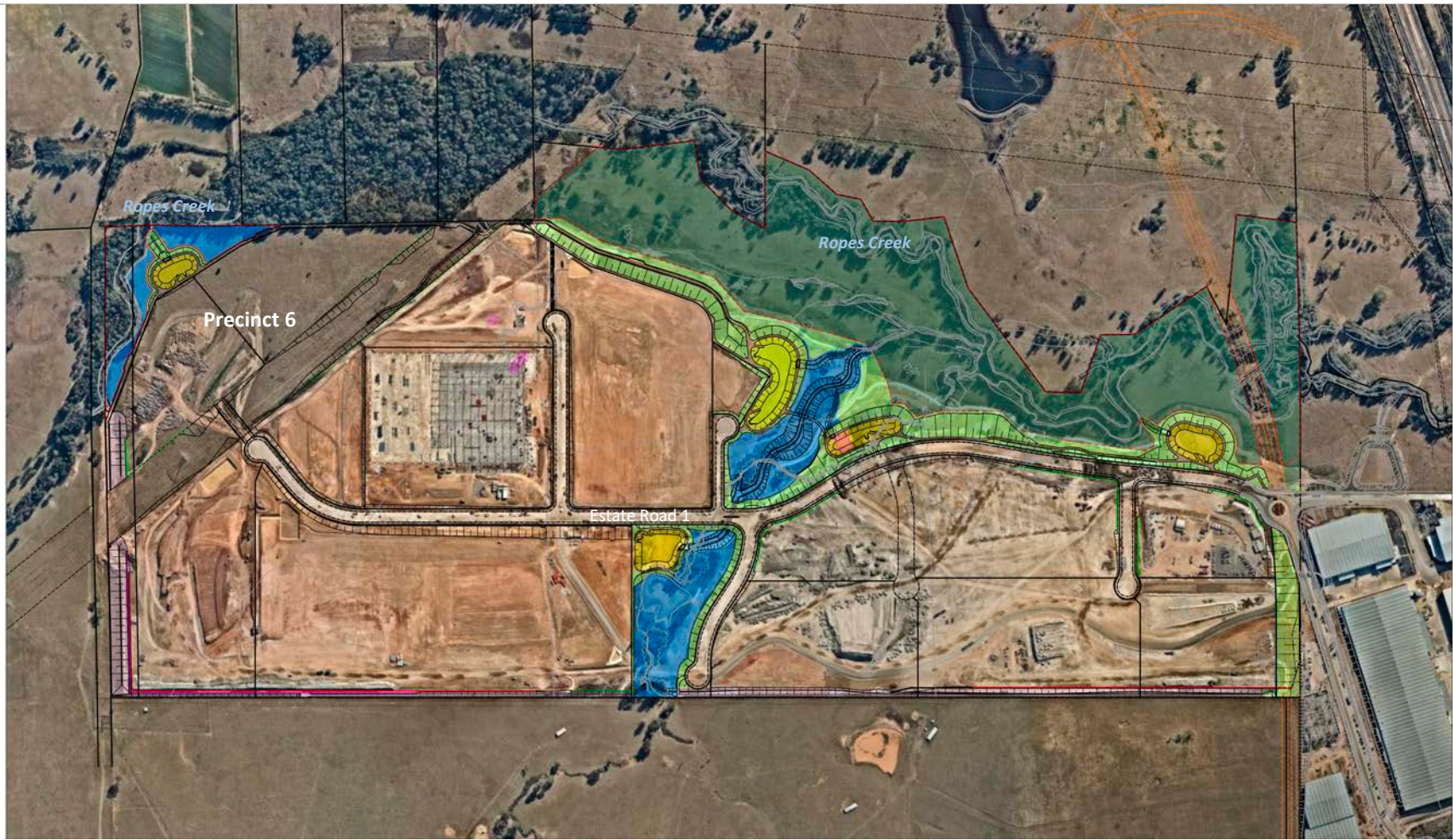
The watercourse originates on the neighbouring Lot A DP392643 from the east, flowing through the site in a west and then northerly direction before discharging into Ropes Creek. The northern section of the watercourse has been filled for development and a new section constructed between Estate Road 01 and the biodiversity offset area (Watercourse west of Road 01).

The realigned watercourse has been situated to connect at the downstream end with an existing smaller tributary stub of Ropes Creek. The smaller tributary is located within the biodiversity offset area and will be restored under the BOS (i.e. is not included within this VMP).

#### 2.1.2 Ropes Creek adjacent Precinct 6

The majority of Ropes Creek within Oakdale South is located in the biodiversity offset area with the exception of a small section of Ropes Creek, which passes through the southwestern corner of the site. Approximately 0.9 ha this area is situated between Ropes Creek, the southwestern boundary of Precinct 6, and either side of the precinct's bio-retention basin (Basin D) and associated inflow to Ropes Creek.





- |   |                           |   |                            |
|---|---------------------------|---|----------------------------|
|  | VMP areas                 |  | Landscape management areas |
|  | Biodiversity offset areas |  | Landscape screening areas  |
|   |                           |  | Basins                     |

## Oakdale South Estate - Vegetation Management Plan

Figure 2-1. OEMP Management Zones

Imagery source: AT&L 11/12/2017

## 2.2 Existing Vegetation

Existing remnant native vegetation within Oakdale South was assessed by Ecohort (2015) and more recently by way of ground truthing the riparian corridor of the watercourse realignment in December 2016 and January 2017, and the Ropes Creek adjacent Precinct 6 (RC riparian corridor) on the 14<sup>th</sup> February and 22<sup>nd</sup> November 2017.

### 2.2.1 Watercourse realignment

The watercourse realignment consists of four disjunct remnant pockets of native vegetation associated with the existing Ropes Creek tributary. The overstorey is dominated by a canopy of *Casuarina glauca*, with occasional *Eucalyptus tereticornis*, *Angophora floribunda* and *Melaleuca styphelioides*. The shrub layer largely comprises the introduced *Lycium ferocissimum* (African boxthorn) with only very occasional patches of the native *Bursaria spinosa* (Blackthorn).

The ground layer is largely made up of introduced grass species, including *Paspalum dilatatum* (paspalum), *Pennisetum clandestinum* (kikuyu), *Lolium perenne* (ryegrass), with the introduced *Juncus acutus* (spiny rush) and *Solanum linnaeanum* (Apple of Sodom) widespread. Other introduced (weed) species observed include: *Bidens pilosa* (Patterson's curse), *Plantago lanceolatum* (plantago) and a small area of *Rubus fruticosus* agg. (Blackberry). Native ground layer species occur in sporadic patches and include *Microleana stipoides* (weeping meadow grass), *Echinopogon ovatus* (forest hedgehog grass) and *Themeda triandra* (kangaroo grass).

Outside of the vegetated riparian corridor is former pasture land which contains a high percent cover of introduced grasses with *Paspalum dilatatum* (paspalum), *Pennisetum clandestinum* (kikuyu), *Digitaria sanguinalis* (crab grass) and the naturalised *Cynodon dactylon* (common couch), most commonly occurring. Other weed species present include *Senecio madagascariensis* (fireweed), *Sida rhombifolia* (Paddys lucerne), *Solanum linnaeanum* (Apple of Sodom), *Plantago lanceolatum* (plantago).

Native vegetation associated with the farm dam at the upstream end of the watercourse realignment fluctuates in response to climatic conditions and water levels. Aquatic macrophytes commonly



Upstream section of the retained tributary



Area adjacent to retained dam



Downstream section of retained tributary

present all year round are the emergent species *Typha orientalis* (cumbungi) and *Juncus usitatus* (common rush) and the floating attached *Potamogeton ochreatus* (blunt pondweed). Other species that have been observed less frequently include *Ottelia ovalifolia* (swamp lily), *Ranunculus inundatus* (river buttercup), *Myriophyllum papillosum*, *Triglochin procerum* (water ribbons), and *Damasonium minus* (starfruit).



Downstream extent of retained tributary

### 2.2.2 Ropes Creek

Native overstorey vegetation consists of mature canopy dominated by *Casuarina glauca* (swamp oak), with scattered *Eucalyptus tereticornis* (forest red gum), *Eucalyptus amplifolia* (cabbage gum), *Angophora floribunda* (rough-barked apple), *Eucalyptus crebra* (narrow-leaved ironbark) and *Melaleuca styphelioides* (prickly-leaved paperbark). With the exception of juvenile swamp oaks, a native shrub layer is absent, with widespread African boxthorn.



Upstream section of the retained tributary

The ground layer is dominated by introduced grasses, shrubs and weeds, with the naturalised *Cynodon dactylon* (common couch) dominant. Instream weeds include *Alternanthera philoxeroides* (alligator weed) and *Juncus acutus* (spiny rush).

Outside of the canopied areas is former pasture land with the ground layer dominated by introduced grasses and occasional small patches of native grass species such as *Themeda triandra* (kangaroo grass), *Austrodanthonia* sp. (wallaby grass) and *Microlaena stipoides* var *stipoides* (weeping meadow grass) and sporadic occurrences of native herbs (*Dichondra repens*, *Wahlenbergia gracilis*, *Oxalis perennans*, *Tricoryne elatior*, *Brunoniella australis*).



Pasture

Suckering juvenile swamp oak is beginning to emerge from the canopied areas into the pasture.

### 2.2.2 Threatened species and ecological communities

Threatened species, populations and ecological communities were assessed during the preparation of the Oakdale South Biodiversity Assessment Report (Cumberland Ecology 2016a). No threatened species or populations were found within the riparian zone of Ropes Creek and its tributaries.

Cumberland Ecology identified two plant community types within the riparian zones:

- HN 594 Swamp Oak swamp forest fringing estuaries, Sydney Basin Bioregion and South East Corner Bioregion; and
- HN 526 Forest Red Gum – Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion.

Ecohort (2015) and ground truthing for this VMP support the presence of HN 526 Forest Red Gum – Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion.

HN 526 is commensurate with River-flat Eucalypt Forest on the Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions (RFEF), listed as an endangered ecological community (EEC) in NSW under the *Threatened Species Conservation Act 1995* (TSC Act).

### 2.2.3 Threatening processes

The most significant threatening processes that contribute or contributed to degradation of the site's riparian corridors include: past clearing of native vegetation; grazing; weed infestations, and disturbance of soil and soil-stored native seed from various works associated with past and current land uses.

The site's boundary is now securely fenced and grazing cattle removed. The existing natural riparian corridors have been demarcated as 'no go' zones and silt fencing installed to prevent movement of sediments in runoff entering these zones.

#### 2.2.3.1 Weed infestations

Weed infestations will be managed as outlined in this VMP and in accordance with the *Biosecurity Act 2015*. The *Biosecurity Act 2015* replaces the *Noxious Weeds Act 1993*, which was repealed in August 2017.

The *Biosecurity Act 2015* itself is tenure neutral, in that unlike the previous *Noxious Weeds Act 1993* there is no scheduled "list" of weeds. As such all weeds need to be categorised by a risk they pose in relation to human health, biodiversity or agricultural production. The General Biosecurity Duty (GBD) is a key feature of the *Biosecurity Act 2015* (S22). Simply put, it means that all private and public land managers (or anyone who deals with weeds) must prevent, eliminate or minimise the risk those weeds present (HRCC 2017).

Oakdale South is located within the Penrith Council local government area, for which the Hawkesbury River County Council (HRCC) is the Local Control Authority for weeds under the *Biosecurity Act 2015* for the Councils of Blacktown, Hawkesbury, The Hills Shire and Penrith. HRCC has developed the Biosecurity Priority Weeds Local Plan (HRCC 2017) which guides how each priority weed needs to be managed. Priority weed species are categorised in accordance with the following Schedules:

1. Schedule 1. State priority weeds
2. Schedule 2. Regional priority weeds, and
3. Schedule 3. Local priority weeds.

Within each of the above schedules there are further sub-categories that relate to management measures, which include: eradication, containment, and asset protection. All other weed species (i.e. those not listed in Schedule 1, 2 or 3) are not considered to warrant the priority attention and resources of the HRCC, unless they become deemed a biosecurity risk by an Authorised Officer.

Table 2-1 lists weed species identified by HRCC (2017) relevant to this VMP and that are identified in Schedule 1, 2 or 3. Table A in Appendix A lists all weed species, including those not listed in Schedule 1, 2 or 3, and relevant management measure subcategories.

Table 2-1. Oakdale South VMP weed species, categories and management measures (HRCC 2017)

Species / Common names	Management measures
<b>Shrubs</b>	
<i>Cestrum parqui</i> Green cestrum	Schedule 2: Regional Priority Weed, and Schedule 3: Local Priority Weed
<i>Dovyalis caffra</i> Kei apple	Schedule 2: Regional Priority Weed
<i>Lantana camara</i> Lantana	Schedule 1: State Priority Weed
<i>Lycium ferocissimum</i> African boxthorn	Schedule 1: State Priority Weed
<i>Olea europaea</i> subsp. <i>cuspidata</i> African olive	Schedule 2: Regional Priority Weed
<i>Rubus fruticosus</i> agg Blackberry	Schedule 1: State Priority Weed
<i>Ulex europaeus</i> Gorse	Schedule 1: State Priority Weed, and Schedule 2: Regional Priority Weed
<b>Aquatic and semi-aquatic</b>	
<i>Alternanthera philoxeroides</i> Alligator weed – Weed of National Significance	Schedule 1: State Priority Weeds
<b>Vines/scramblers</b>	
<i>Anredera cordifolia</i> Madeira vine	Schedule 1: State Priority Weed
<i>Asparagus aethiopicus</i> , <i>A. africanus</i> , <i>A. asparagoides</i> , <i>A. plumosus</i> , <i>A. scandens</i> Asparagus weeds	Schedule 1: State Priority Weed
<i>Senecio madagascariensis</i> Fireweed	Schedule 1: State Priority Weed
<b>Herbs</b>	
<i>Senecio madagascariensis</i> Fireweed	Schedule 1: State Priority Weed

## 3. Restoration Approach

### 3.1 Overview

The VMP has been prepared in accordance with DPI Water 'Guidelines for Vegetation Management Plans on Waterfront Land'. The main objective of these guidelines and this VMP is to provide a stable watercourse and riparian corridor which will emulate local native vegetation communities.

Ecohort (2015) recommended a range of treatments for the abatement of threats and restoration/reconstruction in the VMP riparian zones, taking into consideration the following factors:

- Adapting best practice restoration principles and techniques and conforming to statutory requirements.
- Liaison with various practitioners and providers of established and innovative restoration and rehabilitation techniques and products.
- Feedback from the client to assist in the formulation of the most appropriate restoration and rehabilitation designs and strategies for the project.

Since this time a number of amendments have been necessary to the Oakdale South SSD 6917 to accommodate the needs of future tenants (i.e. layout of roads and lot boundaries). These amendments and this VMP have not changed the intent of the restoration/reconstruction measures recommended by Ecohort (2015). Rather they have only affected the boundaries and responsibility of various management zones as outlined in Section 1.3 and shown in Figure 2-1 (i.e. basin, landscape, landscape screening, biodiversity offsetting and VMP management areas).

A combination of assisted bushland regeneration shall be undertaken in areas of remnant native vegetation and reconstruction through revegetation shall be undertaken in areas of pasture land within the VMP riparian zones.

### 3.2 Assisted bushland rehabilitation/reconstruction measures

Assisted bushland regeneration works shall be implemented in areas where natural regeneration is likely, by removing obstacles and making amendments to abiotic conditions to effect the regeneration of remnant native vegetation.

The aim of assisted bushland regeneration is to create conditions that favour the ecosystem's own recovery processes. The following principles from OEH's Conservation Management Notes (OEH 2011) apply to this VMP:

- Working where the natives are stronger, i.e. looking after the good areas and creating the conditions that promote their expansion into adjoining more degraded areas. An exception to this approach in the VMP riparian corridors will be targeting weed species in all areas that are a particular threat, for example: *Juncus acutus* (spiny rush), which is widespread in the creek lines; and weeds identified by HRCC on Schedules 1, 2 and 3 (refer Section 2.2.3.1);
- Avoiding excessive disturbance because it often favours weed regrowth. But employing some disturbance where it is needed to trigger native plant regeneration or to treat compacted soil;
- Avoiding mulching (mostly) because mulch suppresses germination of seedlings, although it should be used in the following circumstances:
  - Small, low resilience patches within the regeneration area where natural leaf litter is available from nearby sources, and

- On the edges of bushland areas to define the limits of the regeneration zone, and to suppress the encroachment of exotic grasses.
- Above all, mulching shall avoid burying resilient areas where natural recruitment from the soil seed bank is evident.

Management activities relating to the assisted bushland regeneration areas are detailed in Section 4.

### 3.3 Reconstruction through revegetation

Where areas are found to have a low capacity for natural regeneration (i.e. former pasture land), these shall be fully reconstructed through revegetation of canopy, shrub and ground layer plant species constituent of RFEF communities. Reconstruction activities generally entail the following:

- Non-selective mechanical and herbicide weed control;
- Soil tilling/preparation and amelioration, where required;
- Jute matting or mulching, depending on the location in relation to creek flows; and
- Planting of native tree, shrub and ground layer species in highly degraded areas.

Management activities relating to the restoration through revegetation areas are detailed in Section 4.

### 3.4 Management zones

The VMP applies to two separate riparian corridor management zones: Zone 1 watercourse realignment (WR); and Zone 2 Ropes Creek adjacent Precinct 6 (RC).

#### 3.4.1 Zone 1 watercourse realignment

Zone 1 watercourse realignment (WR) is the subject of separate planning drawings and specifications that delineate several areas with respect to location, treatment, and planting schedule. Due to the stage of the development, civil and landscape restoration works in Zone 1 (WR) have already received construction certification. These works area are included in this VMP to ensure consistency with the NSW Department of Primary Industries – Water (DPIW) guidelines for works on waterfront land, and as originally planned in consultation with the DPIW during the approvals process for the development.

The various management treatments for Zone 1 (WR) are shown in Figure 3-1.

#### 3.4.2 Zone 2 Ropes Creek adjacent Precinct 6

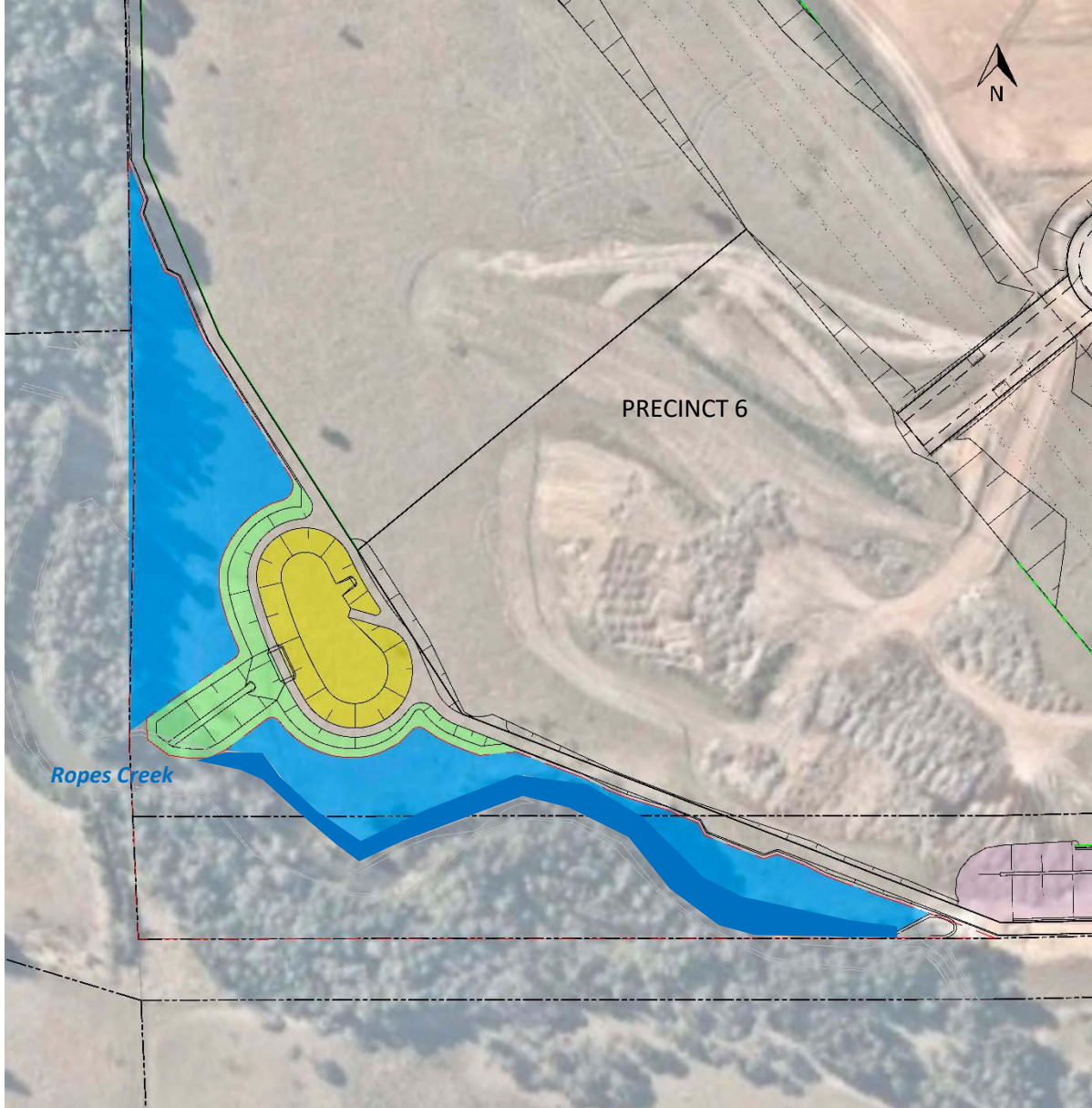
Zone 2 Ropes Creek adjacent Precinct 6 (RC) will be undertaken at a later stage of the development. , is not subject to realignment works and the level of planning already undertaken for Zone 1 WR. Zone 2 RC was also previously included in the biodiversity offsetting area (BOA) but later excluded due to:

- Its isolation and distance from the main BOA area;
- and difficulties with its future management due to a lack of access to both sides of Ropes Creek at this location. Further the accessible area of Zone2 (RC) is less than one hectare in size, and considered too small an area for inclusion as a biobanking offset area.

Zone 2 (RC) is divided into two management subzones: (a) assisted bushland regeneration, and (b) reconstruction through revegetation (Figure 3-2).







- RC Zone 1a
- RC Zone 1b
- Landscape management areas
- Landscape screening areas
- Basins

**Oakdale South Estate -  
Vegetation Management Plan**

Figure 3-1. Watercourse Realignment Management Zones

Imagery source: AT&L 11/12/2017

## 4. VMP Implementation

### 4.1 Management Zone 1

In its entirety the watercourse realignment (WR) works include a range of civil, landscape and restoration activities for which Construction Certification (CC) has been obtained. Specifications for these works are summarised in Table 4-1 and documented in the following:

- Oakdale South Watercourse Realignment – Specification (AECOM, 8 November 2016); and
- Oakdale South Watercourse Realignment –Drawing Set 60333552 (AECOM, 23 September 2016).

Work activities specific to the management of WR zones 1a and 1b are summarised in Table 4-1, further detailed in Sections 4.3 to 4.8 and relevant work areas shown in Figure 3-1 of this VMP.

Table 4-1. Summary of watercourse realignment works and responsibilities

Work activity	Tasks	Responsibility
Civil Works	<ul style="list-style-type: none"> <li>• Stripping, stockpiling, amelioration, and reinstatement of topsoil (A horizon) and B horizon sub-soil</li> <li>• Excavation and/or filling of the site to the levels shown on the Drawings</li> <li>• Supply, delivery and placement of rock material</li> <li>• Provision and installation of erosion control matting to all areas downslope of the 1 in 2 year ARI</li> <li>• Supply and placement of temporary vegetation (cover crop) over all disturbed works areas until restoration can take place</li> <li>• Removal of temporary access tracks, signage and fencing, cleaning up and site restoration</li> </ul>	Civil contractor
Landscape Restoration Works	<ul style="list-style-type: none"> <li>• Provision / installation of large woody debris (LWD) and LWD log clusters</li> <li>• Supply and placement of mulch and jute mesh to be installed over all mulched areas placed in batter areas</li> <li>• Provision of temporary irrigation system.</li> </ul>	Landscape contractor
VMP Works	<ul style="list-style-type: none"> <li>• Procurement of provenance plant material (as per Planting Schedule, Appendix B)</li> <li>• Weed control (refer Section 4.3)</li> <li>• Supply and placement of mulch in reconstruction areas within the riparian corridor (refer Section 4.5)</li> <li>• Planting program in all areas (as per Planting Schedule, Appendix B and Section 4.6)</li> <li>• Ongoing maintenance in all areas to achieve performance targets (refer Section 4.7)</li> </ul>	Bush regeneration contractor

## 4.2 Management Zone 2

Riparian rehabilitation and restoration works required in management zone 2 (RC zones 2a and 2b) will solely be the responsibility of the Bushland Regeneration Contractor (i.e. there are no civil or landscaping works that overlap with the VMP works areas as is the case for WR zone 1).

Work activities specific to the management of RC zones 2a and 2b are summarised in Table 4-2 and detailed in Sections 4.3 to 4.8 with relevant work areas shown in Figure 3-2.

Table 4-2. Summary of VMP watercourse realignment works

Zone	Tasks	Summary of works activity
RC zone 2a	<ul style="list-style-type: none"> <li>• Weed control</li> </ul>	<ul style="list-style-type: none"> <li>• Targeted instream spiny rush and alligator weed control and assisted bush regeneration methods, including primary weeding and ongoing follow up weeding (refer Section 4.3)</li> </ul>
	<ul style="list-style-type: none"> <li>• Monitoring and adaptive management</li> </ul>	<ul style="list-style-type: none"> <li>• Monitoring of natural plant recruitment following the first year of bush regeneration;</li> <li>• Using site resources to assist in native plant recruitment (such as opportunistic collection and direct application of native seeds or brush matting); and</li> <li>• Supplemental planting of areas where natural plant recruitment fails to occur following the first year of bush regeneration.</li> </ul>
RC zone 2b	<ul style="list-style-type: none"> <li>• Procurement of provenance plant material</li> </ul>	<ul style="list-style-type: none"> <li>• Sourcing of seeds and / or plant propagules for growing of plant species (as per Planting Schedule, Appendix B), or sourcing of locally sourced plant stock from a suitable nursery</li> </ul>
	<ul style="list-style-type: none"> <li>• Weed control</li> </ul>	<ul style="list-style-type: none"> <li>• Primary broadscale weed control and secondary weeding (refer Section 4.3)</li> </ul>
	<ul style="list-style-type: none"> <li>• Soil amelioration</li> </ul>	<ul style="list-style-type: none"> <li>• As required (refer Section 4.4)</li> </ul>
	<ul style="list-style-type: none"> <li>• Mulching</li> </ul>	<ul style="list-style-type: none"> <li>• Placement of site mulch to areas where primary and secondary weeding has taken place in preparation of planting program (refer Section 4.5)</li> </ul>
	<ul style="list-style-type: none"> <li>• Planting program</li> </ul>	<ul style="list-style-type: none"> <li>• Installation of canopy, shrub and ground layer species and establishment (refer Section 4.6)</li> </ul>
	<ul style="list-style-type: none"> <li>• Maintenance</li> </ul>	<ul style="list-style-type: none"> <li>• Recurrent tasks required to meet the VMP performance targets (refer Section 4.7)</li> </ul>

## 4.3 Weed control

### 4.3.1 Primary weeding

Primary weeding is the first stage of bushland regeneration and reconstruction, which will require a range of techniques such as: the selective spraying of weeds with herbicides; cutting/scraping and painting deep rooted woody weeds and climbers with hand tools, chainsaws and brushcutters and painting cut stumps with herbicide; and selective hand removal of weeds.

Primary weeding is required in all VMP zones with a priority given to:

- Species scheduled under the *Biosecurity Act 2015* (see Table A, Appendix A);
- Widespread growth of spiny rush; and
- Woody weeds and climbers.

Additionally:

- Herbicide should not be allowed to fall into a watercourse or when wind conditions could cause drift outside the area to be treated or onto desirable plants.
- Weeds that cannot be removed by hand are to be manually removed, ensuring that the entire weed including all roots is removed.
- Damage to native plant species should be avoided during any weeding works.
- All seed, flowering and invasive vegetative parts of weeds should be bagged and disposed of appropriately off site.

### 4.3.2 Secondary weeding

Secondary weeding involves the selective removal or treatment of weeds, whilst allowing regenerating or planted native plants to increase in size, abundance and percentage cover.

Secondary weeding should be undertaken at intervals of not more than four weeks following the completion of primary weeding and continue throughout the plant establishment period in reconstruction areas (i.e. WR zone 1b and RC zone 2b) and as an ongoing task in assisted bush regeneration areas (i.e. WR zone 1a and RC zone 2a).

All herbaceous weeds should be managed to be at very-low percentage cover levels, (as a minimum 5% cover), or better. Particularly problematic herbaceous weeds with wind-blown seeds should be prevented from seeding at all times throughout the site.

### 4.3.3 Maintenance weeding

It can be expected that the remnant and revegetated areas in each VMP zone will always require a certain level of maintenance weeding, as weed seeds and vegetative propagules make their way on site from the soil stored seedbank, via water, wind and bird droppings. However, it can be expected that the amount of weeding required will decrease once the regenerating native plants grow, recover and become more resistant to disturbance and weed colonisation.

Maintenance weeding shall extend for a minimum of three years following the completion of the Plant Establishment / Defects Liability Period (refer Section 4.5.3) or until such time as a minimum 80% survival rate for all plantings and a maximum five percent (5%) weed cover for each VMP management zone.

## 4.4 Soil amelioration

Generally soil amelioration should not be with stripping, stockpiling, amelioration, and reinstatement of topsoil (A horizon) and B horizon sub-soil the responsibility of the Civil Contractor (refer Table 4-1).

In areas not subject to construction disturbance it is anticipated that existing soils will be suitable for revegetation following weed control without the need for amelioration.

Where construction activities have disturbed site soils (e.g. compaction, loss of topsoil) the following shall apply:

- All debris, stones and left over building materials (arising from the works) are to be removed from site.
- Stones exceeding 25 mm, clods of earth exceeding 50 mm, and weeds, rubbish or other deleterious material brought to the surface during excavation or cultivation, must be removed.
- Supply and cultivate/spread 50mm layer of organic compost within 50mm layer of topsoil.
- Organic compost to be pH neutral; low in phosphorus suitable for planting Australian natives; free from clods of soil, rock, rubbish, and other non-organic matter.

## 4.5 Mulching

The higher elevated parts of WR zone 1b and RC zone 2b are to be mulched with a minimum 75mm layer of woodchip/leaf mulch to assist with weed suppression, improve soil water conservation and soil erosion control.

Trees removed from within Oakdale South have been chipped and stockpiled for use in landscaping and bush regeneration works. However, the bush regeneration contractor must ensure that mulch is free of deleterious and extraneous matter such as soil, weeds, sticks and stones.

Mulch is to be placed to the required depth, clear of plant stems, and raked to an even surface flush with the surrounding finished levels. Spread mulch so that after settling it is:

- Smooth and evenly graded between design surface levels;
- Flush with adjacent finished levels;
- Of the required depths (75 mm depth); and
- Sloped towards the base of plant stems, but not in contact with the stem.

## 4.6 Planting program

### 4.6.1 Plant procurement

The contractor is responsible for procurement of provenance seed / other propagative materials, and growing on the plant species as per the Planting Schedule (provided in Appendix B). Plant stock is to be purchased at least four months prior to the anticipated delivery.

Plants that are not: true to species; vigorous and healthy; with a well-developed root system; free from disease / pests; and are not without scars or dead wood; shall be rejected at delivery.

Planting shall be undertaken immediately after acceptance of plant delivery. If this is not possible: appropriate storage to keep the plants in good condition on the site, adequately protected from frost, wind, sun and vermin, and secured from vandals; shall be facilitated.

#### 4.6.2 Planting procedure

Planting shall generally entail the following:

- Dig hole sufficient for root ball of plant. The removal from the container and the positioning of the plant is to be done with minimum disturbance to the roots.
- Slow-release native plant fertiliser (low phosphorous formulated native plant fertiliser tablet/granules) and water saving crystals shall be placed into the planting hole.
- After planting, the soil shall be replaced and carefully firmed, leaving a slight depression around each plant to allow for water collection. Soil is to be replaced in the hole so that the base of the stem is level with the soil surface, not set below the soil, or sitting above.
- All plants should be watered-in thoroughly after planting to settle any air pockets around the root ball of the plant and to give the plant a good initial supply of water.

#### 4.6.3 Practical completion

It is anticipated that Practical Completion can be achieved within six months from commencement of the bush regeneration/restoration works in each VMP zone. During this time planting establishment is to be achieved through watering, weeding, pest/disease control, replacing dead plant material and repairing/replacing erosion control matting/mulch. All plants should be watered thoroughly on at least 4 to 6 occasions, during this period.

Failure to maintain each VMP management zone in a stable and healthy condition may result in the Superintendent arranging for the maintenance work to be carried out by others at the expense of the Contractor.

Practical Completion shall require a minimum 80 per cent survival rate of each species planted and a maximum 5 per cent weed cover for each VMP management zone.

#### 4.6.4 Planting establishment /defects liability

The Plant Establishment / Defects Liability Period shall be in force for 18 months after Practical Completion of each stage of the works or until the site is stable, whichever is the longer period.

Any defective work, whether the result of poor workmanship, use of defective materials, damage through carelessness, or of any other cause, shall be removed and replaced at the contractor's expense by work or materials of the required standard.

### 4.7 Performance measures

Performance targets are necessary to objectively measure the progress and the achievement of the VMP objectives. The following targets apply:

1. All environmental and scheduled weeds are to be continuously suppressed and, if possible, eradicated from the site using recognised appropriate bush regeneration methods in accordance with best practice.
2. Weed control and revegetation works are to be carried out by a qualified bushland regeneration contractor for a period of 5 years.
3. Regeneration/restoration of 3.9 ha of RFEF vegetation community (inclusive of the realigned watercourse and dam) in VMP management zone 1 and 0.9 ha of RFEF vegetation community in VMP management zone 2, with a minimum 80% cover of native species achieved.
4. Weed control targets should be a maximum of 10% cover at the end of year 1 progressing to less than 5% or less at the end of year 5.

## 4.8 Compliance certification

Site audits, monitoring and reporting on the progress and achievement of the VMP performance targets shall be undertaken by an independent VMP specialist as nominated by Goodman as per AECOM specifications (November 2016). In general, reporting and compliance certificates shall be issued for the following items:

- Completion of primary weed control works;
- Completion of secondary weed control works;
- Inspection of plant materials delivered to site prior to commencement of planting works;
- Completion of revegetation planting works (Practical Completion);
- Completion of revegetation planting works (Practical Completion);
- Plant Establishment / Defects Liability Period; and
- Satisfactory achievement of revegetation/restoration works as per VMP performance targets (Section 4.7).

## 5. References

AECOM (2015) Oakdale South Industrial Development Watercourse Design. Report prepared for Goodman, 31 August 2015

AECOM (2016) Oakdale South Industrial Development Watercourse Design. Report prepared for Goodman, 23 September 2016

AECOM (2016) Oakdale South Industrial Development Watercourse Realignment – Specification. Prepared for Goodman, 8 November 2016

Cumberland Ecology (2016a) Oakdale South State Significant Development Application Biodiversity Assessment Report, prepared for Goodman Property Services (Aust.) Pty Ltd, 18 August 2016

Cumberland Ecology (2016b) Oakdale South State Significant Development Application Biodiversity Offsetting Strategy (BOS), prepared for Goodman Property Services (Aust.) Pty Ltd, 18 August 2016

Ecohort (2015) Vegetation Management Plan for the Oakdale South Development at Horsley Park. Prepared by Ecohort Pty Ltd for Goodman, 31 August 2015.

Ecohort (2016) Vegetation Management Plan for the Oakdale South Development at Horsley Park. Prepared by Ecohort Pty Ltd for Goodman, 11 December 2016.

Ecohort (2017) Vegetation Management Plan for the Oakdale South Development at Horsley Park. Prepared by Ecohort Pty Ltd for Goodman, 13 January 2017.

Hawkesbury River County Council (2017) Biosecurity Priority Weeds Local Plan October 2017

Office of Environment and Environment (OEH) (2011) Conservation Management Notes - Managing bushland and wildlife habitat. Office of Environment and Heritage, Department of Premier and Cabinet NSW. ISBN 978 1 74293 316 0 OEH 2011/0659



## Appendix A. Weed Species

Table A. Weed species known to occur in VMP management zones

Species / Common names	Management measures
<b>Shrubs</b>	
<p><i>Cestrum parqui</i> Green cestrum</p>	<p><b>Schedule 2: Regional Priority Weed</b></p> <p><b>Regional Priority Weed Objective – ASSET PROTECTION:</b></p> <ul style="list-style-type: none"> <li>Land managers mitigate the risk of the plant being introduced to land used for grazing of livestock.</li> <li>Land managers prevent spread from their land where feasible.</li> <li>The plant or parts of the plant are not traded, carried, grown or released into the environment.</li> <li>The plant should be fully and continuously suppressed and destroyed on grazing land</li> <li>Implement quarantine and/or hygiene protocols</li> </ul> <p><b>Schedule 3: Local Priority Weed</b></p> <ul style="list-style-type: none"> <li>Land managers have mitigated the risk of the plant being introduced to land used for grazing of livestock</li> <li>The plant should be fully suppressed and destroyed on grazing land.</li> </ul>
<p><i>Dovyalis caffra</i> Kei apple</p>	<p><b>Schedule 2: Regional Priority Weed</b></p> <p><b>Regional Priority Weed Objective – ERADICATION</b></p> <p>The plant is eradicated from the land and the land is kept free of the plant.</p> <ul style="list-style-type: none"> <li>Destruction of all infestations where feasible.</li> <li>Manage in accordance with New Weed Incursion Plan.</li> <li>Detailed surveillance and mapping to locate all infestations</li> <li>Local Control Authority is notified if the plant is found on the land.</li> <li>The plant or parts of the plant are not traded, carried, grown or released into the environment.</li> </ul>
<p><i>Lantana camara</i> Lantana</p>	<p><b>Schedule 1: State Priority Weed</b></p> <p><b>State Priority Weed Objective – ASSET PROTECTION (Whole of State):</b></p> <p>Mandatory Measure (Division 8, Clause33, Biosecurity Regulation 2017): A person must not move, import into the State or sell.</p> <p><b>Regional Strategic Response:</b> Identify priority assets for targeted management.</p>
<p><i>Lycium ferocissimum</i> African boxthorn</p>	<p><b>Schedule 1: State Priority Weed</b></p> <p><b>State Priority Weed Objective – ASSET PROTECTION (Whole of State):</b></p> <p>Mandatory Measure (Division 8, Clause33, Biosecurity Regulation 2017): A person must not move, import into the State or sell.</p>

Species / Common names	Management measures
	<p><b>Regional Strategic Response:</b> Identify priority assets for targeted management.</p>
<p><i>Olea europaea</i> subsp. <i>cuspidata</i> African olive</p>	<p><b>Schedule 2: Regional Priority Weed</b></p> <p><b>Regional Priority Weeds Objective – CONTAINMENT:</b></p> <p>Oakdale south lies within the region classified as the core infestation area, the following applies:</p> <ul style="list-style-type: none"> <li>• The plant or parts of the plant are not traded, carried, grown or released into the environment.</li> <li>• Implement quarantine and/or hygiene protocols.</li> <li>• Surveillance and mapping to locate all infested properties.</li> <li>• Monitor change in current distribution to ensure containment of spread.</li> <li>• Land managers prevent spread from their land where feasible.</li> <li>• Land managers reduce the impact on priority assets.</li> <li>• Identify priority assets for targeted management</li> </ul>
<p><i>Rubus fruticosus</i> agg Blackberry</p>	<p><b>Schedule 1: State Priority Weed</b></p> <p><b>State Priority Weed Objective – ASSET PROTECTION (Whole of State):</b></p> <p>Mandatory Measure (Division 8, Clause33, Biosecurity Regulation 2017): A person must not move, import into the State or sell.</p> <p><b>Regional Strategic Response:</b> Identify priority assets for targeted management.</p>
<p><i>Ulex europaeus</i> Gorse</p>	<p><b>Schedule 1: State Priority Weed</b></p> <p><b>State Priority Weed Objective – ASSET PROTECTION (Whole of State):</b></p> <p>Mandatory Measure (Division 8, Clause33, Biosecurity Regulation 2017): A person must not move, import into the State or sell.</p> <p><b>Schedule 2: Regional Priority Weed</b></p> <p><b>Regional Priority Weeds Objective – CONTAINMENT:</b></p> <ul style="list-style-type: none"> <li>• Land managers prevent spread from their land where feasible</li> <li>• Destruction of all infestations, aiming at local eradication where feasible.</li> <li>• Detailed surveillance and mapping to locate all infestations.</li> <li>• Implement quarantine and/or hygiene protocols.</li> <li>• Monitor progress towards eradication</li> </ul>
<p><b>Aquatic and semi-aquatic</b></p>	
<p><i>Alternanthera philoxeroides</i> Alligator weed – Weed of National Significance</p>	<p><b>Schedule 1: State Priority Weeds</b></p> <p><b>State Priority Weed Objective – CONTAINMENT:</b></p> <p>Mandatory Measure (Division 8, Clause 33, Biosecurity Regulation 2017): A person must not move, import into the State or sell.</p>

Species / Common names	Management measures
	<p><b>Schedule 2: Regional Priority Weed</b></p> <p><b>Regional Priority Weeds Objective – CONTAINMENT:</b></p> <p>Oakdale south lies within the region classified as the core infestation area, the following applies:</p> <ul style="list-style-type: none"> <li>• Prevent spread from their land where feasible.</li> <li>• Mitigate the risk of the plant being introduced to their land.</li> <li>• Reduce the impact on priority assets.</li> <li>• Implement quarantine and/or hygiene protocols.</li> <li>• Manage in accordance with the Priorities for the control of Alligator Weed in the Sydney Region.</li> </ul>
<i>Cyperus difformis</i> Dirty Dora	Other
<i>Cyperus eragrostis</i> Umbrella sedge	Other
<i>Juncus acutus</i> Spiny rush	Other
<b>Vines/scramblers</b>	
<i>Anredera cordifolia</i> Madeira vine	<p><b>Schedule 1: State Priority Weed</b></p> <p><b>State Priority Weed Objective – ASSET PROTECTION (Whole of State):</b></p> <p>Mandatory Measure (Division 8, Clause33, Biosecurity Regulation 2017): A person must not move, import into the State or sell.</p> <p><b>Regional Strategic Response:</b></p> <p>Identify priority assets for targeted management.</p>
<i>Araujia sericifera</i> Moth vine	Other
<p><i>Asparagus aethiopicus</i> ground asparagus</p> <p>†<i>A. africanus</i> climbing asparagus</p> <p><i>A. asparagoides</i> bridal creeper</p> <p><i>A. plumosus</i> climbing asparagus fern</p>	<p><b>Schedule 1: State Priority Weed</b></p> <p><b>State Priority Weed Objective – ASSET PROTECTION (Whole of State):</b></p> <p>Mandatory Measure (Division 8, Clause33, Biosecurity Regulation 2017): A person must not move, import into the State or sell.</p> <p><b>Regional Strategic Response:</b> Identify priority assets for targeted management.</p> <p>†<i>A. africanus</i></p> <p>Destruction of all infestations where feasible.</p> <ul style="list-style-type: none"> <li>• Manage in accordance with New Weed Incursion Plan.</li> <li>• Detailed surveillance and mapping to locate all infestations</li> </ul>
<i>Asparagus virgatus</i> Asparagus fern	<p><b>Schedule 3: Local Priority Weed</b></p> <ul style="list-style-type: none"> <li>• The plant or parts of the plant have not been traded, carried, grown or released into the environment.</li> </ul>

Species / Common names	Management measures
	<ul style="list-style-type: none"> <li>Surveillance and mapping to locate all infested properties and maintain currency of exclusion zone and objectives.</li> </ul>
<i>Modiola caroliniana</i> Creeper mallow	Other
<b>Grasses</b>	
<i>Axonopus fissifolius</i> Carpet grass	Other
<i>Briza subaristata</i> hilean quaking grass	Other
<i>Bromus catharticus</i> Prairie grass	Other
<i>Ehrharta erecta</i> Panic veldtgrass	Other
<i>Lolium perenne</i> Ryegrass	Other
<i>Paspalum dilatatum</i> Paspalum	Other
<i>Pennisetum clandestinum</i> Kikuyu	Other
<i>Sporobolus africanus</i> Parramatta grass	Other
<b>Herbs</b>	
<i>Anagallis arvensis</i> Scarlet pimpernel	Other
<i>Brassica fruticulosa</i> Twiggy turnip	Other
<i>Cirsium vulgare</i> Spear thistle	Other
<i>Hypochaeris radicata</i> Catsear	Other
<i>Senecio madagascariensis</i> Fireweed	<p><b>Schedule 1: State Priority Weed</b></p> <p><b>State Priority Weed Objective – ASSET PROTECTION (Whole of State):</b> Mandatory Measure (Division 8, Clause33, Biosecurity Regulation 2017): A person must not move, import into the State or sell.</p> <p><b>Regional Strategic Response:</b> Identify priority assets for targeted management.</p>
<i>Sida rhombifolia</i> Paddy's lucerne	Other

Species / Common names	Management measures
<i>Solanum americanum</i> American black nightshade	Other
<i>Solanum linnaeanum</i> Apple of Sodom	Other
<i>Sonchus oleraceus</i> Common sowthistle	Other
<i>Tagetes minuta</i> Stinking roger	Other
<i>Taraxacum officinale</i> Dandelion	Other
<i>Trifolium repens</i> White clover	Other

#### OTHER WEEDS

If a weed is not listed in Schedule 1,2 or 3 it is not considered to warrant the priority attention and resources of the County Council. However, it may still be deemed a biosecurity risk by an Authorised Officer and control, education or enforcement action may be taken if the process described in this policy for determining priority is followed.

#### REPORTING NOTIFIABLE WEEDS

A notifiable weed is a weed which lists a notification requirement in the guidelines for its management under Schedules 1, 2 and 3. All notifiable weeds within HRCC's jurisdiction must be reported in the following manner:

Phone: (02) 4574 9600

In-Person: directly to a HRCC Authorised Officer, or by visiting HRCC Office, 6 Walker St, South Windsor.

Email: [council@hrcc.nsw.gov.au](mailto:council@hrcc.nsw.gov.au)

Post: PO Box 6021, South Windsor DC, NSW, 2756

# Appendix B. Planting Schedule

## B1. Watercourse realignment (WR) planting schedule

Zone	Location Type	Species	Density (m <sup>2</sup> )	Plant qty	% mix
PM1	PERMANENT POOLS (177m <sup>2</sup> )	Bolboschoenus caldwellii	3	133	25
		Eleocharis gracilis	3	133	25
		Carex appressa	3	133	25
		Juncus usitatus	3	133	25
		<b>Subtotal plants</b>			<b>531</b>
PM2	LOW FLOW CHANNEL BASE (1033m <sup>2</sup> )	Bolboschoenus caldwellii	4	1,033	25
		Eleocharis gracilis	4	1,033	25
		Carex appressa	3	775	25
		Juncus usitatus	3	775	25
		<b>Subtotal plants</b>			<b>3,616</b>
PM3	LOW FLOW CHANNEL BATTER EDGES (1424m <sup>2</sup> )	Carex appressa	3	854	20
		Entolasia marginata	4	1,139	20
		Imperata cylindrica	4	1,139	20
		Juncus usitatus	3	854	20
		Lomandra longifolia	3	854	20
		<b>Subtotal plants</b>			<b>4,842</b>
PM4	LOW BENCHES (641m <sup>2</sup> )				
	Trees	Melaleuca linariifolia	0.04	8	30
		Melaleuca styphelioides	0.04	20	70
				<b>28</b>	<b>100</b>
	Ephemeral species	Carex appressa	3	385	20
		Entolasia marginata	4	513	20
		Imperata cylindrica	4	513	20
		Juncus usitatus	3	385	20
		Lomandra longifolia	3	385	20
					<b>2,179</b>
	<b>Subtotal plants</b>			<b>2,207</b>	
PM5	<b>BATTERS SUBJECT TO MATTING (2171m<sup>2</sup>)</b>				
	Trees	Casuarina glauca	0.11	239	100
					<b>239</b>
	Smaller shrubs	Acacia falcata	0.25	8	2
		Acacia floribunda	0.25	16	3
		Breynia oblongifolia	0.25	27	5
		Bursaria spinosa	0.25	27	5
		Clerodendrum tomentosum	0.25	27	5
		Daviesia genistifolia	0.25	54	10
		Dillwynia sieberi	0.25	54	10
		Dodonea viscosa spp. cuneata	0.25	54	10
		Goodenia ovata	0.25	27	5
		Hardenbergia violacea	0.25	27	5

Zone	Location Type	Species	Density (m <sup>2</sup> )	Plant qty	% mix	
		Indigophora australis	0.25	54	10	
		Notelaea longifolia	0.25	27	5	
		Ozothamnus diosmifolium	0.25	54	10	
		Pultenea microphylla	0.25	54	10	
		Rubus parviflorus	0.25	27	5	
					<b>539</b>	<b>100</b>
	<b>Ephemeral species</b>	Carex appressa	3	651	10	
		Danthonia spp	4	868	10	
		Dianella spp	4	868	10	
		Entolasia marginata	4	868	10	
		Imperata cylindrica	4	868	10	
		Juncus usitatus	3	651	10	
		Lomandra longifolia	3	1,303	20	
		Microlaeana stipoides	4	868	10	
		Poa labillardieri	3	651	10	
					<b>7,599</b>	<b>100</b>
	<b>Broadleaf herbs, grasses and sedges</b>	Centella asiatica	0.25	<b>543</b>	as available	
		Commelina cyanea	0.25			
		Dichondra repens	0.25			
		Oplismenus spp.	0.25			
Einadia spp.		0.25				
				<b>543</b>		
		<b>Subtotal plants</b>		<b>8,920</b>		
<b>PM6</b>	<b>BATTERS SUBJECT TO MULCHING (5,310m<sup>2</sup>)</b>					
	<b>Canopy and subcanopy trees / large shrubs</b>	Acacia decurrens	0.11	29	5	
		Acacia parramattensis	0.11	12	5	
		Angophora floribunda	0.11	48	20	
		Eucalyptus amplifolia	0.11	24	10	
		Eucalyptus moluccana	0.11	48	20	
		Eucalyptus tereticornis	0.11	96	40	
					<b>256</b>	<b>100</b>
	<b>Smaller shrubs</b>	Acacia falcata	0.25	66	5	
		Acacia floribunda	0.25	66	5	
		Breynia oblongifolia	0.25	66	5	
		Bursaria spinosa	0.25	66	5	
		Clerodendrum tomentosum	0.25	27	2	
		Daviesia genistifolia	0.25	133	10	
		Dillwynia sieberi	0.25	133	10	
		Dodonea viscosa spp. cuneata	0.25	133	10	
		Goodenia ovata	0.25	66	5	
		Hardenbergia violacea	0.25	40	3	
		Indigophora australis	0.25	133	10	
		Notelaea longifolia	0.25	66	5	

Zone	Location Type	Species	Density (m <sup>2</sup> )	Plant qty	% mix	
		Ozothamnus diosmifolium	0.25	133	10	
		Pultenea microphylla	0.25	133	10	
		Rubus parviflorus	0.25	66	5	
				<b>1,328</b>	<b>100</b>	
	<b>Broadleaf herbs, grasses and sedges</b>	Aristida ramosa or vagans	4	1,062	5	
		Bothriochloa decipiens	4	425	2	
		Capillipedium parviflorum	4	637	3	
		Chloris truncata/ventricosa	4	1,062	5	
		Danthonia spp	4	2,124	10	
		Dianella spp	4	1,062	5	
		Dicanthium sericeum	4	637	3	
		Dichelachne micrantha	4	1,062	5	
		Elymus scaber	4	425	2	
		Eragrostis leptostachyos	4	1,062	5	
		Eriochloa pseudoachritcha	4	1,062	5	
		Eremophila debilis	4	1,062	5	
		Entolasia marginata	4	1,062	5	
		Imperata cylindrica	4	1,062	5	
		Lomandra longifolia	3	797	5	
		Microlaeana stipoides	4	2,124	10	
		Poa labillardieri	3	797	5	
		Sorghum leiocladum	4	1,062	5	
		Themeda triandra	4	2,124	10	
					<b>20,709</b>	<b>100</b>
		<b>Herbs / vine / creepers</b>	Arthropodium spp	0.25	1,328	as available
	Caesia spp		0.25			
	Centella asiatica		0.25			
	Clematis glycinoides		0.25			
	Commelina cyanea		0.25			
	Convolvulus erubescens		0.25			
	Dichondra repens		0.25			
	Einadia spp.		0.25			
	Geitonoplesium cynosum		0.25			
	Glycine tabacina		0.25			
	Hydrocotyle peduncularis		0.25			
	Mentha diemenica		0.25			
	Oplismenus spp.		0.25			
	Polymeria calycina		0.25			
	Pratia purpurascens		0.25			
	Ranunculus plebius		0.25			
	Rumex brownii		0.25			
	Scaveola albida		0.25			
	Solanum prinophyllum		0.25			
	Vittadinia spp		0.25			



Zone	Location Type	Species	Density (m <sup>2</sup> )	Plant qty	% mix
		Wahlenbergia spp	0.25		
				<b>1,328</b>	
		<b>Subtotal plants</b>		<b>23,621</b>	
PM7	<b>HIGH FLOW CHANNEL BASE / BATTER EDGES (679m<sup>2</sup>)</b>				
	<b>Ephemeral species</b>	Bolboschoenus caldwellii	4	679	25
		Eleocharis gracilis	4	679	25
		Carex appressa	3	509	25
		Juncus usitatus	3	509	25
	<b>Subtotal plants</b>		<b>2,377</b>	<b>100</b>	
PM8	<b>BIORETENTION BASIN ROCK LINED OUTLET SWALES (1948m<sup>2</sup>)</b>				
	<b>Ephemeral species</b>	Carex appressa	3	1,461	25
		Juncus usitatus	3	1,461	25
		Lomandra longifolia	3	1,461	25
	<b>Grasses</b>	Poa labillardieri	3	1,461	25
	<b>Subtotal plants</b>		<b>5,844</b>	<b>100</b>	
PM9	<b>TEMPORARY HAUL ROAD RESTORATION (1361m<sup>2</sup>)</b>				
	<b>Trees</b>	Casuarina glauca	0.11	42	70
		Melaleuca linariifolia	0.11	6	10
		Melaleuca styphelioides	0.11	12	20
				<b>60</b>	<b>100</b>
	<b>Ephemeral species</b>	Carex appressa	3	286	35
		Juncus usitatus	3	286	35
		Lomandra longifolia	3	286	30
				<b>857</b>	<b>100</b>
	<b>Grasses and sedges</b>	Aristida spp.	4	218	5
		Bothriochloa decipiens	4	218	5
		Chloris spp.	4	218	5
		Danthonia spp	4	435	10
		Dianella spp.	4	435	10
		Dicanthium sericeum	4	435	10
		Dichelachne micrantha	4	435	10
		Elymus scaber	4	218	5
		Eragrostis leptostachyos	4	218	5
		Entolasia marginata	4	218	5
		Imperata cylindrica	4	435	10
		Oplismenus spp.	4	218	5
		Poa labillardieri	3	162	5
		Themeda triandra	4	435	10
			<b>4,298</b>	<b>100</b>	
	<b>Subtotal plants</b>		<b>5,215</b>		
SPM1	<b>AREA = 23339 sqm</b>				
	<b>Trees</b>	Acacia decurrens	0.11	128	5
		Acacia parramattensis	0.11	128	5
		Angophora floribunda	0.11	642	25

Zone	Location Type	Species	Density (m <sup>2</sup> )	Plant qty	% mix
		Eucalyptus amplifolia	0.11	642	25
		Eucalyptus tereticornis	0.11	1,027	40
				<b>2,567</b>	<b>100</b>
	<b>Shrubs</b>	Acacia falcata	4	292	5
		Acacia floribunda	4	292	5
		Breynia oblongifolia	4	292	5
		Bursaria spinosa	4	292	5
		Clerodendrum tomentosum	4	117	2
		Daviesia genistifolia	4	583	10
		Dillwynia sieberi	4	583	10
		Dodonea viscosa spp. cuneata	4	583	10
		Goodenia ovata	4	292	5
		Hardenbergia violacea	4	175	3
		Indigophora australis	4	583	10
		Notelaea longifolia	4	292	5
		Ozothamnus diosmifolium	4	583	10
		Pultenea microphylla	4	583	10
		Rubus parviflorus	4	292	5
				<b>5,835</b>	<b>100</b>
	<b>Grasses and sedges</b>	Aristida ramosa or vagans	4	5,057	5
		Bothriochloa decipiens	4	2,023	2
		Capillipedium parviflorum	4	3,034	3
		Chloris truncata/ventricosa	4	5,057	5
		Danthonia spp	4	10,115	10
		Dianella spp	4	5,057	5
		Dicanthium sericeum	4	3,034	3
		Dichelachne micrantha	4	5,057	5
		Elymus scaber	4	2,023	2
		Eragrostis leptostachyos	4	5,057	5
		Eriochloa pseudoachritcha	4	5,057	5
		Eremophila debilis	4	5,057	5
		Entolasia marginata	4	5,057	5
		Imperata cylindrica	4	5,057	5
		Lomandra longifolia	4	5,057	5
		Microlaeana stipoides	4	10,115	10
		Poa labillardieri	4	5,057	5
		Sorghum leiocladum	4	5,057	5
		Themeda triandra	4	10,115	10
				<b>101,148</b>	<b>100</b>
		<b>Subtotal plants</b>		<b>109,550</b>	

**TOTAL PLANTS WR ZONE 1**

**166,721**

## B2. Ropes Creek (RC) planting schedule

Zone	Species	density/m <sup>2</sup>	% mix	Qty
<b>RC Zone 2b (7,550m<sup>2</sup>)</b>				
<b>Trees / large shrubs</b>	Acacia decurrens	0.0625	5	24
	Acacia parramattensis	0.0625	5	24
	Eucalyptus amplifolia	0.0625	20	94
	Eucalyptus eugenioides	0.0625	20	94
	Eucalyptus moluccana	0.0625	20	94
	Eucalyptus tereticornis	0.0625	20	94
	Melaleuca stypheloidies	0.0625	10	94
			<b>100</b>	<b>519</b>
<b>Smaller shrubs</b>	Breynia oblongifolia	0.25	10	189
	Bursaria spinosa	0.25	10	189
	Clerodendrum tomentosum	0.25	10	189
	Daviesia genistifolia	0.25	10	189
	Dillwynia sieberi	0.25	10	189
	Dodonea viscosa spp. cuneata	0.25	10	189
	Goodenia ovata	0.25	10	189
	Indigophora australis	0.25	10	189
	Ozothamnus diosmifolium	0.25	10	189
	Pultenea microphylla	0.25	10	189
			<b>100</b>	<b>1,888</b>
<b>Grasses / sedges</b>	Aristida ramosa or vagans	4	3	906
	Austrodanthonia sp.	4	5	1510
	Carex appressa	4	5	1510
	Chloris truncata/ventricosa	4	5	1510
	Cymbopogon refractus	4	5	1510
	Dicanthium sericeum	4	5	1510
	Dichelachne micrantha	4	5	1510
	Eriochloa pseudoachritcha	4	2	604
	Eremophila debilis	4	5	1510
	Imperata cylindrica	4	20	6040
	Lomandra longifolia	3	10	3020
	Poa labillardieri	3	10	2265
	Themeda triandra	4	20	6040
				<b>100</b>
<b>Herbs, scramblers, vines</b>	Arthropodium spp	0.25	as available	<b>1,888</b>
	Burchardia umbellata	0.25		
	Brunoniella australis	0.25		
	Caesia parviflora	0.25		
	Clematis glycinoides	0.25		
	Dichopogon fimbriatus	0.25		
	Etardia spp.	0.25		
	Glycine spp.	0.25		
Mentha diemenica	0.25			

Zone	Species	density/m <sup>2</sup>	% mix	Qty
	Oplismenus spp.	0.25		
	Polymeria calycina	0.25		
	Scaveola albida	0.25		
	Solanum prinophyllum	0.25		
	Tricoryne elatior	0.25		
	Wahlenbergia spp	0.25		
				<b>1,888</b>
	<b>Total plants RC Zone 2a</b>			<b>33,740</b>
<b>RC Zone 2b (1,450m<sup>2</sup>)</b>				
<b>Grasses / sedges</b>	Dianella longifolia	4	20	1,160
	Echinopogon ovatus	4	10	580
	Juncus usitatus	4	10	580
	Imperata cylindrica	4	20	1,160
	Lomandra longifolia	3	20	870
	Entolasia marginata	4	10	580
	Microlaeana stipoides	4	10	580
			<b>100</b>	<b>5,510</b>
<b>Herbs, scramblers, vines</b>	Brunoniella australis	0.25	as available	363
	Clematis glycinoides	0.25		
	Dichondra repen	0.25		
	Einadia spp.	0.25		
	Glycine spp.	0.25		
	Parsonsia straminea	0.25		
	<b>Total plants RC Zone 2B</b>			<b>5,873</b>
	<b>TOTAL PLANTS RC ZONE 2</b>			<b>39,613</b>



écologique | environmental consulting

# APPENDIX D



# Oakdale South Estate

## Biodiversity Management Action Plan

prepared for

Goodman Property Services  
(Aust.) Pty Ltd

écologique | environmental consulting

# Oakdale South Estate – Biodiversity Management Action Plan

prepared for

## Goodman Property Services (Aust.) Pty Ltd

This document has been prepared for the benefit of Goodman Property Services (Aust.) Pty Ltd. No liability is accepted by **écologique** with respect to its use by any other person.

This disclaimer shall apply notwithstanding that the report may be made available to other persons for an application for permission or approval to fulfil a legal requirement.

## Document control

Prepared by		
Kathryn Duchatel		10/01/2018
BSc. Env. CEnvP EIANZ #691		

**écologique**  
12 Wanganella Street, Balgowlah NSW 2093  
0437 821 110 | [eco\\_logique@optusnet.com.au](mailto:eco_logique@optusnet.com.au)

## Revision Schedule

Rev No	Date	Description	Issued to
1	10/01/2018	Draft for OEMP submission	Kym Dracopoulos, Goodman Russel Hogan, AT&L



## Preamble

This Biodiversity Management Action Plan is one of several documents prepared to support the requirements of State Significant Development approval for Oakdale South Industrial Estate (SSD 6917). Consent for the development approved the removal of 3.58 ha of native vegetation, the filling of two tributaries of Ropes Creek, and the realignment of Drainage Line 1.

SSD 6917 development and subsequent SSD 6917 MOD 1 approvals were granted subject to the Biodiversity Offsetting Strategy prepared by Cumberland Ecology (2015, 2016), which requires the retirement of 160 ecosystem credits to offset the removal of native vegetation.

Goodman will retire the 160 ecosystem credits by way of both:

- Purchasing and retiring 13 ecosystem credits; and
- The retirement of 147 ecosystem credits through the establishment of an onsite biodiversity offset area (the equivalent of approximately 14 ha).

The purpose of this plan is to document the specific management actions that Goodman must undertake to establish and maintain the biodiversity offset area. These actions are based on the site's ecological requirements as required by the BioBanking Assessment Methodology.

For the purposes of the EP&A Act, any management actions required by a biobanking agreement are treated as 'exempt development' (unless a change is made to the BioBanking Regulation in the future).

The plan is drafted using the wording and guidance notes in "Annexure C: Management actions for the biobank site" of the biobanking agreement template.

OEH will review the management actions and plans and make any necessary amendments after consultation with Goodman. These management actions will then be incorporated into the biobanking agreement.

Four sections are provided in the template:

1. standard management actions – mandatory
2. additional management actions – only if indicated by the assessment
3. standard management plans (weeds and fire for conservation) – mandatory
4. additional management plans (feral and overabundant herbivores and vertebrate pests) – only if indicated by the assessment.

An additional short section is also included from the template that requires the details of photo points for monitoring purposes.

## Contents

1. Standard Management Actions .....	1
1.1 Management of grazing for conservation.....	1
1.2 Weed control .....	1
1.3 Management of fire for conservation.....	2
1.4 Management of human disturbance .....	4
1.5 Retention of regrowth and remnant native vegetation .....	5
1.6 Revegetation .....	6
1.7 Retention of dead timber.....	7
1.8 Erosion control .....	7
1.9 Retention of rocks.....	7
2. Additional Management Actions .....	8
2.1 Control of feral and overabundant native herbivores .....	8
2.2 Vertebrate pest management.....	9
2.3 Nutrient control .....	10
2.4 Control of exotic fish species .....	10
3. Standard Management Plans.....	11
3.1 Weed management plan.....	11
3.2 Fire for conservation management plan.....	11
4. Additional Management Plans.....	14
5. Monitoring, Reporting and Record Keeping Requirements.....	20
Appendix A. Management zones.....	21
Appendix B. Weed Control Plan.....	22
Appendix C. Planting Schedule .....	26

# 1. Standard Management Actions

## 1.1 Management of grazing for conservation

Item 1	Management of grazing for conservation	Timing
1.1	Stock must not be permitted to graze in any area of the biobank site.	Ongoing from commencement date
1.2	Stock access must be prevented by erecting and maintaining stockproof fencing. Fencing shall be 5 cable, 2 barb rural fencing, a total of 4,634 lineal metres (lin.m)	1,723 lin. m within 3 months from commencement date 2,911 lin. m on completion of stage works as per SSDA consent
1.3	This item is not applicable.	
1.4	If, at any time, the landowner observes stock in any area of the biobank site, other than an area on the biobank site where grazing is permitted, the landowner must take necessary measures to remove the stock from the area immediately.	Ongoing from commencement date

## 1.2 Weed control

Item 2	Weed control	Timing
2.1	The landowner must implement and, at all relevant times, comply with, the integrated weed management plan ( <b>provided in Appendix B</b> ). To allow for adaptive management, minor alterations can be made to the implementation of the weed management plan. Any alterations must be recorded in writing in accordance with Section 3.	Ongoing from first payment date.
2.2	The weed management plan must be reviewed at intervals of no less than 4 years and no more than 6 years by an appropriately qualified person. The review is to consider the efficacy of the management actions in the plan and consider the effectiveness of the matters contained in the current plan that are outlined in the dot points below. Notification of the date of the review commencement must be provided to the Director General in writing within 14 days of the commencement of the review. The findings of the review must be submitted to the Director General within 3 months of commencing the review.	Ongoing from first payment date.

Item 2	Weed control	Timing
	<p>Where the Director General determines from the review that an update of the plan is required, the Director General will notify the landowner in writing that an update of the plan is required. The landowner must update the plan and submit it to the Director General for approval within 3 months of receiving written notification from the Director General that an update of the plan is required. The revised plan must be prepared by an appropriately qualified person and must cover the matters outlined below and any additional matters specified by the Director General in writing:</p> <ul style="list-style-type: none"> <li>• a description of the target weed/s at the biobank site and their location/s, linked to each management zone where weeds are present</li> <li>• the method/s of weed control in each zone</li> <li>• the frequency of weed control activities at the site, taking into account management practices where weeds are providing habitat for native species</li> <li>• the timing of any planting of native plant species required in each management zone to provide alternative habitat for native species affected by weed control activities</li> <li>• methods for monitoring the success of weed control activities</li> <li>• a timetable/measures for inspections to identify new weed species or exotic plant species (including <del>noxious weeds</del> under the <i>Noxious Weeds Act 1993</i>-scheduled weeds under the <i>Biosecurity Act 2015</i>)</li> <li>• additional weed control activities to destroy or remove any new weed species that are found on the site</li> <li>• measures for assessing and reporting monitoring results</li> <li>• a diary for recording actions taken in accordance with the weed management plan and minor alterations to this plan permitted for adaptive management. The details (management zone/s, date, alternative action) and reasons for the minor alterations must be recorded in the diary.</li> </ul>	

### 1.3 Management of fire for conservation

Item 3	Management of fire for conservation	Timing
3.1	<p>The landowner must implement, and at all relevant times, comply with the fire management plan (refer Section 3) or such updated fire management plan as has been approved by the Director General under item 3.2 (below). To allow for adaptive management and weather conditions, minor alterations can be</p>	<p>Ongoing from commencement date.</p>

Item 3	Management of fire for conservation	Timing
	made to the implementation of the fire management plan, and must be recorded in writing in accordance with Section 3.	
3.2	<p>The fire management plan must be reviewed at intervals of no less than 4 years and no more than 6 years by an appropriately qualified person. The review is to consider the efficacy of the management actions in the plan and consider the effectiveness of the matters contained in the current plan that are outlined in the dot points below. Notification of the date of the review commencement must be provided to the Director General in writing within 14 days of the commencement of the review. The findings of the review must be submitted to the Director General within 3 months of commencing the review.</p> <p>Where the Director General determines from the review that an update of the fire management plan is required, the Director General will notify the landowner in writing that an update of the plan is required. The landowner must update the plan and submit it to the Director General for approval within 3 months of receiving written notification from the Director General that an update of the plan is required. The revised plan must be prepared by an appropriately qualified person and cover the matters outlined below and any additional matters specified by the Director General in writing:</p> <ul style="list-style-type: none"> <li>• the year the last fire went through, the type of fire and the extent of the fire and location, where known</li> <li>• frequency of natural fires in the area of the biobank site, where known</li> <li>• a description of locations and management zones where ecological burns will be conducted and areas that will not be burnt</li> <li>• the methods that will be used for ecological burns</li> <li>• the fire frequency intervals recommended for the vegetation types and threatened species present, including any required adjustment to the schedule in the event of a wildfire or activities undertaken under the Rural Fires Act 1997 to ensure minimum frequency between ecological burns</li> <li>• the fire intensity for the recommended vegetation types</li> <li>• the time of year suitable for ecological burns</li> <li>• the diary for recording actions taken in accordance with the fire management plan and minor alterations to fire management plan permitted for adaptive management. The details (management zone/s, date, alternative action) and reasons for the minor alterations must be recorded in the diary.</li> </ul>	Ongoing from first payment date.

Item 3	Management of fire for conservation	Timing
3.3	Fires must not be lit on the biobank site other than for the purpose of ecological burning in accordance with the fire management plan or as permitted as a permissible human activity on the biobank site under item 4 or clause 3.6 of the biobanking agreement.	Ongoing from commencement date.

#### 1.4 Management of human disturbance

Item 4	Management of human disturbance	Timing
4.1	Except as permitted under clause 3 of the biobanking agreement or item 4.2 (below), human activities that adversely affect biodiversity values on the biobank site, including repeated disturbance of native animals, must not be carried out, or caused or permitted to be carried out, on the biobank site.	Ongoing from commencement date.
4.2	Human activities that may have a negative impact on biodiversity values on the biobank site are permitted if they are listed as permissible activities under clause 3.6 of the biobanking agreement or if they are undertaken as part of the management actions or management plans.	Ongoing from commencement date.
4.3	This item is not applicable.	
4.4	The landowner must not store, dispose of, or cause or permit to be disposed of, any waste on the biobank site. Note: The storage or disposal of waste on the biobank site may require an approval under the <i>Protection of the Environment Operations Act 1997</i> .	Ongoing from commencement date.
4.5	The landowner must take all reasonable steps to remove waste deposited by others on the biobank site, or which is otherwise present on the biobank site.	Ongoing from first payment date.
4.6	Fencing and signage must be installed and maintained to deter human disturbance including waste dumping. Signage must be the BioBanking signs available from the OEH. <b>Specific requirements:</b> <ul style="list-style-type: none"> <li>• Fencing at the biobank site is currently in good condition to prevent stock entry from adjacent properties.</li> <li>• Fences currently exist along the southern and northern boundaries of the biobank site for stock containment.</li> <li>• Fences will be installed along the eastern boundary and part of the northern boundary of the biobank site, in order to restrict unauthorized human activities.</li> </ul>	Ongoing from first payment date.

Item 4	Management of human disturbance	Timing
	<ul style="list-style-type: none"> <li>The western boundary and the western half of the northern boundary of the biobank site will be left unfenced at this stage, as a biobank site is proposed to be established as part of the Oakdale West Estate development to the west of the biobank site.</li> <li>Fencing is to be installed along the western boundary of the proposed Oakdale West biobank site.</li> <li>Access gates will be installed at 5 points along the fence lines to allow access for the management of the biobank site.</li> </ul>	
	<p>BioBanking signage should be located at points of access and other practical locations interfacing with adjoining properties. For biobank sites that are located fully within a larger private landholding, there should be at least one BioBanking sign to be placed at the main access gate to the site.</p> <p>BioBanking signage will be installed at relevant locations at the access points to the biobank site and locations along boundaries shared with neighbouring properties. Signs will be a minimum of 600mm x 400mm and are available from the OEH for \$35.00 each.</p>	<p>Ongoing from first payment date (in accordance with the stage development phases)</p>

### 1.5 Retention of regrowth and remnant native vegetation

Item 5	Retention of regrowth and remnant native vegetation	Timing
5.1	<p>Native vegetation (whether remnant native vegetation or regrowth) on the biobank site must not be cut down, felled, thinned, logged, killed, destroyed, poisoned, ringbarked, uprooted, burnt or otherwise removed, except in accordance with item 5.2 below, or if it is required as part of the management actions or it is essential for the carrying out of permissible development under clause 3.5 of the biobanking agreement.</p> <p>Note: Native vegetation on the biobank site may be managed to improve biodiversity values by thinning to benchmark stem densities over no more than 80% of each management zone. Benchmark stem densities has the same meaning as defined in the Vegetation Benchmark Database as published by OEH and updated from time to time. An approval under the Native Vegetation Act 2003 may be required to carry out thinning or any other removal or damage to native vegetation under this item.</p>	<p>Ongoing from commencement date.</p>
5.2	<p>Native vegetation on the biobank site must not be burnt except in accordance with the fire management plan prepared pursuant to item 3 above.</p>	<p>Ongoing from commencement date.</p>

## 1.6 Revegetation

Item 6	Replanting or supplementary planting where natural regeneration will not be sufficient	Timing
6.1	<p>The landowner must undertake planting or seeding of the native groundcover/shrub/tree species indicated in the planting schedule for the biobank site as set out in the planting schedule (provided in Appendix C).</p> <p>If the landowner cannot complete the planting within the timeframe indicated in the planting schedule due to local weather conditions, the landowner must complete the planting as soon as possible after that date and must make a record of and retain the reasons why the planting was not completed by the required time.</p>	Commencing from first payment date.
6.2	<p>Areas of planting or seeding as set out in the planting schedule must be protected from grazing by stock and introduced animals to ensure that the plants are established to such an extent that biodiversity values will be improved by such grazing exclusion and the plants will not be adversely impacted by grazing.</p>	Ongoing from the completion of planting in each area of replanting.
6.3	<p>The landowner must survey each area of planting or seeding established under item 6.1 above and document them to determine whether the planted plants or seeds have established and survived, and retain the findings in accordance with the record keeping requirements.</p> <p>If, after the first survey or subsequent surveys, the establishment and survival rate of plants in an area of planting or seeding are below those usual for the species and region, the landowner must supplement the planting in the adversely affected areas within a reasonable timeframe (usually within 12 months, though this can be varied and recorded in a diary with reasons for variation, if the weather is unsatisfactory for the establishment and survival of plants or seeds).</p>	Conduct the first survey 24 months after the completion of planting or seeding in each area of planting or seeding, and then every 12 months thereafter.
6.4	<p>Areas of planting and seeding must be managed as required to assist the establishment and survival of native plant species.</p> <p>Management includes watering, slashing, scalping, spraying of weeds, plant replacement and strategic grazing by stock (in accordance with item 6.2 above) at strategic times of the year to control weeds to improve biodiversity values.</p>	As required, from the date that planting or seeding areas are established.
6.5	<p>Seeds and plants used for planting and seeding must be obtained from locally collected provenances, unless there are reasons to do otherwise (e.g. to ensure genetic variability or for adaptation to climate change).</p>	As required (from commencement date if relevant to prepare for future planting).



## 1.7 Retention of dead timber

Item 7	Retention of dead timber	Timing
7.1	Dead timber (whether standing or fallen and including branches and leaf litter) must not be removed from or moved within the biobank site except for the personal (non-commercial) use by the landowner for firewood for one dwelling only or for repair of fencing (not for construction of fencing).	Ongoing from commencement date.
7.2	<p>Timber from outside the biobank site may be introduced to and placed on the biobank site to improve biodiversity values. Once the timber has been brought onto the site, it is subject to the requirements of item 7.1 above.</p> <p>Timber brought from outside the biobank site must be documented by the landowner in writing and records must be kept in accordance with the record keeping requirements. The landowner must record the approximate amount of timber brought from outside the biobank site, the location where the timber was placed on the biobank site and the date on which it was placed (month, year).</p>	When required but not required before the first payment date.

## 1.8 Erosion control

Item 8	Erosion control	Timing
8.1	All reasonable steps must be undertaken to prevent, control and remedy erosion on the biobank site.	Commencing from first payment date.

## 1.9 Retention of rocks

Item 9	Retention of rocks	Timing
9.1	The landowner must not remove, or cause or permit to be removed, rocks from the biobank site or move, or cause or permit to be moved, rocks within the biobank site.	Ongoing from commencement date.
9.2	Rocks from outside the site may be placed on the biobank site to improve habitat for threatened species. Rocks, once placed on the biobank site, are subject to item 9.1 above. The landowner must make and retain records of the location of the rocks placed on the site and the date the rocks were brought onto the site in accordance with the record keeping requirements.	When required but not required before the first payment date.

## 2. Additional Management Actions

### 2.1 Control of feral and overabundant native herbivores

Item 10	Control of feral and overabundant native herbivores	Timing
10.1	<p>The landowner must implement, and at all relevant times, comply with the management plan to control feral and overabundant native herbivores included in Section 4 (or such updated management plan as has been approved by the Director General under item 10.2 below). To allow for adaptive management, minor alterations can be made to the implementation of the feral and overabundant native herbivores management plan, which must be recorded in writing in accordance with Section 3 of this Annexure.</p>	<p>Ongoing from first payment date.</p>
10.2	<p>The feral and overabundant native herbivores management plan must be reviewed at intervals of no less than 4 years and no more than 6 years. The review is to consider the efficacy of the management actions in the plan and consider the effectiveness of the matters contained in the plan that are outlined in the dot points below. Notification of the date of the review commencement must be provided to the Director General in writing within 14 days of the commencement of the review. The findings of the review must be submitted to the Director General within 3 months of commencing the review.</p> <p>Where the Director General determines from the review that an update of the feral and overabundant native herbivores management plan is required, the Director General will notify the landowner in writing that an update of the plan is required and the landowner must update the plan and submit the amended plan to the Director General for approval within 3 months of receiving written notification from the Director General that an update of the plan is required. The revised plan must cover the matters outlined below and any additional matters specified by the Director General in writing:</p> <ul style="list-style-type: none"> <li>• a description of the feral or overabundant native herbivore/s</li> <li>• consideration of relevant current OEH and other pest management programs and methods</li> <li>• the method/s for feral and overabundant native herbivore control in each management zone, determined in accordance with best practice management</li> <li>• the frequency and timing of the control actions in each management zone</li> <li>• methods for monitoring the success of the pest control actions</li> </ul>	<p>Ongoing from first payment date.</p>

Item 10	Control of feral and overabundant native herbivores	Timing
	<ul style="list-style-type: none"> <li>• a timetable and measures for inspections to identify new feral or overabundant native herbivores that may adversely affect biodiversity values on the biobank site</li> <li>• additional control actions to destroy or remove any new feral and overabundant native herbivore pest species that occur on site</li> <li>• measures for assessing and reporting monitoring results</li> <li>• a diary for recording actions taken in accordance with the feral and overabundant native herbivores management plan and minor alterations to this plan permitted for adaptive management. The details (management zone/s, date, alternative action) and reasons for the minor alterations must be recorded in the diary.</li> </ul>	

## 2.2 Vertebrate pest management

Item 11	Vertebrate pest management – European Red Fox	Timing
11.1	<p>The landowner must implement, and at all relevant times, comply with the vertebrate pest management plan included in Section 4 (or such updated vertebrate pest management plan as has been approved by the Director General under item 11.2 below) (<b>‘the vertebrate pest management plan’</b>). To allow for adaptive management, minor alterations can be made to the implementation of the vertebrate pest management plan, but these must be recorded in writing in accordance with Section 3 of this Annexure.</p>	Ongoing from first payment date.
11.2	<p>The vertebrate pest management plan must be reviewed at intervals of no less than 4 years and no more than 6 years by an appropriately qualified person. The review is to consider the efficacy of the management actions in the plan and consider the effectiveness of the matters contained in the current plan that are outlined in the dot points below. Notification of the review commencement must be provided to the Director General in writing within 14 days of the commencement. The findings of the review must be submitted to the Director General within 3 months of commencing the review.</p>	Ongoing from first payment date.

## 2.3 Nutrient control

Item 12	Nutrient control	Timing
12.1	Fertilisers, pesticides and herbicides must not be applied on the biobank site, except where required to undertake the management actions. Use of fertilisers for establishing native vegetation through planting or seeding, use of herbicides for controlling weeds or use of pesticides for controlling vertebrate pests or feral herbivores can be undertaken in accordance with best practice management when required to undertake the management actions.	Ongoing from commencement date.

## 2.4 Control of exotic fish species

Item 13	Control of exotic fish species	Timing
13.1	Appropriate management actions must be conducted to suppress or control non-native fish species in waterways and water bodies To be discussed with OEH as both Carp and Plague Minnow are present within Ropes Creek which will be subject to ongoing infestation from catchment sources (i.e. rendering any control attempts unviable).	Ongoing from first payment date.

### 3. Standard Management Plans

#### 3.1 Weed management plan

The weed types, description and location (management zones) of existing weed infestations will be finalised during the tendering phase to engage bushland regeneration contractors to undertake the works. The methods of weed control (management actions), monitoring and inspections will also be finalised.

The landowner must perform the methods of weed control and other weed management activities and monitoring in the finalised weed management plan. The types of weeds and methods of control that were present during investigations of the site for the SSDA 6917 are provided in Appendix B.

The template for reporting of monitoring activities and the diary template for weed control management must be filled in to record observations during the implementation of the weed management plan, including any minor variations.

Template for reporting of monitoring activities		
Mgm zone	Date	Observations and assessment of monitoring This table must include the information for each zone (or groups of zones) which is described in the table titled 'monitoring and inspections of existing and new weeds'.

Diary template for weed control management			
Date	Mgm zone	Description and type of activity undertaken (e.g. weed control, observation)	Minor variations (details and reasons)

#### 3.2 Fire for conservation management plan

A fire for conservation management plan shall be developed in consultation with the Rural Fire Service. The plan is to include information on all known previous fire events in the 'Fire history' table to demonstrate local fire conditions including intensity and frequency.

The ecological fire requirements for each vegetation type or threatened species on the biobank site are listed in the 'Fire requirements for vegetation types and threatened species' table. These are the fire frequency intervals recommended for the vegetation types and threatened species present on the biobank site. They include any requirement adjustments to the schedule in the event of a

wildfire or activities undertaken under the *Rural Fires Act (RFA) 1997* to ensure the minimum frequencies between ecological burns.

The landowner must carry out ecological burns for each management zone according to the method and frequency described (as informed by the history and requirements sections and in accordance with Section 3 of this annexure). These actions are to be set out in the 'Ecological burning actions table'. Monitoring and inspections (set out in the 'Fire management monitoring' table) as described must also be implemented.

The table titled 'Template of monitoring activities' must be completed to record observations during the implementation of the plan and assessment of monitoring activities. The landowner must also complete the table titled 'Diary template for fire management activities' to record the management actions undertaken or observations made, including any minor variations.

Fire history for previous 20 years (or longer if known)				
Year of fire	Hazard reduction, wildfire or ecological burn and extent of fire			Management zone/s
	Previous burn history of the biobank site is unknown.			
Fire requirements for vegetation types and threatened species				
Vegetation type and/or threatened species	Fire frequency required	Time of year for burning	Fire intensity required	Adjustment required due to wildfires or RFA activities
Swamp Sclerophyll forests	Minimum 7 year interval, no more than 35 year interval; intervals >20 years may be desirable	September - October	No fire intensity recommendations	In the event that wildfires have not occurred on the biobank site for more than 20 years then a prescribed ecological burn is recommended
Ecological burning actions				
Management zones	Actions	Supervision & extinguishing techniques	Time of year for burning	Frequency (years)
All zones	Consult local Rural Fire Service (RFS), Local Land Services (LLS), and council for Bush Fire Hazard Reduction Certificate prior to lighting fires. Ecological burns to be undertaken, if possible, in conjunction with RFS.	RFS to be present for protection and advice.	September - October	20 years from the previous ecological burn or wildfire at the biobank site

Methods for monitoring the outcomes of ecological burns		
Management zone/s	Method of monitoring	Date/s required
All zones	Visual audit and photographic monitoring	Within 3 months of completion of ecological burns.
All zones	Condition mapping by suitably qualified professional of flora and fauna habitat to assess ecological condition	Within 3 months of completion of ecological burns.
Other fire management activities (where required)		
None required		
Template for reporting of monitoring activities		
Mgm zone	Date	Observations and assessment of monitoring

Diary template for fire management activities			
Date	Management zone/s	Description of activity undertaken or observation made	Minor variations (details and reasons)

## 4. Additional Management Plans

### **If required, complete this control of feral and overabundant native herbivores management plan**

A table is provided below for the management plan to control feral and overabundant native herbivores. Add additional sections to the table if required. The plan must include, but is not limited to:

- a description of the feral or overabundant native herbivore/s
- consideration of relevant current OEH and other pest management programs and methods
- the method/s for feral and overabundant native herbivore control in each management zone, determined in accordance with best practice management
- the frequency and timing of the control actions in each management zone
- methods for monitoring the success of the pest control actions
- reporting and assessing the results from monitoring
- a timetable and measures for inspections to identify new feral or overabundant native herbivores that may adversely affect biodiversity values on the biobank site
- a diary for recording actions taken in accordance with the management plan to control feral and overabundant native herbivores and minor alterations to this plan permitted for adaptive management. The details (management zone/s, date, alternative action) and reasons for the minor alterations must be recorded in the diary.

When the management plan is reviewed (see item 10.2 in Section 1), control activities may be amended, deleted or added to take into account the feral and overabundant native herbivore on the site at the time.

### **Management plan to control feral and overabundant native herbivores**

The management plan for feral and overabundant native herbivores includes information on the management requirements for the feral and overabundant native herbivores at the biobank site listed in the 'Feral and overabundant native herbivores' table. The possible methods of control for each species, used by OEH and other pest management programs, are listed and the suitability of each method is described in the 'Methods considered' table.

- The landowner must carry out the methods for control for feral and overabundant native herbivores for each management zone according to the method and frequency as described in the 'Methods for control' table. The methods of control applied to the feral or overabundant native herbivores listed in the 'Feral or overabundant native herbivores' table as well as any other feral or overabundant herbivores that may be present on the site from time to time.

Monitoring and inspections of existing and new feral and overabundant herbivores at the biobank site as described in the 'Monitoring and inspections' table must be implemented.

- The table titled 'Template for reporting of monitoring activities' must be completed to record observations during the implementation of the plan and assessment of the



<p>monitoring activities. The landowners must complete the table titled 'Diary template for feral and overabundant herbivore management' to record the management actions undertaken including any minor variations or observations made.</p>			
<p><b>Feral and overabundant native herbivores</b></p>			
Feral type	Name of feral/overabundant native herbivore	Description of extent	Management zone/s
A	European Rabbit	Currently not recorded on the biobank site, however due to the control of foxes, co-ordinated control of rabbits is recommended.	All zones
<p><b>Methods considered</b></p>			
Feral type	Name and description of program or method		Describe suitability
A	<p>Baiting with Pindone or 1080 in accordance with the Pesticide Control (Pindone Products) Order 2010 or the Pesticide Control (1080 Liquid Concentrate and Bait products) Order 2010 (1080 PCO) and will be conducted in consultation with the Local Land Services.</p> <p>Trapping, fumigation, harbour destruction and shooting can also be undertaken when rabbit densities are very low.</p>		<p>Poisoning with Pindone or 1080 are most effective as the initial control method for the European Rabbit.</p> <p>After initial control trapping and shooting controls can keep numbers low in the long term.</p>
<p><b>Methods of control</b></p>			
Mgm zone	Feral type	Method of control	Frequency and timing
All zones	A	<p>Baiting using Pindone must be done in accordance with the Pesticide Control (Pindone Products) Order 2010. At least two 'free' feeds (without toxins) are required prior to baiting (DPI 2012), followed by a minimum of three Pindone feeds.</p> <p>Baiting using 1080 must be done in accordance with Schedule 4 of the 1080 PCO. A minimum of three free feeds are required prior to laying 1080 baits (DPI, 2012). Carrots are best used for free feeds and are recommended at 2 to 3 day intervals.</p> <p>Use of baiting with Pindone or 1080 must be carried out by authorised persons.</p> <p>Soft-jawed spring traps and mesh barrel traps may be used to remove rabbits. Trapping should only be used to control the last few rabbits, and should not be relied on to control</p>	Annual control in mid to late summer

		medium to high density rabbit populations. Traps are set in the active openings in the warren, in the late evening. Once set, traps should be checked as soon as possible after dawn then deactivated.	
<b>Monitoring and inspections</b>			
Mgm zone	Feral type/s	Method of monitoring	Date/s required
All zones	A	Monitoring is required prior to control activities using daytime observatio and spotlighting counts to determine the appropriate control strategy. Annual monitoring surveys. All sightings of rabbits to be recorded by the land holder and maintained in a log.	Two annual spotlighting monitoring surveys pre and post baiting
<b>Other management activities (where required)</b>			

<b>Template for reporting of monitoring activities</b>			
Mgm zone	Date	Current level of impact on vegetation This column must record impact as Negligible, Minimal, Moderate or High	Observations and assessment of monitoring

<b>Diary template for feral and overabundant herbivore management</b>			
Date of activity	Mgm zone	Description and type of activity undertaken This column must include details of the feral and overabundant herbivores targeted, control techniques applied and numbers controlled.	Minor variations (details and reasons)

### If required, complete this vertebrate pest management plan

A table is provided below for the vertebrate pest management plan. Add additional sections to the table if required. The plan must include, but is not limited to:

- a description of the target fauna species e.g. pigs, foxes or other species such as feral dogs or goats
- consideration of relevant current OEH and other pest management programs
- the method/s of vertebrate pest control in each management zone determined in accordance with best management practice
- the frequency and timing of vertebrate pest control actions in each management zone
- methods for monitoring the success of vertebrate pest control actions
- reporting and assessing the results from monitoring
- a timetable and measures for inspections to identify new vertebrate pest species that may negatively impact on threatened species on the biobank site
- a diary for recording actions taken in accordance with the vertebrate pest management plan and minor alterations to this plan permitted for adaptive management. The details (management zone/s, date, alternative actions) and reasons for the minor alterations must be recorded in the diary in accordance with the requirements.

All pest species identified as requiring management on a biobank site must be included in the vertebrate pest management plan.

Separate management plans can be developed for each pest species.

When the management plan is reviewed (see item 11.2 in Section 1), control activities may be amended, deleted or added to take into account vertebrate pest species found on the site at that time.

### Vertebrate pest management plan

The management plan for vertebrate pests includes information on the vertebrate pests and their extent existing at the time of the agreement as listed in the 'Vertebrate pests' table. The possible methods of control for each species, used by OEH and other pest management programs are listed and the suitability of each method to the biobank site is described in the 'Methods considered' table.

The landowner must carry out the methods for vertebrate pest control for each management zone according to the method and frequency described in the 'Methods of control' table. The methods of control will apply to the vertebrate pests listed in the 'Vertebrate pests' table as well as any other vertebrate pests that may be present on the site from time to time.

Monitoring and inspections of existing and new vertebrate pests on the biobank site, as described in the 'Monitoring and inspections' table, must be implemented.

The table titled 'Template for reporting of monitoring activities' must be completed to record observations during the implementation of the plan and assessment of monitoring activities. The landowner must also complete the 'Diary template for vertebrate pest management' to record the management actions undertaken, including any minor variations, and observations made.

Vertebrate pests			
Pest	Name of vertebrate pest (e.g. pig, fox, goat, dog)	Description of extent	Mgm zone
A	Fox	Known to occur across the biobank site in all management zones.	1, 2 & 3.
Methods considered			
Pest type	Name and description of program or method		Describe suitability
A	Baiting in accordance with the NSW Fox Threat Abatement Plan (OEH, 2010) and will be conducted in consultation with the Local Land Services. Shooting and trapping can be used in conjunction with baiting where baiting is not sufficient.		Baiting is considered to be the most suitable and effective management action for Foxes.
Methods of control			
Mgm zone	Pest type	Method of control	Frequency and timing
All zones	Fox	Baiting using 1080 laced baits buried at 200-500 m intervals and in accordance with Schedule 2 of the Pesticide Control (1080 Liquid Concentrate and Bait products) Order 2010 (1080 PCO). If required, active shooting to be conducted by a suitably qualified professional accredited with a certificate III in vertebrate pest management or equivalent.	During Spring or as required
Monitoring and inspections of existing and new vertebrate pests			
Mgm zone	Pest type/s	Method of monitoring	Date/s required
All zones	Fox	Annual monitoring surveys. All sightings of foxes to be recorded by the land holder and maintained in a log.	Two annual spotlighting monitoring surveys pre- and post-baiting.
Other management activities (where required)			

Template for reporting of monitoring activities			
Mgm zone	Date	Current level of impact on vegetation or threatened fauna species This column must record impact as Negligible, Minimal, Moderate or High	Observations and assessment of monitoring

Diary template for vertebrate pest management			
Date of activity	Mgm zone	Description and type of activity undertaken This column must include details of the vertebrate pests targeted, control techniques applied and numbers controlled.	Minor variations (details and reasons)

## 5. Monitoring, Reporting and Record Keeping Requirements

### Photo points

This section of the management actions template is not part of *Annexure C: Management actions* but is required for *Annexure D* of the biobanking agreement which requires information relating to the placement of photo points for monitoring purposes. Fill in the table below so that this information can be included in the appropriate format in the final agreement. A map of the photo point locations is also required to be submitted.

Photo points should be positioned in areas that are likely to show change over time. Some plot locations can be used as photo points but many plot locations (especially in vegetated areas already in very good condition) may not show any change over time. Locate photo points where there will be changes because of management actions such as areas currently in low to moderate condition, targeted for revegetation and/or intensive weed control.

Photos are required to be taken every 12 months at the same location, direction, height and time of day.

### 1 Monitoring requirements

- 1.1 The landowner must ensure that photographs are taken at photo-points at each of the locations and in the direction identified in the table below titled 'Locations of plots and photo points' within 12 months of the commencement date and then at least every 12 months thereafter.
- 1.2 The photo points are to be identified on a site map.. The purpose of the photographs is to show changes over time. Photographs should be taken at approximately the same direction, location, height and time of day (during daylight hours) in each reporting period (as defined in item 2.2 of this Annexure D) and retained for the life of this agreement. All photographs must be dated, stating the direction in which they were taken and identified with their locations.

Locations of photo points			
Projected coordinate system: MGA Zone 56			
Photo point reference	Easting	Northing	Direction of photo (magnetic degrees)
PP1	297,341.71	6,254,586.26	0, 90,180, 270
PP2	297,139.43	6,254,249.32	0, 90,180, 270
PP3	297,134.14	6,253,377.02	0, 90,180, 270
PP4	297,434.70	6,254,324.59	0, 90,180, 270

# Appendix A. Management zones



## Appendix B. Weed Control Plan

Weed control plan				
Weed types	Common name of target weed	Scientific name of target weed	Description of infestation (eg intensity (% cover) & location within zone)	Mgm zone
A	Mother of Millions	<i>Bryophyllum delagoense</i>	Low infestation within management zone 1 in the southern most section of the biobank site.	1
B	African Boxthorn	<i>Lycium ferocissimum</i>	Low to moderate infestations within all management zones of the biobank.	1, 2 & 3
C	African Olive	<i>Olea europaea subsp. cuspidata</i>	Low infestation within management zone 3 of the biobank site.	3
D	Blackberry	<i>Rubus fruticosus</i>	Low infestations within management zone 2 and 3 in the biobank site.	2 & 3
E	Lantana	<i>Lantana camara</i>	Low to moderate infestations within all management zones of the biobank.	1, 2 & 3
F	Sharp Rush	<i>Juncus acutus</i>	Low to moderate infestations within all management zones of the biobank.	1, 2 & 3
G	Couch	<i>Cynodon dactylon</i>	Low to moderate infestations within all zones in the biobank site.	1, 2 & 3
H	Paddy's Lucerne	<i>Sida rhombifolia</i>	Low to moderate infestations within all zones in the biobank site.	1, 2 & 3
I	Fireweed	<i>Senecio madagascariensis</i>	Low to moderate infestations within all zones in the biobank site.	1, 2 & 3
J	Narrow-leaf Carpet Grass	<i>Axonopus fissifolius</i>	Low to moderate infestations within all zones in the biobank site.	1, 2 & 3
K	Paspalum	<i>Paspalum dilatatum</i>	Low to moderate infestations within all zones in the biobank site.	1, 2 & 3
L	Bridal Creeper	<i>Asparagus asparagoides</i>	Low to moderate infestations within management zones 1 and 3 in the biobank site.	1 & 3



Weed control plan				
M		<i>Briza subaristata</i>	Low to moderate infestations within all zones in the biobank site.	1, 2 & 3
Methods of weed control				
Mgm Zone	Weeds	Method of weed control	Frequency (months or Year)	
1	A	Hand weeding, Spraying out using a combination of selective and non-selective herbicides and high volume and low volume applications.	Intensive control during the first year for Primary weeding. Weed free mulch will be installed at higher elevations and Jute matting at lower elevations to suppress weed regrowth. 2-4 months for 2 years following primary weeding in Year 1.	
2 & 3	D	Targeted selective spraying	Intensive control during the first year for Primary weeding. Weed free mulch will be installed at higher elevations and Jute matting at lower elevations to suppress weed regrowth. 2-4 months for 2 years following primary weeding in Year 1.	
1, 2 & 3	B, C, E	Hand removal using cut/scrape and paint techniques	Intensive control during the first year for Primary weeding. Weed free mulch will be installed at higher elevations	

Weed control plan			
			and Jute matting at lower elevations to suppress weed regrowth. 2-4 months for 2 years following primary weeding in Year 1.
1, 2 & 3	F	Slashing of <i>Juncus acutus</i> followed by non-selective spot spraying of slashed <i>Juncus</i> and exotic ground layer species.	Intensive control during the first year for Primary weeding. Weed free mulch will be installed at higher elevations and Jute matting at lower elevations to suppress weed regrowth. 2-4 months for 2 years following primary weeding in Year 1.
1 & 3	L	Spraying out using a combination of selective and non-selective herbicides and high volume and low volume applications.	Intensive control during the first year for Primary weeding. Weed free mulch will be installed at higher elevations and Jute matting at lower elevations to suppress weed regrowth. 2-4 months for 2 years following primary weeding in Year 1.
1, 2 & 3	G, H, I, J, K, M	Hand weeding around non-target native plant species in preparation for spraying activities. Spraying out of exotic grasses using a combination of selective and non-selective	Intensive control during the first year for Primary weeding. Weed free mulch will be installed at

Weed control plan			
		herbicides and high volume and low volume applications.	higher elevations and Jute matting at lower elevations to suppress weed regrowth. 2-4 months for 2 years following primary weeding in Year 1.
Monitoring and inspections of existing and new weeds			
Mgm zone	Weeds	Method of monitoring	Date/s required
All zones	All	<p>Photo points will be used in conjunction with the weed management monitoring log, to be completed by the landowner annually.</p> <p>One photo point will be set up in each management zone to monitor weed management actions, with an additional photo point within management zone 2 within the channel re-alignment of Ropes Creek Tributary. Each photo point will be established at the commencement and will involve four photographs orientated at 0, 90, 180, and 270 degrees to north. The photo point will be fixed between years and marked by GPS.</p> <p>In addition to photo points, the landholder is to conduct a survey to identify the locations of existing weed locations using a GPS at the biobank site, and present the data on a map within the annual biobank site report (the weed map). The weed map is to identify the locations of weeds listed within this Management Action Plan as well as any additional weeds identified during the survey and the GPS track to show the area surveyed.</p> <p>Baseline data for weed occurrence is to be collected in year 1 prior to implementation of control measures. Intensive weed control will no longer be required upon an 80% reduction in the occurrence of weeds from baseline data.</p>	Annual
Other weed management activities (where required)			
Weed maintenance activities will be ongoing at the conclusion of the initial 5 year restoration works to ensure the control of noxious and environmental weeds and prevent to spreads of weeds into adjacent areas in perpetuity.			

## Appendix C. Planting Schedule

Indicative planting schedule at the biobank site					
Common name	Scientific name	Mgm zone	Planting density	Planting method	Timing (months or Year)
Hickory Wattle	<i>Acacia implexa</i>	2	1 per 16m2	Tubestock	Year 2
Black Wattle	<i>Acacia decurrens</i>	2	1 per 16m2	Tubestock	Year 2
Parramatta Wattle	<i>Acacia parramattensis</i>	2	1 per 16m2	Tubestock	Year 2
Rough-barked Apple	<i>Angophora floribunda/subvelutina</i>	2	1 per 16m2	Tubestock	Year 2
Cabbage Gum	<i>Eucalyptus amplifolia</i>	2	1 per 16m2	Tubestock	Year 2
Narrow-leaved Ironbark	<i>Eucalyptus crebra</i>	2	1 per 16m2	Tubestock	Year 2
Thin-leaved Stringybark	<i>Eucalyptus eugenioides</i>	2	1 per 16m2	Tubestock	Year 2
Grey Box	<i>Eucalyptus moluccana</i>	2	1 per 16m2	Tubestock	Year 2
Forest Red Gum	<i>Eucalyptus tereticornis</i>	2	1 per 16m2	Tubestock	Year 2
Flax-leaved Paperbark	<i>Melaleuca linariifolia</i>	2	1 per 16m2	Tubestock	Year 2
Prickly-leaved Tea Tree	<i>Melaleuca styphelioides</i>	2	1 per 16m2	Tubestock	Year 2
Hickory Wattle	<i>Acacia falcata</i>	2	1 per m2	Tubestock	Year 2
White Sally Wattle	<i>Acacia floribunda</i>	2	1 per m2	Tubestock	Year 2
Coffee Bush	<i>Breynia oblongifolia</i>	2	1 per m2	Tubestock	Year 2
Hairy Clerodendrum	<i>Clerodendrum tomentosum</i>	2	1 per m2	Tubestock	Year 2
Broom Bitter Pea	<i>Daviesia genistifolia</i>	2	1 per m2	Tubestock	Year 2
Gorse Bitter Pea	<i>Daviesia ulicifolia</i>	2	1 per m2	Tubestock	Year 2
	<i>Dillwynia sieberi</i>	2	1 per m2	Tubestock	Year 2
Wedge-leaf Hop-bush	<i>Dodonaea viscosa spp cuneata</i>	2	1 per m2	Tubestock	Year 2
Hop Goodenia	<i>Goodenia ovata</i>	2	1 per m2	Tubestock	Year 2

### Indicative planting schedule at the biobank site

Purple Coral Pea	<i>Hardenbergia violacea</i>	2	1 per m2	Tubestock	Year 2
Australian Indigo	<i>Indigofera australis</i>	2	1 per m2	Tubestock	Year 2
Large Mock-olive	<i>Notelaea longifolia</i>	2	1 per m2	Tubestock	Year 2
Rice Flower	<i>Ozothamnus diosmifolium</i>	2	1 per m2	Tubestock	Year 2
	<i>Pultenaea microphylla</i>	2	1 per m2	Tubestock	Year 2
Native Raspberry	<i>Rubus parviflorus</i>	2	1 per m2	Tubestock	Year 2
Purple Wiregrass/ Threeawn Speargrass	<i>Aristida ramosa or vagans</i>	2	4 per m2	Tubestock	Year 2
	<i>Arthropodium spp</i>	2	4 per m2	Tubestock	Year 2
Redleg Grass	<i>Bothriochloa decipiens</i>	2	4 per m2	Tubestock	Year 2
	<i>Caesia spp</i>	2	4 per m2	Tubestock	Year 2
Scented-top Grass	<i>Capillipedium parviflorum</i>	2	4 per m2	Tubestock	Year 2
Indian Pennywort	<i>Centella asiatica</i>	2	4 per m2	Tubestock	Year 2
Windmill Grass	<i>Chloris truncata</i>	2	4 per m2	Tubestock	Year 2
Plump Windmill Grass	<i>Chloris ventricosa</i>	2	4 per m2	Tubestock	Year 2
	<i>Commelina cyanea</i>	2	4 per m2	Tubestock	Year 2
Slender Flat-sedge	<i>Cyperus gracilis</i>	2	4 per m2	Tubestock	Year 2
	<i>Danthonia spp (various local native species)</i>	2	4 per m2	Tubestock	Year 2
Blueberry Lily	<i>Dianella longifolia</i>	2	4 per m2	Tubestock	Year 2
Blueberry Lily	<i>Dianella revoluta</i>	2	4 per m2	Tubestock	Year 2
Queensland Bluegrass	<i>Dichanthium sericeum</i>	2	4 per m2	Tubestock	Year 2
Shorthair Plumegrass	<i>Dichelachne micrantha</i>	2	4 per m2	Tubestock	Year 2
Berry Saltbush	<i>Einadia hastata</i>	2	4 per m2	Tubestock	Year 2
	<i>Einadia polygonoides</i>	2	4 per m2	Tubestock	Year 2
Fishweed	<i>Einadia trigonus</i>	2	4 per m2	Tubestock	Year 2

### Indicative planting schedule at the biobank site

	<i>Elymus scaber</i>	2	4 per m2	Tubestock	Year 2
Paddock Lovegrass	<i>Eragrostis leptostachya</i>	2	4 per m2	Tubestock	Year 2
	<i>Eriochloa pseudoachritcha</i>	2	4 per m2	Tubestock	Year 2
Winter Apple	<i>Eremophila debilis</i>	2	4 per m2	Tubestock	Year 2
Bordered Panic	<i>Entolasia marginata</i>	2	4 per m2	Tubestock	Year 2
	<i>Glycine tabacina</i>	2	4 per m2	Tubestock	Year 2
	<i>Hydrocotyle penduncularis</i>	2	4 per m2	Tubestock	Year 2
Blady Grass	<i>Imperata cylindrica</i>	2	4 per m2	Tubestock	Year 2
Spiny-headed Mat-rush	<i>Lomandra longifolia</i>	2	4 per m2	Tubestock	Year 2
Slender Mint	<i>Mentha diemenica</i>	2	4 per m2	Tubestock	Year 2
Weeping Grass	<i>Microlaena stipoides</i>	2	4 per m2	Tubestock	Year 2
Creeping Beard Grass/ Australian Basket Grass	<i>Oplismenus imbecillis or aemulus</i>	2	4 per m2	Tubestock	Year 2
Tussock	<i>Poa labillardieri</i>	2	4 per m2	Tubestock	Year 2
Whiteroot	<i>Pratia purpurascens</i>	2	4 per m2	Tubestock	Year 2
Forest Buttercup	<i>Ranunculus plebeius</i>	2	4 per m2	Tubestock	Year 2
Swamp Dock	<i>Rumex brownii</i>	2	4 per m2	Tubestock	Year 2
Pale Fan-flower	<i>Scaevola albida</i>	2	4 per m2	Tubestock	Year 2
Forest Nightshade	<i>Solanum prinophyllum</i>	2	4 per m2	Tubestock	Year 2
Wild Sorghum	<i>Sorghum leiocladum</i>	2	4 per m2	Tubestock	Year 2
Kangaroo Grass	<i>Themeda triandra</i>	2	4 per m2	Tubestock	Year 2
	<i>Vittadinia spp</i>	2	4 per m2	Tubestock	Year 2
	<i>Wahlenbergia spp</i>	2	4 per m2	Tubestock	Year 2
Headache Vine	<i>Clematis glycinoides</i>	2	4 per m2	Tubestock	Year 2



écologique | environmental consulting

# APPENDIX E





global environmental solutions

Oakdale South Estate  
Masterplan  
Operational Noise Management Plan

Report Number 610.17706-R02

29 January 2018

Goodman  
Level 17  
60 Castlereagh St  
Sydney NSW 2000

Version: v1.0

# Oakdale South Estate

## Masterplan

### Operational Noise Management Plan

PREPARED BY:

SLR Consulting Australia Pty Ltd  
ABN 29 001 584 612  
2 Lincoln Street  
Lane Cove NSW 2066 Australia  
(PO Box 176 Lane Cove NSW 1595 Australia)  
+61 2 9427 8100 +61 2 9427 8200  
sydney@slrconsulting.com www.slrconsulting.com

This report has been prepared by SLR Consulting Australia Pty Ltd with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with the Client. Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of Goodman.  
No warranties or guarantees are expressed or should be inferred by any third parties.  
This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

#### DOCUMENT CONTROL

Reference	Date	Prepared	Checked	Authorised
610.17706-R02-v1.0	29 January 2018	Nash Cameron Jeffs	Joshua Ridgway	Joshua Ridgway

## Table of Contents

1	INTRODUCTION	5
2	BACKGROUND	5
3	DEVELOPMENT CONSENT	8
3.1	Consent Conditions	8
4	OBJECTIVES AND SCOPE	9
5	NOISE GUIDELINES	9
5.1	NSW Industrial Noise Policy	9
6	NOISE CRITERIA AND PERFORMANCE INDICATORS	10
6.1	Project Approval Conditions	10
6.1.1	Operational Noise Criteria	10
6.1.2	Operating Conditions	10
7	NOISE SENSITIVE RECEIVERS	11
8	MAJOR NOISE GENERATING ACTIVITIES	13
9	NOISE MANAGEMENT MEASURES	13
9.1	Best Management Practices	13
9.2	Source and Transmission Noise Controls	14
9.3	Receiver Noise Control	14
10	NOISE MONITORING	14
10.1	Attended Noise Monitoring	14
10.1.1	Survey Intervals	14
10.1.2	Monitoring Locations	15
10.1.3	Survey Periods and Times of Measurements	15
10.1.4	Methodology	15
10.1.5	Compliance Assessment Protocol	16
10.2	Meteorological Monitoring	16
10.2.1	Identification of Higher Level Impacts or Patterns between Noise Complaints and Temperature Inversions and Wind	17
10.2.2	Quantification of Enhanced Impacts due to Temperature Inversions and Wind	17
10.2.3	Amelioration	17
10.3	Plant and Equipment Sound Power Level Monitoring	17
11	COMPLAINTS REGISTER	18
12	CONTINGENCY PLAN	18
13	POTENTIAL CONTINGENCY MEASURES	19

## Table of Contents

14	INTERNAL AUDITS	19
15	REVIEW AND IMPROVEMENT OF NOISE MANAGEMENT PLAN	19

### **TABLES**

Table 1	Development Consent SSD 6917 (as modified)	8
Table 2	Project Specific Noise Limits dBA	10

### **FIGURES**

Figure 1	Oakdale South Masterplan	7
Figure 2	Noise Sensitive Receivers	12

### **APPENDICES**

Appendix A	Acoustic Terminology	
------------	----------------------	--

## 1 INTRODUCTION

SLR Consulting Australia Pty Ltd (SLR) has been engaged by Goodman to prepare an Operational Noise Management Plan (ONMP) for the operation of the approved warehouse and distribution centres of the Oakdale South Estate.

The ONMP is designed to address the management of potential noise impacts on nearby sensitive receivers from the operation of the subject development.

Specific acoustic terminology is used in this report. An explanation of common acoustic terms is provided in **Appendix A**.

## 2 BACKGROUND

The Oakdale South Industrial Estate (Oakdale South), being a regional warehouse and distribution hub, is located at Kemps Creek within the Penrith local government area (LGA). Oakdale South forms part of the broader Oakdale Industrial Precinct which is located within the Western Sydney Employment Area (WSEA).

Goodman Property Services (Aust) Pty Ltd (Goodman) obtained Development Consent SSD 6917 on the 26 October 2016 for the Oakdale South "Concept Proposal" and "Stage 1 Development". The Concept Proposal essentially comprises a "Master Plan" to guide the staged development of Oakdale South and core development controls that will form the basis for design and assessment of future development applications for the site. It includes:

- Six development precincts with a total of 15 building envelopes;
- Warehouse buildings and ancillary office floor space;
- Conceptual subdivision and lot layout, site levels, road layout, design controls, landscape designs and infrastructure arrangements; and
- An amenities lot for future small-scale local services such as commercial, retail and community facilities (including childcare facilities) that service or support the needs of local employment-generating uses in accordance with Condition C20 of the Oakdale South (SSD 6917) conditions of consent.

Additional future stages of Oakdale South (i.e. Stage 2, 3, etc.) are the subject of separate development applications and approvals.

At the time of preparing this document, three applications to modify SSD 6917 had been approved and a further application was pending approval. In summary, these modifications comprise:

- Mod 1 – approved on the 21 April 2017 for revisions to the approved Concept Proposal and Stage 1 Development in the northern portion of the estate;
- Mod 2 – withdrawn;
- Mod 3 – approved on the 5 October 2017 to permit out of hours importation of fill material;
- Mod 4 – approved on 18 December 2017 for revisions to the approved Concept Proposal and Stage 1 Development in the northern portion of the estate; and
- Mod 5 – approved on the 23 November 2017 for administrative changes to condition E37.

For the purposes of this document, the approved Oakdale South Master Plan is illustrated in **Figure 1** and described in:

- *Environmental Impact Statement - Oakdale South Estate, State Significant Development Application Ref. 6917* (EIS) (Urban Advisory Services 2015), along with the Response to Submissions (RTS) and supplementary reports;

- *Section 96(2) Modification Proposal, Oakdale South Industrial Estate SSD (Urbis 2016), along with the RTS and supplementary reports;*
- *SSD 6917: Oakdale South Industrial Estate – S.96 Application to Modify Condition E27 ‘Standard Construction Hours’ (Goodman 2017);*
- *Oakdale South Estate - SSSA 6917, Section 96(1A) Modification Application - MOD 4 (Urbis 2017), along with the RTS and supplementary reports; and*
- *SSD 6917: Oakdale South – S.96(1) Application To Modify Condition E37 - Noise Verification – External Mechanical Plant.*

Figure 1 Oakdale South Masterplan



**Goodman**

**BRICKWORKS**

**SSDA Masterplan**

12500 @ A1  
 15000 @ A3  
 17 Oct 2017

**SBA ARCHITECTS**

**Oakdale South Estate**  
 Horsley Park

OAK MP-02 (RR)

### 3 DEVELOPMENT CONSENT

#### 3.1 Consent Conditions

This Operational Noise Management Plan (ONMP) has been prepared to accompany the Operational Environmental Management Plan (OEMP) for the approved warehouse and distribution facilities of Oakdale South. The conditions relevant to this ONMP are outlined below in **Table 1**.

**Table 1 Development Consent SSD 6917 (as modified)**

Development Consent SSD 6917 (as modified)					Comments																								
<b>Schedule B - Conditions of Consent for Concept Approval</b>																													
<p><b>Noise Limits</b> B18. The Applicant shall ensure the Development does not exceed the noise limits provided in Table 3 below and the receiver locations (L1, L2 and L3 shown in Appendix 4):</p> <p style="text-align: center;"><b>Table 3: Project Specific Noise Limits dB(A)</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th rowspan="2">Location</th> <th>Day</th> <th>Evening</th> <th colspan="2">Night</th> </tr> <tr> <th>L<sub>Aeq</sub>(15 minute)</th> <th>L<sub>Aeq</sub>(15 minute)</th> <th>L<sub>Aeq</sub>(15 minute)</th> <th>L<sub>A1</sub>(1 minute)</th> </tr> </thead> <tbody> <tr> <td>L1 North of Warragamba Pipeline</td> <td>37</td> <td>37</td> <td>37</td> <td>47</td> </tr> <tr> <td>L2 Horsley Park</td> <td>39</td> <td>39</td> <td>39</td> <td>49</td> </tr> <tr> <td>L3 Kemps Creek, Mt Vernon, Jacfin and Capitol Hill</td> <td>40</td> <td>40</td> <td>40</td> <td>48</td> </tr> </tbody> </table> <p><i>Note: Noise generated by the Development is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy.</i></p>					Location	Day	Evening	Night		L <sub>Aeq</sub> (15 minute)	L <sub>Aeq</sub> (15 minute)	L <sub>Aeq</sub> (15 minute)	L <sub>A1</sub> (1 minute)	L1 North of Warragamba Pipeline	37	37	37	47	L2 Horsley Park	39	39	39	49	L3 Kemps Creek, Mt Vernon, Jacfin and Capitol Hill	40	40	40	48	<b>Section 6</b>
Location	Day	Evening	Night																										
	L <sub>Aeq</sub> (15 minute)	L <sub>Aeq</sub> (15 minute)	L <sub>Aeq</sub> (15 minute)	L <sub>A1</sub> (1 minute)																									
L1 North of Warragamba Pipeline	37	37	37	47																									
L2 Horsley Park	39	39	39	49																									
L3 Kemps Creek, Mt Vernon, Jacfin and Capitol Hill	40	40	40	48																									
<b>Schedule D - Conditions of Consent for the Stage 1 DA</b>																													
<p><b>Operation of Plant and Equipment</b> D27. The Applicant shall ensure that all plant and equipment used for the Development is:</p> <ol style="list-style-type: none"> <li>a) maintained in a proper and efficient condition; and</li> <li>b) operated in a proper and efficient manner.</li> </ol>					<b>Section 9</b>																								
<b>Schedule E - Environmental Performance and Management</b>																													
<b>Noise and Vibration</b>																													
E35. The Applicant shall operate the Stage 1 DA in a manner that ensures the Oakdale South Industrial Estate complies with the noise limits for the Concept Proposal set in Condition B18 of this Development Consent.					<b>Section 9</b>																								
<p><b>Noise Walls</b> E36. The Applicant shall construct the noise walls shown in the RTS and as amended in SSD 6917 MOD 1, prior to the commencement of operation of any part of the Development.</p> <p><i>Note: If construction of noise walls is to be staged, the Applicant shall submit a noise verification study to the satisfaction of the Secretary to demonstrate that the Development will comply with the noise limits in Condition B18 at all times.</i></p>					<b>Section 9</b>																								
<p><b>Noise Management</b> E38. The Applicant shall:</p> <ol style="list-style-type: none"> <li>a) implement best management practice, including all reasonable and feasible measures to prevent and minimise noise and vibration during construction and operation of the Development (including low frequency noise and traffic noise);</li> <li>b) minimise the noise impacts of the Development during adverse meteorological conditions when noise criteria do not apply;</li> <li>c) maintain the effectiveness of any noise suppression equipment on plant at all times and ensure defective plant is not used operationally until fully repaired; and</li> <li>d) regularly assess noise monitoring data and relocate, modify and/or stop operations to ensure compliance with the relevant conditions of this consent.</li> </ol>					<b>Section 6 and Section 9</b>																								



## 4 OBJECTIVES AND SCOPE

The primary objective of this ONMP is to establish a noise management strategy for the operation of the approved warehouse and distribution facilities of Oakdale South that complies with the consent conditions, through provisions to:

- Evaluate noise impacts on sensitive receivers.
- Demonstrate compliance with the operational noise criteria.
- Implement all reasonable and feasible noise mitigation measures.
- Investigate ways to reduce the noise generated by the subject development, if required.
- Report on these investigations and the implementation and effectiveness of these measures.

## 5 NOISE GUIDELINES

### 5.1 NSW Industrial Noise Policy

The NSW *Industrial Noise Policy* (INP) (Environment Protection Agency (EPA), 2000) has been referenced in the preparation of this ONMP with regard to:

- Noise monitoring procedures.
- Noise monitoring instrumentation calibration.
- Monitoring of weather conditions.
- Implementation of mitigation measures.

The INP provides a framework and process for deriving noise limit conditions for consents and licences to facilitate the EPA's regulation of premises scheduled under the Protection of the Environment Operations Act. In applying the policy:

- Specific noise levels for intrusiveness and amenity that are relevant to the operation of Oakdale South must be determined.
- Existing background and ambient noise levels must be determined.
- Adjustments for annoying noise characteristics are to be applied to the noise levels produced by Oakdale South.
- Regard must be made to meteorological conditions in measuring noise levels produced by Oakdale South;
- Measured noise levels must be compared with Oakdale South noise criteria and impacts must be assessed;
- Noise mitigation measures must be considered where Oakdale South noise criteria are exceeded; and
- Environmental noise levels from Oakdale South must be monitored to determine compliance with the consent conditions.

## 6 NOISE CRITERIA AND PERFORMANCE INDICATORS

### 6.1 Project Approval Conditions

#### 6.1.1 Operational Noise Criteria

Noise monitoring will be undertaken in order to demonstrate compliance with the noise criteria set out in Consent Condition B18 of Schedule B, which requires that noise generated by Oakdale South does not result in non-compliance with the criteria in **Table 2** at any noise sensitive receiver.

**Table 2 Project Specific Noise Limits dBA**

Location	Day	Evening	Night	
	LAeq(15minute)	LAeq(15minute)	LAeq(15minute)	LA1(1minute)
L1 North of Warragamba Pipeline	37	37	37	47
L2 Horsley Park	39	39	39	49
L3 Kemps Creek, Mt Vernon, Jacfin and Capitol Hill	40	40	40	48

In accordance with Consent Condition B18 of Schedule B, noise generated by Oakdale South is to be measured in accordance with the relevant provisions and exemptions (including certain meteorological conditions) of the INP. Meteorological monitoring for Oakdale South is described in **Section 10.2**.

In accordance with the INP, a development will be deemed to be in non-compliance with a noise consent or licence condition if the monitored noise level is more than 2 dB above the statutory noise limit specified in the consent or licence condition (refer to **Section 10.1.5** for further detail on non-compliance).

Where an exceedance of the noise criteria is identified, the development is not considered to be in non-compliance with its consent or licence condition if the measured noise is affected by atypical weather effects. Atypical weather effects can be considered to be present during monitoring if:

- During rain or wind speeds greater than 3 m/s (at 10 m height); or
- The cloud cover is less than 40 per cent and the wind speed (at 10 m height) is less than 1.0 m/s during the period from 6 pm to 7 am (refer to Section 9.2 in the INP).

If atypical weather is present during monitoring, further monitoring at a later date is required to determine compliance under meteorological conditions considered typical of the site. The process for determining site specific weather effects is defined in the INP, ie weather effects that are present for >30% of a time period (day, evening, night) during a specific season (summer, autumn, winter, spring).

#### 6.1.2 Operating Conditions

The noise related operating conditions required under the NSW Project Approvals are detailed in Consent Condition E38 of Schedule E and are summarised below:

*E38. The Applicant shall:*

*(a) implement best management practice, including all reasonable and feasible measures to prevent and minimise noise and vibration during construction and operation of the Development (including low frequency noise and traffic noise);*

*(b) minimise the noise impacts of the Development during adverse meteorological conditions when noise criteria do not apply;*

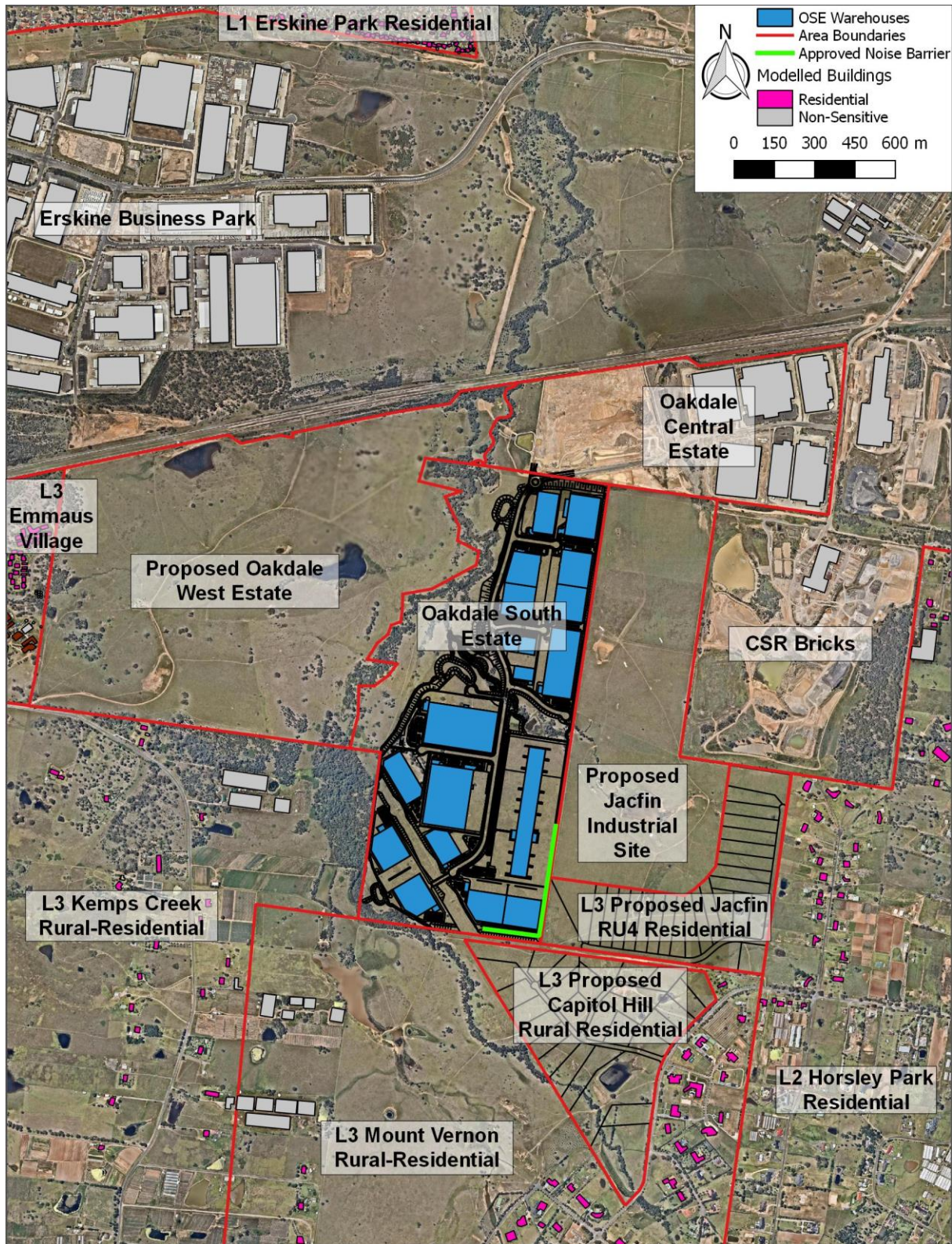
*(d) maintain the effectiveness of any noise suppression equipment on plant at all times and ensure defective plant is not operational until fully repaired; and*

*(e) regularly assess noise monitoring data and relocate, modify and/or stop operations to ensure compliance with the relevant conditions of this consent.*

## **7 NOISE SENSITIVE RECEIVERS**

The noise sensitive receiver areas surrounding Oakdale South Estate are shown in **Figure 2**. These include the locations specified in the project specific noise criteria presented in **Table 2**.

Figure 2 Noise Sensitive Receivers



## 8 MAJOR NOISE GENERATING ACTIVITIES

The major noise generating activities/equipment from the operation of the approved warehouse and distribution centres in Oakdale South are as follows:

- Delivery trucks (truck arrival/departure on estate roads and manoeuvring in hardstand areas)
- Light vehicles (employee vehicles on estate roads and within carparking areas)
- Gas/electric powered forklifts (loading/unloading trucks)
- Mechanical plant (ventilation/airconditioning systems, refrigeration condensers, etc)

The approved hours of operation for these activities are 24 hours, 7 days a week.

## 9 NOISE MANAGEMENT MEASURES

In accordance with Consent Condition E38 of Schedule E, Goodman will implement management and control measures to identify and manage noise impacts to ensure noise from the approved warehouse and distribution centres across Oakdale South are managed to acceptable levels, through a combination of following:

- Ensuring best management practices are implemented onsite by all staff and contractors.
- Implementing noise controls to reduce noise from the source and attenuate noise transmission.
- If necessary, implementing measures to control noise at receivers.

The effectiveness of the noise management measures at the subject approved centres will be assessed through attended noise monitoring (refer to **Section 10.1** of this ONMP). Where the development is considered to be in non-compliance with its consent or licence condition, additional strategies for mitigation of noise would be considered and implemented to address the non-compliance.

### 9.1 Best Management Practices

The following best practice noise management measures (in accordance with Consent Condition D27 of Schedule D and Conditions E35, E36 and E38 of Schedule E) will be implemented at the approved centres of Oakdale South:

- An awareness and understanding of noise issues and the use of quiet work practices will be included in site inductions for all staff, contractors and visitors to Oakdale South. Specific mention of the following items will be included:
  - Site specific noise management measures to be followed.
  - Locations of nearby noise sensitive receivers.
- The simultaneous use of multiple items of significant noise generating equipment will be avoided wherever possible, scheduling operations so they are used separately rather than concurrently.
- Scheduling the use of any noisy equipment during daytime.
- Siting noisy equipment behind structures that act as barriers, or at the greatest distance from the noise-sensitive area, or orienting the equipment so that noise emissions are directed away from any sensitive areas, to minimise noise emissions.
- Where practicable, keep all roller doors closed during the night-time period.
- Weather conditions will be monitored (as per **Section 10.2**) and where adverse conditions are experienced or predicted (such as high winds or temperature inversions), operational changes will be made to avoid or reduce noise impacts during these periods.

- All equipment, machinery and plant used on site will be maintained regularly to minimise noise generation.
- Maintain the effectiveness of any noise suppression equipment on plant at all times and ensure defective plant is not operational until fully repaired.
- The volume of reversing and start-up alarms will be reduced to the minimum practicable level (while still complying with safety regulations) and the least intrusive alarms will be used.
- Specify maximum allowable noise/sound levels when purchasing equipment.
- Include maximum allowable noise/sound levels in tender documents and contracts.
- Noise monitoring will include attended monitoring as well as a program to monitor the Sound Power Levels (SWLs) of the plant on site (refer to **Section 10.3**).
- An awareness of industry developments will be maintained in relation to noise mitigation for individual plant items used on the site, in order to assess cost and practicality of plant upgrade or mitigation implementation.

## 9.2 Source and Transmission Noise Controls

Source and transmission noise controls include:

- Enclosure of outdoor fixed plant (such as mechanical plant) where possible
- For equipment with enclosures, ensure door and seals are well maintained and kept closed when not in use; and
- Noise attenuation of mobile equipment such as trucks, forklifts etc, where a noise issue is identified.

## 9.3 Receiver Noise Control

Goodman will consider the following measures if sustained non-compliance with the noise consent or licence condition cannot be addressed with the measures outlined in **Section 9.1** and **Section 9.2**:

- Implementing reasonable and feasible mitigation measures at noise-affected receivers, such as enhanced glazing, insulation and/or air conditioning; and
- Negotiate agreements with property holders.

# 10 NOISE MONITORING

Goodman will implement an operational noise monitoring program that will comprise attended noise monitoring at selected sensitive locations (refer to **Section 7** in conjunction with **Section 10.1**).

The results of the attended noise monitoring will be used to assess compliance with the relevant noise criteria (refer to **Section 6**). Meteorological monitoring will also be conducted (refer to **Section 10.2**) as well as triennial assessments of equipment and plant SWLs (once every three years) (refer to **Section 10.3**). Details of major findings, monitoring results and mitigation measures will be reported after each survey.

## 10.1 Attended Noise Monitoring

### 10.1.1 Survey Intervals

Operational noise surveys will be conducted biannually (twice per year), at an interval of six months. Section 5.2 of the INP states that winter represents the season with the highest frequency of temperature inversions. Monitoring will therefore be undertaken in winter and summer, enabling the assessment of seasonal variations in the noise impacts.

### 10.1.2 Monitoring Locations

Noise monitoring locations, representative of the locations outlined in the consent conditions have been identified as follows:

- M1: Weaver Street, Erskine Park (L1 consent limit)
- M2: Horsley Road or Greenway Place, Horsley Park (L2 consent limit)
- M3: Capitol Hill Drive, Mt Vernon (L3 consent limit)
- M4: Aldington Road, Kemps Creek (L3 consent limit)

Future additional monitoring locations are as follows:

- M5: Capitol Hill residential area (L3 consent limit) – most affected residence once built and occupied
- M6: Jacfin residential area (L3 consent limit) – most affected residence once built and occupied

In the event of a noise complaint associated with the operation of the development, additional monitoring may be undertaken at the location of the noise complaint where this is considered to assist in the response to the complainant (refer to **Section 11**).

In accordance with INP requirements, noise monitoring will be conducted at the most noise-affected point on or within the residential boundary, or at the most affected point within 30 m of the dwelling where the dwelling is more than 30 m from the boundary. However, it is noted that it may not be practical to conduct noise monitoring at this location during all measurement periods. Where this location is considered to be unpractical or inaccessible, a substitute monitoring location may be chosen that is considered to be representative of the site noise contribution at the specified location.

### 10.1.3 Survey Periods and Times of Measurements

At each noise monitoring site, operator attended noise monitoring will be conducted using an integrating averaging sound level meter over a 15 minute period on at least one occasion during the daytime (7:00 am to 6:00 pm), evening (6:00 pm to 10:00 pm) and night-time (10:00 pm to 7:00 am). During the surveys, the operator will identify the character and duration of acoustically significant noise sources.

### 10.1.4 Methodology

Attended noise monitoring will be undertaken by a suitably trained and qualified acoustic consultant. All attended noise monitoring will be conducted in accordance with the NSW Industrial Noise Policy and AS1055.1-1997 *Acoustics - Description and Measurement of environmental noise - General Procedures*.

The results of the attended noise monitoring will be compared with the Oakdale South noise criteria (refer to **Section 6.1**).

### Measurement

Acoustic instrumentation used in attended monitoring will comply with Australian Standard AS IEC 61672.1-2004 - *Electroacoustics—Sound level meters, Part 1: Specifications* and will carry current National Association of Testing Authorities (NATA) or manufacturer calibration certificates. Instrument calibration will be checked before and after each survey, with the variation in calibrated levels not to exceed  $\pm 0.5$  dBA.

Comprehensive field notes will be taken in order to record site sources (trucks, forklifts, etc) and other sources (birds, insects, dogs, passing cars, etc).

The noise level contribution from Oakdale South operational activities will be quantified over a 15 minute measurement period. All relevant statistics will be recorded, including (at a minimum)  $L_{eq}$ ,  $L_{max}$ , and  $L_{90}$ .

Modifying factors from Section 4 of the INP will be used where applicable. Tonality and low frequency characteristics will be assessed by analysis of the measured  $L_{Aeq}$  spectrum.

## Recording

The following information will be recorded for each noise monitoring survey:

- Operator's name;
- Locations of attended noise instruments;
- Recording intervals;
- Meteorological conditions for each measurement location;
- Statistical noise level descriptors together with notes identifying the principal noise sources;
- Project operating conditions including mobile and ancillary equipment operation and predominant location; and
- Instrument calibration details.

### 10.1.5 Compliance Assessment Protocol

Attended noise surveys are the primary method for describing the acoustic environment and determining the sites compliance against the relevant noise criteria, as this allows a reasonably accurate determination of the site noise contribution to the measured ambient noise levels.

If the above assessment determines that an exceedance is due to Oakdale South activities during relevant site specific meteorological conditions, then the management strategies detailed in **Section 9** to help prevent recurrence will be implemented in order to reduce noise levels below the Project Approvals noise criteria.

Non-compliance of the noise conditions will be determined in accordance with Section 11.1.3 of the INP, which states the following in relation to when a development is in exceedance of the noise criteria:

*A development will be deemed to be in non-compliance with a noise consent or licence condition if the monitored noise level is more than 2 dB above the statutory noise limit specified in the consent or licence condition.*

*A development will be in breach of a noise consent or licence condition if sustained non-compliances are not addressed and rectified.*

Accordingly, Oakdale South will be deemed to be in non-compliance with the relevant noise conditions where monitored levels indicate that Oakdale South's contribution to the recorded result exceeds the noise criteria by more than 2 dB.

## 10.2 Meteorological Monitoring

Meteorological data will be collected from the Bureau of Meteorology AWS at Horsley Park (Station ID 067119) to:

- Assist in the prediction of noise at nearby sensitive receivers; and
- To establish the correlation between weather conditions and the noise monitoring results in order to determine any weather conditions that produce greater noise impacts and/or a higher incidence of complaints.



The meteorological station is located approximately 4.5 km south-east of the site and measures the wind speed and direction, standard deviation of wind direction, temperature (2 metres and 10 metres), barometric pressure, humidity, solar radiation and rainfall.

The meteorological conditions will be recorded for each monitoring activity or complaint.

### **10.2.1 Identification of Higher Level Impacts or Patterns between Noise Complaints and Temperature Inversions and Wind**

Noise complaint details will be compared to the occurrence of any temperature inversions or wind to determine whether a higher level of impact or patterns of temperature inversions or wind have occurred.

The details of complaints received by the site's Environmental Manager will be entered into the complaints register (refer to **Section 11**). The receiving of any complaints will initiate the Environmental Manager to assess whether temperature inversions or wind may have contributed to the noise complaint.

A pattern of higher level noise impacts in relation to temperature inversions or wind will only be apparent after a number of complaints during temperature inversion or wind conditions have been received.

### **10.2.2 Quantification of Enhanced Impacts due to Temperature Inversions and Wind**

Should enhanced noise impacts be identified, monitoring will occur at the source of the complaint in order to quantify the degree of enhanced impact against noise exceedance criteria.

### **10.2.3 Amelioration**

Where noise complaints indicate higher levels of noise impact due to temperature inversions or wind, as quantified, measures will be taken to ameliorate enhanced impacts under adverse weather conditions. Noise reduction strategies and procedures for reducing noise emissions from Oakdale South are outlined in **Section 9**.

While the criteria in **Section 6.1** do not apply under excessive weather conditions, noise management measures in **Section 9** should still be considered to minimise noise impacts.

## **10.3 Plant and Equipment Sound Power Level Monitoring**

A program will be implemented to test the sound power levels (SWLs) of all equipment on a triennial basis (once every three years) or in the event of a specific noise complaint. The results of this testing will be maintained by Goodman in their monitoring database. The existing noise model for Oakdale South prepared by SLR will be rerun using the updated results from the sound power level testing to determine the current noise impacts.

### **Methodology**

The plant and equipment sound power level monitoring will be conducted, in accordance with the following standards:

- ISO 6395 "Earth-moving machinery - Determination of sound power level noise emissions - Dynamic test conditions";
- AS 2012.1 "Acoustics - Measurement of airborne noise emitted by earth-moving machinery and agricultural tractors - Stationary test condition - Determination of Compliance With Limits for External Noise";
- AS 2012.2 "Acoustics - Measurement of airborne noise emitted by earth-moving machinery and agricultural tractors - Stationary test condition - Operator's Position"; and

- ISO 4872 "Acoustics - Measurement of airborne noise emitted by construction equipment intended for outdoor use- Method for determining compliance with noise limits".

## Recording

The following information will be recorded for each SWL survey:

- Operator's name;
- Equipment ID, type, make and model;
- Location and operating mode of the equipment;
- Meteorological conditions during the survey period;
- LAeq and LAmax noise level descriptors together with notes identifying the principal noise sources;
- Details of any extraneous noise; and
- Instrument calibration details.

## 11 COMPLAINTS REGISTER

Complaints will be received via the contact telephone number to be included on the site signage.

A complaints register will be maintained by the Environmental Manager. Response to the complaint will be provided to the complainant within 24 hours.

Information recorded in the complaints register with respect to each complaint will include:

- Date and time of complaint.
- Name, address and telephone number of complainant.
- Nature of complaint.
- Response actions taken to date.

A report of complaints will be provided to the Director-General every six months throughout the life of the project, or as otherwise agreed by the Director-General.

Preliminary investigations into the complaint will commence within 48 hours of the complaint receipt and adequate measures to identify and manage will be considered (refer to **Section 9**).

## 12 CONTINGENCY PLAN

In the event that a non-compliance with the noise conditions is identified, as per the protocol described in **Section 10.1.5**, Goodman will implement the following Contingency Plan:

- Goodman will report any sustained non-compliance to the EPA and DP&E as soon as practicable.
- Goodman will identify an appropriate course of action with respect to the identified impact(s), in consultation with specialists and the EPA, as necessary. For example, contingency measures such as, but not limited to, those described in **Section 13** of this ONMP.
- Goodman will, on request, submit the proposed course of action to the DP&E for approval.
- Goodman will implement the approved course of action.

### 13 POTENTIAL CONTINGENCY MEASURES

Potential contingency measures will be reviewed during revisions of this ONMP. Key potential contingency measures to be implemented (following the identification of non-compliance with the noise conditions) may include the following:

- Goodman will notify affected landholder and tenants at the location of the exceedance as soon as practicable and provide them with details of actions taken, including noise monitoring results, until it can be shown that that Oakdale South is complying with the noise criteria.
- Goodman will complete a SWL review and remodel the noise emissions for examination of potential additional noise controls, and implement additional reasonable and feasible at source noise controls in addition to those described in **Section 9.2** of this ONMP.
- Goodman will, on request, implement reasonable and feasible at-receiver noise controls (refer to **Section 9.3**).

### 14 INTERNAL AUDITS

Periodic internal audits will be conducted to ensure that the development consent conditions and commitments and environmental management controls outlined in this ONMP are being properly implemented. Audit reports will be used to inform of any corrective actions.

### 15 REVIEW AND IMPROVEMENT OF NOISE MANAGEMENT PLAN

In accordance with Condition F9 of Schedule F, this ONMP should be reviewed and updated within three months of:

- the determination of a modification; or
- the submission of an incident report under Condition F6.

Goodman shall review, and if necessary revise this ONMP to the satisfaction of the Secretary.

Additionally, this ONMP should be reviewed and updated annually at the least, or if the following is to occur:

- Significant changes to the operation and management of the sites;
- Where it is identified that the performance of Oakdale South is not meeting the objectives of the ONMP; or
- At the request of the DPE or other relevant government agency.

All employees and contractors will be informed of any revisions to the ONMP by Site Management during toolbox talks.

## 1 Sound Level or Noise Level

The terms 'sound' and 'noise' are almost interchangeable, except that in common usage 'noise' is often used to refer to unwanted sound.

Sound (or noise) consists of minute fluctuations in atmospheric pressure capable of evoking the sense of hearing. The human ear responds to changes in sound pressure over a very wide range. The loudest sound pressure to which the human ear responds is ten million times greater than the softest. The decibel (abbreviated as dB) scale reduces this ratio to a more manageable size by the use of logarithms.

The symbols SPL, L or LP are commonly used to represent Sound Pressure Level. The symbol LA represents A-weighted Sound Pressure Level. The standard reference unit for Sound Pressure Levels expressed in decibels is  $2 \times 10^{-5}$  Pa.

## 2 'A' Weighted Sound Pressure Level

The overall level of a sound is usually expressed in terms of dBA, which is measured using a sound level meter with an 'A-weighting' filter. This is an electronic filter having a frequency response corresponding approximately to that of human hearing.

People's hearing is most sensitive to sounds at mid frequencies (500 Hz to 4000 Hz), and less sensitive at lower and higher frequencies. Thus, the level of a sound in dBA is a good measure of the loudness of that sound. Different sources having the same dBA level generally sound about equally loud.

A change of 1 dBA or 2 dBA in the level of a sound is difficult for most people to detect, whilst a 3 dBA to 5 dBA change corresponds to a small but noticeable change in loudness. A 10 dBA change corresponds to an approximate doubling or halving in loudness. The table below lists examples of typical noise levels

Sound Pressure Level (dBA)	Typical Source	Subjective Evaluation
130	Threshold of pain	Intolerable
120	Heavy rock concert	Extremely noisy
110	Grinding on steel	
100	Loud car horn at 3 m	Very noisy
90	Construction site with pneumatic hammering	
80	Kerbside of busy street	Loud
70	Loud radio or television	
60	Department store	Moderate to quiet
50	General Office	
40	Inside private office	Quiet to very quiet
30	Inside bedroom	
20	Recording studio	Almost silent

Other weightings (eg B, C and D) are less commonly used than A-weighting. Sound Levels measured without any weighting are referred to as 'linear', and the units are expressed as dB(lin) or dB.

## 3 Sound Power Level

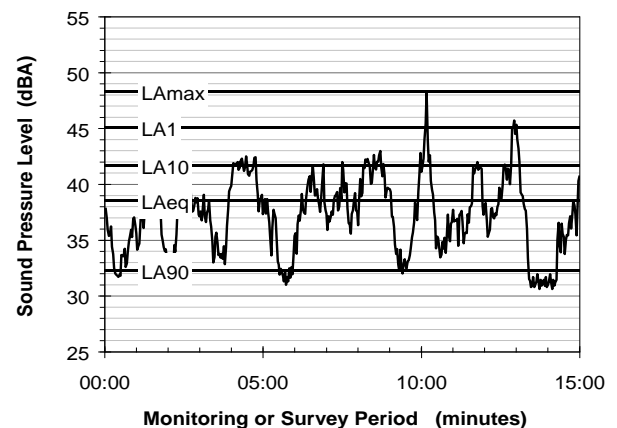
The Sound Power of a source is the rate at which it emits acoustic energy. As with Sound Pressure Levels, Sound Power Levels are expressed in decibel units (dB or dBA), but may be identified by the symbols SWL or Lw, or by the reference unit  $10^{-12}$  W.

The relationship between Sound Power and Sound Pressure may be likened to an electric radiator, which is characterised by a power rating, but has an effect on the surrounding environment that can be measured in terms of a different parameter, temperature.

## 4 Statistical Noise Levels

Sounds that vary in level over time, such as road traffic noise and most community noise, are commonly described in terms of the statistical exceedance levels LAN, where LAN is the A-weighted sound pressure level exceeded for N% of a given measurement period. For example, the LA1 is the noise level exceeded for 1% of the time, LA10 the noise exceeded for 10% of the time, and so on.

The following figure presents a hypothetical 15 minute noise survey, illustrating various common statistical indices of interest.



Of particular relevance, are:

- LA1 The noise level exceeded for 1% of the 15 minute interval.
- LA10 The noise level exceeded for 10% of the 15 minute interval. This is commonly referred to as the average maximum noise level.
- LA90 The noise level exceeded for 90% of the sample period. This noise level is described as the average minimum background sound level (in the absence of the source under consideration), or simply the background level.
- LAeq The A-weighted equivalent noise level (basically the average noise level). It is defined as the steady sound level that contains the same amount of acoustical energy as the corresponding time-varying sound.

When dealing with numerous days of statistical noise data, it is sometimes necessary to define the typical noise levels at a given monitoring location for a particular time of day. A standardised method is available for determining these representative levels.

This method produces a level representing the 'repeatable minimum' LA90 noise level over the daytime and night-time measurement periods, as required by the EPA. In addition the method produces mean or 'average' levels representative of the other descriptors (LAeq, LA10, etc).

## 5 Tonality

Tonal noise contains one or more prominent tones (ie distinct frequency components), and is normally regarded as more offensive than 'broad band' noise.

## 6 Impulsiveness

An impulsive noise is characterised by one or more short sharp peaks in the time domain, such as occurs during hammering.

## 7 Frequency Analysis

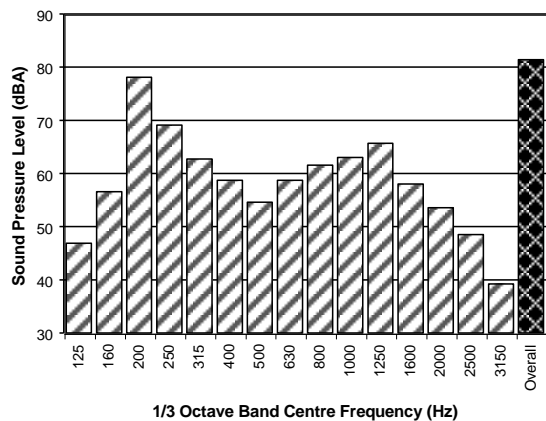
Frequency analysis is the process used to examine the tones (or frequency components) which make up the overall noise or vibration signal. This analysis was traditionally carried out using analogue electronic filters, but is now normally carried out using Fast Fourier Transform (FFT) analysers.

The units for frequency are Hertz (Hz), which represent the number of cycles per second.

Frequency analysis can be in:

- Octave bands (where the centre frequency and width of each band is double the previous band)
- 1/3 octave bands (3 bands in each octave band)
- Narrow band (where the spectrum is divided into 400 or more bands of equal width)

The following figure shows a 1/3 octave band frequency analysis where the noise is dominated by the 200 Hz band. Note that the indicated level of each individual band is less than the overall level, which is the logarithmic sum of the bands.



## 8 Vibration

Vibration may be defined as cyclic or transient motion. This motion can be measured in terms of its displacement, velocity or acceleration. Most assessments of human response to vibration or the risk of damage to buildings use measurements of vibration velocity. These may be expressed in terms of 'peak' velocity or 'rms' velocity.

The former is the maximum instantaneous velocity, without any averaging, and is sometimes referred to as 'peak particle velocity', or PPV. The latter incorporates 'root mean squared' averaging over some defined time period.

Vibration measurements may be carried out in a single axis or alternatively as triaxial measurements. Where triaxial measurements are used, the axes are commonly designated vertical, longitudinal (aligned toward the source) and transverse.

The common units for velocity are millimetres per second (mm/s). As with noise, decibel units can also be used, in which case the reference level should always be stated. A vibration level  $V$ , expressed in mm/s can be converted to decibels by the formula  $20 \log (V/V_0)$ , where  $V_0$  is the reference level ( $10^{-9}$  m/s). Care is required in this regard, as other reference levels may be used by some organizations.

## 9 Human Perception of Vibration

People are able to 'feel' vibration at levels lower than those required to cause even superficial damage to the most susceptible classes of building (even though they may not be disturbed by the motion). An individual's perception of motion or response to vibration depends very strongly on previous experience and expectations, and on other connotations associated with the perceived source of the vibration. For example, the vibration that a person responds to as 'normal' in a car, bus or train is considerably higher than what is perceived as 'normal' in a shop, office or dwelling.

## 10 Over-Pressure

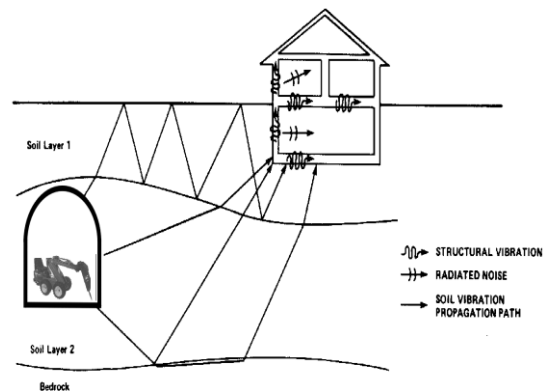
The term 'over-pressure' is used to describe the air pressure pulse emitted during blasting or similar events. The peak level of an event is normally measured using a microphone in the same manner as linear noise (ie unweighted), at frequencies both in and below the audible range.

## 11 Ground-borne Noise, Structure-borne Noise and Regenerated Noise

Noise that propagates through a structure as vibration and is radiated by vibrating wall and floor surfaces is termed 'structure-borne noise', 'ground-borne noise' or 'regenerated noise'. This noise originates as vibration and propagates between the source and receiver through the ground and/or building structural elements, rather than through the air.

Typical sources of ground-borne or structure-borne noise include tunnelling works, underground railways, excavation plant (eg rockbreakers), and building services plant (eg fans, compressors and generators).

The following figure presents the various paths by which vibration and ground-borne noise may be transmitted between a source and receiver for construction activities occurring within a tunnel.



The term 'regenerated noise' is also used in other instances where energy is converted to noise away from the primary source. One example would be a fan blowing air through a discharge grill. The fan is the energy source and primary noise source. Additional noise may be created by the aerodynamic effect of the discharge grill in the airstream. This secondary noise is referred to as regenerated noise

# APPENDIX F



global environmental solutions

Energy Efficiency S.96 Report  
Oakdale South, MOD 5\_Precinct 1  
Horsley Park

Report Number 610.15608-R1

4 August 2017

Goodman Property Services  
Level 17  
60 Castlereagh Street  
SYDNEY NSW 2000

Version: v0.8

# Energy Efficiency S.96 Report

## Oakdale South, MOD 5\_Precinct 1

### Horsley Park

#### PREPARED BY:

SLR Consulting Australia Pty Ltd  
ABN 29 001 584 612  
2 Lincoln Street  
Lane Cove NSW 2066 Australia  
(PO Box 176 Lane Cove NSW 1595 Australia)  
+61 2 9427 8100 +61 2 9427 8200  
sydney@slrconsulting.com www.slrconsulting.com

This report has been prepared by SLR Consulting Australia Pty Ltd with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with the Client. Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of Goodman Property Services. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

#### DOCUMENT CONTROL

Reference	Status	Date	Prepared	Checked	Authorised
610.15608-R1	Revision 8	4 August 2017	Dr. Hamidul Islam	Neihad Al-Khalidy	Neihad Al-Khalidy
610.15608-R1	Revision 7	12 May 2017	Dr. Hamidul Islam	Neihad Al-Khalidy	Neihad Al-Khalidy
610.15608-R1	Revision 6	2 May 2017	Dr. Hamidul Islam	Neihad Al-Khalidy	Neihad Al-Khalidy
610.15608-R1	Revision 5	13 July 2016	Neihad Al-Khalidy	Peter Hayman	Neihad Al-Khalidy
610.15608-R1	Revision 4	08 June 2016	Neihad Al-Khalidy	Peter Hayman	Neihad Al-Khalidy
610.15608-R1	Revision 3	16 September 2015	Horatio Cai	Neihad Al-Khalidy	Neihad Al-Khalidy
610.15608-R1	Revision 2	09 September 2015	Horatio Cai	Neihad Al-Khalidy	Neihad Al-Khalidy
610.15608-R1	Revision 1	31 August 2015	Horatio Cai	Neihad Al-Khalidy	Neihad Al-Khalidy



## TABLES

1	INTRODUCTION	2
1.1	Scope of Works	3
2	ENERGY MANAGEMENT GUIDELINES AND LEGISLATION	4
2.1	National Construction Code of Australia	4
2.2	Secretary's Environmental Assessment Requirements	4
3	PROJECT DESCRIPTION	5
4	OPERATIONAL ENERGY MANAGEMENT	7
4.1	Identified Major Energy Use Components	7
4.2	Energy Sources	7
4.3	Proposed Energy Efficiency Measures	8
4.3.1	Building Passive design	8
4.3.2	Lighting	8
4.3.3	Air conditioning	9
4.3.4	Domestic Water Heating	9
4.3.5	Energy Metering	9
4.3.6	Water	9
4.4	Baseline and Proposed Energy Consumption	9
4.5	Signage and Education for Employees	10
4.6	Monitoring and Reporting Requirements	10
4.6.1	Energy Review and Audit	10
4.6.2	Energy Metering and Monitoring	11
4.7	Roles and Responsibilities	12
5	ADDITIONAL ENERGY USE MINIMISATION STRATEGIES	13
6	CONCLUSION	14
7	CLOSURE	16

## FIGURES

Figure 1	Site Plan Showing Industrial Precincts	5
Figure 2	Site Plan for Precinct 1	5
Figure 3	Floorplan of 1A and 1B	6
Figure 4	Floorplan of 1C	6

## 1 INTRODUCTION

On 17<sup>th</sup> September 2015, Environmental Impact Statement (EIS) and supporting documentation was submitted to NSW Planning and Environment (NSW P&E) with respect to a State Significant Development Application for the staged development of the Oakdale South Estate (OSE). The SSDA, originally lodged in March 2015 seeks consent for a Concept Proposal for the Estate and Stage 1 of the development comprising:

- Estate Works for the entire OSE;
- The construction and use of buildings in Precincts 1, 4 and 5 for generic 'warehousing and distribution' uses with 24/7 operation.

SLR has previously completed an energy efficiency report for Oakdale South Estate at Horsley Park. The precinct as approved was for five large warehouse buildings. In MOD 5, the following changes have been made to the design:

- The design now incorporates 3 large warehouse buildings (1A, 1B and 1C) instead of 4 (1A, 1B 1C and 1D); and
- Modified warehouse and office layouts of building 1C.

SLR Consulting Australia Pty Ltd (SLR Consulting) has been recently engaged by Goodman Property Limited (Goodman) to update the Energy Efficiency Report for the revised master plan of Oakdale South Estate at Horsley Park. In MOD 5 which seeks to modify the Stage 1 Precinct Development for Site 1C and 1D within the Precinct 1. Precinct 1 is the northern-most development precinct within the OSE, representing the gateway to the estate. The precinct as approved was for 5 large warehouse buildings. The approved SSDA now proposes 3 large warehouse buildings in MOD 5. The warehouse buildings 1A and 1B remain unchanged, and the warehouse building 1C is modified and the warehouse building 1D is removed. Access to these warehouses will be from Estate Road 02 and the proposed new Estate Road 07.

The report has been prepared in accordance with the following Secretary's Environmental Assessment Requirements (SEAR) conditions for Oakdale South Estate for development application:

*"An assessment of the energy use on site and demonstrate what measures would be implemented to ensure the proposal is energy efficient."*

The principal objective of this Energy Efficiency Report is to identify all potential energy savings that may be realised during the operational phase of the Project, including a description of likely energy consumption levels and options for alternative energy sources such as solar power in accordance with Penrith City Council (Council) requirements.

## 1.1 Scope of Works

The specific scope of works of this plan is as follows:

- To encourage energy use minimisation through the implementation of energy efficiency measures.
- To promote improved environmental outcomes through energy management.
- To ensure the appropriate management of high energy consumption aspects of the Project.
- To assist in ensuring that any environmental impacts during the operational life of the development comply with Council's development consent conditions and other relevant regulatory authorities.
- To identify energy savings procedures for overall cost reduction, greenhouse gas emission reduction and effective energy management.
- To ensure the long term sustainability of resource use through more efficient and cost effective energy use practices for the life of the development.

Where appropriate, the Energy Efficiency Report aims to meet the principles of energy management hierarchy, through the following in order of preference:

- Energy use avoidance through effective energy management (i.e. turning off lights in unused parts of the warehouse).
- Use of alternative energy sources such as solar power where practical and cost effective.
- Energy use minimisation by the implementation of energy efficiency measures.
- Purchase of 'GreenPower' and other accredited greenhouse gas offsets.

## 2 ENERGY MANAGEMENT GUIDELINES AND LEGISLATION

### 2.1 National Construction Code of Australia

The National Construction Code (NCC) of Australia is produced and maintained by the Australian Building Codes Board (ABCB) on behalf of the Australian Government with the aim of achieving nationally consistent, minimum necessary standards of relevant health and safety, amenity and sustainability objectives efficiently. The NCC contains mandatory technical provisions for the design and construction of NCC class buildings.

Volume 1, Section J of the NCC (2015) outlines energy efficiency provisions required for NCC class buildings (including Class 7b Warehouses and Class 5 Offices). There are eight (8) Deemed-to-Satisfy subsections, J1 to J8, that focus on separate aspects of energy efficiency as follows:

- J1 - Building Fabric (i.e. the ability of the roof, walls and floor to resist heat transfer)
- J2 - External Glazing (i.e. the resistance to heat flow and solar radiation of the glazing)
- J3 - Building Sealing (i.e. how well parts of a building are sealed to ensure comfortable indoor environments are efficiently maintained)
- J4 - Air Movement (i.e. the provision of air movement for free cooling, in terms of opening and breeze paths). Note: This subsection has been removed from the most current version.
- J5 - Air Conditioning and Ventilation Systems (i.e. the efficiency and energy saving features of heating, ventilation and air-conditioning systems)
- J6 - Artificial Lighting and Power (i.e. power allowances for lighting and electric power saving features)
- J7 - Hot Water Supply (i.e. the efficiency and energy saving features of hot water supply)
- J8 - Access for Maintenance (i.e. access to certain energy efficiency equipment for maintenance purposes)

### 2.2 Secretary's Environmental Assessment Requirements

The Greenhouse Gas and Energy Efficiency section of the Oakdale South Estate- Secretary's Environmental Assessment Requirements states:

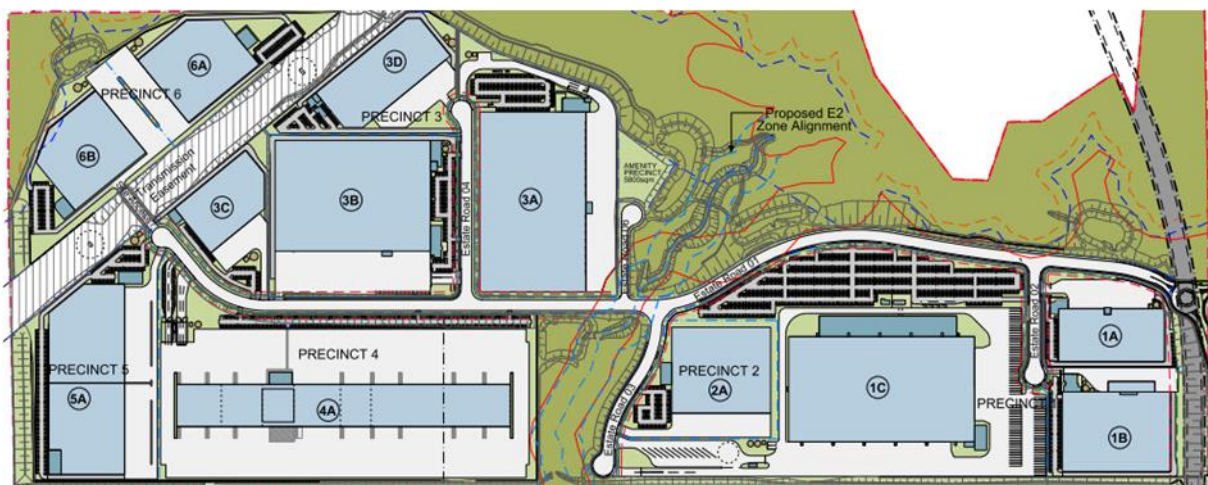
*"An assessment of the energy use on site and demonstrate what measures would be implemented to ensure the proposal is energy efficient".*

### 3 PROJECT DESCRIPTION

The Development Site, which is known as Oakdale South Estate, Horsley Park, is located within the Penrith Local Government Area (LGA) in the Western Sydney Employment Area (WSEA). It is situated within an approved Concept Plan area, which forms part of the broader Oakdale Industrial Precinct.

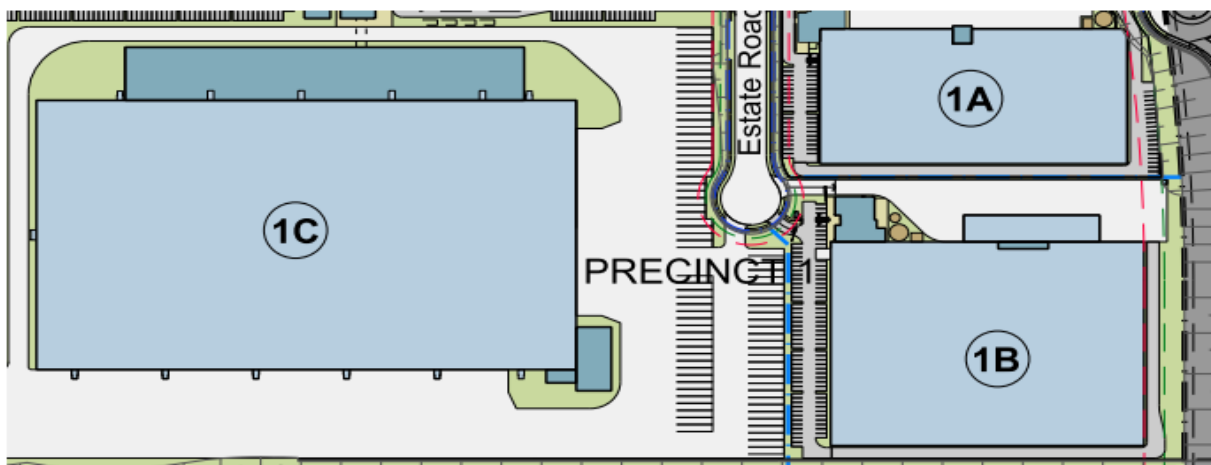
There are six (6) industrial precincts are proposed to be developed as new warehouse, distribution and freight transport center between Milner Avenue and Estate Road. The site plan is shown in **Figure 1**.

**Figure 1 Site Plan Showing Industrial Precincts**

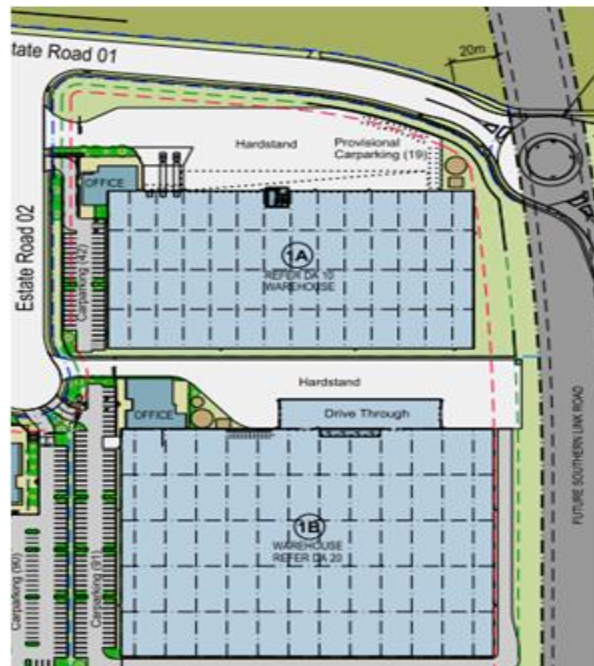


When completed the Precinct 1, it will consist of three (3) warehouses with associated offices, carparks and truck loading areas, which is shown below in **Figure 2**. This report relates to Precinct 1 that consists of three (3) new warehouse buildings, known as Sites 1A, 1B and 1C, each with ancillary offices, car parking facilities and loading areas. The floor plans of buildings 1A, 1B and 1C are shown in **Figure 3** and **Figure 4**

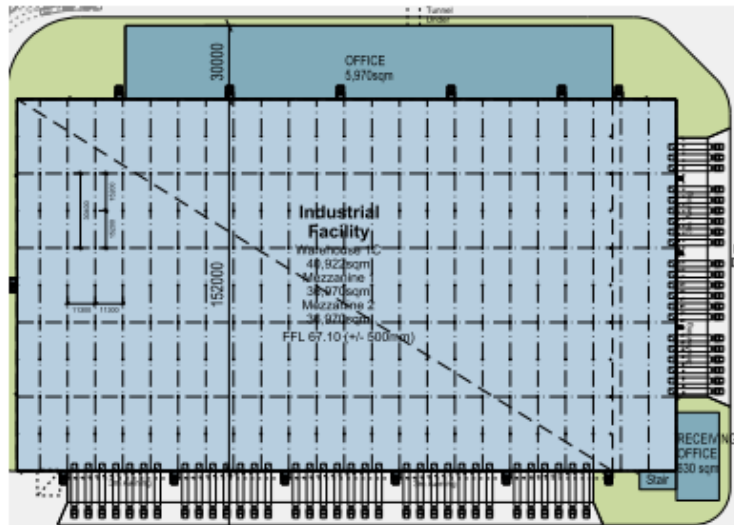
**Figure 2 Site Plan for Precinct 1**



**Figure 3 Floorplan of 1A and 1B**



**Figure 4 Floorplan of 1C**



The development provides a logistics hub for the receipt, storage and dispatch of products, which will be packaged for offsite transport and sale. Operational activities are approved 24 hours a day, seven days a week and include the following:

- 144,689 m<sup>2</sup> total warehouse area
- 7,210 m<sup>2</sup> total office area
- 825 m<sup>2</sup> total Dock office area
- 952 car parking
- Trailer parking 81
- Overflow parking 203

## **4 OPERATIONAL ENERGY MANAGEMENT**

Ineffective energy management for commercial premises can lead to unnecessary growth in greenhouse gas emissions and consumption of natural resources. Effective energy management reduces costs through the use of energy efficiency measures and improves environmental outcomes locally, regionally and globally.

Effective energy management is achieved through the implementation of an EMP for the operational life of the Project.

### **4.1 Identified Major Energy Use Components**

Major energy use components of the project site have been identified below based on information available within the proposed plans and Outline Building Specification for Goodman Industrial Buildings.

- Lighting (include natural and artificial lighting and shading)
- Air Conditioning
- Ventilation Fans
- Domestic Water Heating
- Appliances and equipment.

### **4.2 Energy Sources**

The main source of energy for the proposed site is electricity, but it is also proposed to have gas available at the site if required by the tenant. The domestic hot water (DHW) will be powered by solar energy for solar panel located on the roof of the building. For optimal solar radiation incident on the panel, the panel should be facing north and inclined at an angle of 25 degrees. Solar energy is considered a renewable energy source as no greenhouse gas emissions are produced from the production of electricity utilising solar panels.

### 4.3 Proposed Energy Efficiency Measures

The following measures may assist in reducing the energy consumption of the development:

#### 4.3.1 Building Passive design

- Good levels of day lighting will reduce the amount of artificial lighting required during the day. Fire retardant polycarbonate roof sheeting to 10% of the roof area will be provided to warehouses for natural daylight.
- Heat-reflective semi-translucent roller blinds on all windows will reduce solar heat load to the building.
- Awnings over windows or shading devices where appropriate will reduce the solar heat load to the building therefore decreasing the cooling load requirements from the air conditioning system. To be implemented where practical.
- Achieving high insulating values of external development fabrics (in compliance with BCA requirements) will allow for lower energy demand on the air-conditioning system and higher thermal comfort level for occupants.
- Provide performance laminated or heat strengthened safety glazing to all external windows to meet the BCA Section J and the relevant Australian Standards.
- Predominantly south facing office space, consider insulated external walls where appropriate to reduce the glazing area and associated heat loss in winter.
- Predominantly north and west facing office, consider additional shading or solar controlled glazing to reduce heat transfer into the office space where appropriate.
- Warehouse can be naturally ventilated via roller shutter openings to reduce the internal temperature during hot summer.
- Awnings are proposed for loading doors and big openings to prevent direct solar radiation through openings.
- Door seals for office doors and airlock for reception areas will help to maintain a comfortable indoor air environment and lower energy demand on the air-conditioning system.

#### 4.3.2 Lighting

- Provide lighting control system to manage and minimise power consumption.
- Dimmable lighting, T5 Fluoro fittings or equivalent environmentally friendly fitting proposed for the development. LED lighting is to be explored and implemented where possible. LED lighting benefits include lower energy consumption and a longer bulb lifespan.
- Lighting zoning will offer flexibility for light switching in zones.
- Lighting system is to be programmable and incorporate timeclock, photo electric (PE) daylight sensors and motion sensors in the warehouse.
  - Office areas – Movement control and timeclock



- Amenities and circulation areas - Movement control and timeclock
  - Warehouse areas – PE (daylight harvesting) and timeclock.
  - Warehouse peripheral areas, Service and plant rooms - Movement control and timeclock
  - Warehouse awnings - PE and timeclock
  - External – PE and timeclock
- Lighting system is to be programmable and incorporate timeclock, and motion sensors in the office, lunch room and amenities.
  - Energy efficient floodlights will be considered for lighting of external perimeter of building.

#### **4.3.3 Air conditioning**

- Air-conditioning control zoning provided where necessary to cater for varying occupancy rates, orientation to solar loads etc. Also, time clock provided with provision for after hour override.
- Air conditioning systems shall be of the air-cooled, reverse cycle, packaged unit type, incorporating economy cycles where required under the BCA Section J Energy Efficiency.
- Natural ventilation will be in accordance to BCA requirements for all areas.
- Mechanical ventilation fans will be meet BCA Section J5 to minimize the fan power consumption.

#### **4.3.4 Domestic Water Heating**

- Hot water systems implemented in staff amenities, including toilets, lunchrooms and cleaners room to be connected to a solar hot water system.
- Hot water shall be generated through a roof mounted solar water packaged plant.
- Piping insulation to both external and internal DHW & DCW circulation pipes.

#### **4.3.5 Energy Metering**

- Electrical sub-metering to all metered loads will facilitate ongoing management of energy consumption.

#### **4.3.6 Water**

- Rainwater reuse for toilet flushing and irrigation.
- Water efficient bathroom hardwares.

### **4.4 Baseline and Proposed Energy Consumption**

The Sections J of the National Construction Code (NCC) of Australia will be used as the baseline building for energy consumption savings. BCA Section J provides the minimum requirement for energy efficiency and it is expected that the proposed development will result in an approximate 20-30 % reduction in greenhouse gas (GHG) emission via:

- Improved daylight to warehouse with up to 10% of the roof area as a sky light
- T5 or LED fitting with control to warehouse and offices
- Daylight controlled fluorescent lighting for the warehouse instead of metal halide, resulting in a considerable energy reduction and reduced maintenance
- High efficiency glazing and shading for the offices
- Solar hot water system
- More efficient ventilation and air-condition systems

It is assumed that the warehouses are occupied 24 hours a day, 7 days a week.

#### **4.5 Signage and Education for Employees**

It is recommended that information on energy savings procedures, annual energy targets for the Project, as well as the results of energy usage reviews and audits, be communicated to all employees via monthly forums. Improvements in project energy usage levels should be celebrated openly with employees and signage placed in lunchroom and other shared employee areas to help reinforce employee involvement in the Energy Efficiency Report. Signs should also be placed adjacent to any appliances or equipment etc, where significant energy savings can be made through employee awareness of simple energy savings procedures. This is an effective and easy way to encourage appropriate energy management by employees.

Employees should receive training in energy management and energy savings procedures especially in regard to high energy consumption aspects of the project.

Energy management procedures should also be clearly communicated to cleaners (and form part of any contractual conditions) to outline the cleaner's energy use minimisation responsibilities.

#### **4.6 Monitoring and Reporting Requirements**

##### **4.6.1 Energy Review and Audit**

An energy usage review will be undertaken within the first few months of operation to ensure the Energy Efficiency Report is sufficient for the development's needs. A breakdown of energy usage per month at the Project Site will help to measure the development's baseline energy use and assess what appliances, equipment and processes are consuming energy.

An energy review will be conducted for the assessment of energy utilisation to further identify opportunities for improvement. Energy usage data obtained during the review process may be used to establish key performance indicators and annual energy targets for the Project.

Energy usage to be included in the review should include all purchased electricity and energy which is consumed by stationary equipment on site. Energy consumed by mobile equipment (e.g. forklifts) should also be examined as this will identify variations in warehouse operation efficiency. Refer to '*Guidelines for Energy Savings Action Plans*' (2005) as developed by the former Department of Energy, Utilities and Sustainability for reporting templates and further information.

An energy audit and management review will be undertaken on a yearly basis to ensure employees are following energy savings procedures correctly. Where audits show that energy savings procedures are not carried out effectively, additional employee training should be undertaken and signage and procedures re-examined.

The Energy Efficiency Report shall be reviewed on an annual basis to consider changes to the Energy Management System and to promote continual improvement of energy management at industry best practice over time.

#### **4.6.2 Energy Metering and Monitoring**

To enable effective review of energy usage by the project, sub-metering should be implemented for all major energy consuming processes or items of equipment including sub-metering for all loads greater than 100 kVA.

Electrical equipment should be maintained to Australian Standards to ensure unnecessary energy wastage is minimised. Roof access system is proposed for third party access to roof for carry out necessary maintenance as required.

In accordance with the Goodman's Industrial Building Specification, a Building Users' Guide is to be prepared for the Project. The Building Users' Guide provides details regarding the everyday operation of a building and should include energy minimisation initiatives such as natural ventilation strategies, user comfort control, maintenance of air conditioning units and other electrical devices to ensure maximum operating efficiency, and lighting zoning strategies.

An effective Building Users' Guide will ensure that:

- 1 Facility managers understand in detail their responsibilities for the efficient operation of the facility and any additional building tuning necessary to continuously improve energy management.
- 2 Maintenance contractors understand how to service the particular systems to maintain reliable operations and maximum energy efficiency.
- 3 Employees understand energy minimisation procedures and working limitations required to maintain design performance for energy efficiency.

- 4 Future fit-out / refurbishment designers understand the design basis for the building and the systems so that these are not compromised in any changes.

#### **4.7 Roles and Responsibilities**

It is the responsibility of the facility manager to routinely check energy savings procedures are undertaken correctly (i.e. lighting turned off while areas of the development are not in use). The facility manager should also ensure all monitoring and audit results are well documented and carried out as specified in the Energy Management Plan.

Senior management should also be involved in energy management planning as an indication of the organisation's commitment to the Energy Management Plan.

## 5 ADDITIONAL ENERGY USE MINIMISATION STRATEGIES

In addition to the Outline Building Specification for Goodman Industrial Buildings, the following energy use minimisation strategies may be implemented for the Project:

Natural Ventilation versus Air Conditioning:

- Provision of increased outside air rates, during favourable climatic conditions, maintains general contaminants (odour, VOCs etc) at lower concentrations than artificially ventilated spaces, improving the indoor air quality environment.
- Consider alternative passive exhaust options such as wind or solar assisted whirly birds to improve thermal comfort.

Daylight versus Artificial Lighting:

- Increased reliance on artificial lighting in buildings may have a detrimental effect on the health and wellbeing of occupants. Natural lighting from the sun is freely available and improves the mindset and health of workers and visitors.

Solar Powered versus Electricity Powered:

- Electricity is provided from the burning of coal in NSW and therefore greenhouse gas is a derived product from the production of electricity. In NSW, 0.9 kg CO<sub>2</sub>-e (carbon dioxide equivalent) is emitted from every 1 kWhr of purchased electricity by end-users. The provision of solar panels to produce electricity will reduce the electricity demand and therefore reduce greenhouse gas emission.

GreenPower can also be purchased from the electricity provider.

- GreenPower is electricity from wind or solar energy which does not emit greenhouse gas.

## 6 CONCLUSION

SLR has previously completed an energy efficiency report for Oakdale South Estate at Horsley Park. The precinct as approved was for five large warehouse buildings. In MOD 5, the following changes have been made to the design:

- The design now incorporates 3 large warehouse buildings (1A, 1B and 1C) and
- Modified warehouse and office layouts of building 1C.

SLR Consulting Australia Pty Ltd (SLR Consulting) has been recently engaged by Goodman Property Limited (Goodman) to update the Energy Efficiency Report for the recently updated master plan of Oakdale South Estate at Horsley Park. The report has been prepared in accordance with the following Secretary's Environmental Assessment Requirements (SEAR) conditions for Oakdale South Estate for development application:

*"An assessment of the energy use on site and demonstrate what measures would be implemented to ensure the proposal is energy efficient."*

The principal objective of this Energy Efficiency Report is to identify all potential energy savings that may be realised during the operational phase of the Project, including a description of likely energy consumption levels and options for alternative energy sources such as solar power in accordance with Penrith City Council (Council) requirements.

BCA Section J provides the minimum requirement for energy efficiency and based on analysis that SLR conducted for these types of facilities, it is anticipated that the proposed development will have more than 30% reduction in greenhouse gas (GHG) emission via:

- Improved daylight to warehouse with translucent sheeting to 10% of the roof area.
- Daylight controlled T5 lighting for the warehouse instead of metal halide, resulting in a considerable energy reduction and reduced maintenance.
- Programmable lighting system incorporating timeclock, photo electric (PE) daylight sensors and motion sensors in the warehouse.
- More cross ventilation to the warehouse by using effective natural ventilation strategies such as louvre grilles in the façade of the building where effective natural ventilation can be achieved by means of door openings.
- High efficiency glazing and shading for the offices.
- Solar hot water system with gas boost.
- Other measures are detailed in **Section 4.3**.

Annual reviews of actual building energy will be carried out once the warehouses are operational to check the actual energy usage and energy savings and verify that all systems are performing at their optimum efficiency. This will provide an opportunity for the systems to be tuned to optimise

time schedules to best match occupant needs and system performance while satisfying the sustainability target for the project.

## **7 CLOSURE**

This report has been prepared by SLR Consulting Australia Pty Ltd with all reasonable skill, care and diligence, and taking account of the manpower and resources devoted to it by agreement with the client. Information reported herein is based on the interpretation of data collected and has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of Goodman Property Services. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR Consulting.

SLR Consulting disclaims any responsibility to the client and others in respect of any matters outside the agreed scope of the work.



# APPENDIX G

# Operational Traffic Management Plan

## Precinct-wide Operational Traffic Management Plan Oakdale South Estate

Ref: 0532r01v3  
9/01/2018

## Document Control

**Project No:** 0532r01v3

**Project:** Oakdale South Precinct-wide Operational Traffic Management Plan

**Client:** Goodman Property Services (Aust) Pty Ltd

**File Reference:** 0532r01v3 Framework OTMP Oakdale South Estate, Issue III

## Revision History

Revision	Date	Details	Author	Approved by
-	07/11/2017	Draft	J. Laidler	T. Lewis
I	15/11/2017	Issue I	J. Laidler	T. Lewis
II	21/11/2017	Issue II	J. Laidler	
III	09/01/2018	Issue III	J. Laidler	

*This document has been prepared for the sole use of the Client and for a specific purpose, as expressly stated in the document. Ason Group does not accept any responsibility for any use of or reliance on the contents on this report by any third party. This document has been prepared based on the Client's description of its requirements, information provided by the Client and other third parties.*

## Table of Contents

<b>1</b>	<b>INTRODUCTION</b> .....	<b>1</b>
1.1	OVERVIEW .....	1
1.2	BACKGROUND .....	2
1.3	PURPOSE OF THIS REPORT .....	3
1.4	EXCLUSIONS .....	4
1.5	REFERENCES .....	4
<b>2</b>	<b>ESTATE DETAILS</b> .....	<b>5</b>
2.1	ESTATE OVERVIEW .....	5
2.2	HOURS OF OPERATION .....	7
2.3	APPROVED ESTATE VEHICLE MOVEMENTS .....	8
<b>3</b>	<b>TRANSPORT INFRASTRUCTURE</b> .....	<b>9</b>
3.1	PUBLIC TRANSPORT .....	9
3.2	PEDESTRIAN & CYCLIST CONNECTIVITY .....	9
3.3	ROADS .....	9
<b>4</b>	<b>STATUTORY REQUIREMENTS</b> .....	<b>11</b>
<b>5</b>	<b>TRAFFIC MANAGEMENT PLAN</b> .....	<b>14</b>
5.1	PEDESTRIAN MANAGEMENT .....	14
5.2	VEHICLE MANAGEMENT .....	16
5.3	SITE ACCESS .....	18
5.4	TRANSGRID EASEMENT .....	19
5.5	TEMPORARY OR UNPLANNED WORKS .....	19
5.6	DANGEROUS GOODS .....	19
<b>6</b>	<b>DRIVER CODE OF CONDUCT</b> .....	<b>20</b>
<b>7</b>	<b>PARKING MANAGEMENT</b> .....	<b>21</b>
7.1	ON-SITE CAR PARKING .....	21
7.2	ON-STREET PARKING .....	22
<b>8</b>	<b>PLAN ADMINISTRATION</b> .....	<b>24</b>
8.1	PLAN MAINTENANCE .....	24
8.2	KEY RESPONSIBILITIES .....	24

# 1 Introduction

## 1.1 Overview

Ason Group has been engaged by Goodman Property Services (Aust) Pty Ltd to prepare an Operational Traffic Management Plan (OTMP) in relation to Oakdale South Estate (the Estate).

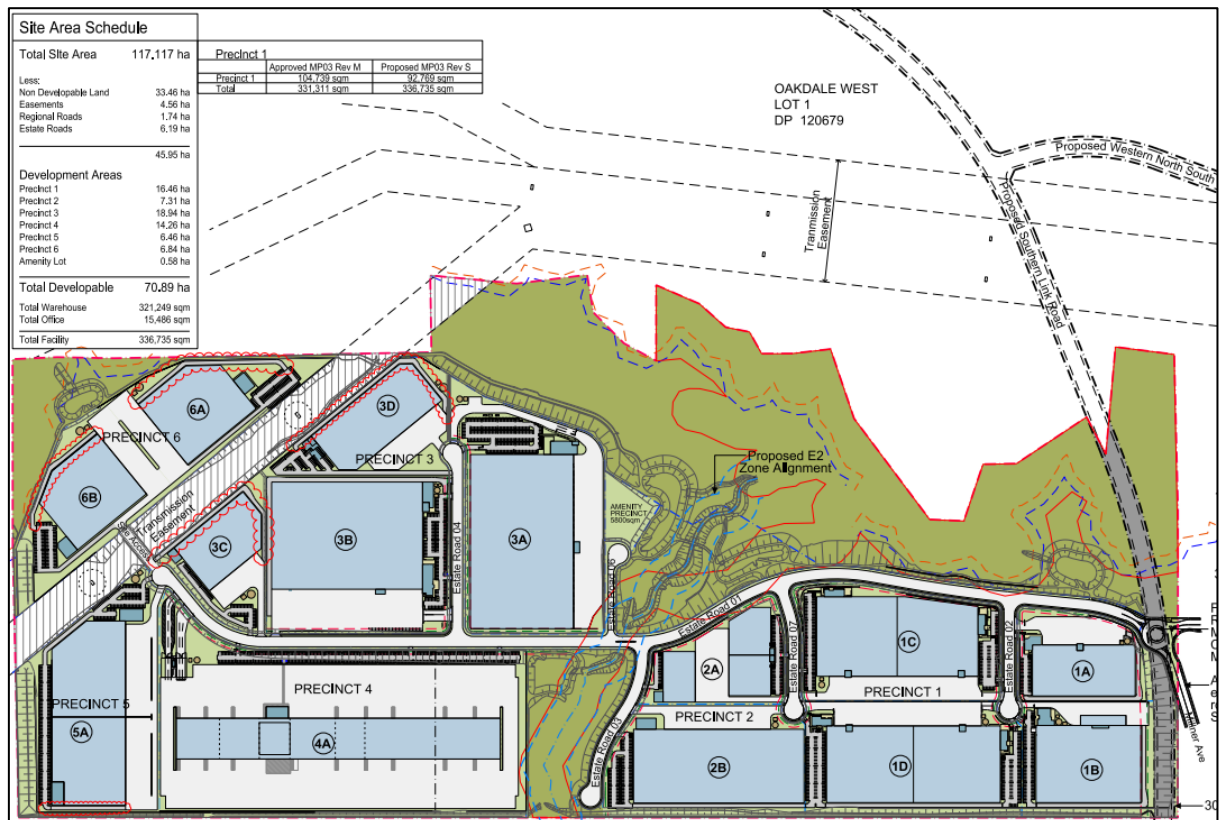


Figure 1: Oakdale South Estate (MOD 4)

This OTMP is in response to Condition E3 of the Concept Plan for the State Significant Development (SSD 6917), dated 26 October 2016. Table 1 outlines these conditions.

Condition E3 states that prior to the issue of an Occupation Certificate for each building, the Applicant shall prepare and submit an **Operational Traffic Management Plan (OTMP)** for the development in consultation with Council and TfNSW, to the Secretary for approval. The OTMP must at a minimum:

**Table 1: Condition of Consent E3 Response Locations**

Conditions		Response
(a)	Be prepared by a suitably qualified and experienced expert;	Consultants from Ason Group are suitably qualified Traffic Engineers
(b)	Estimate the numbers and frequency of truck movements, sizes of trucks, vehicle routes and hours of operation;	Section 2.2 of this report outlines the approved hours of operation. Section 5.2 outlines the maximum permissible vehicle size, truck routes and all approved B-double truck routes.
(c)	Detail the access and parking arrangements for operational vehicles to ensure road and site safety, and demonstrate that there will be no queuing on the public road network;	As outlined in Section 5.3, the site access arrangements, while Section 7 illustrates on-site and on-street carparking management.
(d)	Include detail of proposed truck parking to ensure this is managed in an orderly manner; and	Section 7.2 ensures that all vehicles and / or trailers will park in designated areas and not on circulation roadways or access roads
(e)	Include a Driver Code of Conduct that details traffic management measures to be implemented during operation to: <ul style="list-style-type: none"> <li>(i) minimise impacts of the development on the local and regional road network;</li> <li>(ii) minimise conflicts with other road users;</li> <li>(iii) ensure truck drivers use specified routes and minimise traffic noise during night-time hours; and</li> <li>(iv) manage/control pedestrian movements.</li> </ul>	A driver Code of Conduct can be found in Section 6. The drivers code of conduct addresses ways to minimise the impacts on the road network, with other road users, ensure truck routes are utilised and to manage pedestrian movements which all stem from following the NSW road rules.

## 1.2 Background

A Concept Plan for the Estate was original approved by the Department of Planning & Environment on 26 October 2016. Subsequently, a number of amendments to the Estate master plan and individual development Precincts, resulting in the form now approved. A summary of the relevant changes to building areas under previous consents is provided in Table 2 below.

**Table 2: Concept Plan Modifications**

Land Use	Concept Plan	MOD 1	MOD 2	MOD 3	MOD 4
Total Warehouse	376,295	316,596-	Withdrawn	No Change in GFA	321,249
Total Office	19,585	14,715			15,486
<b>Total</b>	<b>395,880</b>	<b>331,311</b>	-		<b>336,735</b>

### 1.3 Purpose of this Report

The purpose of this OTMP is in response to conditions outlined in condition E3 (as outlined above) and other requirements. The OTMP is to provide guidance in relation to the parking and traffic management arrangements for the Estate with an overall objective to ensure safe and efficient movement of vehicles and personnel. This plan details the following;

- The estimated type, frequency and number of trucks within the Estate.
- Detail the access and parking arrangements to ensure no queuing on the public road network
- Appropriate internal traffic controls and signage.
- A truck route management plan.
- Provide details on the Driver Code of Conduct to be implemented.
- Proposed crossings and signage for safe movement of pedestrians within the Estate
- Details on the governance and administration of the plan.

## 1.4 Exclusions

This OTMP does not cover the following:

- Traffic and pedestrian management associated with construction activities. Reference should be made to relevant Construction Traffic Management Plans (CTMP) or Traffic Control Plans (TCPs) specific to those works, as required.
- On-site traffic and parking management for individual Lots. Reference should therefore be made to the site-specific OTMPs for relevant details.
- Transport of Dangerous Goods is not covered by this OTMP. A Transport Emergency Response Plan (TERP) is required prior to transport of any Dangerous Goods. It is expected that such plans will be prepared by the contractor involved in the transport of Dangerous Goods to/from the individual businesses within the Estate.

## 1.5 References

In preparing this Plan, reference is made to the following:

- Department of Planning & Environment, *Assessment Report – Oakdale South Industrial Estate (SSD 6917) Concept Proposal and Stage 1 DA Layout*, October 2016
- Department of Planning & Environment, *Assessment Report – Oakdale South Industrial Estate (SSD 6917 MOD 1) Concept Proposal and Stage 1 DA Layout*, April 2017
- Ason Group, *Traffic Impact Assessment Report – Oakdale South Industrial Precinct, Western Sydney Employment Area Section 96 Application*, dated 26 September 2016 (MOD 1 Traffic Report)
- Ason Group, *Traffic Impact Assessment Report – Oakdale South Industrial Estate, Western Sydney Employment Area Concept Plan Modification Application 4*, dated 12 May 2017 (MOD 4 Traffic Report)
- Roads and Maritime Services (RMS), *Guide to Traffic Generating Developments* (RMS Guide)
- RMS Technical Direction TDT 2013/04a, *Guide to Traffic Generating Developments – Updated traffic surveys* (RMS Guide TDT 04a)
- TransGrid, *TransGrid Easement Guidelines – Third Party Development*
- National Transport Commission, *Australian Code for the Transport of Dangerous Goods by Road & Rail, Edition 7.5*, dated 2017.
- RMS, *Traffic Control at Work Sites* manual, June 2010



## 2 Estate Details

### 2.1 Estate Overview

The Estate is described as Lot 12 in DP 1178389 and Lot 87 in DP 752041, Kemps Creek. It is bounded by neighbouring industrial precincts to the north (Oakdale Central), east (Jacfin lands) and west (Oakdale West).

A total development floor area of 336,735m<sup>2</sup> is to be provided by the industrial buildings within the Estate, as outlined by the approved Concept Plan (SSD 6917 MOD 1).

Figure 2 below provides the context of the Estate with regard to existing road systems.

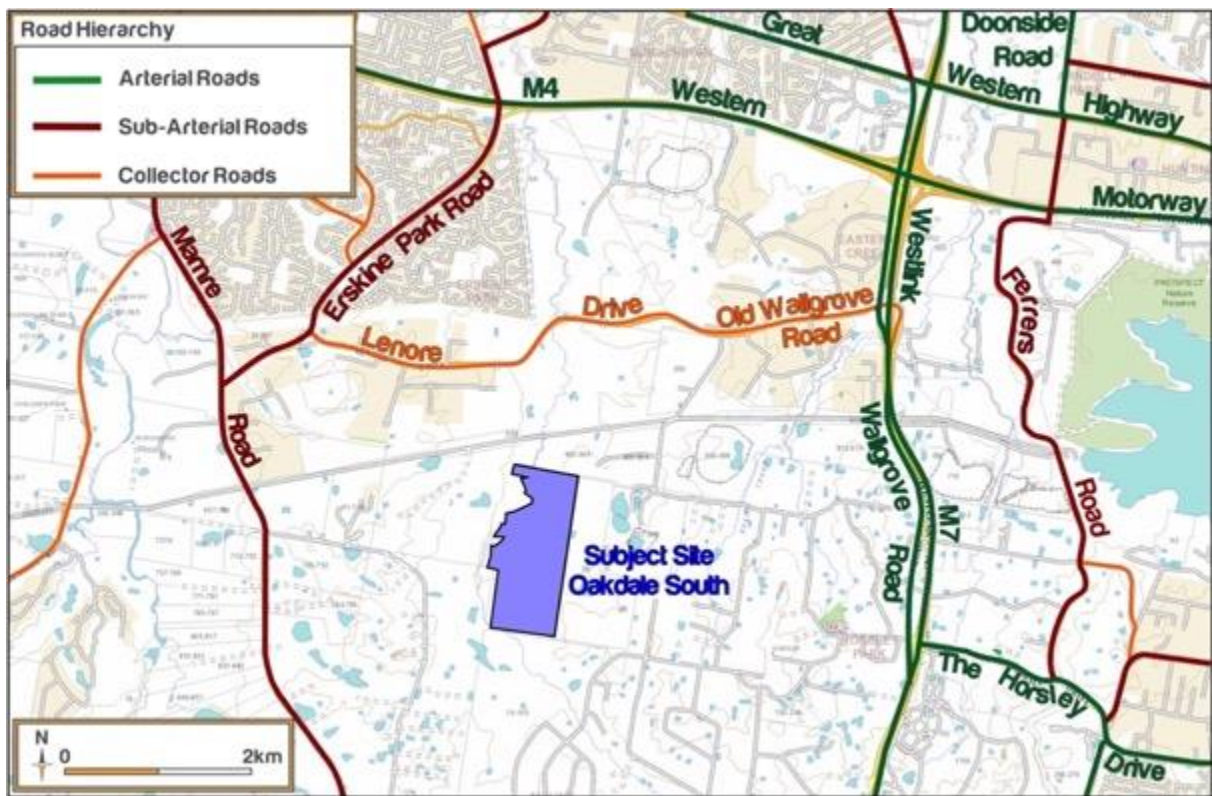


Figure 2: Site Appreciation and Road Hierarchy

The Estate comprises a number of industrial Lots as shown in Figure 3 below.

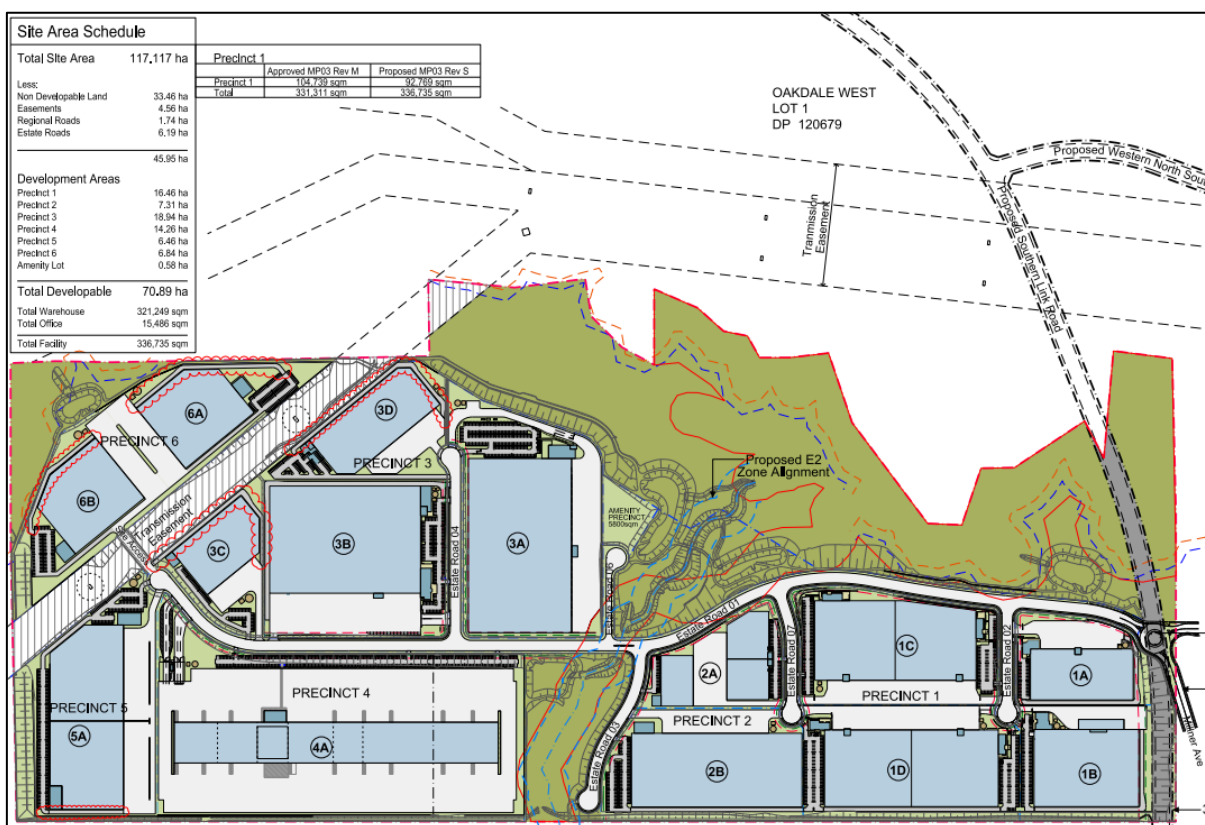


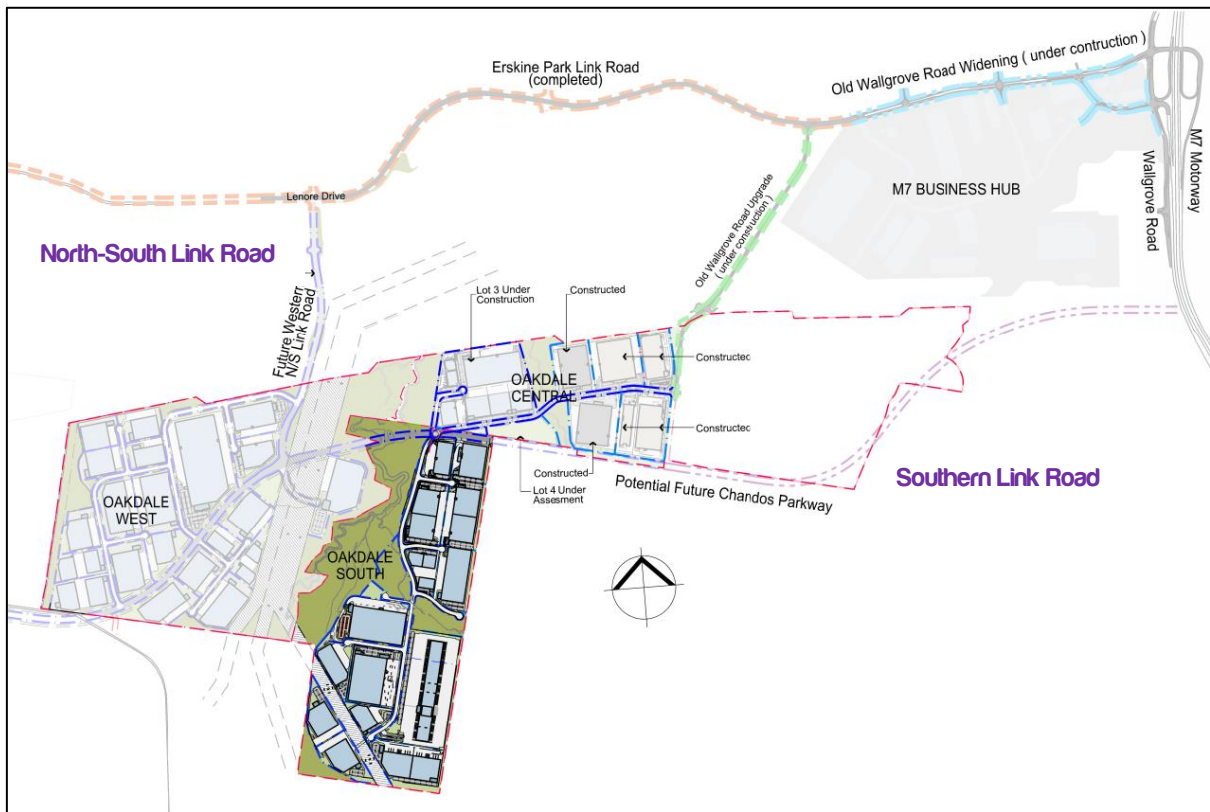
Figure 3: Estate Site Plan

With reference to Figure 3, the key details relating to the Estate are as follows;

- An estate total Gross Floor Area (GFA) of 336,735m<sup>2</sup>.
- 6 development sub-precincts with up to 15 buildings (separate tenancies) used for warehouse and distribution uses; and
- New local (industrial) roads, including:
  - Estate Road 01; serving the overall Estate
  - Estate Road 02; serving Precinct 1
  - Estate Road 03; serving Precinct 2
  - Estate Road 04; serving Precinct 3
  - Site Access Road; servicing across the TransGrid Transmission Easement to serve Precinct 6
  - Estate Road 06; serving the proposed amenity precinct
  - Estate Road 07; servicing Precincts 1 and 2

All access to the Estate is provided via Millner Avenue (Oakdale Central) to Old Wallgrove Road. Vehicles will travel along Old Wallgrove Road from the M4 or Lenore Drive, before heading south on Old Wallgrove Road and onto Millner Avenue.

An existing proposal with regards to the construction of the Southern Link Road (SLR) will form a connection with Mamre Road to the west and Wallgrove Road to the East. It is noted that no direct access between Oakdale South and the SLR is proposed, with all access via Old Wallgrove Road.



**Figure 4: Southern Link Access Road**

## 2.2 Hours of Operation

Operation of each Site will be subject to site specific OTMP's. Notwithstanding, Oakdale South has publicly dedicated roads that will be accessible at all times, therefore the Estate will be operational 24 hours a day, 7 days a week.

## 2.3 Approved Estate Vehicle Movements

Transport and traffic projections underpinning the surrounding road infrastructure investment is based upon an anticipated 654 vehicle movements per hour (veh/hr) for the entire estate during operation, as outlined in approved Master Plan. This is based upon the traffic modelling supporting the original development consent and forms the approved threshold for the Estate generally accepted by DPE, RMS, TfNSW and Council.

A reduction of approximately 59,145m<sup>2</sup> of GFA within the precinct during a section 96 application has reduced the overall traffic movements from 654 vehicle movements per hour to **550** vehicle movements per hour – which this OTMP is based.

Condition C4 of the Concept Plan approval requires that any future Development Application (DA) be accompanied by a “detailed assessment” thus providing Authorities (DPE and Council) a mechanism to enforce the above traffic generation threshold.

It should be noted that vehicle movements per hour does not equate to number of trucks – a single truck will count as 2 movements (1 movement into site and 1 movement out of site). A breakdown of the relative contribution of individual Precincts assumed is provided in Table 3 below.

**Table 3: Oakdale South Trip Generation**

Sub-Precinct	Traffic Generation (veh/hr)
1	152
4	58
5	49
2, 3 & 6	291
<b>Total</b>	<b>550</b>

Note: 1 truck in + 1 truck out = 2 movements

This forecast’s an anticipated total of 550 veh/hr and, accordingly, there is some flexibility within regard to the traffic volumes generated by individual Precincts and Lots.

## 3 Transport Infrastructure

### 3.1 Public Transport

Public transport services operating in the vicinity of the Estate are presented in Figure 5. Bus routes include:

- Route 738 bus route; connecting Mt. Druitt Railway Station to Eastern Creek and Horsley Park,
- Route 835 bus route; connecting St. Mary's Railway Station to the Prairiewood T-Way Station.

These services operate every 30 minutes during weekday (Monday to Friday) morning and evening periods.

### 3.2 Pedestrian & Cyclist Connectivity

Pedestrian footpaths are provided on both sides of all roads within the Estate. A Shared Path (pedestrians and cyclists) is provided along the western side of Estate Road 01.

Cyclists are to use this path, where practicable, and shall slow to pass pedestrians in a safe manner.

### 3.3 Roads

Key roads within the Estate and providing access to the Classified Road network are summarised below.

Road Name	Speed Limit	On-street Parking (Y/N)	B-double Access (Y/N)
Old Wallgrove Road	60 km/hr. (Northbound)	N	Y
	70 km/hr. (Southbound).		
Millner Avenue	60 km/hr.	N	Y
Estate Road 01	60 km/hr.	N	Y
Estate Road 02	50 km/hr.	N	Y
Estate Road 03	50 km/hr.	N	Y
Estate Road 04	50 km/hr.	N	Y
Estate Road 06	50 km/hr.	N	Y
Estate Road 07	50 km/hr.	N	Y

Note: Estate Roads are currently classified as private roads, but will be dedicated to Council and become public roads. Once made public, the heavy vehicle register will be required to be amended to include these roads.

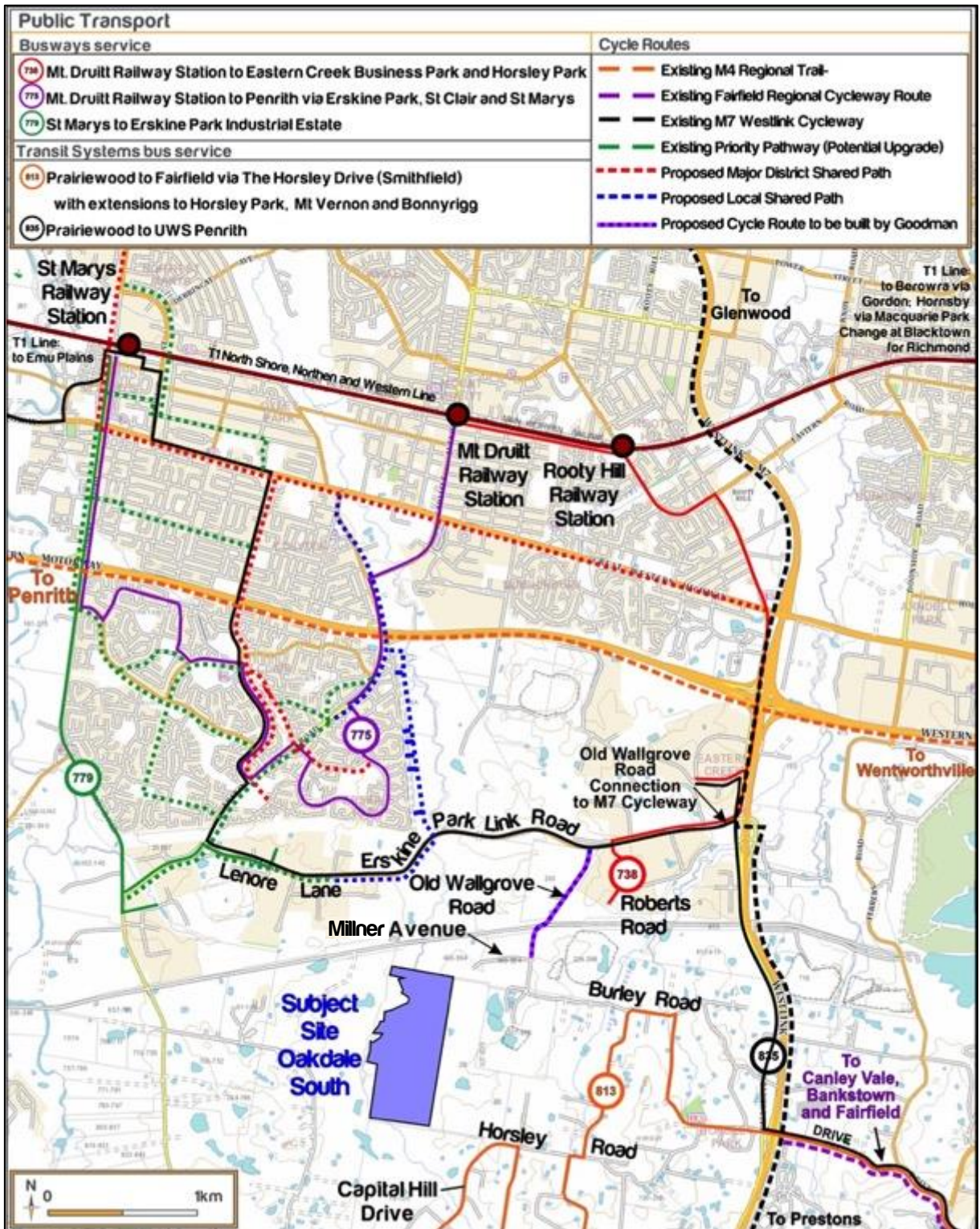


Figure 5: Public Transport Services

## 4 Statutory Requirements

A summary of the relevant conditions of approval – relating to operational traffic and parking management – are summarised below.

**Table 4: Concept Plan (MOD 1) Approval - Compliance Table**

Reference	Requirement								
	<b>CONDITIONS FOR CONSENT FOR CONCEPT PROPOSAL</b>								
B1	In accordance with section 838(3) of the EP&A Act, subsequent stages of the Development are to be subject of future Development Applications.								
B2	Future Development Applications are to be generally consistent with the terms of Development Consent SSD 6917 as described in Schedule A, and subject to the conditions in Schedules 8 to F.								
B9 (MOD 1)	<p>The following limits apply to the Concept Proposal for the Development:</p> <ul style="list-style-type: none"> <li>a) the maximum GFA for the land uses in the Development shall not exceed the limits outlined in <b>Table 1</b> below;</li> <li>b) no car parking is permitted in TransGrid easement</li> <li>c) no loading docks, delivery bays or heavy vehicle movements are permitted along the southern property boundary;</li> <li>d) the loading dock, heavy vehicle route and associated hardstand along the southern elevation of building 5A are not approved; and</li> <li>e) the portion of land zoned E2 – Environmental Conservation located on the north-eastern corner of Lot 3A between Estate Road 01 and Estate Road 06 shall be used for landscaping purposes only.</li> </ul> <table border="1" style="margin-left: 40px;"> <thead> <tr> <th>Land Use</th> <th>Maximum GFA (m<sup>2</sup>)</th> </tr> </thead> <tbody> <tr> <td>Total General Warehousing</td> <td>321,249</td> </tr> <tr> <td>Total Office</td> <td>15,486</td> </tr> <tr> <td><b>Total GFA</b></td> <td><b>336,735</b></td> </tr> </tbody> </table>	Land Use	Maximum GFA (m <sup>2</sup> )	Total General Warehousing	321,249	Total Office	15,486	<b>Total GFA</b>	<b>336,735</b>
Land Use	Maximum GFA (m <sup>2</sup> )								
Total General Warehousing	321,249								
Total Office	15,486								
<b>Total GFA</b>	<b>336,735</b>								
B14	Underground car parking is not permitted on-site.								
B15	The Applicant shall provide bicycle racks, and amenity and change room facilities for cyclists in accordance with <i>Planning Guidelines for Walking and Cycling</i> (December 2004), NSW Department of Infrastructure, Planning and Natural Resources; Roads and Traffic Authority.								
	<b>CONDITIONS TO BE MET IN FUTURE DEVELOPMENT APPLICATIONS</b>								
C4	Future Development Applications shall be accompanied by a detailed assessment of the traffic, and transport impacts on the surrounding road network and intersection capacity, and shall detail provisions demonstrating that sufficient loading/unloading, access and car parking has been provided having regard to the car parking rates approved under Condition CS below, and details to promote non-car travel modes. The traffic and transport impact assessment shall also have specific regard to the scope and timing of road infrastructure works in the surrounding road network.								
C5	<p>Car parking shall be provided in accordance with the following rates, unless evidence is provided in accordance with Part C10, section 1 O.S.1, C1) f) of the Penrith DCP:</p> <ul style="list-style-type: none"> <li>a) 1 space per 300 m<sup>2</sup> of warehouse GFA;</li> <li>b) 1 space per 40 m<sup>2</sup> of office GFA; and</li> <li>c) 2 disabled spaces for every 100 car parking spaces.</li> </ul>								
C6	To ensure that potential conflicts between heavy vehicles and light vehicles are minimised, future Development Applications shall include details demonstrating satisfactory arrangements have been made to separate heavy and light vehicle movements.								
C7	<p>To ensure that sustainable transport modes are supported, all future Development Applications proposing the construction of new warehouse buildings shall include a <b>Sustainable Travel Plan</b>.</p> <p>All Sustainable Travel Plans shall identify the pedestrian and cyclist facilities proposed to service the proposed warehouse buildings.</p>								

Reference	Requirement															
C16	Future Development Applications shall identify whether any road upgrades are required as a result of the development works.															
	<b>CONDITIONS FOR CONSENT FOR THE STAGE 1 DA</b>															
D27	The Applicant shall ensure that all plant and equipment used for the Development is: <ol style="list-style-type: none"> <li>a) maintained in a proper and efficient condition; and</li> <li>b) operated in a proper and efficient manner.</li> </ol>															
D28	The Applicant shall not operate any mobile plant and equipment which exceeds a height of 4.2 metres within the TransGrid transmission line easement. All construction plant and equipment that will operate within the transmission line easement shall be fitted with an earthing trail.															
	<b>ENVIRONMENTAL PERFORMANCE AND MANAGEMENT</b>															
E3	Prior to the issue of an Occupation Certificate for each building, the Applicant shall prepare and submit an <b>Operational Traffic Management Plan (OTMP)</b> for the development in consultation with Council and TfNSW, to the Secretary for approval. The OTMP must at a minimum: <ol style="list-style-type: none"> <li>a) be prepared by a suitably qualified and experienced expert;</li> <li>b) estimate the numbers and frequency of truck movements, sizes of trucks, vehicle routes and hours of operation;</li> <li>c) detail the access and parking arrangements for operational vehicles to ensure road and site safety, and demonstrate that there will be no queuing on the public road network;</li> <li>d) include detail of proposed truck parking to ensure this is managed in an orderly manner; and</li> <li>e) include a Driver Code of Conduct that details traffic management measures to be implemented during operation to:               <ol style="list-style-type: none"> <li>i. minimise impacts of the development on the local and regional road network;</li> <li>ii. minimise conflicts with other road users;</li> <li>iii. ensure truck drivers use specified routes and minimise traffic noise during night-time hours; and</li> <li>iv. manage/control pedestrian movements.</li> </ol> </li> </ol>															
E4	The Applicant must ensure that the OTMP (as revised and approved by the Secretary from time to time) is implemented for the life of the development.															
E5 (MOD 1)	The Applicant shall provide a minimum of 420 on-site car parking spaces (including at least 10 spaces for people with disabilities at a rate of two per 100 parking spaces) for use during operation of the Development, distributed as shown in <b>Table 5</b> below. <table border="1" style="margin-left: 40px;"> <thead> <tr> <th>Precinct</th> <th>Building</th> <th>Min. Car Parking Requirement</th> </tr> </thead> <tbody> <tr> <td rowspan="4" style="text-align: center;">1</td> <td style="text-align: center;">A</td> <td style="text-align: center;">59</td> </tr> <tr> <td style="text-align: center;">B</td> <td style="text-align: center;">76</td> </tr> <tr> <td style="text-align: center;">C</td> <td style="text-align: center;">138</td> </tr> <tr> <td style="text-align: center;">D</td> <td style="text-align: center;">149</td> </tr> <tr> <td style="text-align: center;"><b>Total</b></td> <td></td> <td style="text-align: center;"><b>420</b></td> </tr> </tbody> </table>	Precinct	Building	Min. Car Parking Requirement	1	A	59	B	76	C	138	D	149	<b>Total</b>		<b>420</b>
Precinct	Building	Min. Car Parking Requirement														
1	A	59														
	B	76														
	C	138														
	D	149														
<b>Total</b>		<b>420</b>														
E6	The Applicant shall ensure that: <ol style="list-style-type: none"> <li>a) all trucks entering or leaving the site with loads have their loads covered; and</li> <li>b) trucks associated with the Development do not track dirt onto the public road network.</li> </ol>															



Reference	Requirement
E8	<p>The Applicant shall ensure that:</p> <ul style="list-style-type: none"> <li>a) internal roads, driveways and parking associated with the Development are constructed and maintained in accordance with the relevant standards and the latest versions of AS2890.1, AS 2890.2 and AS/NZS 2890.6;</li> <li>b) the swept path of the longest vehicle entering and exiting the site, as well as</li> <li>c) manoeuvrability through the site, must be in accordance with AUSTRROADS Design Vehicles and Turning Path Templates;</li> <li>d) the Development does not result in any vehicles queuing on the public road network;</li> <li>e) heavy vehicles associated with the Development do not park or stand on local roads or footpaths in the vicinity of the site;</li> <li>f) all vehicles are wholly contained on-site before being required to stop;</li> <li>g) all vehicles enter and exit the site in a forward direction;</li> <li>h) all loading and unloading of materials is carried out on-site; and</li> <li>i) the loading areas and turning areas in the car park are kept clear of any obstacles, including parked vehicles, at all times.</li> </ul>
E12	<p>Following the issue of a Subdivision Certificate, the internal access roads shall be dedicated to the relevant roads authority. Prior to any dedication, the Applicant shall ensure that the construction of the internal access roads have been completed to the satisfaction of the relevant roads authority. Despite any formal dedication, the Applicant shall remain responsible for the maintenance of the road for the duration of the maintenance period, being 12 months from the date of dedication of the road to the roads authority.</p>
E70	<p>To ensure that the integrity of the TransGrid transmission towers (including associated land and infrastructure) are not adversely affected during operation, the Applicant shall undertake the following works in consultation with TransGrid and to the satisfaction of the Secretary:</p> <ul style="list-style-type: none"> <li>a) install and maintain traffic barriers along trafficable areas adjacent to the TransGrid site frontage, to restrain B-double vehicles, generally in accordance with any road safety audit outcomes and the relevant Austroads and RMS design standards; and</li> <li>b) ensure that all activities associated with the operation of the Development are undertaken in a manner that does not restrict TransGrid from operating and maintaining its transmission towers.</li> </ul>

Refer to the Department of Planning & Environment's Major Project Assessments [website](#) for a full list of all conditions of approval.

## 5 Traffic Management Plan

### 5.1 Pedestrian Management

#### 5.1.1 On-site Pedestrian Management

Refer to site-specific OTMPs for on-site pedestrian management. As a general rule, pedestrian access to on-site hardstand areas used by heavy vehicles should be restricted as far as practicable for safety purposes.

It should be noted that Pedestrians have right-of-way when crossing driveways, therefore all vehicles turning into a development will be required to give-way to pedestrians when entering or exiting individual Lots.

#### 5.1.2 On-street Pedestrian Management

Pedestrians are to use footpaths and the Shared Path, as provided, wherever practicable. A refuge island is provided at the intersection of Estate Road 01 and Estate Road 03, and should be used by pedestrians wherever possible. The location of Shared Path and pedestrian refuge islands are outlined in Figure 6 below.

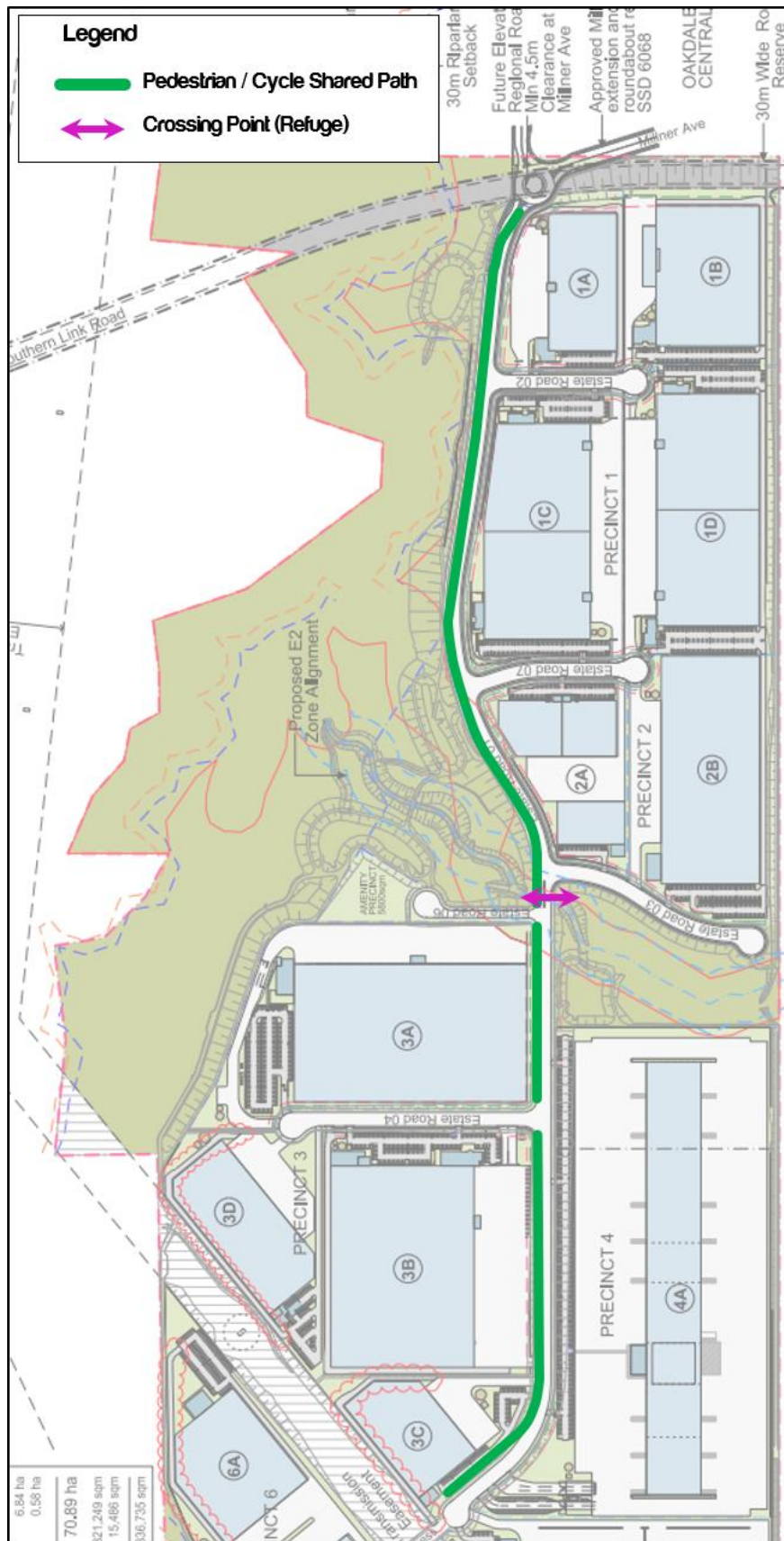


Figure 6: Shared Path & Key Crossing Points

## 5.2 Vehicle Management

All drivers are to operate vehicles in a manner consistent with the requirements of applicable Work Health and Safety (WHS) legislation and other business specific policies.

All commercial vehicle drivers are to be familiar with the Driver Code of Conduct – outlined in Section 6- before attending the Estate.

### 5.2.1 Maximum Vehicle Size

Maximum vehicles sizes permitted to access the Estate without special permits are:

- Articulated trucks 26 metre B-doubles.
- Rigid vehicles up to 12.5 metres.

Refer to site-specific OTMPs for further detail regarding further restrictions that may apply to individual Precincts or buildings.

### 5.2.2 Truck Access Routes

All drivers will access the Estate from Millner Avenue and Old Wallgrove Road. From that point, heavy vehicles are to use the Classified Road network wherever possible, with the use of local Council roads only as necessary.

At all times, drivers are to adhere to the applicable [Road Rules](#) and the Drivers Code of Conduct outlined in Section 6.

All drivers accessing the Estate should adhere to the following access management measures:

- Vehicles turning right into driveways or side roads shall do so from as close to the centreline of the carriageway while ensuring that motorists will not use the inside lane.

Note - if turning from a two-lane road - the RMS Heavy Vehicle Driver Handbook states that vehicles 7.5 metres or longer with a DO NOT OVERTAKE TURNING VEHICLE sign displayed on the back can turn right from the lane on the immediate left of the far-right lane.

- Heavy vehicles (in excess of 4.5 Tonne GVM) or long vehicles (over 7.5 metres in length) must not stop on a length of road outside a built-up area, except on the shoulder of the road. In a built-up area where parking is permitted (for vehicles lighter than 4.5 Tonne GVM and under 7.5 metres in length), they must not stop for longer than one hour (buses excepted). For more information on where vehicles can stand or park, refer to the [Road Users' Handbook](#).

5.2.3 Approved B-double Routes

Current approved B-double routes in the vicinity of the Estate are presented in Figure 7. These approved routes provide access to the broader Oakdale Industrial Estate (including Oakdale South) via Old Wallgrove Road which provides access to Millner Avenue.

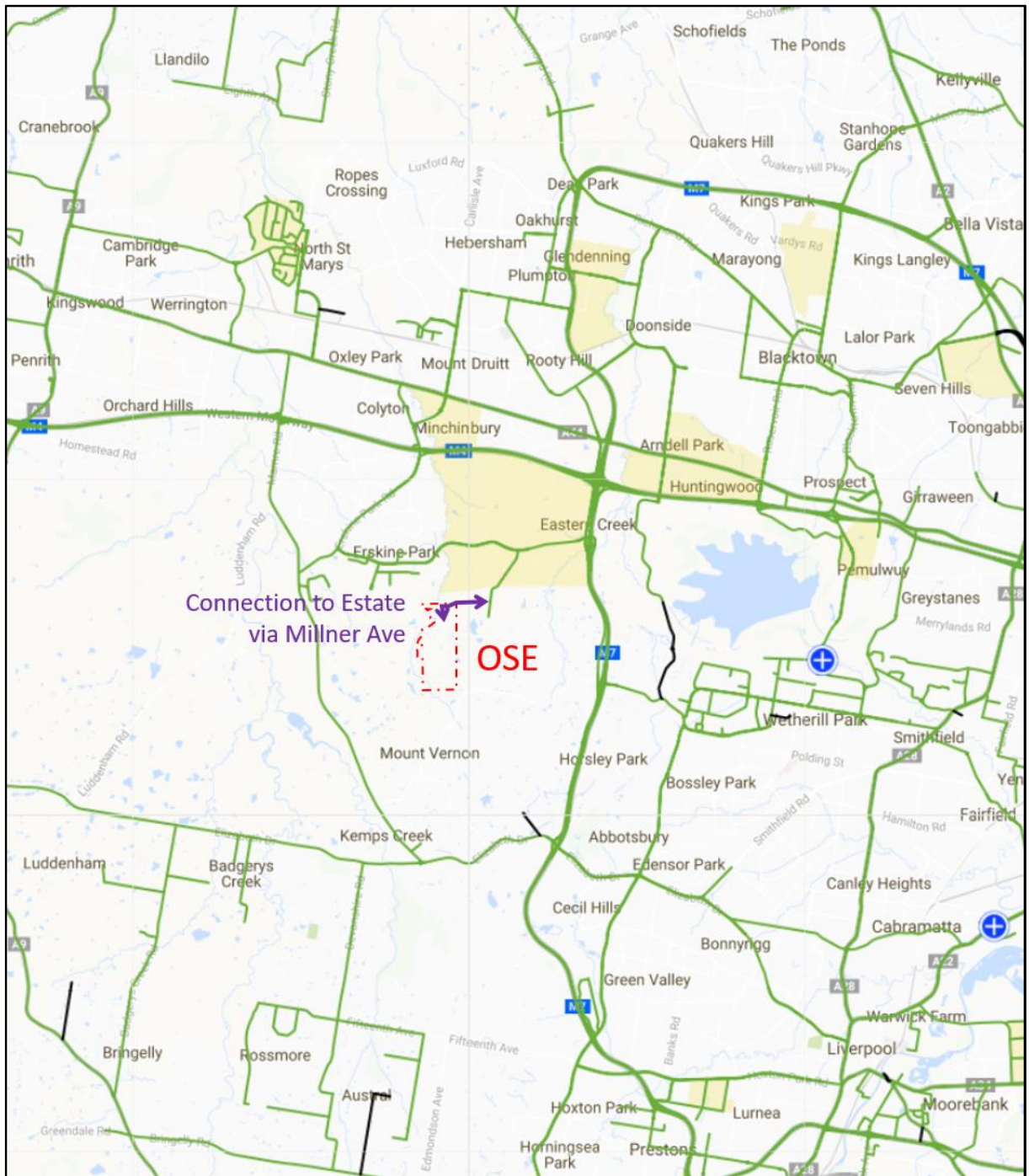


Figure 7: Approved B-double Routes

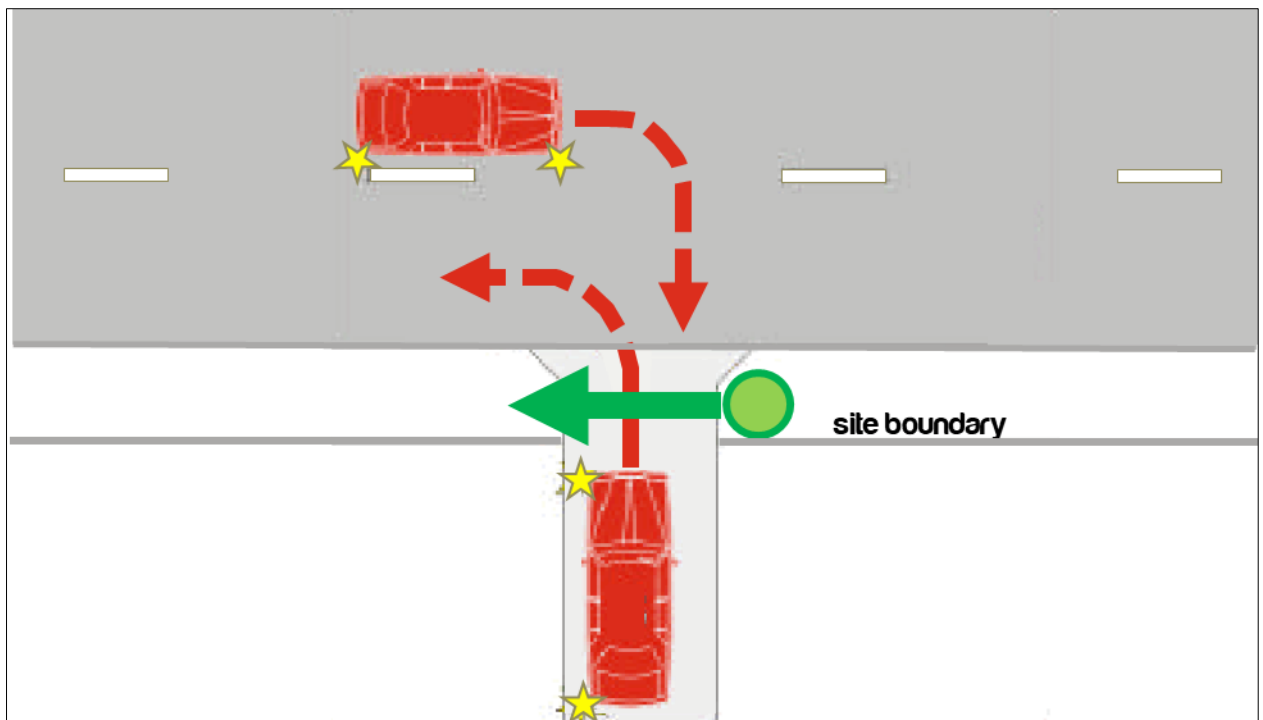
Up-to-date details regarding approved B-double routes can be obtained from the RMS web portal (<http://www.rms.nsw.gov.au/business-industry/heavy-vehicles/maps/restricted-access-vehicles-map/map/index.html>).

### 5.3 Site Access

Details regarding access to individual Lots are provided within the site-specific OTMPs, prepared separately.

All access and egress from individual Lots shall be in a forward direction at all times.

It is emphasised that vehicles accessing private property shall observe all applicable Road Rules including giving way to pedestrians on the frontage road, as demonstrated in Figure 8.



**Figure 8: Priority of Movement at Site Boundary**

## 5.4 TransGrid Easement

Condition D28 as outlined in Table 4 states that;

- The Applicant shall not operate any mobile plant and equipment which exceeds a height of 4.2 metres within the TransGrid transmission line easement, and
- All construction plant and equipment that will operate within the transmission line easement shall be fitted with an earthing trail.

The TransGrid easement shall remain clear at all times, unless otherwise agreed by TransGrid. In this regard, any access driveway crossing the easement shall be subject to No Stopping restrictions along the length of the TransGrid easement.

## 5.5 Temporary or Unplanned Works

Construction works, and associated traffic management measures are not covered by this plan.

Notwithstanding, any traffic and pedestrian control in relation to temporary or unplanned works shall be designed in accordance with AS1742 and/or the RMS Traffic Control at Work Sites manual, as appropriate.

Where practicable, work areas and temporary pedestrian paths (if applicable) should be physically separated from vehicle movements by way of traffic cones, bollards and/or temporary pedestrian fencing.

## 5.6 Dangerous Goods

A Transport Emergency Response Plan (TERP) is required prior to transport of any Dangerous Goods. It is expected that such plans will be prepared by the contractor involved in the transport of Dangerous Goods to/from the individual businesses within the Estate. Accordingly, transport of Dangerous Goods is not covered by this OTMP.

It is expected that any TERP would, as a minimum, be in accordance with the *2012 Emergency Response Guidebook* or *HB76: 2010 Dangerous Goods – Initial Emergency Response Guide*.

## 6 Driver Code of Conduct

All vehicle operators on Estate roads must:

- Take reasonable care for his or her own personal health and safety.
- Not adversely, by way of actions or otherwise, impact on the health and safety of other persons.
- Notify their employer if they are not fit for duty prior to commencing their shift.
- Obey all applicable Road Rules and laws at all times.
- Obey the applicable driving hours in accordance with legislation and take all reasonable steps to manage their fatigue and not drive with high levels of drowsiness.
- Obey all on-site signposted speed limits and comply with directions of traffic control supervisors in relation to movements in and around temporary or fixed work areas.
- Ensure all loads are safely restrained, as necessary.
- Operate their vehicles in a safe and professional manner, with consideration for all other road users.
- Hold a current Australian State or Territory issued driver's licence.
- Notify their employer or operator immediately should the status or conditions of their driver's license change in any way.
- Comply with other applicable workplace policies, including a zero tolerance of driving while under the influence of alcohol and/or illicit drugs.
- Not use mobile phones when driving a vehicle or operating equipment. If the use of a mobile device is required, the driver shall pull over in a safe and legal location prior to the use of any mobile device.
- Advise management of any situations in which you know, or think may, present a threat to workplace health and safety.
- Drive according to prevailing conditions (such as during inclement weather) and reduce speed, if necessary.



## 7 Parking Management

### 7.1 On-site Car Parking

In accordance with the condition C5, individual sites shall provide on-site car parking in accordance with the following rates (unless specific approval for reduced rates is provided by a subsequent development consent).

**Table 5: Concept Plan Car Parking Rates**

Land Use	Minimum Car Parking Rate
Warehouse / Distribution	1 space per 300m <sup>2</sup>
Office	1 space per 300m <sup>2</sup> (for office component up to 20% of total GFA)
	1 space per 40m <sup>2</sup> (for office component in excess of 20% of total GFA)

On-site parking is a matter for individual site-specific OTMPs.

Suitable provision for accessible (disabled) parking should be made in accordance with applicable Standards (Building Code of Australia) or development consent. Reference is made to Condition C5 of the Concept Plan approval which requires accessible parking to be provided at rates outlined within Table 6 below. In this regard, Penrith Council's DCP refers to the Disability (Access to Premises – Buildings) Standards 2010 which outlines the following rates applicable to industrial developments.

**Table 6: Accessible Parking - Disability (Access to Premises - Buildings) Standards 2010**

Class of building to which the Class 7a building or carparking area is associated	Number of accessible carparking spaces required
Class 1b and 3	n/a
Class 5, 7, 8 and 9c	2 spaces for every 100 carparking spaces or part thereof.
Class 6	
(a) Up to 1 000 carparking spaces; and	1 space for every 50 carparking spaces or part thereof.
(b) for each additional 100 carparking spaces or part thereof in excess of 1 000 carparking spaces.	2 spaces.
Class 9	n/a

## 7.2 On-street Parking

Vehicles are NOT to be parked on-street.

On-street parking is restricted, with a combination of full time “No Stopping” and “No Parking” restrictions in effect along the full length of Estate roads, as demonstrated in Figure 9.

Drivers will ensure that trailers are parked within their designated areas and will not park trailers within circulation roadways and access roads (incl. emergency vehicle access roads). Management of respective Lots shall remain the responsibility of the respective property’s owner to ensure that no vehicles associated with business operations are parked on-street.

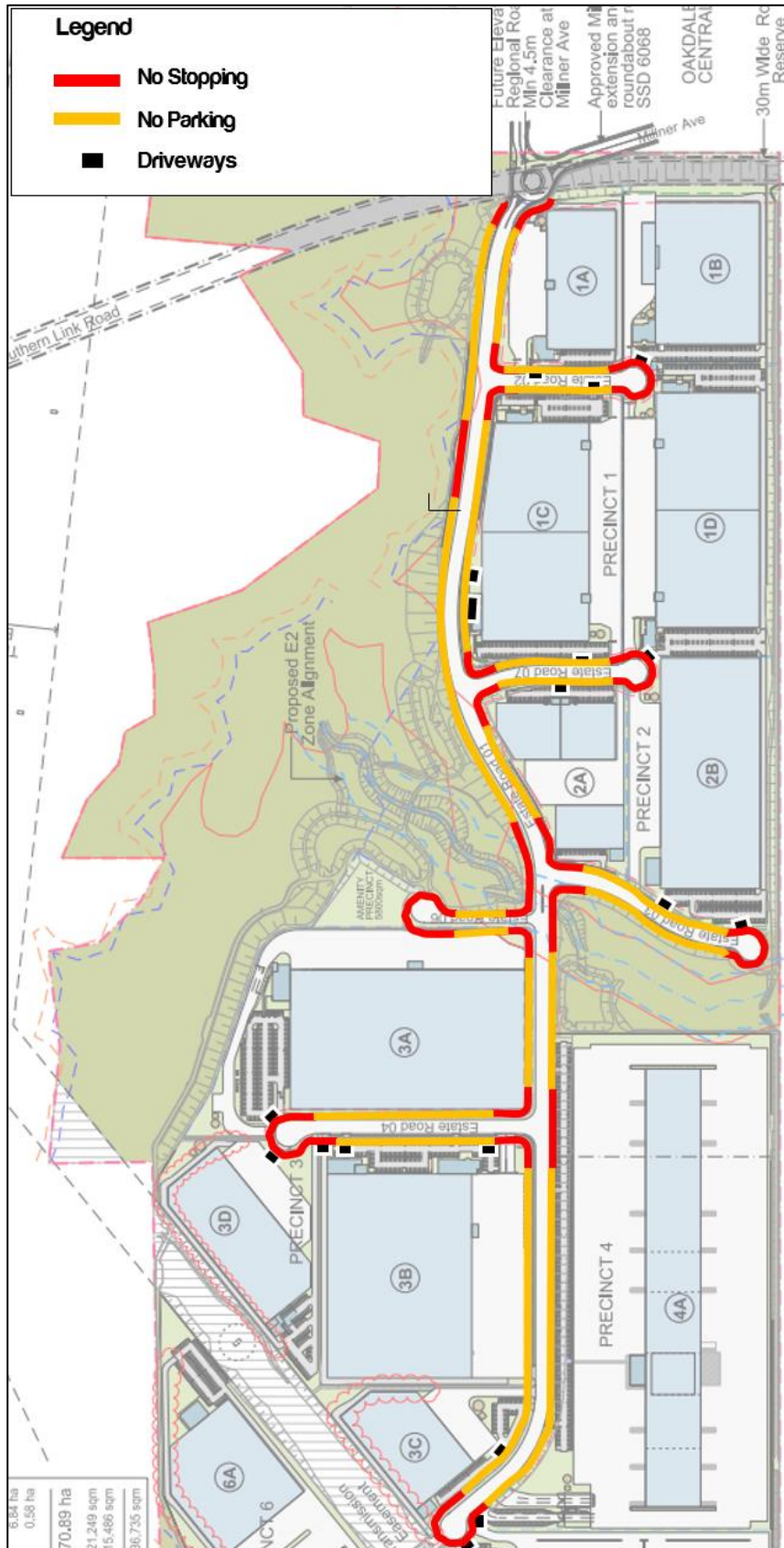


Figure 9: On-street Parking Controls

## 8 Plan Administration

### 8.1 Plan Maintenance

This Plan shall be subject to ongoing review and will be updated as necessary in response to changing requirements or in response to any documented WHS issues. In particular, a review of this Plan may be required where a new business occupies a tenancy and has different operational requirements to that envisaged under this Plan (refer to Section 2.3). Where a change of businesses does not alter the underlying characteristics of the operation, no change to this plan would be required.

### 8.2 Key Responsibilities

#### 8.2.1 Management

Management of each respective business unit on-site shall:

- Ensure all staff and sub-contractors are provided with sufficient training to undertake the required tasks. This includes responsibility for measures to ensure that all staff and visitors are familiar with the Estate wide OTMP, and will comply with their own site specific OTMP's.
- Ensure that all vehicles will not, in any manner, be knowingly overloaded.
- As per condition E6(a) and E6(b), ensure that all vehicles transporting loose materials will have the entire load covered and/or secured to prevent any large items, excess dust or dirt particles depositing onto the roadway during travel to and from the site.
- As per Condition E8(d), E8(e), E8(f) and E8(h), ensure that all vehicles must be wholly within site before being required to stop, as well as loading and unloading materials.
- Ensure that, according to Condition E8(i), loading areas and turning areas within site will be kept clear at all times.
- All vehicles must enter and exit the Site in a forward direction as outlined in Condition E8(g)
- Management must not, by their actions or requirements, force or coerce subcontractors or drivers to break the law.

[ blank page]

# APPENDIX H



global environmental solutions

Waste Management Plan  
Oakdale South Development  
Estate Road, Eastern Creek

Report Number 630.11166-R2

3 September 2015

Goodman Property Services (Aust) Pty Limited  
GPO Box 4703  
Sydney NSW 2001

Version: Revision 0

# Waste Management Plan

## Oakdale South Development

### Estate Road, Eastern Creek

**PREPARED BY:**

SLR Consulting Australia Pty Ltd  
ABN 29 001 584 612  
2 Lincoln Street  
Lane Cove NSW 2066 Australia  
(PO Box 176 Lane Cove NSW 1595 Australia)  
T: +61 2 9427 8100 F: +61 2 9427 8200  
sydney@slrconsulting.com www.slrconsulting.com

This report has been prepared by SLR Consulting Australia Pty Ltd with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with the Client. Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of Goodman Property Services (Aust) Pty Limited. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

#### DOCUMENT CONTROL

Reference	Status	Date	Prepared	Checked	Authorised
630.11166-R2	Revision 0	3 September 2015	Tanya Henley	Gemma Dawson	Gemma Dawson



## Table of Contents

1	INTRODUCTION	5
1.1	Scope	5
1.2	Objectives	6
2	BETTER PRACTICE FOR WASTE MANAGEMENT AND RECYCLING	7
2.1	Waste Management Hierarchy	7
2.2	Benefits of Implementing Better Practice for Waste Management and Recycling	7
3	WASTE LEGISLATION AND GUIDANCE	8
4	SITE DESCRIPTION	9
5	CONSTRUCTION WASTE MANAGEMENT PLAN	10
5.1	Targets for Resource Recovery	10
5.2	Waste Streams and Classifications	10
5.3	Construction Waste Generation Rates	12
5.3.1	Estimation of Waste Volumes	13
5.4	Waste Avoidance Measures	13
5.5	Re-use, Recycling and Disposal	14
5.5.1	Site Specific Procedures	15
5.6	Waste Storage and Servicing	16
5.6.1	Space and Amenity	16
5.6.2	Servicing and Transport	16
5.6.3	Contaminated / Hazardous Waste	17
5.6.4	Liquid Waste Management	17
5.6.5	Spills Management	17
5.7	Signage	18
5.8	Training and Awareness	18
5.9	Monitoring and Reporting	18
5.10	Roles and Responsibilities	18
6	OPERATIONAL WASTE MANAGEMENT PLAN	20
6.1	Targets for Resource Recovery	20
6.2	Waste Streams and Classifications	20
6.2.1	Operational Waste Generation Rates	21
6.2.2	Estimation of Waste Volumes / Tonnages	22
6.3	Waste Avoidance, Re-use and Recycling Measures	22
6.3.1	Waste Avoidance	22
6.3.2	Re-use	23
6.3.3	Recycling	23
6.4	Waste Storage and Servicing Requirements	23

## Table of Contents

6.4.1	Waste Storage Area Requirements	23
6.4.2	Waste Servicing	23
6.5	Special Wastes	24
6.5.1	Contaminated / Hazardous Wastes	24
6.5.2	Liquid Waste	24
6.5.3	Stormwater Treatment	24
6.5.4	Spills Management	25
6.5.5	Signage	25
6.5.6	Contract Clauses	25
6.6	Roles and Responsibilities	25

### TABLES

Table 1	Waste Legislation and Guidance	8
Table 2	Potential Waste Generation and EPA Classifications	11
Table 3	Guideline to Waste Composition and Volumes - Construction	12
Table 4	Environmental Performance Indicator for Waste Volumes from New Developments	12
Table 5	Estimated Construction Waste Generation for the Development	13
Table 6	Estimated Waste Volumes and Materials for the Development	13
Table 7	Recommended Roles and Responsibilities	19
Table 8	Potential Waste Generation and EPA Classifications – Operational	20
Table 9	Estimated Waste Generation Rates for Different Types of Premises	21
Table 10	Anticipated Weekly Waste Generation	22
Table 11	Anticipated Weekly Waste Generation	22
Table 12	Waste Management Responsibility Allocation	25

### FIGURES

Figure 1	Waste Hierarchy	7
Figure 2	Oakdale South Development Site Location	9

### APPENDICES

Appendix A	Development Masterplan
Appendix B	Waste Management Plan Template

# 1 INTRODUCTION

SLR Consulting Australia Pty Ltd (SLR) has been engaged by Goodman Property Service (Aust) Pty Ltd (Goodman) to prepare a Waste Management Plan (WMP) for the proposed construction and operation of the Oakdale South development, a warehousing facility to be located on Estate Road, Eastern Creek (the Development site). The WMP will form part of the overall Development Application (DA) to Penrith Council (Council).

This report has been prepared to inform a State Significant Development Application (SSDA) for the staged development of the Oakdale South Estate (OSE). The aim of the report is to assess the potential impacts of the proposed development with regard to the management of waste and has been prepared in accordance with the relevant waste legislation and guidance as per Section 3 of this report. The report responds to the Secretary's Environmental Assessment Requirements (SEARs) as they relate to waste generated both during the construction and ongoing operation of the development. This report supports an Environmental Impact Statement (EIS) prepared in respect of the proposal and should be read in conjunction with the EIS and development plans submitted with the SSDA.

## 1.1 Scope

The SSDA for the OSE seeks approval for:

An overarching planning framework to guide the staged development of the OSE including:

- An Indicative Master Plan and Structure Plan;
- Development Controls for the OSE;
- A Biodiversity Offset Strategy.

Stage 1 Development of the Estate including:

1. A package of estate-wide site preparation works to be implemented in stages including:

- Subdivision;
- Bulk earthworks (including construction of detention basins);
- Construction of retaining walls, road and utility infrastructure/services; and
- Environmental management measures and protocols for the site.

2. Development for the purposes of warehousing and distribution including:

- The construction of warehouse buildings in Precincts 1, 4 and 5;
- The construction of hardstand, loading, car parking and landscaping in Precincts 1, 4 and 5; and
- The fit out and use of buildings in Precincts 1, 4 and 5 for generic warehousing and distribution uses.

This WMP applies to the demolition, construction and on-going operation of the proposed development.

The provisions contained in the WMP must be implemented at all stages of the development, and may be subject to review upon expansion or changes in operational procedures.

- See page 10 for the Construction WMP.
- See page 20 for the Operational WMP.

## 1.2 Objectives

The principal objective of this WMP is to identify all potential wastes likely to be generated at the site during development and operational phases of the development, including a description of how waste would be handled, processed and disposed of (or re-used/recycled), in accordance with Council requirements.

The specific objectives of this WMP are as follows:

- To encourage the minimisation of waste production and maximisation of resource recovery.
- To ensure the appropriate management of contaminated/hazardous waste.
- To identify procedures and chain of custody records for waste management.
- To assist in ensuring that any environmental impacts during the operational life of development comply with Council's development consent conditions and other relevant regulatory authorities.

## 2 BETTER PRACTICE FOR WASTE MANAGEMENT AND RECYCLING

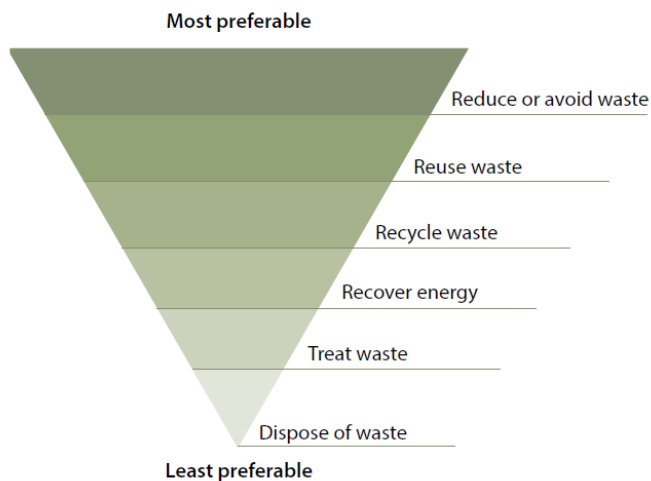
### 2.1 Waste Management Hierarchy

Where appropriate, this WMP aims to meet the principles of the waste management hierarchy, by promoting waste as a resource through the following in order of preference:

- Waste avoidance through prevention or reduction of waste generation. Waste avoidance is best achieved through better design and purchasing choices.
- Waste reuse, without substantially changing the form of waste.
- Waste recycling through the treatment of waste that is no longer usable in its current form to produce new products.
- Energy recovery through thermal treatment of residual waste materials and from green waste processing.
- Waste disposal, in a manner that causes the least harm to the natural environment.
- Energy recovery through thermal treatment of residual waste materials and from green waste processing.
- Waste disposal, in a manner that causes the least harm to the natural environment.

The waste hierarchy pictured below demonstrates a classification of waste management options in order of their environmental impacts, as established under the Waste Avoidance and Resource Recovery Act 2001.

**Figure 1 Waste Hierarchy**



Source: NSW Waste Avoidance and Resource Recovery Strategy 2014-21 (2014, NSW EPA)

### 2.2 Benefits of Implementing Better Practice for Waste Management and Recycling

- Enhanced social and environmental reputation of an organisation.
- Reduced costs associated with waste disposal.
- Benefits to all stakeholders and the wider community.
- Improved environmental outcomes.

### 3 WASTE LEGISLATION AND GUIDANCE

The legislation and guidance outlined in **Table 1** below should be referred to during the demolition, construction and operational phases of the development.

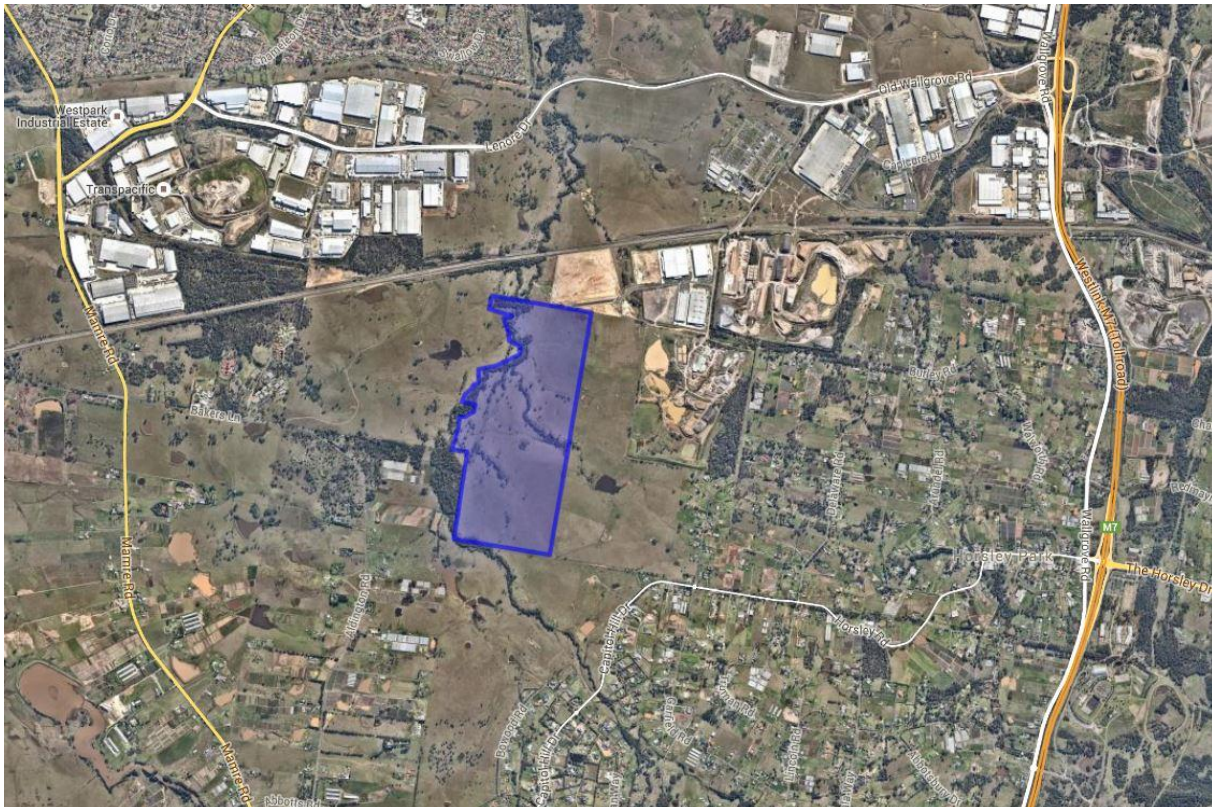
**Table 1 Waste Legislation and Guidance**

Legislation	Objectives
Waste Avoidance and Resource Recovery Act 2001	To promote extended producer responsibility in place of industry waste reduction plans. Specific objectives include: <ul style="list-style-type: none"> <li>To encourage efficient use of resources.</li> <li>To minimise the consumption of natural resources and the final disposal of waste by encouraging the avoidance of waste and the reuse and recycling of waste.</li> <li>To ensure that industry shares with the community the responsibility for reducing and dealing with waste.</li> <li>To ensure the efficient funding of waste and resource management planning, programs and service delivery.</li> </ul>
Protection of the Environment Operations Act (POEO) 1997 & Amendment Act 2011	Administered by the Environmental Protection Authority (EPA) to enable the Government to establish instruments for setting environmental standards, goals, protocols and guidelines. <b>Important Note:</b> <i>The owner of a premises, the employer or any person carrying on the activity which causes a pollution incident is to immediately notify the relevant authorities when material harm to the environment is caused or threatened.</i> A list of each relevant authority is provided in the POEO Amendment Act and will be noted in the site's incident register.
POEO (Waste) Regulation 2014	Contains provisions relating to the waste levy, waste tracking, management requirements for certain waste types, payment schemes for councils, consumer packaging recycling and other miscellaneous provisions.
NSW EPA's Waste Classification Guidelines (Part 1) 2014	To assist waste generators to effectively classify, manage, treat and dispose of waste to ensure the environmental and human health risks associated with waste are managed appropriately and in accordance with the POEO Act and its associated regulations.
Building Code of Australia (BCA) and relevant Australian Standards (AS)	The BCA (and AS) have the aim of achieving nationally consistent, minimum necessary standards of relevant health and safety, amenity and sustainability objectives efficiently.
Blacktown Development Control Plan (DCP) 2006	Part O, Site Waste Management and Minimisation of the DCP contains general provisions for new developments in the Blacktown Local Government Area (LGA). Relevant provisions to this WMP include: <ul style="list-style-type: none"> <li>Performance criteria for development (pg 6 of the DCP).</li> <li>A copy of Council's WMP template is provided in Appendix A of the DCP.</li> </ul>
NSW EPA's Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities 2012	The EPA's Better Practice Guidelines (2012) encourage efficient waste minimisation and resource recovery for commercial and industrial facilities and is used as a benchmark document when assessing waste production rates within Australia and details a range of waste management provisions.
NSW EPA's Waste Avoidance and Resource Recovery (WARR) Strategy 2014-21	A key component of the State Government's vision for the environmental and economic future of the state that will be supported financially by the <i>Waste Less, Recycle More</i> funding initiative providing long-term targets for 6 key result areas including reduced illegal dumping.
Australian Packaging Covenant	Each building should be encouraged to establish an Action Plan to demonstrate their contribution to the achievement of the Australian Packaging Covenant's (APC) goals. The three main performance goals of the APC are: <ul style="list-style-type: none"> <li>Design: Optimise packaging to use resources efficiently and reduce environmental impact without compromising product quality/safety.</li> <li>Recycling: Efficiently collect and recycle packaging.</li> <li>Product Stewardship: Demonstrate commitment of all signatories.</li> </ul>

## 4 SITE DESCRIPTION

The Oakdale South Development site is located on Estate Road, Eastern Creek, in the Local Government Area (LGA) of the City of Blacktown Council. The development site is approximately 117 hectares (ha) and is currently a rural property primarily consisting of paddocks for livestock. The primary access route to the site is via Old Wallgrove Road. The site is located approximately 3.5 km west of the M7 Motorway. The development site is depicted in blue in **Figure 2**.

**Figure 2 Oakdale South Development Site Location**



Aerial courtesy of Google Earth 2015

Note: Project site depicted in blue.

The Oakdale South Development consists of six precinct areas totalling approximately 70 ha of developable area. The total warehouse and office spaces are approximately 376,300 m<sup>2</sup> and 19,600 m<sup>2</sup> respectively.

A copy of the current masterplan is appended to this document (**Appendix A**).

## 5 CONSTRUCTION WASTE MANAGEMENT PLAN

Demolition and construction stages of developments have the greatest potential for waste minimisation.

At this stage of the project, specific details of construction activities are not yet known, so general construction scenarios have been assumed and are outlined below:

- site clearing and earthwork;
- paving works;
- construction of roadways and lead-in services including electricity, sewer and potable water;
- construction of warehouse and office structures; and
- landscaping and finishing works.

### 5.1 Targets for Resource Recovery

Estimated tonnages for both demolition and construction phases demonstrate that a significant proportion of waste (more than 50%) can be diverted from landfill during the proposed development.

The performance of each development contributes to overall NSW State recycling targets, which for the commercial and industrial (C&I) sector, is 80% of total C&I waste recycled by the year 2021 (see NSW Waste Avoidance and Resource Recovery Strategy 2014-21).

Waste minimisation measures that can be implemented to assist in achieving this resource recovery target are provided in the following sections. Waste audits will determine the actual percentage of wastes that were recycled and disposed of at landfill during the Project.

### 5.2 Waste Streams and Classifications

The development is likely to generate the following broad waste streams:

- demolition wastes;
- excavation material;
- construction wastes;
- plant maintenance waste;
- packaging waste;
- work compound (on-site employee) waste; and
- waste water.

Possible waste types along with their waste classification are provided in **Table 2**.



**Table 2 Potential Waste Generation and EPA Classifications**

Waste Types	NSW Classification	Proposed Reuse / Recycling / Disposal Method
<b>Site Preparatory &amp; Excavation / Demolition &amp; Construction</b>		
Cleared vegetation	General solid (non-putrescible) waste	Re-use on site, reuse for similar projects and/or disposal for composting at landfill
Excavated material (VEMN, EMN)	General solid (non-putrescible) waste	Reuse on-site where possible or reuse for similar projects. Sandstone may be incorporated in design or sold.
Sediment fencing, geotextile materials	General solid (non-putrescible) waste	Reuse at other sites where possible or disposal to landfill
Concrete (solids and washouts) and asphalt	General solid (non-putrescible) waste	Reuse on-site where possible or recycled off-site
Steel reinforcing, other metals (eg wire mesh and bulk electrical cabling)	General solid (non-putrescible) waste	Off-site recycling
Conduits and pipes	General solid (non-putrescible) waste	Off-site recycling
Timber formwork	General solid (non-putrescible) waste	Reuse on-site or off-site recycling
Plasterboard	General solid (non-putrescible) waste	Off-site recycling or disposal
Bricks	General solid (non-putrescible) waste	Off-site recycling
Glass	General solid (non-putrescible) waste	Off-site recycling
Light bulbs	Hazardous waste	Off-site recycling
<b>Plant Maintenance</b>		
Tyres	Special waste	Off-site recycling or disposal
Empty oil and other drums / tins (e.g. fuel, chemicals, paints, spill clean ups)	Hazardous waste if the containers were previously used to store Dangerous Goods (Class 1, 3, 4, 5 or 8) and from which residues have not been removed by washing or vacuuming. General solid (non-putrescible) waste if the containers have been cleaned by washing or vacuuming.	Transport to comply with the transport of Dangerous Goods Code applies in preparation for off-site recycling or disposal at licensed facility. (Note: Discharge to sewer subject to Trade Waste Agreement with Sydney Water.)
Air and oil filters and rags	General solid (non-putrescible) waste	General solid (non-putrescible) waste
Batteries	Hazardous waste	Off-site recycling
<b>Packaging</b>		
Packaging materials, including wood, plastic (including stretch wrap or LLPE), cardboard and metals	General solid (non-putrescible) waste	Off-site recycling
Wooden crates	General solid (non-putrescible) waste	Reused for similar projects, returned to suppliers, or off-site recycling
<b>Work Compound and Associated Offices</b>		
Recyclable beverage containers (glass and plastic bottles, aluminium cans), tin cans	General solid (non-putrescible) waste	Co-mingled recycling at off-site licensed facility
Clean paper and cardboard	General solid (non-putrescible) waste	Paper and cardboard recycling at off-site licensed facility
General domestic waste generated by workers (soiled paper and cardboard, food stuffs, polystyrene)	General solid (non-putrescible) waste mixed with putrescible waste	Disposal at landfill
Pump-out waste and septage (sewage)	Liquid (trade) waste	Off-site disposal at licensed facility or disposal direct to sewer where arranged with Sydney Water.

For further information on how to determine a waste's classification, refer to the EPA's *Waste Classification Guidelines* (2014).

### 5.3 Construction Waste Generation Rates

The Construction Site Manager will need to record the types and quantities (including the volume in cubic metres and weight in tonnes) of wastes produced during the site preparatory and construction stages of the development, and on this basis, the numbers and capacity of skips/bins can be determined.

A guide/estimate of the potential waste percentages is provided based on published waste generation rates for construction and demolition projects, as indicated in **Table 3**.

**Table 3 Guideline to Waste Composition and Volumes - Construction**

Material	Estimated Waste %	Conversion Factors (tonne per m <sup>3</sup> )
Hard material	32%	1.2
Timber	24%	0.3
Plastics	15%	0.13
Cement sheet	9%	0.5
Gypsum material	6%	0.2
Metals	6%	0.9
Paper/cardboard	4%	0.1
Vegetation	3%	0.15
Soil	1%	1.6
Other (e.g chemicals/paint)	0.3%	0.3

Source: UK WRAP

The UK Department of Environment, Food and Rural Affairs (DEFRA) and the UK Building Research Establishment (BRE) have developed a number of benchmark indicators to help determine approximate tonnages of waste produced during various construction projects including civil engineering and commercial retail works. The benchmarks include Environmental Performance Indicators (EPI) which measure the volume (cubic metres, m<sup>3</sup>) of waste produced per 100 square metres (m<sup>2</sup>).

The EPI indicators provided in **Table 4** have been used for the purposes of this WMP to estimate the amounts of demolition and construction wastes that could be generated by the development.

**Table 4 Environmental Performance Indicator for Waste Volumes from New Developments**

Project Type	Average Volume (m <sup>3</sup> ) of Waste per 100m <sup>2</sup>
Industrial Buildings	14.0
Commercial Offices	20.4
Civil Engineering	28.1

Source: UK BRE

### 5.3.1 Estimation of Waste Volumes

The estimated waste volumes for the overall development area are presented in **Table 5** and **Table 6**. The waste arisings are based on the EPI estimates presented above in **Table 4**. Actual waste tonnage and composition will vary however this estimate is provided to inform potential on-site or off-site re-use and recycling opportunities.

**Table 5 Estimated Construction Waste Generation for the Development**

Proposed Land Use	Area (m <sup>2</sup> )	Estimated Waste Generation (m <sup>3</sup> )
Total Office	19,585	3,995
Total Warehouse	376,295	52,681
Roads (Estate and Regional)	57,600	16,186
Hard Landscaping (Easements and Services Lot)	54,100	15,202
Other Industrial Precinct Areas	303,220	42,451
<b>Total</b>	<b>810,800</b>	<b>130,515</b>

Note: Assumes no waste generated by soft landscaping

**Table 6 Estimated Waste Volumes and Materials for the Development**

Material	Split (%)	Waste (m <sup>3</sup> )	Conversion factor	Waste (tonnes)
Hard material	32%	41,765	1.2	50,118
Timber	24%	31,324	0.3	9,397
Plastics	15%	19,577	0.13	2,545
Cement sheet	9%	11,746	0.5	5,873
Gypsum material	6%	7,831	0.2	1,566
Metals	6%	7,831	0.9	7,048
Paper/cardboard	4%	5,221	0.1	522
Vegetation	3%	3,915	0.15	587
Soil	1%	1,305	1.6	2,088
Other	0.3%	392	0.3	117
<b>Total</b>	<b>100%</b>	<b>130,907</b>	<b>-</b>	<b>79,862</b>

It is estimated that more than 70% of the predicted construction waste arisings from the total development can be re-used (on-site or at another development) or recycled off-site. (The NSW target for construction and demolition waste recycling is 75%, increasing to 80% by 2021-22)<sup>1</sup>.

See **Appendix B** for an example WMP template.

### 5.4 Waste Avoidance Measures

The Construction Site Manager will identify opportunities for waste avoidance by:

- selecting construction materials taking into consideration to their long lifespan and potential for reuse;
- ordering materials to size and ordering pre-cut and prefabricated materials;
- reuse of formwork (where possible);

<sup>1</sup> NSW Waste and Avoidance Resource Recovery Strategy 2014-21

- planned work staging;
- reducing packaging waste on-site by:
  - returning packaging to suppliers where possible
  - purchasing in bulk
  - requesting cardboard or metal drums rather than plastics
  - requesting metal straps rather than shrink wrap and using returnable packaging such as pallets and reels;
- careful on-site storage and source separation;
- subcontractors informed of site waste management procedures; and
- coordination and sequencing of various trades.

The amount of materials used in the construction of a building should also be reduced wherever possible by:

- exposing structures to reduce the use of floor, ceiling and wall cladding and finishes;
- use of naturally ventilating buildings to reduce ductwork; and
- use of prefabricated components for internal fit outs.

The Construction Site Manager should also advise on material selection for the reduction of embodied energy and resource depletion. This includes:

- the use of recycled concrete and steel;
- the reduction of PVC use;
- the use of fittings and furnishings that have been recycled or that incorporate recycled content;
- the use of low volatile organic compounds (VOC) paints and adhesives;
- the use of post-consumer reused timber or Forest Stewardship Council (FSC) certified timber; and
- designs enabling disassembly and reuse of materials are also desirable.

The following measures will also be undertaken to improve construction waste management and to provide more reliable figures:

1. Compare projected waste quantities with actual waste quantities produced.
2. Conduct waste audits of current projects (where feasible).
3. Note waste generated and disposal methods.
4. Look at past waste disposal receipts.
5. Record this information to help in waste estimations for future waste management plans.

## **5.5 Re-use, Recycling and Disposal**

Effective management of construction materials and demolition/construction waste, including options for reuse and recycling where applicable and practicable, will be conducted. Only wastes that cannot be cost effectively reused or recycled are to be sent to landfill or appropriate disposal facilities.

Table 2 for an outline of the proposed reuse, recycling and disposal methods for potential waste streams generated by the development.

The following procedures are to be implemented:

- framing timber will be reused on-site or recycled off-site;
- materials such as timber, metal, brick, concrete will be recycled by an appropriately licensed recycling facility for processing and reuse;
- all solid waste timber, brick, concrete, rock that cannot be reused or recycled will be taken to an appropriate landfill site and disposed of in an approved manner;
- all metals will be recycled where economically viable;
- waste oil will be recycled or disposed of in an appropriate manner;
- windows, doors and joinery will be recycled off-site (where possible);
- all asbestos, hazardous and/or intractable wastes are to be disposed of in accordance with Workcover Authority and EPA requirements;
- washdown equipment/plant/machinery and concrete delivery trucks within a specified, appropriately bunded, washdown bay or return to the batching plant before washing out. Liquid waste is often produced from the washing down of plant and apparatus. There may be a local sewer that this waste water can be connected to; alternatively, this could be transferred into a localised waste water treatment facility or plant;
- completion of refuelling activities in designated areas with appropriate spill containment measures to avoid overspill to sensitive areas;
- provision for the collection of fluorescent tubes, smoke detectors and other recyclable resources will be provided on site;
- co-mingled/cardboard recycling will be provided on-site for employee use or these items will be sorted recycling at an appropriately licensed facility; all garbage will be disposed of via a council approved system; and
- investigate any opportunities for materials exportation and reuse with other local construction operations. This will have two benefits: minimising energy through reduction of material reprocessing, encouraging material reuse.

### **5.5.1 Site Specific Procedures**

In addition to the above, the Construction Site Manager will consider implementation of the following procedures:

- all used crates will be stored for reuse unless damaged;
- all cardboard waste is to be recycled via on-site recycling compactors which shall be collected by an appropriate recycling contractor;
- all glass and metals that can be economically recycled will be;
- all re-enforcing mesh to be utilised within the construction stages of the construction;
- colour bond roof material off cuts to be stockpiled on site for reuse or recycling;
- waste concrete will be disposed of at a crushing/recycling plant where practicable;
- waste bricks will be crushed and utilised on site. All half/damaged bricks and blacks will be stored on site to be removed for offsite crushing and recycling;
- excavation material will be reused on-site where possible with all excess reused on other projects or sold;
- all other solid waste including bitumen paving, tile, timber, rock and soil will be taken to an appropriate materials recycling facility/landfill site and processed in an approved manner; and
- all garbage will be disposed of via a council approved system.

## **5.6 Waste Storage and Servicing**

For construction stages, consider minimum dedicated skips for:

- timber;
- plasterboard/gyprock;
- concrete;
- bricks;
- steel/scrap metal;
- general waste; and
- other waste (i.e. for the collection of materials that may be re-used on future projects).

Separate receptacles for the safe disposal of hazardous waste types (i.e. light bulbs, batteries, etc) will also be provided where applicable.

Where possible, employee co-mingled recycling bins will be provided nearby common areas at work compounds/work sites for plastic and glass bottles, soft drink cans, aluminium and tin cans to ensure these items do not end up at landfill. Specialised bins for cigarette butts should also be provided outside lunchrooms and nearby common areas at work compounds/work sites.

### **5.6.1 Space and Amenity**

Waste storage areas will be accessible and allow sufficient space for storage and servicing requirements. The storage areas will also be flexible in order to cater for change of use throughout the development.

Where space is restricted, dedicated stockpile areas are to be delineated on the site, with regular transfers to dedicated skip bins for sorting. The positions of the designated waste holding areas on site will change according to building works and the progression of the development, but must consider visual amenity, OH&S and accessibility in their selection.

All waste placed in stockpile areas/skips for disposal or recycling shall be adequately contained to ensure that the waste does not fall, blow, wash or otherwise escape from the site. Appropriate siting of waste stockpile locations will take into account slope and drainage factors to avoid contamination of stormwater drains during rain events.

Waste containers are to be kept clean and in a good state of repair.

### **5.6.2 Servicing and Transport**

The frequency of the waste removal will, in most cases, be dictated by the volume of material being deposited into each of the dedicated skips. Skips are to be checked on a daily basis by the Site Manager to ensure that skips do not overflow. If skips and/or bins are reaching capacity, removal and replacement should be organised for the next 24 hours.

All skips/bins leaving the site will be covered with a suitable tarpaulin to ensure that the spillage of wastes from the skips whilst in transit is eliminated.

All waste collection for construction works are to be conducted between 7am and 6pm daily. All site generated building waste collected in the skips and/or bins will leave the site and be deposited in the approved and appropriately licensed recycling centre, transfer station or landfill site.

### **5.6.3 Contaminated / Hazardous Waste**

During the construction phases of the development, there must be a commitment to engage qualified and certified contractors to remove all contaminated/hazardous materials (e.g. asbestos) and dispose of all contaminated/hazardous waste at an appropriately licenced facility, where applicable.

In the event that any contaminated or hazardous materials are unexpectedly uncovered during demolition or excavation works, the Construction Site Manager is to stop work immediately and contact the relevant hazardous waste contractor prior to further works being undertaken in the area.

Contaminated material stockpiled on site will be minimised as far as possible and should be stored on HD polythene liner, in a bunded location which is protected from inclement weather. Sediment fences should also be installed around the base of stockpiles and the stockpiles should be covered. Where excavated material requires validations, samples should be taken for NATA laboratory testing as per the requirements of the contamination assessment prior to restoration works, backfilling exercises and disposal.

Any trucks carrying contaminated materials should be securely and completely covered immediately after loading the materials, to prevent windblown emissions and spillage.

Decontamination of all equipment prior to demobilisation from the site is important in order that contaminated materials are not spread off-site. This should be achieved using dry cleaning methods as far as practicable and collection of material for disposal. The following additional measures should be employed on site:

- as far as possible, all tracked surfaces to be kept free of contaminated material; and
- all equipment should be cleaned in an area contained contaminated soils so that they remain within the area, or on a lined surface and collected spoil should be treated as contaminated material.

Reference should be made to the Construction Environmental Management Plan (CEMP) for further details on contamination and hazardous materials management.

### **5.6.4 Liquid Waste Management**

Any liquid wastes or dangerous goods wastes generated by the construction activities (e.g. due to damage or leakage of containment) will be disposed of by a suitably qualified contractor to an appropriately licensed disposal facility.

Waste water storage tanks (where applicable) will be carefully monitored to ensure overflow does not occur and no liquid wastes or wash down waters will be disposed of via the stormwater drainage system.

### **5.6.5 Spills Management**

Spills on the worksite are most likely to involve fuel, hydraulic oil or engine oil spilled from plant items, and paints and solvents.

If a spillage occurs, site staff will immediately identify the spilled materials and notify the Construction Site Manager. Then contain the spill as soon as possible so it doesn't spread.

Containment measures for spillages will be provided at appropriate locations and in close proximity to staff car park areas, dangerous goods stores areas and main development work areas (e.g. a spill kit containing non-combustible absorbent material).

Material Safety Data Sheets (MSDS) will also be located nearby spill kit areas for advice on spillage clean-up and disposal.

## 5.7 Signage

Standard signage will be posted in all storage/waste collection areas and all skips/drums/bins are required to be labelled correctly and clearly to identify materials stored within.

Refer to the EPA's website for construction and demolition waste and recycling signs <http://www.epa.nsw.gov.au/wastetools/signs-posters-symbols.htm>.

## 5.8 Training and Awareness

All staff (including sub-contractors and labourers) employed during the demolition and construction phases of the development must undergo induction training regarding waste management for the development site.

Induction training is to cover, as a minimum, an outline of the WMP including:

- legal obligations;
- emergency response procedures on site;
- waste storage locations and separation of waste;
- litter management in transit and on site;
- the implications of poor waste management practices;
- correct use of general purpose spill kit; and
- responsibility and reporting (including identification of personnel responsible for waste management and individual responsibilities).

## 5.9 Monitoring and Reporting

Records of waste volumes recycled, reused or contractor removed are to be maintained. Additionally, dockets/receipts verifying recycling/disposal in accordance with the WMP must be kept and presented to Council when required.

Daily visual inspections of waste storage areas will be undertaken by site personnel and inspection checklists/logs recorded for reporting to the Site Manager on a weekly basis or as required. These inspections will be used to identify and rectify any resource and waste management issues.

Waste audits are to be carried out by the Building Contractor to gauge the effectiveness and efficiency of waste segregation procedures and recycling/reuse initiatives. Where audits show that the above procedures are not carried out effectively, additional staff training will be undertaken and signage re-examined.

All environmental incidents are to be dealt with promptly to minimise potential impacts. An incident register must be maintained on-site at all times and include the contact details of the 24 hour EPA Pollution line. Likely incidents to occur during the construction phase of the development may involve fuel or chemical spills, seepage of mishandling of hazardous waste, or unlicensed discharge of pollutants to environment.

## 5.10 Roles and Responsibilities

All personnel have a responsibility for their own environmental performance and compliance with all legislation.

It will be the responsibility of the Construction Contractor to implement the WMP, and an employee responsibility to ensure that they comply with the guideline at all times.



Where possible, an Environmental Management Representative (EMR) should be appointed for the development. Suggested roles and responsibilities are provided below.

**Table 7 Recommended Roles and Responsibilities**

Role	Responsibility
Construction Site Manager	<ul style="list-style-type: none"><li>- Ensuring plant and equipment are well maintained.</li><li>- Ordering only the required amount of materials.</li><li>- Keeping materials segregated to maximise reuse and recycling.</li><li>- Ultimately responsible for routinely check waste sorting and storage areas for cleanliness, hygiene and OH&amp;S issues, contaminated waste materials, and also ensuring that all monitoring and audit results are well documented and carried out as specified in the WMP.</li></ul>
Environmental Management Representative (EMR)	<ul style="list-style-type: none"><li>- Approaching and establishing the local commercial reuse of materials where reuse on-site is not practical.</li><li>- Establishing separate skips and recycling bins for effective waste segregation and recycling purposes.</li><li>- Training and awareness of the requirements of the WMP and specific waste management strategies adopted for the development.</li><li>- Contaminated waste management and approval of off-site waste transport, disposal locations and checking licensing requirements.</li><li>- Approval of off-site waste disposal locations and checking licensing requirements.</li><li>- Assessment of suspicious potentially contaminated materials, hazardous materials and liquid wastes.</li><li>- Monitoring, inspection and reporting requirements.</li></ul>

Daily visual inspections of waste storage areas may be delegated to other on site staff. All subcontractors will be responsible for ensuring that their work complies with the WMP through the site induction and contract engagement process.

It is the responsibility of the Construction Contractor (or site operative) to notify Council of the appointment of waste removal, transport or disposal contractors.

## 6 OPERATIONAL WASTE MANAGEMENT PLAN

Ineffective waste management for commercial premises can lead to environmental pollution, offensive odours, litter, attraction of vermin and occupational safety and hygiene problems.

Effective waste management reduces costs through the reuse of resources and minimisation of fees associated with removal, transportation and disposal of waste, and improves environmental outcomes locally, regionally and globally.

Effective waste management is achieved through the implementation of a WMP for the operational life of the development.

### 6.1 Targets for Resource Recovery

The performance of each development contributes to overall NSW State recycling targets, which for the commercial and industrial (C&I) sector, is 70% of total C&I waste recycled by the year 2021 (see NSW Waste Avoidance and Resource Recovery Strategy 2014-21).

### 6.2 Waste Streams and Classifications

The operation of the site will generate the following broad waste streams:

- general waste;
- packaging wastes (ie cardboard, paper, plastic / shrink wrap, pallets);
- office wastes;
- amenity wastes; and
- maintenance wastes.

Potential waste types along with their waste classification are provided below in **Table 8**.

**Table 8 Potential Waste Generation and EPA Classifications – Operational**

Waste Types	NSW Classification	Proposed Reuse / Recycling / Disposal Method
<b>General Operations</b>		
General garbage (including non-recyclable plastics)	General solid (putrescible and non-putrescible) waste	Disposal at landfill
Recyclable beverage containers (glass and plastic bottles, aluminium cans), tin cans	General solid (non-putrescible) waste	Co-mingled recycling at off-site licensed facility
Paper	General solid (non-putrescible) waste	Off-site secure shredding and recycling
Food waste	General solid (putrescible) waste	Option to compost on site. Alternatively, off-site recycling or dispose to landfill with general garbage
Bulk cardboard	General solid (non-putrescible) waste	Cardboard recycling at off-site licensed facility
Plastic packaging materials (including stretch wrap or LLPE)	General solid (non-putrescible) waste	Baled and sent for off-site recycling
Bulk polystyrene	General solid (non-putrescible) waste	Recycling at off-site licensed facility or disposal at landfill
Wooden crates / pallets	General solid (non-putrescible) waste	Reused for similar projects, returned to suppliers, or off-site recycling

Waste Types	NSW Classification	Proposed Reuse / Recycling / Disposal Method
<b>Maintenance</b>		
E-waste, batteries, printer toners and ink cartridges	Hazardous waste	Off-site recycling
Spent Smoke Detectors <sup>1</sup>	General solid (non-putrescible) waste OR Hazardous waste (some Commercial varieties)	Disposal at landfill OR offsite disposal at licensed facility
Glass (other than containers)	General solid (non-putrescible) waste	Off-site recycling
Light bulbs	Hazardous waste	Off-site recycling
Maintenance waste (i.e. empty oil / paint drums, chemicals, solvents, area wash downs etc)	Hazardous waste if the containers were previously used to store Dangerous Goods (Class 1, 3, 4, 5 or 8) and from which residues have not been removed by washing or vacuuming. General solid (non-putrescible) waste if the containers have been cleaned by washing or vacuuming.	Transport to comply with the transport of Dangerous Goods Code applies in preparation for off-site recycling or disposal at licensed facility. (Note: Discharge to sewer subject to Trade Waste Agreement with Sydney Water.)
Air-conditioning parts and filters	General solid (non-putrescible) waste	Disposal to landfill
Garden organics (lawn mowing, tree branches, hedge cuttings, leaves etc)	General solid (non-putrescible) waste	Reuse on site or contractor removal for recycling at licensed facility
<b>Amenities</b>		
Grey water (from bathrooms)	Liquid waste	Discharge to sewer
Sewage	Liquid (trade) waste	Discharge to sewer
Sanitary Waste	General solid waste (putrescible)	Contractor disposal at licensed facility

Source: <http://www.environment.nsw.gov.au/waste/envguidlns/index.htm>

Note 1: The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) require that when more than 10 smoke alarms (particularly americium-241 sources) are collected for bulk disposal they must be treated as radioactive waste and the requirements of the National Health and Medical Research Council's *Code of practice for the near-surface disposal of radioactive waste in Australia (1992)* must be met. Contact ARPANSA for more information. [http://www.arpansa.gov.au/radiationprotection/factsheets/is\\_smokedetector.cfm](http://www.arpansa.gov.au/radiationprotection/factsheets/is_smokedetector.cfm)

For further information on how to determine a waste's classification, refer to the EPA's *Waste Classification Guidelines (2014)*.

### 6.2.1 Operational Waste Generation Rates

Estimated commercial and retail waste generation rates are published in the EPA's Better Practice Guidelines. Waste generation rates have also been sourced from additional publicly available and published sources where relevant.

**Table 9 Estimated Waste Generation Rates for Different Types of Premises**

Type of Premises	Average L per 100m <sup>2</sup> per day	
	Waste	Recycling
Offices	8	6
Showrooms	10	25
Warehouses <sup>1</sup>	30	30

Note 1: Sourced from Randwick City Council's Waste Management Guidelines (Appendix A Waste Generation Rates)

The above waste generation rates for Offices and Warehouses have been applied to estimate waste arisings associated with the operation of the development site.

## 6.2.2 Estimation of Waste Volumes / Tonnages

The actual amount and composition of waste generated by the development will be influenced by the nature of the businesses that occupy each of the buildings. The following waste arisings are an indication of typical waste generation volumes that can be expected during the operational phase of the development site.

**Table 10 Anticipated Weekly Waste Generation**

Type of Premises	Site Area (m <sup>2</sup> )	Average L per day		Average L per week	
		Waste	Recycling	Waste	Recycling
Total Office	19,585	1,567	1,175	10,968	8,226
Total Warehouse	376,295	37,630	94,074	263,407	658,516
<b>Total Waste</b>	<b>395,880</b>	<b>114,455</b>	<b>114,064</b>	<b>801,187</b>	<b>798,445</b>

**Table 11** provides a breakdown of the anticipated typical weekly waste generation from Precincts 1, 4 and 5.

**Table 11 Anticipated Weekly Waste Generation**

Precinct	Area (ha)	% of Total Area	Waste (L)	Recycling (L)
Precinct 1	18.8	27%	215,338	214,601
Precinct 4	9.5	14%	108,300	107,929
Precinct 5	14.0	20%	160,558	160,009
<b>Total</b>	<b>42.3</b>	<b>60%</b>	<b>484,196</b>	<b>482,539</b>

It is recommended that scheduled waste audits be undertaken approximately one month into the operational phase of the development to quantify actual waste composition and generation rates produced by each building occupant.

The assessment of generated waste volumes will also be influenced by management and employee attitude to recycling and disposal.

See **Appendix B** for an example WMP template.

## 6.3 Waste Avoidance, Re-use and Recycling Measures

The reduction, re-use and recycling of waste can be achieved by incorporating measures such as the below.

### 6.3.1 Waste Avoidance

Waste avoidance measures may include:

- provision of take-back services to clients to reduce waste further along the supply chain;
- re-work/re-packaging of products prior to local distribution to reduce waste arisings;
- review of packaging design to reduce waste but maintain 'fit for purpose';
- providing ceramic cups, mugs, crockery and cutlery rather than disposable items;
- presenting all waste reduction initiatives to staff as part of their induction program; and
- investigating leased office equipment and machinery rather than purchase and disposal.

### **6.3.2 Re-use**

Establish systems with in-house and with supply chain stakeholders to transport products in re-useable packaging where possible.

### **6.3.3 Recycling**

Recycling opportunities include:

- use of a plastic baler for the collection of all plastic stretch wrapping and general plastic products for ease of recycling;
- flatten or bale cardboard to reduce number of bin lifts required;
- paper recycling trays provided in office areas for scrap paper collection and recycling;
- printer toners / ink cartridges are collected in allocated bins for appropriate contractor disposal;
- development of 'buy recycled' purchasing policy; and
- providing recycling collections within each of the offices (e.g. plastics, cans and glass).

## **6.4 Waste Storage and Servicing Requirements**

### **6.4.1 Waste Storage Area Requirements**

Each Precinct will have its own waste and recycling storage area where the recycling bins, garbage bins, and cardboard and plastic bales will be stored prior to collection. Appropriate waste storage areas will be identified by the operator of each building. The construction of the storage areas will comply with the below requirements.

The construction of garbage areas, rooms and equipment/bins are to comply with BCA (Building Code of Australia) requirements and Australian Standards. Refer to Section 2.6.3 of the EPA's *Better Practice Guidelines* (2012) for bin storage area specifications.

Waste/recycling storage areas will be constructed of an adequate size to accommodate all waste bins and recycling bales associated with the development.

Doors/gates to the storage area will be able to be opened from both the inside and outside and wide enough to allow for easy passage of waste/recycling containers.

Sufficient space will be provided for the segregation and storage of varying waste types including provision for the collection of fluorescent tubes, smoke detectors, e-wastes and other recyclable resources.

Sufficient space will also be provided for reuse items such as crates and pallets for occupational safety purposes.

### **6.4.2 Waste Servicing**

Sufficient clearance will be provided to enable collection vehicles to access the bin storage area. Where possible, collection times should not coincide with peak operational delivery schedules.

Section 2.6.4 Collection Points of the EPA's *Better Practice Guidelines* (2012) provides general guidelines for collection points which are reproduced below.

Collection points should:

- not be near intersections, ramps, roundabouts, pedestrian crossings, on busy roads or in narrow lanes;

- not be near awnings, overhead wires, trees or other overhead structures;
- be clear of air-conditioning and other service ducts and pipes, sprinklers, CCTV cameras, movement sensors;
- smoke detectors and other ceiling fixtures if located inside a building;
- be on level surfaces rated for heavy vehicles;
- have plenty of room for trucks to manoeuvre and reverse if necessary;
- have enough room for bins to be manoeuvred by the driver for servicing;
- be away from public areas;
- be well clear of vehicle, pedestrian, public, staff and visitor traffic areas;
- not be restricted by parked cars or vehicle loading or unloading;
- not be restricted by bollards, signs, plants, bins, seats or other street furniture;
- not require vehicles to reverse;
- not block the normal operations of the building; and
- be accessible at the times the collections are scheduled to take place and not behind locked gates.

## **6.5 Special Wastes**

### **6.5.1 Contaminated / Hazardous Wastes**

- All contaminated and hazardous wastes (i.e. fluorescent tubing, batteries, e-wastes and smoke detectors) should be recycled at an appropriately licensed facility.
- E-waste (electronic waste such as computers, mobile phones, printer toners and ink cartridges) and batteries contain heavy metal contaminants and should be recycled at an appropriately licensed recycling facility.
- Commercial-use smoke detectors should be returned to the supplier for disposal (it is a condition of the supplier's licence to sell smoke detectors) and not disposed of with general landfill waste as they contain small amounts of radioactive material. Contact the supplier and/or the EPA for information on how to return used smoke detectors.

### **6.5.2 Liquid Waste**

- Liquid, semi-liquids or moist substances will not be placed in waste containers, unless securely wrapped or contained to prevent the substance from leaking.
- Any liquid wastes or dangerous goods wastes generated by the development (e.g. due to damage or leakage of containment) should be disposed of by a suitably qualified contractor to an appropriately licensed disposal facility.
- No liquid wastes or wash down waters should be disposed of via the stormwater drainage system. Wastewater storage tanks (including stormwater collection tanks) should be carefully monitored to ensure overflow does not occur.

### **6.5.3 Stormwater Treatment**

Car parking areas must drain to a stormwater treatment device capable of removing litter, oil, grease and sediment prior to discharge to the stormwater system.

All wastewater and stormwater treatment devices are required to be regularly maintained and cleaned to ensure these devices remain effective, with all solid and liquid wastes collected from these devices disposed of in accordance with this WMP and the POEO Act.

#### 6.5.4 Spills Management

Containment measures for spillages should be provided at appropriate locations and in close proximity to staff car park areas, dangerous goods stores areas and main warehouse operation areas (e.g. a spill kit containing non-combustible absorbent material). Material Safety Data Sheets (MSDS) should also be located nearby spill kit areas for advice on spillage clean up and disposal.

#### 6.5.5 Signage

Education and communication must be regular and ongoing to overcome the transient nature of contractors and visiting staff members. The main signage aspects to consider are:

- garbage and recycling bins must be clearly and correctly labelled at all times;
- waste storage areas must have clear signage instructing cleaners and tenants how to correctly separate (if required);
- the location of, and directions to, waste storage areas must be well signposted;
- all hazards or potential dangers associated with the waste facilities should be clearly identified, especially those linked to compaction or other waste handling equipment; and
- emergency contact information should be displayed in case there are any issues with the waste and recycling systems/services in the building.

Coloured and labelled bin lids are necessary for identifying bins. All signage should conform to the relevant Australian Standard and the EPA's standard recycling signs. Refer to the EPA's website for commercial use waste and recycling signs <http://www.epa.nsw.gov.au/wastetools/signs-posters-symbols.htm>.

The design and use of safety signs for waste rooms and enclosures should comply with AS 1319 Safety signs for the occupational environment. Australian Standards are available from the SAI Global Limited website ([www.saiglobal.com](http://www.saiglobal.com)).

#### 6.5.6 Contract Clauses

Waste collection contracts and cleaning contracts should include clauses relating to waste servicing requirements. Lease agreements should also outline and enforce proper use of waste facilities.

Refer to Appendix H of the EPA's *Better Practice Guidelines* (2012) for example clauses.

### 6.6 Roles and Responsibilities

It should be the responsibility of Site Management to implement the WMP and a responsibility of the employees and cleaners to ensure that they comply with the guideline at all times.

Site Management should routinely check waste sorting and storage areas for cleanliness, hygiene and OH&S issues, and also ensure all monitoring and audit results are well documented and carried out as specified in the WMP.

An outline of waste management responsibilities are presented in **Table 12**.

**Table 12 Waste Management Responsibility Allocation**

Responsible Person	General Tasks
--------------------	---------------

Responsible Person	General Tasks
Management	<p>Ensure the WMP is implemented throughout the life of the operation.</p> <p>Update the WMP on a regular basis (e.g. annually) to ensure the Plan remains applicable.</p> <p>Undertake liaison and management of contractor collections.</p> <p>Organise internal waste audits on a regular basis.</p> <p>Manage any complaints and non-compliances reported through waste audits etc.</p> <p>Perform inspections of all waste storage areas and waste management equipment on a regular basis.</p> <p>Organise cleaning and maintenance requirements for waste equipment.</p> <p>Monitor bins to ensure no overfilling occurs.</p> <p>Ensure effective signage, communication and education is provided to alert employees / cleaners about the provisions of this WMP and waste management equipment use requirements.</p> <p>Monitor and maintain signage to ensure it remains clean, clear and applicable.</p> <p>Ensure garbage holding area and storage rooms are kept tidy.</p> <p>Ultimately responsible for the management of all waste management equipment, cleaning requirements, waste transfer and collection arrangements.</p>
Cleaners	<p>Removal of general waste, recyclables, cardboard waste and hazardous waste from offices and locations around the warehouse for transfer to centralised waste and recycling collection rooms or holding area as required.</p> <p>Transport of all bins to the holding areas / collection areas as required.</p> <p>Cleaning of all bins and waste and recycling rooms on a weekly basis or as required.</p>
Gardening Contractor	<p>Removal of all garden organics waste generated during gardening maintenance activities for recycling at an offsite location or reuse as organic mulch on landscaped gardens.</p>

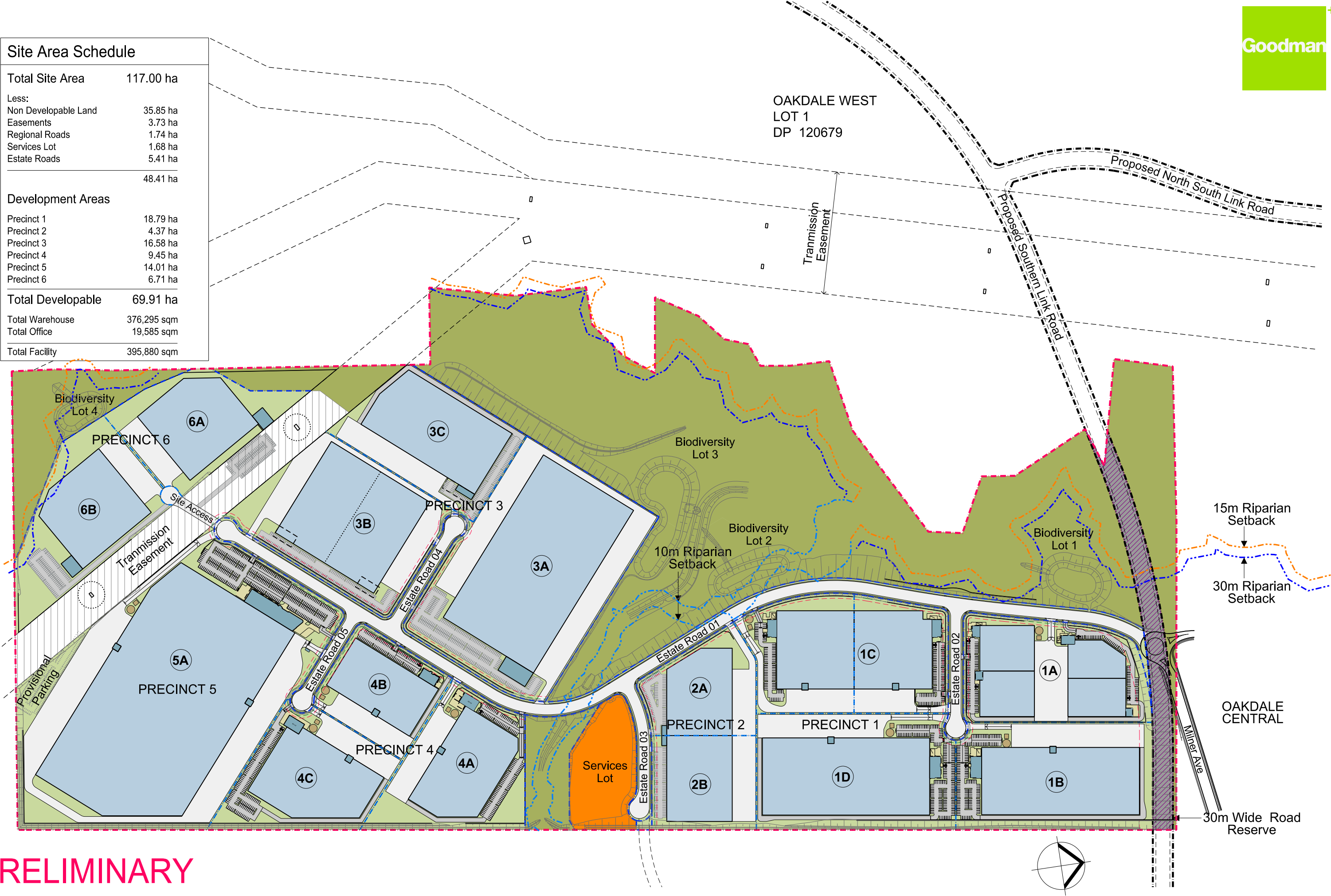




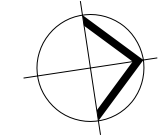
### Site Area Schedule

<b>Total Site Area</b>	<b>117.00 ha</b>
Less:	
Non Developable Land	35.85 ha
Easements	3.73 ha
Regional Roads	1.74 ha
Services Lot	1.68 ha
Estate Roads	5.41 ha
	<b>48.41 ha</b>
<b>Development Areas</b>	
Precinct 1	18.79 ha
Precinct 2	4.37 ha
Precinct 3	16.58 ha
Precinct 4	9.45 ha
Precinct 5	14.01 ha
Precinct 6	6.71 ha
<b>Total Developable</b>	<b>69.91 ha</b>
Total Warehouse	376,295 sqm
Total Office	19,585 sqm
<b>Total Facility</b>	<b>395,880 sqm</b>

OAKDALE WEST  
LOT 1  
DP 120679



**PRELIMINARY**



# APPENDIX B

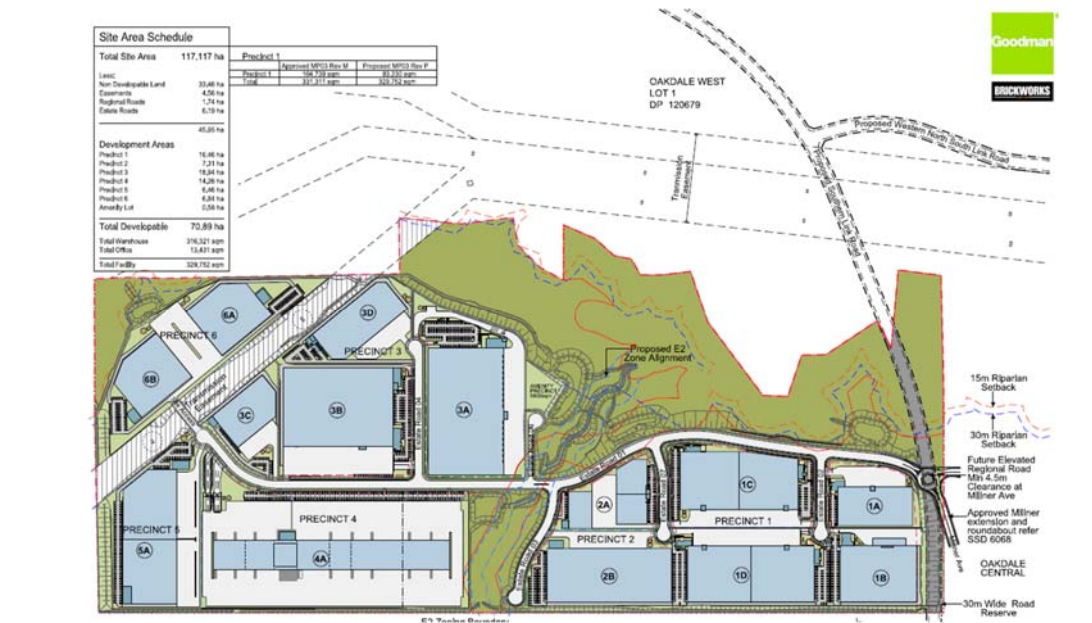
## Waste Management Plan Template

Materials On-Site		Destination			Contractor	
Waste Type	Estimated Volume (m <sup>3</sup> ) or Weight (t)	Reuse (on-site or off-site)	Recycle (specify recycling outlet)	Disposal (specify landfill site)	Waste Contractor / Transporter	Licence Viewed (Y / N)

# APPENDIX I

# Oakdale South Development

## Stormwater Management Report



## Stormwater Management Report

**Author:** Andrew Tweedie

**Approver:** Anthony McLandsborough

**Report no:** 14-193-R001

**Revision:** 07

**Date:** January 2018

This report has been prepared for Goodman Property Services (Aust) Pty Ltd in accordance with the terms and conditions of appointment. AT&L (ABN 96 130 882 405) cannot accept any responsibility for any use of or reliance on the contents of this report by any third party.

This report is based upon a desktop review and relies upon information supplied by utility providers and Council. To the extent that the report incorporates such material, AT&L takes no responsibility for any loss or damage caused by any error or omission arising from reliance on it.

Please note that utility providers reserve the right to change their decision in relation to network deployment within the development without prior notice. Additionally it is our experience that utility providers will not reserve capacity. For this reason, they operate on a first come first serve basis.

## Document information

© AT&L

Level 7, 153 Walker Street, North Sydney, NSW 2060

Printed copies of this document are uncontrolled. Holders of uncontrolled copies must ensure that they have the latest version.

## Document registration

Document title	Stormwater Management Report
Document file name	14-193-R001-07-Oakdale South Stormwater Management Report S96-Mod4
Section	Civil Engineering
Document author	Andrew Tweedie

Issue	Description	Date
01	For Approval	22/08/16
02	Re-Issue For Approval	05/09/16
03	Re-Issue For Final Approval	27/10/16
04	Re-Issue For Final Approval	31/10/16
05	Amended for S96-Mod 1 Management Plan use and approvals	07/04/17
06	Amended to include Bio-Retention Operation and Maintenance Plan	30/11/17
07	Amended to suit MOD 4	08/01/18

## Finalisation signatures

The design described in this report is considered to have been finalised.

**Signature**

**Date**

Andrew Tweedie  
Civil Engineer (Author)



08/01/2018

Anthony McLandsborough



08/01/2018

**Notes:** The finalisation signatures shown above do not provide evidence of approval to the design. Approval signatures are shown on the title sheet of the design plans.

# Contents

<b>1</b>	<b>Executive Summary</b> .....	<b>1</b>
<b>2</b>	<b>Introduction</b> .....	<b>2</b>
2.1	Scope of Report .....	2
<b>3</b>	<b>Stormwater Management</b> .....	<b>3</b>
3.1	The Site .....	3
3.2	Council Requirements & Recommendations .....	3
3.3	Stormwater Management .....	5
3.3.1	Hydrology .....	5
3.3.2	Hydraulics .....	5
3.3.3	Catchments .....	6
3.3.4	On-Site Detention (OSD) .....	7
3.3.5	Overland Flows .....	11
3.3.6	Water Sensitive Urban Design (WSUD) .....	11
3.3.7	Results .....	14
<b>4</b>	<b>Water Balance</b> .....	<b>16</b>
4.1	General .....	16
4.2	Water Balance Objective .....	16
4.3	Water Balance End Uses .....	16
4.4	Total Site Demands .....	19
4.5	Rainwater Reuse .....	19
4.6	Rainwater Tank Model Assumptions .....	20
4.7	Rainwater Tank Modelling .....	21
4.7.1	General .....	21
4.7.2	Rainwater Tank Modelling Results .....	21
4.8	Conclusion .....	21
<b>5</b>	<b>Sedimentation and Erosion Control</b> .....	<b>23</b>
5.1	Sedimentation and Erosion Control (Construction) .....	23
5.2	Sources of Pollution .....	23
5.3	Potential Impacts .....	24
5.4	Construction Methodology .....	24
5.5	Site Inspection and Maintenance .....	25
5.6	Conclusion .....	25
<b>6</b>	<b>Stormwater Infrastructure Maintenance</b> .....	<b>26</b>
<b>7</b>	<b>Bio-Retention Basin Operation and Management Plan</b> .....	<b>28</b>
7.1	Technical Guidelines .....	28
7.2	Function of a Bio-retention Basin .....	28
7.2.1	Application .....	29
7.2.2	Typical Construction Issues .....	29
7.3	Site Rainfall Data .....	29

7.4	Measures Proposed .....	30
7.5	Bio-retention Basins – Design Requirements .....	31
7.6	Pollutants.....	32
7.7	Council Dedication / Handover .....	32
7.8	General Maintenance and Monitoring of Basins .....	33
7.9	Reporting Requirements.....	39
<b>8</b>	<b>Conclusion .....</b>	<b>40</b>

**LIST OF TABLES AND FIGURES**

Table 1	Staging Plan	1
Table 2	Pipe Details	6
Table 3	Pre-Post Developed Flows from Bio-Retention Basin A	8
Table 4	Pre-Post Developed Flows from Bio-Retention Basin B	8
Table 5	Pre-Post Developed Flows from Bio-Retention Basin C	9
Table 6	Pre-Post Developed Flows from Bio-Retention Basin D	10
Table 7	Pre-Post Developed Flows from Bio-Retention Basin E	10
Table 8	Rainfall-Runoff Parameters – All Catchment Areas	12
Table 9	Base Flow/Stormflow Concentration Parameters – Impervious (Roofed) Areas	12
Table 10	Base Flow/Stormflow Concentration Parameters – Pervious Areas	13
Table 11	Base Flow/Stormflow Concentration Parameters – Road	13
Table 12	Bio-Retention Basin Parameters	14
Table 13	Pollutant Loads – Combined Basin A	14
Table 14	Pollutant Loads – Combined Basin B	14
Table 15	Pollutant Loads – Combined Basin C	15
Table 16	Pollutant Loads – Combined Basin D	15
Table 17	Pollutant Loads – Combined Basin E	15
Table 18	Summary of Adopted End Use Assumptions within the Development	18
Table 19	Total Site Demands and Daily Usage	19
Table 20	Percentage of Non-Potable Water Used from Tank	21
Table 21	Stormwater Infrastructure Maintenance	27
Table 22	- Monthly Evapotranspiration for Penrith	29
Table 23	- MUSIC Rainfall-Runoff Parameters for Penrith	30
Table 24	- Monitoring and Maintenance Schedule (Typical Year)	34
Figure 1	Locality Plan	2
Figure 2	Water Demand Breakdown by End Use within the Development	18

**APPENDICIES**

Appendix A	– Oakdale South Catchment Plans
Appendix B	– SSD Development Consent Conditions - Final
Appendix C	– List of AT&L – Civil Works & Erosion and Sediment Control Drawings
Appendix D	– DRAINS Models
Appendix E	– MUSIC Models & Results
Appendix F	– GHD – WSUD Strategy Report and Flood Study
Appendix G	– Extract from Oakdale Concept Plan – Water Balance Options Report
Appendix H	– Table 3 from WSUD – Book 4 Maintenance
Appendix I	– Landscape Drawings
Appendix J	– Example Inspection and Maintenance Checklist



# 1 Executive Summary

---

Goodman Property Services (Aust) Pty Ltd is developing the Oakdale South site for the purposes of providing a warehouse and distribution complex. The Oakdale South site is a precinct within the wider 'Oakdale' Estate development and forms part of a progressive development designed to make 'Oakdale' a regional distribution park of warehouses, distribution centres and freight logistics facilities.

The Oakdale South project is a staged development including bulk earthworks, civil works, services infrastructure and stormwater management.

The development will be constructed over six stages as detailed below in Table 1.

Stage	Description
1	Bulk Earthworks to Precinct 1, 2, 3, 4 & 5
2	Civil Works to Precinct 1 & part Precinct 2
3	Bulk Earthworks to Precinct 3, 4 & 5
4	Civil Works to Part Precinct 2, Precinct 3, 4 & 5
5	Bulk Earthworks and Civil Works to Precinct 6

**Table 1 Staging Plan**

This report has been revised to address the Oakdale South Estate (OSE) SSD6917 Consent Conditions for the project relevant to stormwater and the revised Mod 4 layout. It outlines the proposed stormwater design including On Site Detention, Piped and Overland Flows, Water Sensitive Urban Design, Water Balance, Sediment and Erosion Control, Stormwater Infrastructure Maintenance and Bio-retention Basin Operation and Maintenance.

The site is located in the Penrith City Council Local Government area and in order to meet the council requirements for Hydraulic Design and Water Sensitive Urban Design, DRAINS and MUSIC modelling software has been used to calculate the required output results.

The Precinct based bio-retention basins have been designed to both attenuate stormwater flows and treat the nutrients to Penrith City Council treatment rates. The Precinct Site Detention is designed to mitigate post development flows to pre-developed flows for peak Average Reoccurrence Interval (ARI) events and has been sized to ensure that for all storm events up to and including the 1:100 ARI event, the development does not increase stormwater flows in any downstream areas.

The Site Catchment plan is separated into six (6) areas (A-F), with areas A-E all draining into bio-retention basins. All stormwater runoff within catchment F (TransGrid Easement) bypasses the basins and drains directly into Ropes Creek. This is due to the existing ground levels within catchment F (TransGrid Easement) which do not allow gravity drainage within any of the proposed basins. Catchment F is contained wholly within the existing transmission easement.

## 2 Introduction

### 2.1 Scope of Report

#### Summary

This report discusses the design philosophy and how stormwater is managed within the Oakdale South development. It includes:

- Stormwater Management
  - On Site Detention (OSD)
  - Piped and Overland Flows
  - Water Sensitive Urban Design (WSUD)
  - Water Balance across the site
- Sedimentation and Erosion Control
- Stormwater Infrastructure Maintenance
- Bio-Retention Basin Operation and Maintenance

The proposed site plan covering the entire Oakdale South development along with the proposed layouts and staging are attached within Appendix A.

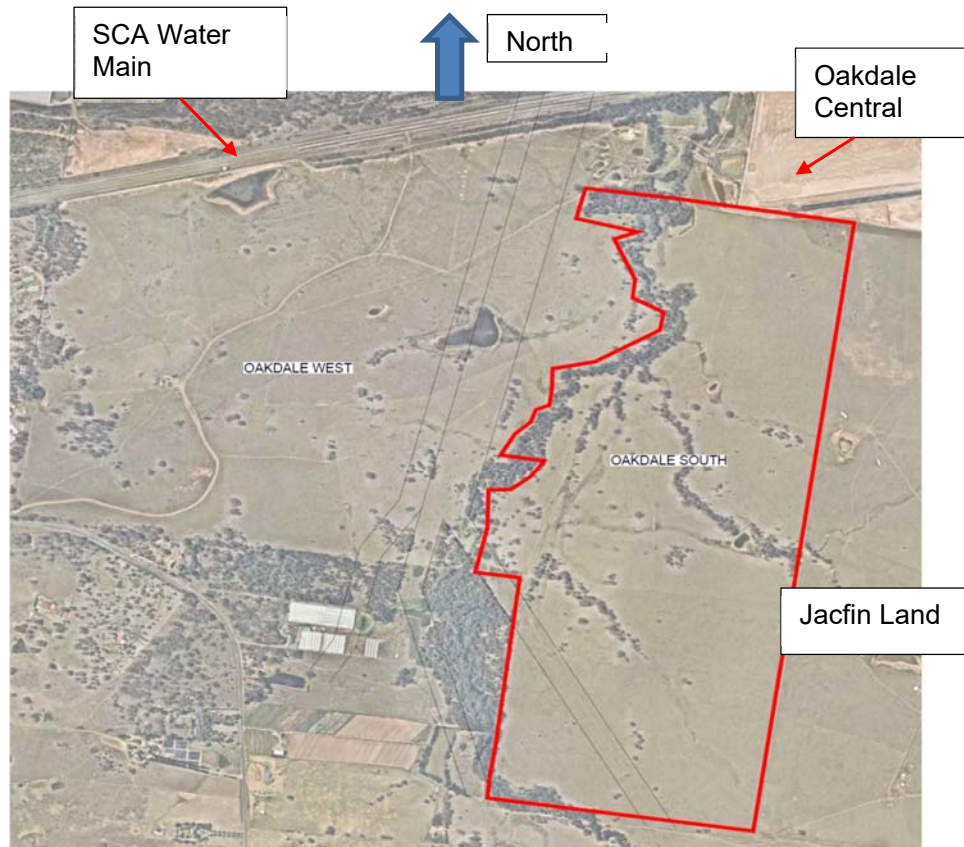


Figure 1 Locality Plan

## 3 Stormwater Management

---

### 3.1 The Site

The stormwater catchment areas associated with each catchment is

- Catchment A = 124,100m<sup>2</sup> (12.41Ha)
- Catchment B = 139,800m<sup>2</sup> (13.98Ha)
- Catchment C = 278,000m<sup>2</sup> (27.8Ha)
- Catchment D = 66,900m<sup>2</sup> (6.69Ha)
- Catchment E = 14,380m<sup>2</sup> (14.38Ha)
- Catchment F (Bypass TransGrid Easement) = 47,800m<sup>2</sup> (4.78Ha)

A development area schedule for each catchment is shown in Appendix A.

Previously, the site comprised farmland and was classified as a “greenfield” site with an entire coverage of pervious areas. The site is currently under construction and is a combination of open earthworks, roads, warehouses and undisturbed greenfield.

The site slopes down from east to west with the existing site draining via overland flow into the Ropes Creek to the west of the site.

There are two existing tributaries of Ropes Creek and a floodway within the middle section of the site which currently drain the majority of the site into the adjacent Ropes Creek. Refer to SKC008 within Appendix A for a pre-development stormwater catchment plan indicating the location of these catchments.

### 3.2 Council Requirements & Recommendations

All estate level stormwater drainage for the OSE development is designed to comply with the following:

- Penrith City Council Design Guidelines for Engineering Works;
- Penrith City Council Water Sensitive Urban Design (WSUD) Policy December 2013;
- C3 Water Management DCP;
- Civil, Stormwater and Infrastructure Services Strategy, rev 5, report no 14-193-R001, prepared by AT&L, dated September 2015;
- Flood Impact Assessment: Oakdale South Industrial Estate, ref: 59915094, prepared by Cardno, dated 1 August 2016;
- Letter report titled ‘SSD6917 Oakdale South Industrial Estate, TransGrid Easement Flooding’, prepared by AT&L, ref: 14-193-ATL-L004, dated 18 April 2016 and all appendices; and

- OEH's Managing Urban Stormwater: Soils and Construction Guideline;

A summary of the design requirements adopted is listed below:

- Precinct based basins will serve the development as detention and bio-retention basins and are owned and maintained by the Developer.
- All stormwater drainage within the estate roads will be dedicated to Penrith City Council. Maintenance and repair works of the stormwater drainage network outside of the lots will be the responsibility of Penrith City Council. All stormwater drainage within the lots will be the responsibility of the individual property owners.
- OSD to be sized to ensure that for all rainwater events up to and including the 1:100 ARI event, new developments do not increase stormwater peak flows in any downstream areas.
- OSD to mitigate post development flows to pre-developed flows for peak Average Reoccurrence Interval (ARI) events.
- All OSD basins have been designed with a 3.0m wide sprayed seal access road along the berm to ensure maintenance vehicles can access the entire exterior of the basin
- All temporary and permanent bio-retention basins, inclusive of the weir and berm levels, have been designed to be above the 100 year ARI flood level.
- All bio-retention basins with batter slopes steeper than 1 in 5 shall be vegetated. Where there are any non-vegetated batter slopes steeper than 1 in 5, the batter slopes will be designed to the satisfaction of the Council.
- WSUD to achieve target reductions:
  - 85% Total Suspended Solids (TSS)
  - 60% Total Phosphorus (TP)
  - 45% Total Nitrogen (TN)
  - 90% Gross Pollutants (GP)
- Finished Floor Levels (FFL) to have minimum 500mm freeboard to 100 year overland flows.
- A gross pollutant trap (GPT) will be installed within each development site on the final downstream stormwater pit prior to discharging. As these GPT's will be located on-lot they will be owned and maintained by the individual property owner.

Rainwater tanks are desirable for re-use for irrigation, toilet and other non-potable water uses. Rainwater tank size is determined in accordance with the Penrith City Council C3 Water Management DCP. Refer to Section 4 of this report for a more detailed description on rainwater harvest tanks.

## 3.3 Stormwater Management

DRAINS modelling software has been used to calculate the Hydraulic Grade Line (HGL) of the estate level stormwater pipes. DRAINS is a computer program used for designing and analyzing urban stormwater drainage systems and catchments. It is widely accepted by Council's across NSW as the basis for stormwater design and has been confirmed by Penrith City Council as the preferred stormwater software analysis package. DRAINS data files and output results are attached in Appendix D.

MUSIC modelling software has been used to evaluate pollutant loads from each developed lot. MUSIC data files and output results are attached in Appendix E.

### 3.3.1 Hydrology

- Pipe drainage shall be designed to accommodate the 20-year ARI storm event.
- The combined piped and overland flow paths shall be designed to accommodate the 100-year ARI storm event.
- Where trapped low points are unavoidable and potential for flooding private property is a concern, an overland flowpath capable of carrying the total 100-year ARI storm event shall be provided. Alternatively the pipe and inlet system may be upgrade to accommodate the 100 year ARI storm event.
- Rainfall intensities shall be as per the Intensity-Frequency-Duration table in accordance with the Australian Rainfall and Runoff (AR&R) volume 2.
- Times of concentration for each sub catchment shall be determined using the kinematic wave equation.
- Runoff coefficients shall be calculated in accordance with AR&R. The fraction impervious shall be determined from analysis of the sub catchments.
- Flow width in gutter shall not exceed 2.5m for the minor design storm event.
- Velocity depth ratios shall not exceed 0.4 for all storms up to and including the 100 year ARI event.
- Inlet pits to be spaced so that flow width shall not exceed 80l/sec
- Bypass from any pit on grade shall not exceed 15% of the total flow at the pit
- Blockage factors of 20% and 50% shall be adopted for pits on grade and at sags respectively.

### 3.3.2 Hydraulics

- A hydraulic grade line HGL design method shall be adopted for all road pipe drainage design. The HGL shall be shown on all drainage long sections.
- The minimum pipe size shall be 375mm diameter RCP.

- Maximum spacing between pits shall not exceed 75m.
- The minimum pipe grade shall be 0.5%.
- All pipes shall be Rubber Ring Jointed unless noted otherwise.
- The minimum cover over pipes shall be 450mm in grassed areas and 600mm within carriageways.
- Where minimum cover cannot be achieved due to physical constraints the pipe class shall be suitably increased.
- All trafficable shall be Reinforced Concrete Pipes or Fibre Reinforced Cement equivalent.
- The pipe friction coefficients to adopted shall be:

Materials	Mannings – n	Colebrook-White – k	Min. Pipe Class
RCP	0.012	0.6	3
FRC	0.01	0.15	3

**Table 2 Pipe Details**

- All pipes classes shall be designed for the ultimate service loads and where applicable, construction loads will be designed for.
- Pipes discharging to the overland flow path shall adopt a minimum tailwater level equivalent to respective overland flow level.
- Pit Loss coefficients shall be calculated in accordance with Missouri Charts.
- A minimum 150mm freeboard shall be maintained between pit HGL and pit surface levels.
- Overland flowpaths shall maintain a minimum of 300mm freeboard to all habitable floor levels.
- Pits deeper than 1.2m shall contain step irons at 300 mm centres.

### 3.3.3 Catchments

A Stormwater Catchment Plan for each Catchment and the overall site is shown in Appendix A. As indicated in the Catchment Plan each of the basins are bio-retention basins designed to both attenuate stormwater flows and treat the nutrients to Penrith City Council treatment rates. These treatment rates are from the Penrith City Council C3 Water Management DCP.

It should be noted whilst Catchments A, B, C, D and E all drain into bio-retention basins, all stormwater runoff within Catchment F (TransGrid Easement) bypasses the basins and drains directly into Ropes Creek. The existing ground levels within Catchment E do not allow gravity drainage within any of the proposed basins.

All runoff within this catchment has been allowed to drain un-attenuated and untreated. However this area has been allowed for in the overall hydraulic calculations in determining basins sizes and bio-retention areas and is therefore considered acceptable from the perspective of Council's adopted standards.

The proposed stormwater areas catchment associated with each Catchment is

- Catchment A = 124,100m<sup>2</sup> (12.41Ha)
- Catchment B = 139,800m<sup>2</sup> (13.98Ha)
- Catchment C = 278,000m<sup>2</sup> (27.8Ha)
- Catchment D = 66,900m<sup>2</sup> (6.69Ha)
- Catchment E = 14,380m<sup>2</sup> (14.38Ha)
- Catchment F (Bypass TransGrid Easement) = 47,800m<sup>2</sup> (4.78Ha)

### 3.3.4 On-Site Detention (OSD)

As discussed in Section 3.2, OSD is required within the development to mitigate post developed flows to pre-developed flow rates for peak Average Recurrence Intervals (ARIs).

A summary of the OSD requirements for each catchment is as follows:

#### **Catchment A**

All stormwater runoff from Catchment A will drain into the adjacent bio-retention Basin A to the north west of Road 01.

Outflows from Basin A have been positioned to coincide with the downstream location of Catchment G in the pre-developed case. Refer SKC008 and drawing C1302.

The OSD within the basin has been designed to achieve the following outcomes:

- OSD volume of 5,660m<sup>3</sup> (capacity of the basin from extended detention RL 57.0 to weir of basin RL 58.95)
- Post developed peak flows to be mitigated to pre-developed peak flows for all storm events between and including the 1 and 100 year events. Refer to Table 4.

Duration	Pre Developed Flows	Post Developed Flows
	(m <sup>3</sup> /s)	(m <sup>3</sup> /s)
1 YR ARI	0.785	0.377
2 YR ARI	2.14	0.666
5 YR ARI	3.55	1.21
10 YR ARI	4.27	1.58
20 YR ARI	5.11	2.09
100 YR ARI	6.42	3.01

**Table 3 Pre-Post Developed Flows from Bio-Retention Basin A**

### Catchment B

All stormwater runoff from Catchment B will drain into the bio-retention Basin B adjacent to Ropes Creek to the west of Road 01.

Outflows from Basin B have been positioned to coincide with the downstream location of Catchment E in the pre-developed case. Refer SKC008 and drawing C1301.

The OSD within the basin has been designed to generally achieve the following outcomes:

- OSD volume of 3,006m<sup>3</sup> (capacity of the basin from extended detention RL 59.8 to weir of basin RL 61.65)
- Post developed peak flows to be mitigated to pre-developed peak flows for all storm events between and including the 1 and 100 year events. Refer to Table 5

Duration	Pre Developed Flows	Post Developed Flows
	(m <sup>3</sup> /s)	(m <sup>3</sup> /s)
1 YR ARI	0.501	0.493
2 YR ARI	1.55	1.28
5 YR ARI	3.04	2.50
10 YR ARI	3.59	3.15
20 YR ARI	4.30	3.82
100 YR ARI	5.60	4.07

**Table 4 Pre-Post Developed Flows from Bio-Retention Basin B**

### Catchment C

All stormwater runoff from Catchment C will drain into the adjacent bio-retention Basin C adjacent Ropes Creek to the west of Road 01.

Outflows from Basin C have been positioned to coincide with the downstream location of Catchments C and D in the pre-developed case. Refer SKC008 and



drawing C1301. The outflow position of Basin C is immediately downstream of the outflow location of Basin E. As such the combined outflows of Basin C and E have been compared to the existing catchment C and D for the pre-developed case.

The OSD within the basin has been designed to generally achieve the following outcomes:

- OSD volume of 10,379m<sup>3</sup> (capacity of the basin from extended detention RL 58.4 to weir of basin RL 60.65)
- Post developed peak flows to be mitigated to pre-developed peak flows for all storm events between and including the 1 and 100 year events. Refer to Table 7

Duration	Pre Developed Flows	Post Developed Flows
	(m <sup>3</sup> /s)	(m <sup>3</sup> /s)
1 YR ARI	1.27	1.07
2 YR ARI	3.93	2.19
5 YR ARI	7.73	4.5
10 YR ARI	9.11	6.06
20 YR ARI	10.90	7.71
100 YR ARI	14.20	10.19

**Table 5 Pre-Post Developed Flows from Bio-Retention Basin C**

**Catchment D**

All stormwater runoff from Catchment D will drain into the adjacent bio-retention Basin D at the southern end of the development.

Outflows from Basin D have been positioned to coincide with the downstream location of Catchment A in the pre-developed case. Refer to SKC008 and drawing C1301.

The OSD within the basin has been designed to generally achieve the following outcomes:

- OSD volume of 2,759m<sup>3</sup> (capacity of the basin from extended detention RL 61.5 to weir of basin RL 63.25)
- Post developed peak flows to be mitigated to pre-developed peak flows for all storm events between and including the 1 and 100 year events. Refer to Table 8

Duration	Pre Developed Flows	Post Developed Flows
	(m <sup>3</sup> /s)	(m <sup>3</sup> /s)
1 YR ARI	0.283	0.169
2 YR ARI	0.806	0.517
5 YR ARI	1.52	0.997
10 YR ARI	1.77	1.32
20 YR ARI	2.11	1.35
100 YR ARI	2.83	1.78

**Table 6 Pre-Post Developed Flows from Bio-Retention Basin D**

### Catchment E

All stormwater runoff from Catchment E will drain into the adjacent bio-retention Basin E at the south of Ropes Creek.

Outflows from Basin E have been positioned to coincide with the downstream location of Catchments C and D in the pre-developed case. Refer to SKC008 and drawing C1301.

As mentioned previously for Basin C, the outflow position of Basin E is immediately upstream of the outflow location of Basin C. as such the combined outflows of Basin C and E have been compared to the existing catchment C and D for the pre-developed case.

The OSD within the basin has been designed to generally achieve the following outcomes:

- OSD volume of 4,289m<sup>3</sup> (capacity of the basin from extended detention RL 61.6 to weir of basin RL 63.0)
- Post developed peak flows to be mitigated to pre-developed peak flows for all storm events between and including the 1 and 100 year events. Refer to Table 8

Duration	Pre Developed Flows	Post Developed Flows
	(m <sup>3</sup> /s)	(m <sup>3</sup> /s)
1 YR ARI	1.27	1.07
2 YR ARI	3.93	2.19
5 YR ARI	7.73	4.5
10 YR ARI	9.11	6.06
20 YR ARI	10.90	7.71
100 YR ARI	14.20	10.19

**Table 7 Pre-Post Developed Flows from Bio-Retention Basin E**

### 3.3.5 Overland Flows

Overland flows within the access roads, carparks and hardstanding areas have been designed to be safely conveyed within the road carriageway to comply with flow widths and velocities within the Penrith City Council Design Guidelines for Engineering Works.

The 100 year ARI flood level determined by Cardno within Ropes Creek adjacent to the proposed basins have been adopted as the tailwater levels for the hydraulic modelling of the basin and stormwater network for all catchments.

### 3.3.6 Water Sensitive Urban Design (WSUD)

Water Sensitive Urban Design encompasses all aspects of urban water cycle management, including water supply, wastewater and stormwater management. WSUD is intended to minimise the impacts of development upon the water cycle and achieve more sustainable forms of urban development.

The WSUD strategy, MUSIC Model and subsequent WSUD designs prepared by AT&L are based upon requirements within the Penrith City Council C3 Water Management DCP.

All stormwater runoff from catchments A, B, C, D and E as mentioned in Section 3.3.3 is proposed to drain into Bio-Retention basins for the water to be treated and discharged at rates acceptable to Penrith City Council. A summary of the Basin parameters is indicated in Table 12 and details and cross sections are included on the Civil drawings.

Discharge from the basins will be controlled via a rock lined swale that will intersect the existing creek system. These discharge swales will be designed and documented to meet the NSW Office of Water (NOW) Guidelines for outlet structures on waterfront land.

Refer to attached Civil Drawings list in Appendix C.

For detailed Bio-Retention basin information, refer Section 7 of this report - *Bio-Retention Basin Operation and Management Plan*.

### WSUD Modelling – MUSIC Model

The MUSIC Model for Urban Stormwater Improvement Conceptualisation (MUSIC, Version 5.00.10) was used to evaluate pollutant loads from each of the proposed lots for Post-development (treated) conditions based on the proposed site development.

A conceptual view of the MUSIC model used in this report can be found in Appendix D.

Pluviograph data (6 minute rainfall intensity and evapotranspiration) for Horsley Park (Station 067119) was used in the MUSIC model.

## Catchment Areas and MUSIC Parameters

All building lot catchment areas were assumed to 65% roofed. Of the non-roofed areas, 90% of this area was assumed to be impervious. To provide a more accurate model, separate catchment nodes were created to simulate the roofed area and non-roofed areas for each lot.

MUSIC model input parameters for these catchments including rainfall-runoff, base flow concentration and stormflow concentration parameters were selected as per the Penrith City Council Water Sensitive Urban Technical Guidelines – Version 3 June 2015 document. The parameters used for the various catchment areas can be seen in Table 8, Table 9, Table 10 and Table 11.

Parameter	Unit	Figure
Rainfall Threshold	mm/day	1.40
Soil Storage Capacity	Mm	105
Initial Storage	% of Capacity	30
Field Capacity	Mm	70
Infiltration Capacity Coefficient	a	150
Infiltration Capacity Coefficient	b	3.5
Initial Depth (Ground Water)	mm	10
Daily Recharge Rate	%	25
Daily Baseflow Rate	%	10
Daily Seepage Rate	%	0.00

**Table 8 Rainfall-Runoff Parameters – All Catchment Areas**

Pollutant	Baseflow Concentration Parameter – Mean (log mg/L)	Baseflow Concentration Parameter – Std Dev (log mg/L)	Stormflow Concentration Parameters – Mean (log mg/L)	Stormflow Concentration Parameters – Std Dev (log mg/L)
TSS	0.000	0.000	1.300	0.320
Phosphorus	0.000	0.000	-0.890	0.250
Nitrogen	0.000	0.000	0.300	0.190

**Table 9 Base Flow/Stormflow Concentration Parameters – Impervious (Roofed) Areas**

Pollutant	Baseflow Concentration Parameter – Mean (log mg/L)	Baseflow Concentration Parameter – Std Dev (log mg/L)	Stormflow Concentration Parameters – Mean (log mg/L)	Stormflow Concentration Parameters – Std Dev (log mg/L)
TSS	1.200	0.170	2.150	0.320
Phosphorus	-0.850	0.190	-0.600	0.250
Nitrogen	0.110	0.120	0.300	0.190

**Table 10 Base Flow/Stormflow Concentration Parameters – Pervious Areas**

Pollutant	Baseflow Concentration Parameter – Mean (log mg/L)	Baseflow Concentration Parameter – Std Dev (log mg/L)	Stormflow Concentration Parameters – Mean (log mg/L)	Stormflow Concentration Parameters – Std Dev (log mg/L)
TSS	0.000	0.00	2.430	0.320
Phosphorus	0.000	0.000	-0.300	0.250
Nitrogen	0.000	0.000	0.340	0.190

**Table 11 Base Flow/Stormflow Concentration Parameters – Road**

MUSIC model parameters used for the Bio-retention basin were based off guidelines provided by FAWB – Stormwater Biofiltration Systems – Version 1, 2009, and were modified accordingly. Parameters used to model the bio-retention basin are shown in Table 12.

Parameter	Unit	Figure
Extended Detention Depth	m	0.30
Surface Area	m <sup>2</sup>	2000
Filter Area	m <sup>2</sup>	1900
Unlined Filter Media Perimeter	M	0.01
Saturated Hydraulic Conductivity	mm/hour	125
Filter Depth	m	0.50

TN Content of Filter Media	mg/kg	800
Orthophosphate Content of Filter Media	mg/kg	40.0
Exfiltration Rate	mm/hour	0.00
Base Lined	-	Yes
Vegetation Properties	-	Effective Nutrient Removal Plants
Overflow Weir Width	m	10.00
Underdrain Present	-	Yes
Submerged Zone	-	No

**Table 12 Bio-Retention Basin Parameters**

### 3.3.7 Results

MUSIC modelling results presented as mean annual loads at the receiving node indicate that adopted target reductions are achieved, as shown in Table 13, Table 14, Table 15 and Table 16

Pollutant	Sources (Kg/yr)	Residual Load (Kg/yr)	Reduction (%)	Target Reduction (%)
Total Suspended Solids	10,700	1,350	87.4	85
Total Phosphorus	23.8	7.94	66.6	60
Total Nitrogen	184	85.9	53.4	45
Gross Pollutants	2,350	4.76	99.8	90

**Table 13 Pollutant Loads – Combined Basin A**

Pollutant	Sources (Kg/yr)	Residual Load (Kg/yr)	Reduction (%)	Target Reduction (%)
Total Suspended Solids	10,400	1,430	86.3	85
Total Phosphorus	21.9	7.32	66.6	60
Total Nitrogen	153	80.4	47.5	45
Gross Pollutants	1,940	16.8	99.1	90

**Table 14 Pollutant Loads – Combined Basin B**

Pollutant	Sources (Kg/yr)	Residual Load (Kg/yr)	Reduction (%)	Target Reduction (%)
Total Suspended Solids	19,000	3,360	82.3	85
Total Phosphorus	42.8	16.1	62.3	60
Total Nitrogen	340	173	49.1	45
Gross Pollutants	4,400	3.7	99.9	90

**Table 15 Pollutant Loads – Combined Basin C**

Pollutant	Sources (Kg/yr)	Residual Load (Kg/yr)	Reduction (%)	Target Reduction (%)
Total Suspended Solids	5,410	516	90.5	85
Total Phosphorus	11.6	3.3	71.5	60
Total Nitrogen	85.5	36.6	57.2	45
Gross Pollutants	1,090	10.4	99	90

**Table 16 Pollutant Loads – Combined Basin D**

Pollutant	Sources (Kg/yr)	Residual Load (Kg/yr)	Reduction (%)	Target Reduction (%)
Total Suspended Solids	9,930	1,300	86.9	85
Total Phosphorus	22.5	7.21	67.9	60
Total Nitrogen	172	77.5	55	45
Gross Pollutants	2,230	111	95	90

**Table 17 Pollutant Loads – Combined Basin E**

## 4 Water Balance

---

### 4.1 General

The water balance was simulated using a water cycle management model as part of the MUSIC Model to allow the evaluation of various elements of the water cycle to be assessed at differing stages in the development.

### 4.2 Water Balance Objective

Potable water supplies in the Sydney area are in recognised short supply with projected population increases, potential climate change, periods of extended drought and development in water sources of the Sydney region accentuating the growing demand. As a result, government bodies, together with Sydney Water have encouraged sustainable development by the implementation of an integrated approach to water cycle management (potable water, sewage, stormwater and rainwater) to offset demands of potable water supplies.

Whilst opportunities for Water Reuse include such initiatives as regional stormwater harvesting, black water recycling and recycled water, this development is limited to rainwater collection and reuse on an individual lot by lot basis.

As such, we have used MUSIC to establish an estimated tank size for each lot within the development and demonstrated the volume of water reuse possible and provide a more sustainable servicing solution.

### 4.3 Water Balance End Uses

AT&L has identified the following water demand end uses to be required across the development:

- toilet and urinal flushing, hand basin washing, showering;
- kitchen (food preparation, washing), drinking;
- air conditioning cooling;
- internal cleaning;
- leaking water devices;
- truck/car wash;
- external cleaning; and
- watering (outdoor garden use).

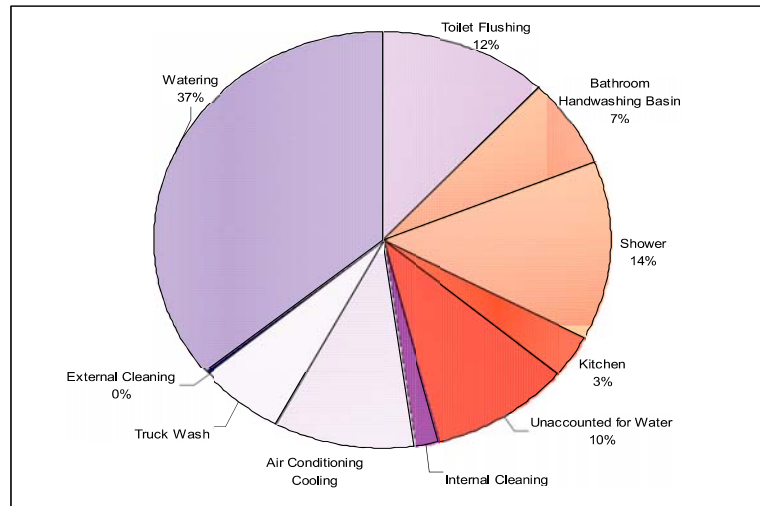


End Use (Water Demand)	Water Demand* (L/day for a total development)	Percentage of Total Water Demand	Assumptions
Toilet and Urinal Flushing	586	12%	Based on '3-star' toilet and urinal fittings. Based on being flushed
Hand Basin Washing	348	7%	Based on 3 uses of the hand basin per person/day for 15 seconds each time using a 3-star tap fitting (8.5 L/min).
Showering	698	14%	20% of staff have showers each day for 8 minutes each time using a 3-star shower head (8L/min)
Kitchen (washing & drinking)	164	3%	3 L / EP/ day
Air Conditioning Cooling	496	10%	10% of total water consumption-of which 88% evaporates.
Leaking Water Devices	Negligible	0%	Traditionally 0.7% of total water consumption in residential dwellings is attributed to leaks (SWC, 2005). However, as the new dwellings will be fitted with efficient, correctly installed and appropriately maintained fittings- the water consumption attributed to leaking water devices was assumed to be negligible.
Unaccounted for Water	499*	10%*	Unaccounted for water accounted for 10% of overall water demand in 2005 (SWC, 2005).  *It has been assumed that "unaccounted for water" is equivalent to 10% of pressurised water demands. In reality this will be made up from a portion of both the potable and non-potable demands. This results in an overall "unaccounted for water" demand, except in the case where rainwater tanks are used to supplement end uses. In this case the total "unaccounted for water" demand will be less than 10%.
Truck Wash (Not on all lots)	300	6%	Based on two trucks being washed each day, requiring 150 L per wash.
Internal Cleaning	74	1.5%	Based on the assumption that cleaning involves toilet flushing (8 toilet flushes- 24L) and mopping (5 buckets each 10 L- 50L).
External Cleaning	20	0.4%	Assuming each bucket of water requiring for mopping contains 10 L

Watering (Outdoor Garden use)	1,777	36%	Using subsurface irrigation (and other water efficient watering methods)- the watering required during an 'average' rainfall year was assumed to be 0.88 mm/day (source unavailable).
Total (L/day/ Generic Warehouse  (or per 2.04 net hectares)	4,962	100%	
Total (L/day/ net hectare)	2,432	-	

**Table 18 Summary of Adopted End Use Assumptions within the Development**

Note \* the water demand rates indicated in this table are based on the Oakdale Concept Plan Water Balance Options Report prepared by GHD in December 2007.



**Figure 2 Water Demand Breakdown by End Use within the Development**

The above image shows the proportion of total water demands for irrigation and toilet flushing within the development could be as much as 50% across the development that may be potentially substituted for by rainwater reuse.

The remaining 50% of the development's water demands requires a potable water supply.

As such maximising the substitution of non-potable end use demand would result in a maximum potable water saving in the order of 50%.

## 4.4 Total Site Demands

Portion of Proposed Warehouse Facility	1A Area (m <sup>2</sup> )	1B Area (m <sup>2</sup> )	1C Area (m <sup>2</sup> )	1D Area (m <sup>2</sup> )
Warehouse (including dock office lower level)	12,130	17,900	27,640	29,500
Office	834	1,632	1,764	1,830
Hardstand (including internal circulation roads, footpaths, car parks)	6,755	6,317	14,120	14,939
Garden / Landscape Area (including courtyards)	5,327	8,642	6,252	8,878
Total Area of Proposed Warehouse Facility	25,230	34,491	49,776	55,147
Daily Water Usage (based on 2.432kL/day/ net Hectare) as per Table 4	<b>1.57kL/day</b>	<b>2.37kL/day</b>	<b>3.57kL/day</b>	<b>3.81kL/day</b>

**Table 19 Total Site Demands and Daily Usage**

## 4.5 Rainwater Reuse

The use of rain water collected in rainwater tanks from roof runoff of the warehouse roofs provides a valuable alternative to potable water for a variety of non-potable end uses, such as vehicle washing, air conditioning cooling, toilet flushing and watering.

We have assumed for this development irrigation and toilet flushing will be plumbed to the rainwater tanks. Other uses such as truck washing maybe considered at the detailed design stage.

A rainwater tank model was constructed to simulate the rainwater tank operations and select the optimal rainwater tank size, in doing so, the following considerations were made:

- Rainfall received;
- Roof area or runoff area;
- Roof Wetting;
- First Flush; and
- Rainwater demands (by end use).

Refer Appendix E for illustration of reuse.

## 4.6 Rainwater Tank Model Assumptions

The rainwater tank model assumptions built into the scenarios assumed the following:

### Rainfall received

The rainfall runoff that could potentially be captured by the rainfall tank from the roof of each building was simulated individually for the 'dry', 'wet' and 'average' rainfall year within each scenario run.

### Roof Wetting, First Flush Diversions and Overflow

While it is assumed that rainfall runoff has the potential to runoff 100% of the area of the roof into the rainwater tank, the proportion of rainfall that actually reaches the rainwater tank is affected by four factors:

- It is assumed that the initial 2mm of rainfall that falls on the roof is considered 'wetting', that is, potential rainfall runoff that is not captured by the rainwater tank, but is rather 'lost runoff' as evaporation or other;
- To prevent sediment and other pollutants entering the rainwater tank, a portion of the initial runoff from the roof is transferred to stormwater, this is known as the 'first flush'. The portion of water diverted as part of the first flush differs for each facility depending on the amount of pollution each roof is susceptible to.
- As the development is located in a predominantly light industrial area, where there may be potential for some roof pollution, a standard first flush volume of 1mm of runoff from across the roof area has been adopted.
- Any roof runoff that exceeds the rainwater tank capacity is 'overflow', and is directed to the stormwater drainage system.

## 4.7 Rainwater Tank Modelling

### 4.7.1 General

For the MUSIC analysis the following parameters are assumed:

- An allowance for 20% loss in rainwater tank size volume to allow for anaerobic zones, mains water top up levels and overflow levels
- Approximately 30% of the total roof area can drain into the rainwater harvest tank
- The daily usage is calculated based on 2.432kL/day/ building area as per the requirements from Table 18.

### 4.7.2 Rainwater Tank Modelling Results

The use of a rainwater tank was simulated for 'average' rainfall conditions to service three differing combinations of end uses for each Facility being as per Table 20.

Lot Number	Total Roof Area (m <sup>2</sup> )	Roof Area draining to tank (m <sup>2</sup> )	Size of Tank(kL) *	% of total non-potable water used from tank (based on MUSIC modelling)
1A	12,964	3,889	45	<b>80.2</b>
1B	19,532	5,869	65	<b>80</b>
1C	29,404	8,821	105	<b>80.7</b>
1D	31,330	9,399	110	<b>80.4</b>

**Table 20 Percentage of Non-Potable Water Used from Tank**

\* Note final tank size is subject to detailed design of building.

## 4.8 Conclusion

The use of rainwater harvest tanks and the design basis to size the tanks to ensure a minimum 50% of all non-potable water on each lot can be sourced from the tank, demonstrates a commitment to water recycling and minimising the usage of mains water.

This is in line with the industry best practise and the NSW State Government's objective of reducing the amount of potable (drinking) water consumed for non-potable uses.

# 5 Sedimentation and Erosion Control

---

## 5.1 Sedimentation and Erosion Control (Construction)

Soil and Water Management Plans (SWMP) has been prepared in accordance with the NSW Department of Housing Publication titled: Managing Urban Stormwater-Soils and Construction (2004) for the whole site.

Suitable erosion and sediment controls shall be provided and maintained throughout all stages of works, including at completion of the bulk earthworks. Design, documentation, installation and maintenance of sediment and erosion controls will be in accordance with the requirements of the *Protection of the Environment Operations Act, Penrith City Council's specifications* and the *Office of Environment and Heritage's 'Managing Urban Stormwater: Soils and Construction. Landcom, (4<sup>th</sup> Edition) (The "Blue Book") Volume 1 and Volume 2.*

Ultimately the final temporary sediment basin locations and sizes will be provided to suit development staging requirements and will be sized & maintained in accordance with the requirements of the *Protection of the Environment Operations Act, Penrith City Council's specifications* and the *Office of Environment and Heritage's 'Managing Urban Stormwater: Soils and Construction. Landcom, (4<sup>th</sup> Edition) (The "Blue Book") Volume 1 and Volume 2.*

## 5.2 Sources of Pollution

The activities and aspects of the works that have potential to lead to erosion, sediment transport, siltation and contamination of natural waters include:

- Earthworks undertaken immediately prior to rainfall periods
- Work areas that have not been stabilised
- Extraction of construction water from waterways during low rainfall periods
- Clearing of vegetation and the methods adopted, particularly in advance of construction works
- Stripping of topsoil, particularly in advance of construction works
- Bulk earthworks and construction of pavements
- Works within drainage paths, including depressions and waterways
- Stockpiling of excavated materials
- Storage and transfer of oils, fuels, fertilisers and chemicals
- Maintenance of plant and equipment
- Ineffective implementation of erosion and sediment control measures
- Inadequate maintenance of environmental control measures
- Time taken for the rehabilitation / revegetation of disturbed areas

### 5.3 Potential Impacts

The major potential impacts on the riparian environment relate to erosion of distributed areas or stockpiles and sediment transportation. Potential adverse impacts from erosion and sediment transportation can include:

- Loss of topsoil
- Increased water turbidity
- Decreased levels of dissolved oxygen
- Changed salinity levels
- Changed pH levels
- Smothering of stream beds and aquatic vegetation
- Reduction in aquatic habitat diversity
- Increased maintenance costs
- Decrease in waterway capacity leading to increased flood levels and durations

### 5.4 Construction Methodology

The following construction methodology will be followed to minimise the impact of sedimentation due to construction works:

- Diversion of “clean” water away from the disturbed areas and discharge via suitable scour protection.
- Provision of hay bale type flow diverters to catch drainage and divert to “clean” water drains.
- Diversion of sediment-laden water into temporary sediment control basins to capture the design storm volume and undertake flocculation (if required).
- Provision of construction traffic shaker grids and wash-down to prevent vehicles carrying soils beyond the site.
- Provision of catch drains to carry sediment-laden water to sediment basins.
- Provision of silt fences to filter and retain sediments at source.
- Rapid stabilisation of disturbed and exposed ground surfaces with hydro seeding in areas where future construction and building works are not proposed
- All temporary sediment basins shall be located clear of the 100yr ARI flood event from Ropes Creek and Ropes Creek tributaries.
- The weir levels of all temporary sediment basins shall be located above the 100yr ARI flood event levels from surrounding Ropes Creek and Ropes Creek tributaries.
- Bio-retention basins are to be utilised as temporary sediment control basins. The bio-retention basins shall not be converted into the final/ultimate basins until such time as all building and construction works within the relevant stage has been completed and 90% of the site is stabilised.



Note these sediment and erosion control measures will be in place during all construction works.

## 5.5 Site Inspection and Maintenance

The inspection and maintenance requirements outlined in this section will need to be carried out as long as either earthworks or quarrying is being conducted and all areas re-established.

The Contractor's site Superintendent will inspect the site after every rainfall event and at least weekly, and will:

- Inspect and assess the effectiveness of the SWMP and identify any inadequacies that may arise during normal work activities or from a revised construction methodology. Construct additional erosion and sediment control works as necessary to ensure the desired protection is given to downstream lands and waterways
- Ensure that drains operate properly and to effect any repairs
- Remove spilled sand or other materials from hazard areas, including lands closer than 5 metres from areas of likely concentrated or high velocity flows especially waterways and paved areas
- Remove trapped sediment whenever less than design capacity remains within the structure
- Ensure rehabilitated lands have affectively reduced the erosion hazard and to initiate upgrading or repair as appropriate
- Maintain erosion and sediment control measures in a fully functioning condition until all construction activity is completed and the site has been rehabilitated
- Remove temporary soil conservation structures as the last activity in the rehabilitation

## 5.6 Conclusion

The erosion control measures proposed for the site will comply with the requirements of Penrith City Council and The Department of Environment, Climate Change and Water (DECC).

The proposed SWMP will ensure that the best management practice is applied to the development site in controlling and minimising the negative impacts of soil erosion.

## 6 Stormwater Infrastructure Maintenance

To ensure all stormwater infrastructure is maintained for the life of the development a number of measures will be put into place. This will involve on-going monitoring of all infrastructure being carried out at regular intervals based on frequency rates provided within the *Penrith City Council WSUD Technical Guidelines* and *Penrith City Council Engineering Construction Specification for Civil Works*. All on-going maintenance report, contractor's cleaning reports and certificates will be provided to Council over the life of the development.

This will include maintenance actions and procedures as indicated in Table 21.

Maintenance Action	Frequency	Responsibility	Procedure
Inspect and remove all silt traps and outlet sumps	3-6 monthly	Owner	Remove grates and screens. Remove sediment/sludge build-up and check outlet pipes are clear
Inspect and remove any blockage of orifices	Six Monthly	Owner	Remove grate and screen to inspect orifice.
Check attachment of orifice plates to wall of chamber and/or pit	Annually	Maintenance Contractor	Remove grate and screen. Ensure plates are mounted securely, tighten fixings if required. Seal gaps as required
Check orifice diameters are correct and retain sharp edges	Five yearly	Maintenance Contractor	Compare diameter to design (WAE drawings) and edge is not pitted or damaged
Inspect screen and clean	Six monthly	Owner	Remove grates and screens if required to clean them
Check attachment of screens to wall of chamber or pit	Annually	Maintenance Contractor	Remove grates and screens. Ensure screen fixings are secure. Repair as required
Check screens for corrosion	Annually	Maintenance Contractor	Remove grates and examine screen for rust or corrosion, especially at corners or welds
Inspect walls (internal and external, if appropriate) for cracks or spalling	Annually	Maintenance Contractor	Remove grates to inspect internal walls. Repair as required. Clear vegetation from external walls if necessary and repair as required
Inspect outlet sumps and remove any sediment/sludge (for all silt traps too)	Six monthly	Owner	Remove grates and screens. Remove sediment/sludge build-up and check orifices and outlet pipes are clear

Inspect grates for damage or blockage (all grated pits)	Six monthly	Owner	Check both sides of a grate for corrosion, (especially corners and welds) damage or blockage
Inspect outlet pipe and remove any blockage	Six monthly	Maintenance Contractor	Remove grates and screens. Ventilate underground storage if present. Check orifices and outlets and remove any blockages in outlet pipe. Flush outlet pipe to confirm it drains freely. Check for sludge/debris on upstream side of return line
Check step irons in pits	Annually	Maintenance Contractor	Remove grate. Examine step irons and repair any corrosion or damage
Check fixing of step irons for all pits are secure	Six monthly	Maintenance Contractor	Remove grates and ensure fixings are secure prior to placing weight on step iron
Inspect storage for subsidence near pits	Annually	Maintenance Contractor	Check along drainage lines and at pits for subsidence likely to indicate leakages
Ensure GPTs are maintained and cleaned to remove silt build up and gross pollutants	Annually	Maintenance Contractor	Maintenance to be as per Rocla Maintenance Guidelines
Bio-Retention Basin Maintenance			All bio-retention basin maintenance requirements should be in accordance with <i>Water Sensitive Urban Design – Book 4 Maintenance</i> Table 3 as produced by Landcom. Refer to Appendix H of this report for full table.

**Table 21 Stormwater Infrastructure Maintenance**

# 7 Bio-Retention Basin Operation and Management Plan

---

## 7.1 Technical Guidelines

The following technical guidelines have been referenced during the detailed design of Bio-retention basins and in the preparation of this Basin Operation & Maintenance Plan:

- *Penrith City Council WSUD Technical Guidelines (Jun 2015)* and associated references;
- *Penrith City Council C3 Water Management DCP (2014)*; and
- *WSUD Technical Guidelines for Western Sydney (May 2004)*.

## 7.2 Function of a Bio-retention Basin

Bioretention systems are essentially a surface and sub-surface water filtration system. They provide a number of functions including:

- Removing sediments and attached pollutants by filtering through surface vegetation and ground cover and through an underlying filter media layer;
- Removing some dissolved pollutants through soil chemistry and vegetation nutrition;
- Reducing runoff volumes (by infiltration into the sub-soils); and
- Delaying runoff peaks by providing retention capacity and reducing flow velocities.

Bioretention systems are similar in function to sand filters. Whereas sand filters rely on water quality treatment via passage of stormwater through a sand medium, bioretention systems incorporate both plants and underlying filter soils for removal of contaminants. The vegetation enhances the filtration process as well as maintaining the porosity of the filter media. The filter media is usually the plant growing material, which may comprise soil, gravel, sand and peat mixtures.

Bioretention trenches can be constructed as either small or large scale devices. Small scale units are usually located in residential planter boxes (sometimes refer to as “rain gardens”), which pass collected stormwater and percolates it through the filter media to the outlet. Larger scale devices work on the same methodology, however are located along the streetscapes and retarding basins over large open areas.

There are two main types of bioretention systems:

- Non-conveyance (off-line) systems – These use a freeboard for ponding above the bioretention surface to maximise the volume of runoff treated. Typically they contain the design inflow with higher flows discharged through overflow pits or bypass paths and are not required to convey flood flows. They are commonly installed in planting boxes or streetscapes as a landscape feature.

- Conveyance (on-line) systems – These treat the design inflow but are also able to convey minor storm events along longitudinal channels. These systems are commonly used in streetscape applications in combination with vegetated swales, which are used to convey street runoff to the designated bioretention system.

### 7.2.1 Application

Bio-retention basins are most effective in removing medium to fine size sediments and attached pollutants (such as nutrients, free oils/grease and metals), but has typically higher pollutant removal efficiencies for a wider range of contaminants due to enhanced filtration/biological processes associated with the surface vegetation.

Best suited too small (<15 ha catchments) residential, commercial and industrial developments with high percentages of impervious areas, including parking lots, high density residential housing, roadways and bridges.

Commonly used in conjunction with upstream vegetated filter strips or swales to provide effective water treatment chain and conveyance of stormwater runoff.

May have aesthetic benefits due to the surface vegetation and therefore can be incorporated in streetscape and general landscape features.

Can be appropriate in areas where runoff is insufficient or too unreliable, evaporation rates too high, or soils are too pervious to sustain the use of constructed wetlands.

### 7.2.2 Typical Construction Issues

The following issues with bio-retention basins are important to recognise during construction:

- The filter system should not be used for sediment control during construction;
- The filter material and grading must meet the criteria specified on the technical specification for the works;
- Quality control relating to filter media placement is essential during construction.
- Upstream pre-treatment of litter and coarse sediments is essential to minimise filter clogging; and
- Regular inspections and maintenance required during the vegetation establishment period.

## 7.3 Site Rainfall Data

The climate in Western Sydney is typically characterised by warm, wet summers and cool, dry winters. Rainfall in summer is typically associated with thunderstorm activity.

Rainfall data for Penrith City Council is defined within the *Penrith City Council, WSUD Technical Guidelines (June 2015)*. Details as per below:

Month	J	F	M	A	M	J	J	A	S	O	N	D
PET (mm)	159	122	115	77	50	39	41	57	81	122	142	152

**Table 22 - Monthly Evapotranspiration for Penrith**

<b>Impervious Area Parameters</b>	
Rainfall threshold (mm)	1.4mm
<b>Pervious Area Parameters</b>	
Soil Storage Capacity (mm)	105
Initial Storage (% of capacity)	30
Field Capacity (m)	70
Infiltration Capacity Coefficient – a	150
Infiltration Capacity Exponent – b	3.5
<b>Groundwater Properties</b>	
Initial Depth (mm)	10
Daily Recharge Rate (%)	25
Daily Baseflow Rate (%)	10
Daily Deep Seepage Rate (%)	0

**Table 23 - MUSIC Rainfall-Runoff Parameters for Penrith**

## 7.4 Measures Proposed

Precinct based basins will serve the development as detention and bio-retention basins. There are five (5) proposed bio-retention basins (A, B, C, D & E) within Oakdale South.

All basins have been designed with a 3.0m wide sprayed seal access road along the berm to ensure maintenance vehicles can access the entire exterior of the basin.

Each of the basins are bio-retention basins designed to both attenuate stormwater flows and treat the nutrients to Penrith City Council treatment rates. These treatment rates are from the Penrith City Council C3 Water Management DCP as shown below:

WSUD to achieve target reductions:

- 85% Total Suspended Solids (TSS)
- 60% Total Phosphorus (TP)
- 45% Total Nitrogen (TN)
- 90% Gross Pollutants (GP)

The proposed bio-retention basins are associated with the following catchments:

- Basin A / Catchment A = 124,100m<sup>2</sup> (12.41Ha)
- Basin B / Catchment B = 139,800m<sup>2</sup> (19.98Ha)
- Basin C / Catchment C = 278,000m<sup>2</sup> (27.80Ha)
- Basin D / Catchment D = 66,900m<sup>2</sup> (6.69Ha)
- Basin E / Catchment E = 14,380m<sup>2</sup> (14.38Ha)

For proposed basin locations and details, refer to Appendix A.

Species selected for use in the macrophyte zone of the bio-retention basins are provided on the Landscape Drawings (Refer Appendix I) in accordance with Penrith City Council WSUD Technical Guidelines as follows:

- Imperata cylindrica (Blady Grass)
- Ficinia nodosa (Syn Isolepis nodosa Knobby Club Rush)
- Junucus usitatus (Common Rush)
- Lomondra longifolia (Matrush)
- Poa siebreiana (Grey Tussock grass)
- Themeda australis (Kangaroo Grass)
- Dianella caerulea (Blue flax-lily)
- Carex appressa (Tussock Sedge)

Alternative species can be considered with guidance from a Landscape Architect and approval from the Local Authority.

## 7.5 Bio-retention Basins – Design Requirements

The Penrith City Council WSUD Technical Guidelines state a bioretention system must comprise the following:

- **Vegetation** to assist in minimising surface clogging and pollutant removal. Plant species which should be planted at a minimum of 8 plants per square metre suitable for bio-retention basins include:
  - Imperata cylindrica (Blady Grass)
  - Ficinia nodosa (Syn Isolepis nodosa Knobby Club Rush)
  - Junucus usitatus (Common Rush)
  - Lomondra longifolia (Matrush)
  - Poa siebreiana (Grey Tussock grass)
  - Themeda australis (Kangaroo Grass)
  - Dianella caerulea (Blue flax-lily)
  - Carex appressa (Tussock Sedge)
- **Extended detention** to store stormwater temporarily on the surface to buffer flows so that a greater volume can be treated.
- **Filter Material** as a form of primary treatment. The water is treated as it passes through a filter material by filtration, adsorption and biological processes. The media should be typically 600mm deep with a minimum of 300mm. The permeability of the material should range from 100-300 mm/hr under compaction and should be clean and free of weeds. There should be no more than 5% organic matter within the material.
- **Transition layer** of clean well graded sand/course sand prevents the filter media from washing out of the system.
- **Drainage layer** of clean fine gravel (2-5mm) collects treated water at the base of the system and contains 90-100mm perforated pipes to convey treated water out of the system.
- **Impervious layer** may be required to prevent infiltration into surrounding soils, particularly if the treatment system is immediately adjacent to roads or buildings.
- **Inlet** for stormwater runoff to protect the basin from scour and erosion.

- **Overflow pit** to allow high flows, beyond the capacity of the treatment design storm to allow water to discharge in a controlled manner.
- **Flushing Point** connected to the perforated pipes as a means of be cleaned in the event of blockages.
- **Edge treatment** in form of kerb or wall to protect the basin from traffic.
- **Pre-treatment is** recommended when sediment loads are likely to be high, or if there is a risk of spills. This is in the form of Gross Pollutant Traps and/or sumps immediately upstream of the basin.

## 7.6 Pollutants

### 7.6.1 Estimated Pollutant Loads and Reductions

The MUSIC Model for Urban Stormwater Improvement Conceptualisation (MUSIC, Version 5.00.10) was used to evaluate pollutant loads from each of the proposed lots for Post-development (treated) conditions based on the proposed site development.

MUSIC modelling results presented as mean annual loads at the receiving node indicate that adopted target reductions are achieved. Refer Section 3.3.6 for Pollutant Loads and Reductions.

## 7.7 Council Dedication / Handover

In the event that bio-retention basins are to be dedicated to Council, Penrith City Council has the following list of requirements which need to be satisfied before they will accept ownership of bio-retention basins:

1. The proponent must have a Development Application pre-lodgement meeting with the Council Officers to discuss Council's requirements;
2. The bioretention basin is to constructed and operate in accordance with the approved design specifications and any other specific design agreements previously entered into with Council;
3. The performance of the bio-retention basin needs to be validated, which is to include the provision of a *Performance Validation Report* supporting the performance of the bioretention basin;
4. Sediment build up within the basin has resulted in no more than a 10% reduction of operational volume;
5. Assess inspections for defects have been completed and if any defects are found, rectified to the satisfaction of Council;
6. The bioretention basin is to the satisfaction of Council, structurally and geotechnically sound (this requires certification from a suitably qualified person);
7. Design drawings have been supplied in a format acceptable to Council;
8. Works as Executed (WAE) drawings have been supplied for all infrastructure in the format and level of accuracy acceptable to Council;
9. Other relevant digital files have been provided;



10. Landscape designs have been supplied, particularly those detailing the distribution of functional vegetation;
11. The condition of the infrastructure associated with the land complies with the approved design specification;
12. Filter media infiltration rates are within 10% of the rates of the design parameters for the filtration system concerned;
13. Comprehensive operation and maintenance manuals have been provided;
14. Vegetation establishment period of 3 years has been completed; and

Copies of all required permits (both construction and operational) have been submitted.

## 7.8 General Maintenance and Monitoring of Basins

### 7.8.1 Maintenance Responsibilities

GPS will be responsible for the ongoing maintenance of the bio-retention basins if they remain the ownership of Goodman in perpetuity.

In the event that bio-retention basins are to be dedicated to Council, Goodman would be responsible for the maintenance of the bio-retention basins during the initial vegetation establishment period of 3 years, with Council maintaining the basins following dedication.

### 7.8.2 Maintenance Methods

The maintenance activities for the proposed bio-retention basins include, but are not limited to, the following:

- Routine inspection of the wetland to identify any damage to vegetation, scouring, litter and debris build up or excessive mosquitoes;
- Routine inspection of inlet and outlet points to identify any areas of scour, litter build up and blockages;
- Removal of litter and debris;
- Removal and management of weeds and other undesirable vegetation;
- Repair to the basins profile to prevent the ponding in isolated areas;
- Regular watering of vegetation during plant establishment;
- Water level control during plant establishment;
- Replacement of plants that have died (from any cause) with plants of equivalent size and species as detailed in the planting schedule;
- Vegetation and aquatic pest monitoring and control; and
- Sediment accumulation and removal from inlet and outlet ponds.

### 7.8.3 Personnel Requirements

The maintenance and regeneration component of the works shall be carried out in a competent manner by suitably experienced and qualified bush regenerators. At a minimum all works will

be completed by staff that have completed a TAFE Conservation & Land Management Course (CALM) Certificate 3 or equivalent and have suitable field experience (e.g. 200 hours of employment as a bush regenerator).

The bush regeneration site supervisor in charge of this basin maintenance contract as a minimum will be required to have completed Certificate 3 of the Conservation & Land Management (CALM) Course and have a minimum of two (2) years experience in this position.

### 7.8.4 General

Once the system has established and equilibrium has been attained (after the establishment phase), operation is mostly passive and should require minimal landscape contractor intervention.

The landscape contractor must be:

- Observant to the development within the basins and surrounding area;
- Take appropriate actions when problems develop; and
- Conduct monitoring as required on a regular basis.

The most critical items in which the landscape contractor is necessary to require action is:

- Accurate recording of monitoring and maintenance activities;
- Alteration of water levels to maintain the necessary depths for healthy vegetation growth;
- Management of appropriate vegetation and undesirable vegetation;
- Maintenance of batters and overflow weirs;
- Maintenance of the perforated pipes within the bio-filter media; and
- Maintenance of the inlet pipes and outlet structures and pipes.

The Monitoring and Maintenance Schedule below, lists the routine maintenance and monitoring on a typical year that should be undertaken throughout the system during operation phase, and nominates the timing of each action throughout the calendar year.

Oakdale South Basin A-E	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17
Maintenance												
Site Induction with Client	■											
Maintenance	■	■	■	■	■	■	■	■	■	■	■	■
Revegetation									■	■		
Aquatic Weed Monitoring and Control		■	■	■	■	■	■	■	■	■	■	■
Weed Control and Removal		■	■	■	■	■	■	■	■	■	■	■
Sediment Removal				■			■		■			■
Trash Removal					■	■					■	■

**Table 24 - Monitoring and Maintenance Schedule (Typical Year)**

## 7.8.5 Routine Inspections

Routine inspections of the constructed basins must be undertaken on a regular basis or as required by extreme events.

Routine maintenance and inspections are to be undertaken concurrently every two months throughout the year. Routine inspections only would also be undertaken on the other months to check for any issues that could be rectified during the routine maintenance.

Additional inspections are to be undertaken following extreme storm events to check for scour, sedimentation, debris and damage. The inspection should be made no less than 24 hours and no more than 72 hours after the event if the total rainfall on any given day exceeds 30mm.

Example inspection and maintenance schedules and checklists are provided in Appendix D and should be completed in accordance with the frequency of Table 30 – Monitoring and Maintenance Schedule.

## 7.8.6 Water Levels

Water levels to the basins are to be monitored during the vegetation establishment, especially after severe storm events, to ensure that the vegetation remain wet but not inundated with storm water.

Water levels will be controlled by the outlet pit therefore it is essential that the outlet pit is unblocked as this controls the operational levels as these have the following impacts

- Stimulate new plant growth
- reduce mosquito breeding

Sedimentation will be a natural occurrence due to the stormwater mobilising silts/soil particles during the storm event. Excessive sedimentation to the basins will affect the water levels and water depths. Removal of the silts is to be undertaken as required to ensure that the water levels and water depths are constant throughout the life of the basins.

## 7.8.7 Vegetation Management

### 7.8.7.1 Vegetation Replacement

The maintenance of the plants within the basins should be regular and ongoing (long term) to ensure that the basins function as designed. After the construction, ie during operation phase, the plant health and coverage should be monitored as stated in Table 10.

Discolouration or wilted leaves indicate poor plant health and could be caused by inadequate watering, disease or lack of nutrients. Plants that have not grown since being planted or showing signs of discolouration in the leaves may require the application of fertilisers. If plant survival rates are below 90% or if plants have been predated or displaced during storm events, replanting should be undertaken.

Assessment of plant health after significant storm events will be particularly important during the extreme storm event, therefore the high intensity rainfall in this region may be the potential for plant damage.

Additional plants should be installed if:

- Plant survival rates are below 90% of the originally planted numbers; or
- Plants have been displaced by the storm events.

It should be noted that some plants restrict growth over the winter months, therefore they can appear to be unhealthy/dead. It is essential that personnel undertaking the maintenance are experienced and understand the plants natural growth cycle.

### 7.8.7.2 Weed Control

The monthly inspections should be sufficient to monitor and control weed invasions, unless significant replanting or re-establishment works are undertaken. Once the vegetated areas are established, fortnightly inspections may still be required over extreme high temperature periods particularly if a particular infestation is being controlled and monitored. Weed infestations are undesirable in and around the system as they compete with and displace native species and contribute to the decline in system health.

Excessive growth of aquatic weeds within the basin can affect hydrology by restricting flows, which may increase the risk of erosion. Weed invasions may also “choke” basins by building up around the outlets.

Weed removal and control will include any species listed as Noxious under the NSW Noxious Weeds Act 1993, and other environmental weed species which are likely to significantly invade the basins, preventing plant establishment or impede native seedling growth.

The most appropriate method of weed control will be used according to the type of weed. The bush regeneration techniques to be employed shall be best practice and aim to control weed growth and encourage natural regeneration. All seed and propagules will be removed from the plant prior to it being treated. All weeds will be continually suppressed and not allowed to seed.

A general guide for the acceptable level of weed control in the contract areas by the end of the basin maintenance project is as follows:

- Class 1 & 2 Noxious Weeds: 100%;
- Class 3, 4 & 5 Noxious Weeds: >95%; and
- Environmental Weeds: >95% eradication

The use of agricultural pesticides (e.g. herbicides, fungicides) is controlled under the NSW Pesticides Act 1999 which stipulates that all pesticides must be used in accordance with the label directions. All weed control works will be completed in accordance with the Act.

Appropriate signage will be displayed whenever chemicals are being used.

When applying herbicide, either by foliar spray or direct application, appropriate techniques will be used for each specific weed species (more details provided below). All herbicide spray application is conducted only by trained and accredited staff (e.g. AQF3 SMARTtrain Chemical Accreditation). All relevant PPE (e.g. gloves, hat, and safety glasses) are always used and signs erected when spraying occurs in close proximity to public areas. Herbicide use records are continually kept and all details included in monthly reports.

The maintenance techniques to be employed will aim to control weed growth and encourage natural regeneration and good plant establishment. The techniques and methodologies used for bush regeneration conform to Industry Best Practice techniques. These include the principles described in *Recovering bushland on the Cumberland Plain: best practice guidelines for the management and restoration of bushland* (Department of Environment and Conservation, NSW 2005) and *Bringing the Bush Back to Western Sydney: best practice guidelines for bush regeneration on the Cumberland Plain* (Department of Infrastructure Planning and Natural Resources NSW 2003).

### 7.8.7.3 Species Selection

Species selected for use in the macrophyte zone of the bio-retention basins are provided on the Landscape Drawings (Refer Appendix I) in accordance with Penrith City Council WSUD Technical Guidelines as follows:

- Imperata cylindrica (Blady Grass)
- Ficinia nodosa (Syn Isolepis nodosa Knobby Club Rush)
- Junucus usitatus (Common Rush)
- Lomandra longifolia (Matrush)
- Poa siebreiana (Grey Tussock grass)
- Themeda australis (Kangaroo Grass)
- Dianella caerulea (Blue flax-lily)
- Carex appressa (Tussock Sedge)

Alternative species can be considered with guidance from a Landscape Architect and approval from the Local Authority.

## 7.8.8 Nuisance Management

### 7.8.8.1 Mosquito Control

A common misconception is that water bodies increase mosquito populations, posing a risk to public health. Mosquito infestations are not likely to be a problem if the basins and other ecosystems are well-balanced and maintained.

Maintenance activities can deter breeding by:

- Removal of litter and debris;
- Monitoring of water levels and time to discharge the water from the basin; and
- Monitoring of larvae numbers.

If mosquito numbers, more likely in the sediment deposition areas of the basin, do become problematic they may pose a risk to public health and impact on amenity. Early detection of mosquito larvae means that control measures can be implemented before adult mosquito numbers become a problem. It is therefore important to monitor mosquito larvae population as part of a monitoring.

It should be noted that the risk of mosquito outbreaks is greater in summer (the period of prolific mosquito growth) than in the cooler months, therefore bio-retention basins are less

likely to have mosquito breeding than other water bodies such as creeks, dams and wetlands. Nonetheless monitoring should be undertaken during routine monitoring to ensure that breed is eliminated if not reduced.

### 7.8.8.2 Birds

Populations of water fowl, including ducks and swamp hens can be problematic in constructed wetlands as the bird have a tendency to damage vegetation and deteriorate water quality via increases in nutrients and faecal coliforms.

The impact on the basins should be limited as the birds are lesser of a problem in bio-retention basins due to the water retention times within the basins, however evidence of bird presence should be monitored, especially during the vegetation establishment stage.

If birds are found to have a particular threat to the vegetation then control measures such as perimeter fencing and netting may be required.

### 7.8.8.3 Inlet & Outlet Structures

The inlet structure and outlet structure are components of the system that require careful monitoring as they can be prone to scour and litter build up. Debris can block inlets or outlets, compromising the functioning of the bio-retention basin. These can also be unsightly in high visibility areas.

A poorly functioning outlet structure will result in increased water level/depth therefore the routine monitoring and maintenance will ensure the inlets and outlets area clear of debris, rubbish and accumulated sediment to retain adequate conveyance.

### 7.8.8.4 Rubbish Removal

Debris and rubbish conveyed into the basins have the following impacts:

- Can block inlet and outlets structures;
- Is unsightly;
- Dangerous for wildlife; and
- Provide mosquito breeding ground, especially containers that retain water.

Rubbish should be removed immediately after storm events and during the routine maintenance on the basins. This should be accurately recorded as this may in understanding where the rubbish may originate and help to devise appropriate source control measures for future development.

## 7.8.9 Extreme Events

### 7.8.9.1 Storm Events

Following a significant rainfall event, basins should be assessed for scouring, plant loss, sedimentation and general damage. If necessary, repair or replant to suit the conditions prior the storm event and prevent further damage.

Extreme flood events may also introduce weed species into the basin, therefore the inspections (post-flood) should place higher priority on monitoring for, and vigilantly removing, weed and other undesirable species.

After heavy rainfall and flood conditions there is a possibility of an accumulation of rubbish and debris within the basins generally but also around the outlet points. Removal of this rubbish and debris should take place immediately after the storm event.

### 7.8.9.2 Drought

In the event of an extended period of drought, established plants may die, therefore consideration of irrigation should be considered during the event to prevent the plants from dying off.

Plants that die off should be replaced as per Sections 7.8.7.1 and 7.8.7.2.

## 7.9 Reporting Requirements

Maintenance records are the single most essential record in the successful management of the bio-retention basin system during the establishment and maintenance after the construction. These records will also be essential for the handing over of the assets to the local councils.

Accurate records provide the basis for responsive and adaptive management and should be undertaken after every inspection and/or maintenance works. The development of an electronic diary is recommended to record details of the daily functions and general running of the Bio-retention Basin system, which must be provided to the Developer/Owner of the basins.

This diary should include as a minimum record the following

- flooding, water depth
- local rainfall
- weed control
- supplementary planting
- any other relevant observations.

Monthly reports will be prepared if requested. Single map showing total work area with easily identifiable key and information:

- Primary, secondary, maintenance and revegetation areas, Photos (PMPs), showing changes 'Before' and 'After' changes:
- Labelled with basin name and/or location within site,
- Something recognisable in photos, 'Before' and 'After' Site Condition Maps.
- Clear summary of works in each basin, not just species list, including total number of hours worked.
- Overview and description of problems/issues encountered
- Future recommendations and management options

## 8 Conclusion

---

As highlighted in the above sections, all stormwater drainage within the Oakdale South development has been designed in accordance with the Penrith City Council Engineering Guidelines. This includes design of all pipework, On-Site Detention basins and WSUDs infrastructure. To summarise:

- OSD to be sized to ensure that for all rainwater events up to and including the 1:100 ARI event, new developments do not increase stormwater peak flows in any downstream areas.
- OSD to mitigate post development flows to pre-developed flows for peak Average Reoccurrence Interval (ARI) events.
- WSUD to achieve target reductions:
  - 85% Total Suspended Solids (TSS)
  - 60% Total Phosphorus (TP)
  - 45% Total Nitrogen (TN)
  - 90% Gross Pollutants (GP)
- Finished Floor Levels (FFL) to have minimum 500mm freeboard to 100 year overland flows
- The implementation of OSD to mitigate flows and WSUD systems to treat the water runoff prior to discharging into Ropes Creeks demonstrates a commitment to adhere to the Sydney Regional Environmental Plan (SREP) No 20 – Hawkesbury-Nepean River guidelines.



# Appendix A

---

## Catchment Plan

CATCHMENT	CATCHMENT AREA (Ha)	DESIGN BASIN VOLUME (m <sup>3</sup> )	DESIGN BIO-RETENTION BASIN AREA (m <sup>2</sup> )
A	12.41	5660	1610
B	13.98	3006	933
C	27.8	10379	2356
D	6.69	2759	920
E	14.38	4289	1890

**NOTES**

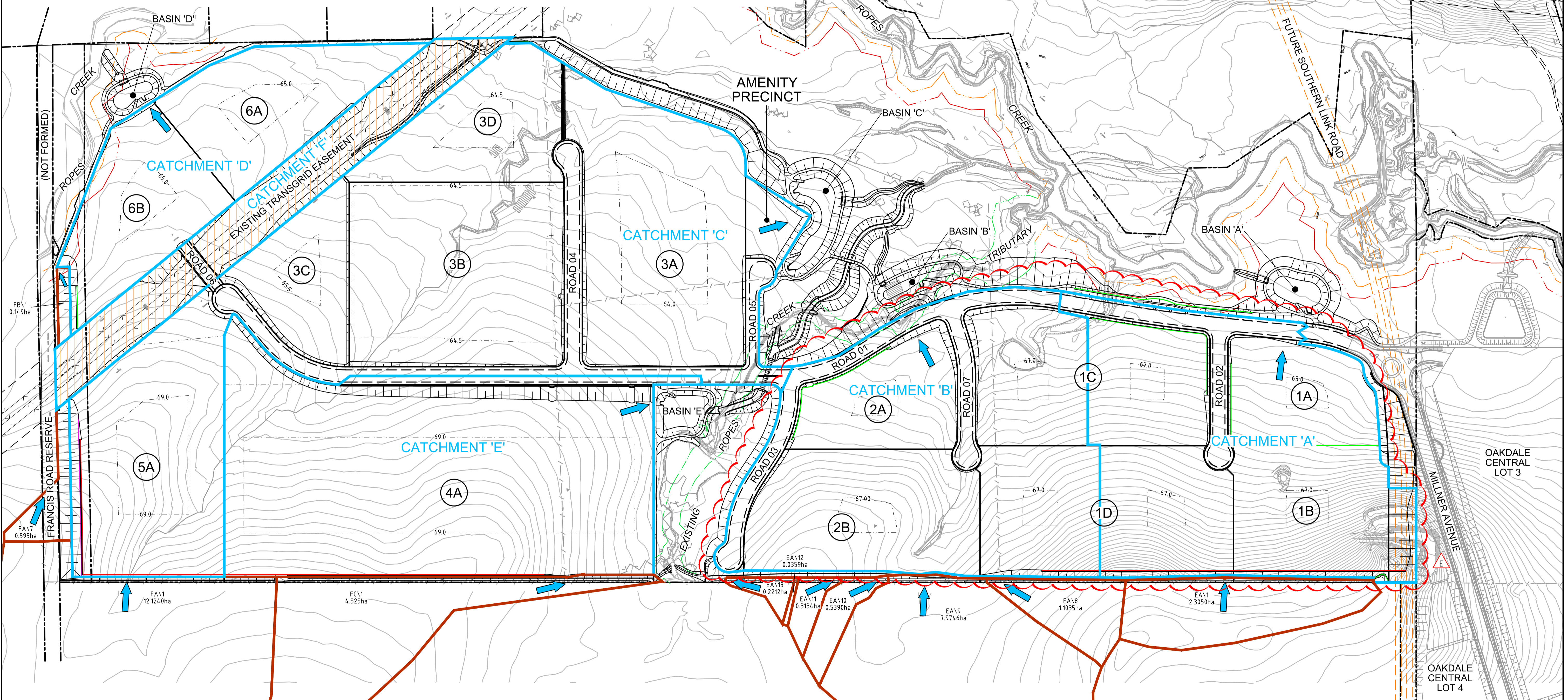
1 - STORAGE REQUIREMENT OF 250m<sup>3</sup>/Ha TO MATCH OAKDALE CENTRAL DEVELOPMENT.

2 - BIO-RETENTION BASINS SIZED TO ACHIEVE FOLLOWING TREATMENT RATES:

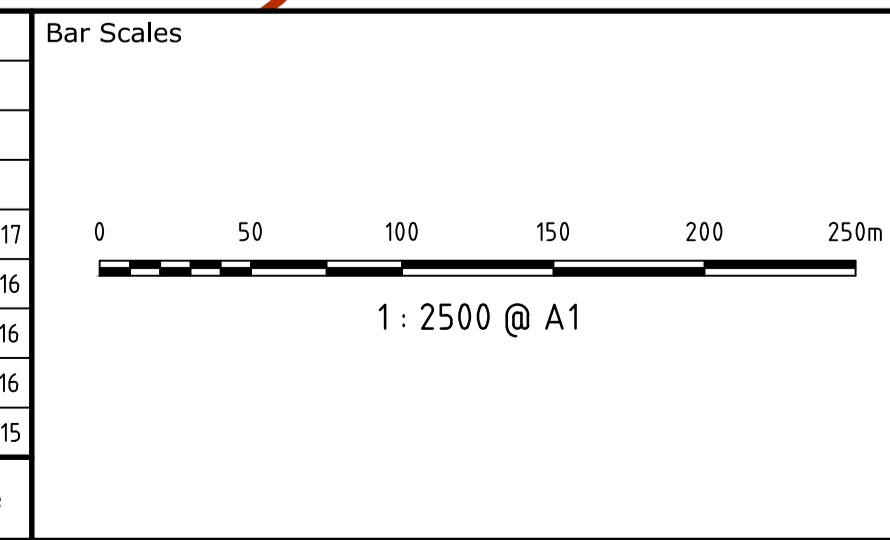
- TOTAL SUSPENDED SOLIDS = 85%
- TOTAL PHOSPHOROUS = 65%
- TOTAL NITROGEN = 45%

**LEGEND**

— CATCHMENT BOUNDARY



Issue	Description	Date
E	ISSUED FOR MOD 4 APPLICATION	05-05-17
D	ISSUED FOR REVIEW	13-04-16
C	ISSUED FOR S96 APPLICATION	19-09-16
B	ISSUED FOR INFORMATION	15-07-16
A	ISSUED FOR SSD APPLICATION	03-09-15



Key Plan

Client

Scales	1 : 2500	Drawn	JB
		Designed	JB
Grid	MGA	Checked	AMc
Height Datum	AHD	Approved	

Project

**OAKDALE SOUTH ESTATE INDUSTRIAL DEVELOPMENT**

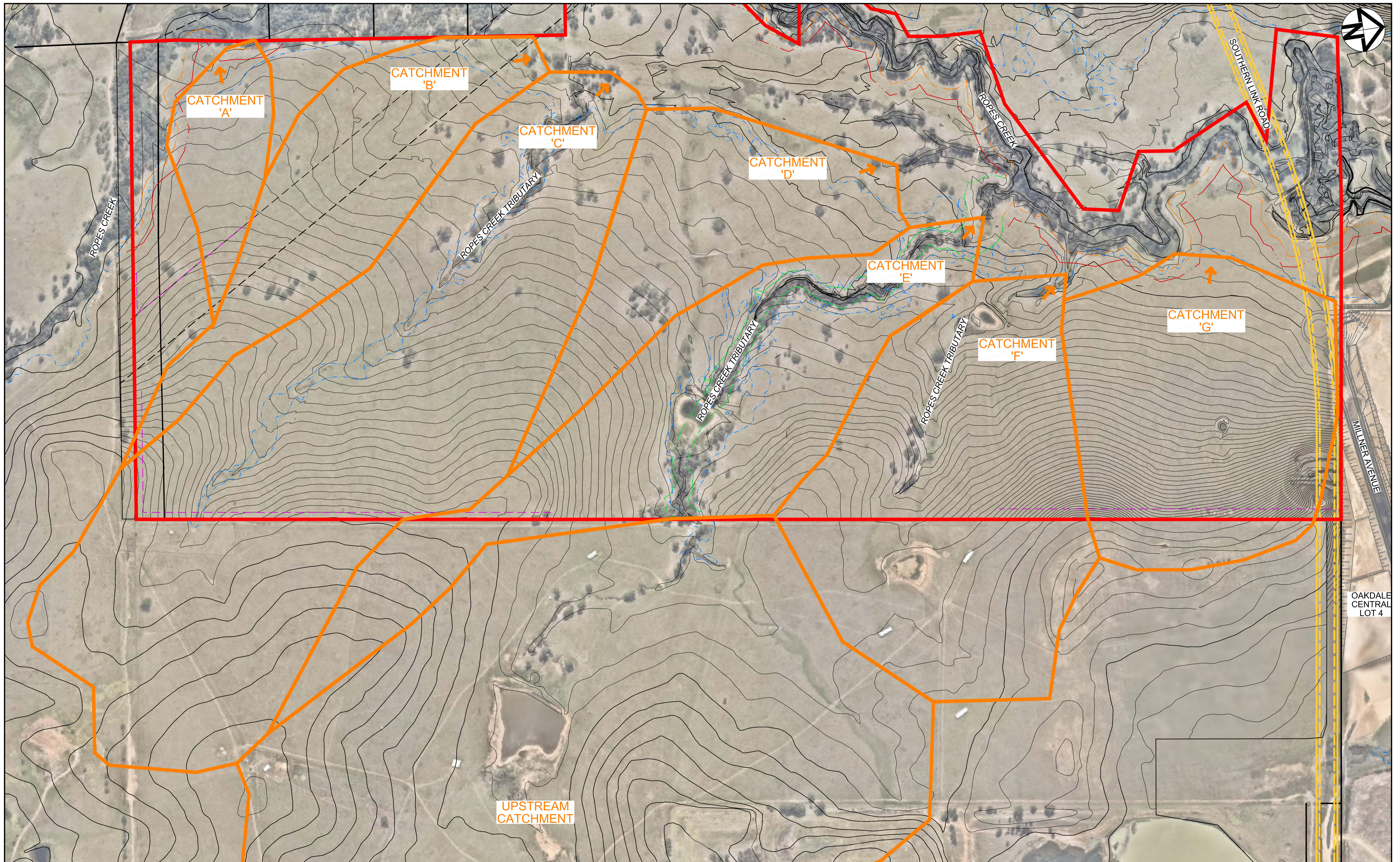
Title

**STORMWATER CATCHMENT PLAN**

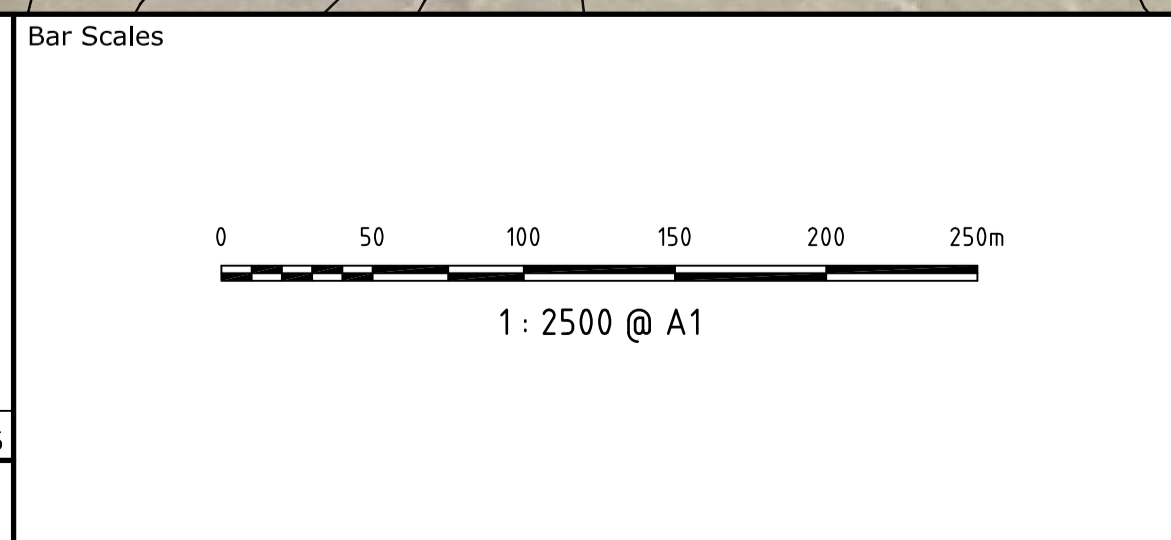
THIS DRAWING CANNOT BE COPIED OR REPRODUCED IN ANY FORM OR USED FOR ANY OTHER PURPOSE OTHER THAN THAT ORIGINALLY INTENDED WITHOUT THE WRITTEN PERMISSION OF AT&L

Civil Engineers and Project Managers	
<b>at&amp;l</b>	
Level 7, 153 Walker Street North Sydney NSW 2060 ABN 96 130 882 405 Tel: 02 9439 1777 Fax: 02 9923 1055 www.atl.net.au info@atl.net.au	
Status	<b>FOR APPROVAL</b>
NOT TO BE USED FOR CONSTRUCTION	
Drawing No.	C1301
Project No.	14-193
Issue	E

Civil Engineers and Project Managers	
<b>at&amp;l</b>	
Level 7, 153 Walker Street North Sydney NSW 2060 ABN 96 130 882 405 Tel: 02 9439 1777 Fax: 02 9923 1055 www.atl.net.au info@atl.net.au	
Status	<b>FOR APPROVAL</b>
NOT TO BE USED FOR CONSTRUCTION	
Drawing No.	C1301
Project No.	14-193
Issue	E



P1	ISSUE FOR INFORMATION	25-08-15
Issue	Description	Date



THIS DRAWING CANNOT BE COPIED OR REPRODUCED IN ANY FORM OR USED FOR ANY OTHER PURPOSE OTHER THAN THAT ORIGINALLY INTENDED WITHOUT THE WRITTEN PERMISSION OF AT&L



Scales	1 : 2500	Drawn	JB
		Designed	JB
Grid	MGA	Checked	AT
Height Datum	AHD	Approved	

Project	OAKDALE SOUTH
Title	EXISTING CATCHMENT PLAN

Civil Engineers and Project Managers

Suite 702, 154 Pacific Hwy  
St Leonards NSW 2065  
ABN 96 130 882 405  
Tel: 02 9439 1777  
Fax: 02 9460 8413  
www.atl.net.au  
info@atl.net.au

Status	PRELIMINARY ONLY NOT TO BE USED FOR CONSTRUCTION	A1
Drawing No.	SKC008	Issue
Project No.	14-193	P1

# Appendix B

---

## SSD Development Consent Conditions - Final

# Development Consent

## Section 89E of the *Environmental Planning and Assessment Act 1979*

- As delegate of the Minister for Planning under delegation executed on 16 February 2015, I determine:
- (a) to grant consent to the Staged Development Application referred to in Schedule A subject to the Concept Proposal conditions in Schedules B and C and the Stage 1 Development Application conditions in Schedules D, E and F; and
  - (b) that pursuant to section 89D(2) of the *Environmental Planning and Assessment Act 1979*, I determine that any subsequent Development not being for the purpose of a warehouse or distribution centre with a capital investment value in excess of \$50 million is to be determined by the relevant consent authority and that Development ceases to be State significant development.



**Anthea Sargeant**  
**Executive Director**  
**Key Sites and Industry Assessments**

Sydney 26 October 2016

File: 15/04284

### SCHEDULE A

- Application No.:** SSD 6917
- Applicant:** Goodman Property Services (Aust) Pty Ltd
- Consent Authority:** Minister for Planning
- Land:** Lot 12 in Deposited Plan 1178389 and Lot 87 in Deposited Plan 752041, Kemps Creek, Penrith local government area.
- Development:** The Staged Development Application for the Oakdale South Industrial Estate comprised of:
- A Concept Proposal with:
    - 395,880 m<sup>2</sup> of GFA comprised of 376,295 m<sup>2</sup> of warehousing and 19,585 m<sup>2</sup> of ancillary office floor space;
    - six development precincts with a total of 15 building envelopes; and
    - conceptual lot layout, site levels, road layout, urban design controls, conceptual landscape designs and infrastructure arrangements.
  - A Stage 1 Development Application including:
    - staged subdivision;
    - construction of bulk and detailed earthworks;
    - construction of internal estate roads, water, sewer, telecommunications and gas infrastructure;
    - construction of stormwater management devices;
    - installation of estate landscaping; and
    - construction and operation of nine warehouse and distribution buildings across precincts 1, 4 and 5 as follows:

- Precinct 1: five warehouse buildings with a total GFA of 104,739 m<sup>2</sup>;
- Precinct 4: three warehouse buildings with a total GFA of 48,256 m<sup>2</sup>; and
- Precinct 5: one warehouse building with a GFA of 84,075 m<sup>2</sup>.

<b>DEFINITIONS</b>	<b>iii</b>
<b>SCHEDULE B CONDITIONS OF CONSENT FOR CONCEPT PROPOSAL</b>	<b>1</b>
Determination of Future Development Applications	1
Statutory Requirements	1
Terms of Consent	1
Modifications to the Concept Proposal	1
Limits of Consent	2
Legal Notices	3
Sustainability Management	3
Noise Limits	3
<b>SCHEDULE C CONDITIONS TO BE MET IN FUTURE DEVELOPMENT APPLICATIONS</b>	<b>4</b>
Development Contributions	4
Ecologically Sustainable Development	4
Sustainability Management Plan	4
Traffic and Access	4
Bushfire Protection	4
Noise and Vibration	5
Waste	5
Outdoor Lighting	5
Signage	5
Reflectivity	5
Road Upgrades	5
Stormwater Management	5
Salinity	5
Transmission Line Easement	5
<b>SCHEDULE D CONDITIONS OF CONSENT FOR THE STAGE 1 DA</b>	<b>6</b>
Obligation to Minimise Harm to the Environment	6
Development Description	6
Development In Accordance with Plans and Documents	6
Limits of Consent for Stage 1	6
Prescribed Conditions	7
Staging	7
Staged Submission of Plans or Programs	7
Evidence of Consultation	8
Dispute Resolution	8
Easements	8
Statutory Requirements	8
Construction Certificate Required	8
Structural Adequacy and Certification	8
Utilities and Services	9
Protection of Public Infrastructure	9
Compliance	9
Operation of Plant and Equipment	9
Developer Contributions	9
Subdivision	9
<b>SCHEDULE E ENVIRONMENTAL PERFORMANCE AND MANAGEMENT</b>	<b>11</b>
Traffic and Access	11
Water	13
Soils	14
Noise and Vibration	15
Aboriginal Heritage	17

Biodiversity	18
Air Quality	18
Energy Efficiency and Greenhouse Gases	19
Hazards and Risk	19
Contamination	19
Waste	19
Visual Amenity	20
Transmission Requirements	21
<b>SCHEDULE F ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING</b>	<b>22</b>
Environmental Management	22
Environmental Reporting	23
Access to Information	23
<b>APPENDIX 1 - SCHEDULE OF APPROVED CONCEPT PROPOSAL DRAWINGS</b>	<b>24</b>
<b>APPENDIX 2 - SCHEDULE OF APPROVED STAGE 1 DA DRAWINGS</b>	<b>25</b>
<b>APPENDIX 3 - MANAGEMENT AND MITIGATION MEASURES</b>	<b>30</b>
<b>APPENDIX 4 - NOISE RECEIVER LOCATIONS</b>	<b>35</b>
<b>APPENDIX 5 - DEED OF VARIATION</b>	<b>36</b>



## DEFINITIONS

Applicant	Goodman Property Services (Aust) Pty Ltd, its successors in title or any other person acting upon this consent
ARI	Average Recurrence Level
BCA	Building Code of Australia
CEMP	Construction Environmental Management Plan
Certifying Authority	Means a person who is authorised by or under section 109D of the <i>Environmental Planning and Assessment Act 1979</i> to issue certificates
Concept Proposal	The Concept Proposal comprised of 395,880 m <sup>2</sup> of GFA with 376,295 m <sup>2</sup> of warehousing and 19,585 m <sup>2</sup> of ancillary office floor space, six development precincts with a total of 15 building envelopes, and conceptual lot layout, site levels, road layout, urban design controls, conceptual landscape designs and infrastructure arrangements.
Construction	The demolition of buildings or works, the carrying out of works, including bulk and detailed earthworks and erection of buildings and other infrastructure covered by this consent
Council	Penrith City Council
Day	The period from 7 am to 6 pm on Monday to Saturday, and 8 am to 6 pm on Sundays and Public Holidays
Department Development	Department of Planning and Environment The development as described in the EIS, RTS known as SSD 6917 for the Oakdale South Industrial Estate, approved by this Development Consent and as described in Schedule A
EEC	Endangered Ecological Communities
EIS	Environmental Impact Statement titled ' <i>Environmental Impact Statement, Oakdale South Estate - State Significant Development Application</i> ', prepared by Urban Advisory Services, dated 4 November 2015
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPA	Environment Protection Authority
EPL	Environment Protection Licence under the <i>Protection of the Environment Operations Act 1997</i>
Evening	The period from 6 pm to 10 pm
Feasible	Feasible relates to engineering considerations and what is practical to build
GFA	Gross floor area
Heavy vehicle	Any vehicle with a gross vehicle mass of 5 tonnes or more
Heritage	Encompasses both Aboriginal and historic heritage including sites that predate European settlement, and a shared history since European settlement such as shared associations in pastoral landscapes as well as associations linked with the mission period
Heritage Item	An item as defined under the <i>Heritage Act 1977</i> , and assessed as being of local, State and/ or National heritage significance, and/or an Aboriginal Object or Aboriginal Place as defined under the <i>National Parks and Wildlife Act 1974</i>
Incident	A set of circumstances that: <ul style="list-style-type: none"> <li>• causes or threatens to cause material harm to the environment; and/or</li> <li>• breaches or exceeds the limits or performance measures/criteria in this consent</li> </ul>
INP	NSW Industrial Noise Policy, EPA 2000
Minister	Minister for Planning
Mitigation	Activities associated with reducing the impacts of the Development prior to or during those impacts occurring
NDA	Net Developable Area
Night	The period from 10 pm to 7 am on Monday to Saturday, and 10 pm to 8 am on Sundays and Public Holidays
OEH	Office of Environment and Heritage
Operation	Use of warehouse buildings for packing, loading and distribution of consumer goods
Penrith DCP	Penrith City Council's Development Control Plan 2014

POEO Act	<i>Protection of the Environment Operations Act 1997</i>
Reasonable	Reasonable relates to the application of judgement in arriving at a decision, taking into account: mitigation benefits, cost of mitigation versus benefits provided, community views and the nature and extent of potential improvements
Regulation, the	<i>Environmental Planning and Assessment Regulation 2000</i>
RMS	Roads and Maritime Services
RTS	Response to Submissions titled ' <i>Response to Submissions Oakdale South Estate, SSDA 15_6917</i> ', prepared by Urban Advisory Services, dated May 2016
Secretary	The Secretary of the Department of Planning and Environment, or nominee
Site	Land referred to in Schedule A
Stage 1 DA	The Stage 1 Development Application comprising staged subdivision, site wide bulk and detailed earthworks, construction of estate wide internal roads, water, sewer, telecommunications, gas, stormwater infrastructure, estate wide landscaping and construction and operation of nine warehouse and distribution buildings across precincts 1, 4 and 5.
TfNSW	Transport for New South Wales
Transmission towers	Two high voltage transmission towers (stanchions 11 and 12) located in TransGrid's transmission line easement within the site
VENM	Virgin Excavated Natural Material as defined in the <i>Protection of the Environment Operations Act 1997</i>
VPA	The Oakdale Central and Oakdale South, Horsley Park Voluntary Planning Agreement between the Minister for Planning, Goodman Property Services (Aust) Pty Ltd, BGAI 6 Pty Ltd, BGMG 8 Pty Ltd and BGAI 2 Pty Ltd executed on 12 March 2015

## SCHEDULE B CONDITIONS OF CONSENT FOR CONCEPT PROPOSAL

### DETERMINATION OF FUTURE DEVELOPMENT APPLICATIONS

- B1. In accordance with section 83B(3) of the EP&A Act, subsequent stages of the Development are to be subject of future Development Applications.
- B2. Future Development Applications are to be generally consistent with the terms of Development Consent SSD 6917 as described in Schedule A, and subject to the conditions in Schedules B to F.

### STATUTORY REQUIREMENTS

- B3. The Applicant shall ensure that all licences, permits, and approvals/consents are obtained as required by law and maintained as required throughout the life of the Development. No condition of this consent removes the obligation for the Applicant to obtain, renew or comply with such licences, permits or approvals/consents.

### TERMS OF CONSENT

- B4. The Applicant shall carry out the Development in accordance with the:
- (a) EIS and RTS;
  - (b) the letter titled '*Re: SSD6917 Oakdale South Industrial Estate, TransGrid Easement Flood Extents*', ref 14-193-ATL-TRANSGRID-L2, prepared by At&I, dated 18 May 2016 and all appendices;
  - (c) the Supplementary Response to Submissions titled '*Re: Oakdale South Estate SSDA\_6917*' and all annexures, prepared by Urban Advisory Services, dated 12 July 2016;
  - (d) the letter report titled '*Oakdale South Estate, Operational Noise Contours, Adverse Weather Conditions*', prepared by SLR, dated 13 July 2016;
  - (e) the letter titled '*Re: Oakdale South Estate – State Significant Development Application Ref. 6917*' and all annexures, prepared by Urban Advisory Services, dated 8 September 2016;
  - (f) the development layout plans and drawings listed at **Appendix 1**; and
  - (g) the Management and Mitigation Measures (see **Appendix 3**).
- B5. If there is any inconsistency between the plans and documents referred to above, the most recent document shall prevail to the extent of the inconsistency. However, the conditions of this consent shall prevail to the extent of any inconsistency.
- B6. The Applicant shall comply with any reasonable requirement(s) of the Secretary arising from the Department's assessment of:
- (a) any reports, plans or correspondence that are submitted in accordance with this consent; and
  - (b) the implementation of any actions or measures contained within these reports, plans or correspondence.

### MODIFICATIONS TO THE CONCEPT PROPOSAL

- B7. Within one month of the date of this consent, the Applicant shall submit revised Concept Proposal drawings to the Secretary for approval. The revised plans shall:
- (a) reflect the revised design of building 5A and the 30 metre earth bund wall along the segments of the southern property boundary located to the east and west of the TransGrid easement in drawings:
    - i) SKC241, issue P1, titled '*SSDA Layout Southern Boundary Plan Option A*', prepared by At&I, dated 2 September 2016;
    - ii) SKC246, issue P1, titled '*SSDA Layout Southern Boundary Plan*' prepared by At&I, dated 6 September 2016; and
    - iii) SKC247, issue P1, titled '*SSDA Layout Southern Boundary Sections*', prepared by At&I, dated 6 September 2016;

- (b) incorporate a minimum landscape setback of 10 m for the full length of the eastern property boundary of the Development;
- (c) reflect the changes to the alignment of Estate Road 3 on the following drawings submitted in Appendix B of the RTS:
  - i) SKC195 titled 'Jacfin Connection Plan', issue P1, prepared by At&I dated 19/4/2016; and
  - ii) SKC197 titled 'Amended Road 03 Layout SSDA', issue P1, prepared by At&I, dated 19/4/2016; and
- (d) be consistent with the maximum GFAs and balance of GFAs within each of the six development precincts approved by this consent.

**Note:** This condition does not pre-empt any connection to the adjacent Jacfin site.

## LIMITS OF CONSENT

- B8. This consent shall lapse five (5) years from the date from which it operates; unless the Development associated with the Stage 1 DA has physically commenced on the land to which this consent applies before or on the date on which the consent would otherwise lapse under section 95 of the EP&A Act.
- B9. The following limits apply to the Concept Proposal for the Development:
- (a) the maximum GFA for the land uses in the Development shall not exceed the limits outlined in **Table 1** below;
  - (b) the access road to Precinct 6 through the TransGrid easement and the car park associated with building 6A in drawing OAK MP 02 (M), titled 'SSDA Masterplan' dated 18 April 2016 is not approved;
  - (c) no loading docks, delivery bays or heavy vehicle movements are permitted along the southern property boundary; and
  - (d) the loading dock, heavy vehicle route and associated hardstand along the southern elevation of building 5A are not approved.

**Table 1: GFA Maximum for Concept Proposal**

Land Use	Maximum GFA (m <sup>2</sup> )
Total General Warehousing	376,295
Total Office	19,585
<b>Total GFA</b>	<b>395,880</b>

- B10. The Applicant shall ensure the Development is consistent with the development controls in **Table 2** below:

**Table 2: Development Controls**

Development Aspect	Control
Southern Link Road Setback	20 m
Internal Estate Roads Setback	7.5 m
Rear and side boundary setbacks to development adjacent to the Oakdale South Estate, excluding the southern property boundary	5 m
Boundary setbacks along the southern property boundary of the Oakdale South Estate	30 m
Side boundary setbacks within the Oakdale South Estate	0 m, subject to compliance with fire rating requirements
Height	15 m
Minimum lot size	5,000 m <sup>2</sup>
Minimum frontage	40 m (excluding cul-de-sacs) 35 m minimum lot width at the building line.
Site coverage	Maximum of 65 per cent

**Note:** The site coverage control excludes building awnings.

- B11. Notwithstanding the controls listed in Table 2 in Condition B10 above, no warehouse building in Precinct 4, 5 or 6 shall exceed a ridgeline height of 13.7 m.
- B12. The Applicant shall lodge the proposed revisions to the Penrith Development Control Plan 2014 (Penrith DCP), included within the RTS and as amended by the limits of this Development Consent to Council within 6 months of the date of this Development Consent.
- B13. A maximum of one illuminated sign is permitted on each elevation of each warehouse building. All illuminated signage shall be orientated away from residential receivers.
- B14. Underground car parking is not permitted on-site.
- B15. The Applicant shall provide bicycle racks, and amenity and change room facilities for cyclists in accordance with *Planning Guidelines for Walking and Cycling* (December, 2004), NSW Department of Infrastructure, Planning and Natural Resources; Roads and Traffic Authority.

## LEGAL NOTICES

- B16. Any advice or notice to the consent authority shall be served on the Secretary.

## SUSTAINABILITY MANAGEMENT

- B17. Prior to the issue of a Construction Certificate for the first warehouse building in Stage 1, the Applicant shall submit a **Sustainability Strategy** for the Development to the Secretary for approval. The strategy shall:
- detail which ESD initiatives and energy efficiency measures outlined in the Sustainability Report prepared by SLR, revision 3, dated 16 September 2015 will be implemented on-site;
  - confirm whether the rainwater harvesting measures identified in the *Civil, Stormwater and Infrastructure Services Strategy*, rev 5, report no 14-193-R001, prepared by At&, dated September 2015 and letter titled 'SSD 6917 Oakdale South Industrial Estate, WSUD', ref: 14-193-ATL-L003, prepared by At&I, dated 18 April 2016 will be implemented on-site;
  - identify the total greenhouse gas savings estimated to be achieved in comparison to a base case development (i.e. a development constructed in accordance with the minimum requirements of Section J of the BCA) if the measures proposed under the Sustainability Strategy are implemented; and
  - include a calculation of water requirements and measures incorporated to reduce water use.

## NOISE LIMITS

- B18. The Applicant shall ensure the Development does not exceed the noise limits provided in **Table 3** below and the receiver locations (L1, L2 and L3 shown in **Appendix 4**):

**Table 3: Project Specific Noise Limits dB(A)**

Location	Day	Evening	Night	
	L <sub>Aeq</sub> (15 minute)	L <sub>Aeq</sub> (15 minute)	L <sub>Aeq</sub> (15 minute)	L <sub>A1</sub> (1 minute)
L1 North of Warragamba Pipeline	37	37	37	47
L2 Horsley Park	39	39	39	49
L3 Kemp's Creek, Mt Vernon, Jacfin and Capitol Hill	40	40	40	48

**Note:** Noise generated by the Development is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy.

## SCHEDULE C CONDITIONS TO BE MET IN FUTURE DEVELOPMENT APPLICATIONS

### DEVELOPMENT CONTRIBUTIONS

- C1. Future Development Applications shall identify whether the provisions of Council's 94 Contributions Plan or any voluntary planning agreement(s) apply to the site.

### ECOLOGICALLY SUSTAINABLE DEVELOPMENT

- C2. Future development applications shall demonstrate how the Development incorporates the principles of ESD in the design, construction and on-going operation of the Development.

### SUSTAINABILITY MANAGEMENT PLAN

- C3. Future Development Applications must demonstrate compliance with the Sustainability Strategy approved under Condition B17.

### TRAFFIC AND ACCESS

- C4. Future Development Applications shall be accompanied by a detailed assessment of the traffic, and transport impacts on the surrounding road network and intersection capacity, and shall detail provisions demonstrating that sufficient loading/unloading, access and car parking has been provided having regard to the car parking rates approved under Condition C5 below, and details to promote non-car travel modes. The traffic and transport impact assessment shall also have specific regard to the scope and timing of road infrastructure works in the surrounding road network.
- C5. Car parking shall be provided in accordance with the following rates, unless evidence is provided in accordance with Part C10, section 10.5.1, C1) f) of the Penrith DCP:
- (a) 1 space per 300 m<sup>2</sup> of warehouse GFA;
  - (b) 1 space per 40 m<sup>2</sup> of office GFA; and
  - (c) 2 disabled spaces for every 100 car parking spaces.
- C6. To ensure that potential conflicts between heavy vehicles and light vehicles are minimised, future Development Applications shall include details demonstrating satisfactory arrangements have been made to separate heavy and light vehicle movements.
- C7. To ensure that sustainable transport modes are supported, all future Development Applications proposing the construction of new warehouse buildings shall include a **Sustainable Travel Plan**. All Sustainable Travel Plans shall identify the pedestrian and cyclist facilities proposed to service the proposed warehouse buildings.

### BUSHFIRE PROTECTION

- C8. Future Development Applications for warehouse buildings shall demonstrate compliance with the relevant provisions of *Planning for Bushfire Protection (PBP)* and the asset protection zones recommended in the *Oakdale South Estate Bushfire Protection Assessment*, prepared by Australian Bushfire Protection Planners Pty Ltd, dated July 2015.
- C9. Future Development Applications for warehouse buildings 3A, 3C, 6A and 6B shall demonstrate compliance with *Bushfire Construction Standard - A.S. 3959 - 2009* as recommended in the *Oakdale South Estate Bushfire Protection Assessment*, prepared by Australian Bushfire Protection Planners Pty Ltd, dated July 2015.
- C10. Future Development Applications for the construction of buildings shall demonstrate compliance with the BCA, as relevant.

## **NOISE AND VIBRATION**

- C11. Future Development Applications shall include a noise assessment identifying the noise and vibration impacts associated with the construction and operation of future warehouse buildings. The assessment must also identify whether appropriate acoustic amenity can be achieved at surrounding sensitive receivers and identify all mitigation measures, such as noise barriers, necessary to achieve compliance with the requirements of the project specific noise levels identified in Condition B18.

## **WASTE**

- C12. Future Development Applications shall include a **Waste Management Plan** prepared in accordance with the with the EPA's *Waste Classification Guidelines* (DECCW, 2009).

## **OUTDOOR LIGHTING**

- C13. Future Development Applications are to ensure compliance with *AS/N21158.3:1999 Pedestrian Area (Category P) Lighting* and *A54282: 1997 Control of Obtrusive Effects of Outdoor Lighting*.

## **SIGNAGE**

- C14. Future Development Applications shall include details of any external advertising signage and demonstrate compliance with the requirements of Condition B13 and *State Environmental Planning Policy No. 64 - Advertising and Signage*.

## **REFLECTIVITY**

- C15. The visible light reflectivity from building materials used in the façades of the buildings shall not exceed 20 per cent and shall be designed so as to minimise glare. A report demonstrating compliance with these requirements is to be submitted to the satisfaction of the Certifying Authority for each future warehouse building prior to the issue of the relevant Construction Certificate.

## **ROAD UPGRADES**

- C16. Future Development Applications shall identify whether any road upgrades are required as a result of the development works.

## **STORMWATER MANAGEMENT**

- C17. All future Development Applications shall demonstrate that the design of the warehouse buildings, plant and equipment and hardstand areas are consistent with the:
- (a) *Civil, Stormwater and Infrastructure Services Strategy*, rev 5, report no 14-193-R001, prepared by At&, dated September 2015;
  - (b) *Flood Impact Assessment: Oakdale South Industrial Estate*, ref: 59915094, prepared by Cardno, dated 16 September 2015; and
  - (c) Letter report titled '*SSD6917 Oakdale South Industrial Estate, TransGrid Easement Flooding*', prepared by At&, ref: 14-193-ATL-L004, dated 18 April 2016 and all appendices.

## **SALINITY**

- C18. As part of future Development Applications, the Applicant shall implement the recommendations outlined in the Salinity Management Plan prepared by Pells Sullivan Meynink, reference PSM1541-113L Rev 3, dated 9 September 2015.

## **TRANSMISSION LINE EASEMENT**

- C19. As part of future Development Applications for the warehouse buildings located in Precincts 3 and 6, the Applicant shall demonstrate that the design of the warehouse buildings and hardstand allows accumulated stormwater to drain away from the TransGrid easement.

**SCHEDULE D**  
**CONDITIONS OF CONSENT FOR THE STAGE 1 DA**

**OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT**

- D1. In addition to meeting the specific performance criteria established under this consent, the Applicant shall implement all reasonable and feasible measures to prevent and/or minimise any harm to the environment that may result from the Development.

**DEVELOPMENT DESCRIPTION**

- D2. Development Consent is granted to the 'Stage 1 works' as described in Schedule A and the EIS, as amended by the RTS and the conditions contained in this Development Consent.

**DEVELOPMENT IN ACCORDANCE WITH PLANS AND DOCUMENTS**

- D3. The Applicant shall carry out the Development in accordance with the:
- (a) EIS and RTS;
  - (b) the letter titled '*Re: SSD6917 Oakdale South Industrial Estate, TransGrid Easement Flood Extents*', ref 14-193-ATL-TRANSGRID-L2, prepared by At&I, dated 18 May 2016 and all appendices;
  - (c) the Supplementary Response to Submissions titled '*Re: Oakdale South Estate SSDA\_6917*' prepared by Urban Advisory Services, dated 12 July 2016;
  - (d) the letter report titled '*Oakdale South Estate, Operational Noise Contours, Adverse Weather Conditions*', prepared by SLR, dated 13 July 2016;
  - (e) the letter titled '*Re: Oakdale South Estate – State Significant Development Application Ref. 6917*' and all annexures, prepared by Urban Advisory Services, dated 8 September 2016;
  - (f) drawings listed at **Appendix 2**; and
  - (g) the Management and Mitigation Measures (see **Appendix 3**).
- D4. If there is any inconsistency between the plans and documentation referred to above, the most recent document shall prevail to the extent of the inconsistency. However, the conditions of this consent prevail to the extent of any inconsistency.
- D5. The Applicant shall comply with any reasonable requirement(s) of the Secretary arising from the Department's assessment of:
- (a) any reports, plans or correspondence that are submitted in accordance with this consent; and
  - (b) the implementation of any actions or measures contained within these documents.
- D6. Within one month of the date of this consent, the Applicant shall submit revised architectural plans for the Stage 1 DA to the satisfaction of the Secretary. The revised plans shall:
- (a) be consistent earth bund wall along the southern property boundary and the revised design of building 5A as shown in the plans accompanying the letter titled '*Re: Oakdale South Estate – State Significant Development Application Ref. 6917*', prepared by Urban Advisory Services dated 8 September 2016; and
  - (b) be consistent with the maximum GFAs listed in Table 4 of this consent.

**LIMITS OF CONSENT FOR STAGE 1**

- D7. This consent lapses five (5) years after the date of determination, unless the Development has physically commenced on the land to which the consent applies before the date on which the consent would otherwise lapse under section 95 of the EP&A Act.
- D8. No building in Precincts 4 or 5 shall exceed a ridgeline height of 13.7 m.
- D9. This consent grants approval for the maximum GFAs for Precincts 1, 4 and 5 as detailed in **Table 4** below:



**Table 4: Maximum GFAs approved under Stage 1**

Precinct	Land Use	Maximum Total GFA (m <sup>2</sup> )
<b>Precinct 1</b>		
Lot 1A		21,949
Lot 1B		24,799
Lot 1C		28,108
Lot 1D		29,883
<b>TOTAL</b>		<b>104,739</b>
<b>Precinct 4</b>		
Lot 4A		16,676
Lot 4B		12,956
Lot 4C		18,624
<b>TOTAL</b>		<b>48,256</b>
<b>Precinct 5</b>		
Lot 5A		84,075
<b>TOTAL</b>		<b>84,075</b>
<b>Stage 1 GFA</b>	Warehousing	224,135
	Office	12,935
<b>TOTAL STAGE 1 GFA</b>		<b>237,070</b>

*Note: Lot 1A contains two separate warehouse buildings.*

## **PRESCRIBED CONDITIONS**

D10. The Applicant shall comply with all relevant prescribed conditions of Development Consent under Part 6, Division 8A of the Regulation.

## **STAGING**

D11. The Applicant may elect to construct and/ or operate the Development in stages. Where staging is proposed, the Applicant shall submit a **Staging Report** to the Secretary prior to the commencement of the first proposed stage. The Staging Report shall provide details of:

- (a) how the Development would be staged, including general details of work activities associated with each stage and the general timing of when each stage would commence; and
- (b) details of the relevant conditions of consent, which would apply to each stage and how these shall be complied with across and between the stages of the Development.

Where staging of the Development is proposed, these conditions of consent are only required to be complied with at the relevant time and to the extent that they are relevant to the specific stage(s).

*Note: These conditions do not relate to staged development within the meaning of section 83B.*

## **STAGED SUBMISSION OF PLANS OR PROGRAMS**

D12. With the approval of the Secretary, the Applicant may:

- (a) submit any strategy, plan or program required by this consent on a progressive basis; and/or
- (b) combine any strategy, plan or program required by this consent.

D13. If the submission of any strategy, plan or program is to be staged, then the relevant strategy, plan or program must clearly describe the specific stage to which the strategy, plan or program applies, the relationship of the stage to any future stages and the trigger for updating the strategy, plan or program. A clear relationship between the strategy, plan or program that is to be combined must be demonstrated.

## **EVIDENCE OF CONSULTATION**

- D14. Where consultation with any public authority is required by the conditions of this consent, the Applicant shall:
- (a) consult with the relevant public authority prior to submitting the required documentation to the Secretary, where required;
  - (b) submit evidence of this consultation as part of the relevant documentation required by the conditions of this consent to the Secretary; and
  - (c) include the details of any outstanding issues following this consultation upon submitting any documentation required by the conditions of this consent.

## **DISPUTE RESOLUTION**

- D15. In the event that a dispute arises between the Applicant and Council or a public authority, in relation to an applicable requirement in this consent or relevant matter relating to the Development, either party may refer the matter to the Secretary for resolution. The Secretary's determination of any such dispute shall be final and binding on the parties.

## **EASEMENTS**

- D16. The creation of easements for services, rights of carriageway and restrictions as to user are applicable under section 88E of the *Conveyancing Act 1919*, including (but not limited to) the following:
- (a) easements for sewer, water supply and drainage over all public services/infrastructure on private property;
  - (b) drainage easements are to be placed over all subsurface drains and inter allotment drainage, benefiting and burdening the property owners;
  - (c) maintenance of the subsurface drains is to be included in the 88E Instrument;
  - (d) restriction as to user and positive covenant relating to the:
    - (i) on-site detention system/s;
    - (ii) stormwater pre-treatment system/s; and
    - (iii) overland flow path works;
  - (e) a restriction to user for each lot requiring that at the commencement of building works, and in perpetuity, each affected lot shall be managed, in accordance with the drawing OAK MP 13 (C) titled '*Fire Protection Plan*', prepared by SBA Architects, dated 4 September 2015, to be endorsed by Fire and Rescue NSW and approved by the Secretary prior to issue of the Construction Certificate for Stage 1.

Any section 88E Instrument creating restrictions as to user, rights of carriageway or easements which benefit Council shall contain a provision enabling such restrictions, easements or rights of way to be revoked, varied or modified only with the consent of Council.

## **STATUTORY REQUIREMENTS**

- D17. The Applicant shall ensure that all necessary licences, permits and approvals are obtained and kept up-to-date as required throughout the life of the Development. No condition of this consent removes the obligation for the Applicant to obtain, renew or comply with such licences, permits or approvals.

## **CONSTRUCTION CERTIFICATE REQUIRED**

- D18. Prior to the commencement of any building and/or construction works, the Applicant must obtain a Construction Certificate from the Certifying Authority.

## **STRUCTURAL ADEQUACY AND CERTIFICATION**

- D19. The Applicant shall ensure that:
- (a) all new buildings and structures, and any alterations or additional to existing buildings and structures are constructed in accordance with the relevant requirements of the BCA; and

- (b) structural certification, from a suitably qualified engineer is provided for all structures, box culverts and pits greater than two metres in depth.

D20. Under Part 4A of the EP&A Act, the Applicant is required to obtain construction and occupation certificates for the proposed building works. Part 8 of the Regulation sets out the requirements for the certification of the Development.

#### **UTILITIES AND SERVICES**

D21. Prior to the construction of any utility works associated with the Development, the Applicant shall:

- (a) obtain relevant approvals from service providers; and
- (b) obtain written approval from Council prior to installing any utility lead in services within a public road within the Development site.

D22. Prior to the operation of the Development, the Applicant shall obtain a compliance certificate for water and sewerage infrastructure servicing of the site from Sydney Water Corporation under Section 73 of the *Sydney Water Act 1994*.

#### **PROTECTION OF PUBLIC INFRASTRUCTURE**

D23. Prior to the commencement of construction, the Applicant shall:

- (a) prepare a dilapidation report of the public infrastructure in the vicinity of the site (including roads, gutters and footpaths); and
- (b) submit a copy of this report to the Secretary and Council.

D24. The Applicant shall:

- (a) repair, or pay the full costs associated with repairing any public infrastructure that is damaged by the Development; and
- (b) relocate, or pay the full costs associated with relocating any infrastructure that needs to be relocated as a result of the Development.

#### **COMPLIANCE**

D25. The Applicant shall ensure that employees, contractors and sub-contractors are aware of, and comply with, the conditions of this consent relevant to their respective activities.

D26. The Applicant shall be responsible for any environmental impacts resulting from the actions of all persons that it invites onto the site, including contractors, sub-contractors and visitors.

#### **OPERATION OF PLANT AND EQUIPMENT**

D27. The Applicant shall ensure that all plant and equipment used for the Development is:

- (a) maintained in a proper and efficient condition; and
- (b) operated in a proper and efficient manner.

D28. The Applicant shall not operate any mobile plant and equipment which exceeds a height of 4.2 metres within the TransGrid transmission line easement. All construction plant and equipment that will operate within the transmission line easement shall be fitted with an earthing trail.

#### **DEVELOPER CONTRIBUTIONS**

D29. The Applicant shall provide all monetary contributions and/or works-in-kind under section 94EF of the EP&A Act, in accordance with the Voluntary Planning Agreement entered into between the Minister for Planning and Goodman Property Services (Aust) Pty Ltd, BGAI 6 Pty Ltd, BGMG 8 Pty Ltd, and BGAI 2 Pty Limited and executed on 12 March 2015 (VPA), as varied by the deed of variation referred to in condition D30 and as attached at Appendix 5.

D30. Within 30 Business Days of the date this Development Consent is approved, the Applicant must enter into a deed of variation with the Minister to vary the terms of the planning agreement

executed on 12 March 2015 by the Minister for Planning ABN 38 755 709 681, Goodman Property Services (Aust) Pty Ltd ACN 088 981 793, BGAI 6 Pty Ltd ACN 128 775 799, BGMG 8 Pty Ltd ACN 161 602 768 and BGAI 2 Pty Limited ACN 120 605 718 under section 93F of the *Environmental Planning and Assessment Act 1979*. The deed of variation must be in the terms of the written offer made by the Applicant to the Minister dated 12 September 2016, in connection with SSD 6917 and as attached at Appendix 5.

## **SUBDIVISION**

D31. The Applicant shall subdivide the site generally in accordance with the subdivision plan OAK MP 06 (G) titled '*Indicative Ultimate Lot Layout*', prepared by SBA Architects, dated 18/05/2016.

---

## SCHEDULE E ENVIRONMENTAL PERFORMANCE AND MANAGEMENT

### TRAFFIC AND ACCESS

#### Construction Traffic Management Plan

- E1. Prior to the commencement of construction, the Applicant shall prepare a **Construction Traffic Management Plan** (CTMP) for the Development to describe the management of traffic and access arrangements during construction. The CTMP shall at a minimum:
- (a) be prepared by a suitably qualified and experienced expert;
  - (b) be prepared in consultation with RMS, TransGrid and Council;
  - (c) be approved by the Secretary prior to the commencement of construction;
  - (d) detail the number and frequency of truck movements, size of trucks, vehicle routes and hours of construction;
  - (e) provide the estimated duration and staging of construction works;
  - (f) detail the access and parking arrangements for construction vehicles to ensure road and site safety, and demonstrate that there will be no queuing on the public road network;
  - (g) demonstrate how construction will be managed to ensure TransGrid can safely operate and maintain its transmission towers;
  - (h) outline when and where temporary traffic barriers will be erected to ensure the construction works will not affect the integrity TransGrid's transmission towers;
  - (i) demonstrate that access to private property will be maintained at all times; and
  - (j) include a Driver Code of Conduct that details traffic management measures to be implemented during construction and operation to:
    - (i) minimise the impacts of the Development on the local and regional road network;
    - (ii) minimise conflicts with other road users; and
    - (iii) ensure truck drivers use the specified routes.
- E2. The CTMP must be implemented for the full duration of the construction works.

#### Operational Traffic Management Plan

- E3. Prior to the issue of an Occupation Certificate for each building, the Applicant shall prepare and submit an **Operational Traffic Management Plan** (OTMP) for the development in consultation with Council and TfNSW, to the Secretary for approval. The OTMP must at a minimum:
- (a) be prepared by a suitably qualified and experienced expert;
  - (b) estimate the numbers and frequency of truck movements, sizes of trucks, vehicle routes and hours of operation;
  - (c) detail the access and parking arrangements for operational vehicles to ensure road and site safety, and demonstrate that there will be no queuing on the public road network;
  - (d) include detail of proposed truck parking to ensure this is managed in an orderly manner; and
  - (e) include a Driver Code of Conduct that details traffic management measures to be implemented during operation to:
    - (i) minimise impacts of the development on the local and regional road network;
    - (ii) minimise conflicts with other road users;
    - (iii) ensure truck drivers use specified routes and minimise traffic noise during night-time hours; and
    - (iv) manage/control pedestrian movements.
- E4. The Applicant must ensure that the OTMP (as revised and approved by the Secretary from time to time) is implemented for the life of the development.

#### Parking Provision

- E5. The Applicant shall provide a minimum of 1,256 on-site car parking spaces (including at least 26 spaces for people with disabilities at a rate of two per 100 parking spaces) for use during operation of the Development, distributed as shown in **Table 5** below.

**Table 5: Precinct Car Parking Provisions for Stage 1**

Precinct	Building	Minimum Car Parking Requirements
1	A	128
	B	143
	C	157
	D	169
4	A	122
	B	71
	C	140
5	A	326
<b>TOTAL</b>		<b>1,256</b>

### **Operating Conditions**

- E6. The Applicant shall ensure that:
- (a) all trucks entering or leaving the site with loads have their loads covered; and
  - (b) trucks associated with the Development do not track dirt onto the public road network.

### **Driveways and Retaining Walls**

- E7. As part of the relevant Construction Certificate for each warehouse building, the Applicant shall demonstrate that:
- (a) no driveways associated with warehousing and distribution buildings, water tanks and pump stations are located within the E2 zone; and
  - (b) all retaining walls are wholly located within private property and do not encroach into the road reserves.

### **Internal Roads, Queuing and Parking**

- E8. The Applicant shall ensure that:
- (a) internal roads, driveways and parking associated with the Development are constructed and maintained in accordance with the relevant standards and the latest versions of AS 2890.1, AS 2890.2 and AS/NZS 2890.6;
  - (b) the swept path of the longest vehicle entering and exiting the site, as well as manoeuvrability through the site, must be in accordance with *AUSTROADS Design Vehicles and Turning Path Templates*;
  - (c) the Development does not result in any vehicles queuing on the public road network;
  - (d) heavy vehicles associated with the Development do not park or stand on local roads or footpaths in the vicinity of the site;
  - (e) all vehicles are wholly contained on-site before being required to stop;
  - (f) all vehicles enter and exit the site in a forward direction;
  - (g) all loading and unloading of materials is carried out on-site; and
  - (h) the loading areas and turning areas in the car park are kept clear of any obstacles, including parked vehicles, at all times.
- E9. The Applicant shall provide bicycle racks, and amenity and change room facilities for cyclists in accordance with *Planning Guidelines for Walking and Cycling* (December 2004), NSW Department of Infrastructure, Planning and Natural Resources; Roads and Traffic Authority.

### **Roads Act Approval**

- E10. Prior to the commencement of construction works for any estate road(s) that connects to the existing public road network, the Applicant shall obtain approval for the works under section 138 of the *Roads Act 1993*.

## Road Design

E11. Final road design plans shall be prepared by a qualified practicing Civil Engineer and submitted to the satisfaction of Council prior to the commencement of construction of the estate roads. The road design plans shall demonstrate compliance with Council's engineering standards.

## Dedication - Internal Access Roads

E12. Following the issue of a Subdivision Certificate, the internal access roads shall be dedicated to the relevant roads authority. Prior to any dedication, the Applicant shall ensure that the construction of the internal access roads have been completed to the satisfaction of the relevant roads authority. Despite any formal dedication, the Applicant shall remain responsible for the maintenance of the road for the duration of the maintenance period, being 12 month from the date of dedication of the road to the roads authority.

## WATER

### Stormwater

E13. Prior to the commencement of construction, the Applicant shall prepare a **Stormwater Management Plan (SMP)** to the satisfaction of the Secretary. The SMP shall:

- (a) be prepared by a suitably qualified engineer prior to the commencement of the relevant works in consultation with Council;
- (b) be prepared generally in accordance with the:
  - (i) Penrith DCP - C3 Water Management;
  - (ii) Council's *Water Sensitive Urban Design (WSUD) Policy*;
  - (iii) Council's engineering design guidelines;
  - (iv) *Civil, Stormwater and Infrastructure Services Strategy*, rev 5, report no 14-193-R001, prepared by At&, dated September 2015;
  - (v) *Flood Impact Assessment: Oakdale South Industrial Estate*, ref: 59915094, prepared by Cardno, dated 16 September 2015;
  - (vi) Letter report titled '*SSD6917 Oakdale South Industrial Estate, TransGrid Easement Flooding*', prepared by At&, ref: 14-193-ATL-L004, dated 18 April 2016 and all appendices; and
  - (vii) OEH's *Managing Urban Stormwater: Soils and Construction Guideline*;
- (c) identify all building and roadworks to be constructed relevant to the Construction Certificate that the works relate to;
- (d) incorporate design plans and accompanying design notes, including any rainwater harvesting;
- (e) incorporate bio-swales, gross pollutant traps and stormwater pollutant filters;
- (f) describe the measures that would be implemented to maintain this infrastructure during the life of the Development, including:
  - (i) a program for maintenance and monitoring to ensure stormwater quantity and quality is maintained, and detail the procedures to be undertaken if any non-compliance is detected; and
  - (ii) all contractor's cleaning reports or certificates that will be provided to Council over the life of the Development; and
- (g) ensure all selected and maintained to ensure compliance with the pollutant removal targets in Part C3 – Water Management of the Penrith DCP.

E14. The Applicant shall carry out the Development in accordance with the SMP as approved by the Secretary (and as revised and approved by the Secretary from time to time), unless otherwise agreed by the Secretary.

E15. Whilst bulk and detailed earthworks are occurring on site, the Applicant shall ensure all bio-retention basins are utilised as temporary sediment control basins. The bio-retention basins shall not be converted into the final/ultimate basins until such time as all building and construction works within the relevant stage shown in drawing OAK MP 09 (F) titled '*Infrastructure Staging Plan (Indicative)*', prepared by SBA architects, dated 18 April 2016 are 90 per cent complete and the area within the relevant stage is stabilised.

- E16. The Applicant shall ensure that all temporary and permanent bio-retention basins, inclusive of the weir and berm levels, are located above the 100 year Average Recurrence Interval (ARI) flood level.
- E17. The Applicant shall ensure that any batter slopes or batter slopes of bio-retention basins steeper than 1 in 5 are vegetated. Where there are any non-vegetated batter slopes steeper than 1 in 5, the Applicant shall design the batter slopes to the satisfaction of Council.
- E18. Prior to the issue of any Construction Certificate for bulk or detailed earthworks, the Applicant shall provide the MUSIC modelling for the Development to Council.
- E19. The Applicant shall provide a 3 m wide access track around all stormwater basins to permit maintenance.
- E20. The Applicant shall maintain all bio-retention basins on-site in perpetuity.

### **Works-as-Executed Drawings – Stormwater Drainage**

- E21. On completion of the drainage works for each Lot under the Stage 1 DA, and prior to operation of any warehouse building, works-as-executed (WAE) plans certified by a Registered Surveyor shall be submitted to Council and the Department demonstrating that the drainage works have been completed in accordance with the approved plans. All relevant details are to be on the WAE plans and shall be marked in red on a copy of the original plan approved at the Construction Certificate stage.

### **Flooding**

- E22. All finished floor levels shall achieve a minimum 500 mm freeboard from the 100 year ARI flood level.

### **SOILS**

#### **Imported Soil**

- E23. Prior to commencing bulk earthworks, the Applicant shall prepare and submit a **Fill Importation Protocol**. The Protocol shall:
- (a) be prepared in consultation with Council; and
  - (b) ensure that any material imported and used as fill on the site:
    - (i) is VENM as defined in Schedule 1 of the POEO Act; or
    - (ii) meets the requirements of the EPA's *Excavated Natural Material Order 2014*, under the *Protection of the Environment Operations (Waste) Regulation 2014*.
- E24. The Applicant shall implement the Fill Importation Protocol approved under Condition E23 for the duration of bulk and detailed earthworks, and shall:
- (a) keep accurate records of the volume and type of fill to be used; and
  - (b) make these records available to the Secretary upon request.

#### **Erosion and Sediment Control**

- E25. During construction works, the Applicant shall implement and maintain best practice erosion and sediment control measures on-site, in accordance with the relevant requirements in the latest version of the *Managing Urban Stormwater: Soils and Construction Guideline* (Landcom).

#### **Salinity**

- E26. During construction works, the Applicant shall implement the recommendations outlined in the Salinity Management Plan prepared by Pells Sullivan Meynink, reference PSM1541-113L Rev 3, dated 9 September 2015.



## NOISE AND VIBRATION

### Construction Noise and Vibration

- E27. Construction activities associated with the Development shall be undertaken during the following hours:
- (a) 7:00 am to 6:00 pm Mondays to Fridays, inclusive; and
  - (b) 8:00 am to 1:00 pm Saturdays; and
  - (c) at no time on Sundays or public holidays.
- E28. Construction works outside of the standard construction hours identified in Condition E27 may be undertaken in the following circumstances:
- (a) construction works that generate noise that is:
    - (i) no more than 5 dB(A) above rating background level at any residence in accordance with the *Interim Construction Noise Guideline* (Department of Environment and Climate Change, 2009); and
    - (ii) no more than the noise management levels specified in Table 3 of the *Interim Construction Noise Guideline* (Department of Environment and Climate Change, 2009) at other sensitive receivers; or
  - (b) for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or
  - (c) where it is required in an emergency to avoid the loss of lives, property and/or to prevent environmental harm; or
  - (d) works approved through an EPL, or by the Secretary; or
  - (e) works as approved through the out-of-hours work protocol outlined in the CEMP as required by Condition F1.
- E29. Activities resulting in impulsive or tonal noise emission (such as rock breaking, rock hammering, pile driving) shall only be undertaken:
- (a) between the hours of 8:00 am to 5:00 pm Monday to Friday;
  - (b) between the hours of 8:00 am to 1:00 pm Saturday; and
  - (c) in continuous blocks not exceeding three hours each with a minimum respite from those activities and works of not less than one hour between each block.

For the purposes of this condition 'continuous' includes any period during which there is less than a one hour respite between ceasing and recommencing any of the work the subject of this condition.

- E30. The Development shall be constructed with the aim of achieving the following construction vibration goals:
- (a) for structural damage, the vibration limits set out in the German Standard *DIN 4150-3: Structural Vibration - effects of vibration on structures*; and
  - (b) for human exposure, the acceptable vibration values set out in the *Environmental Noise Management Assessing Vibration: A Technical Guideline* (Department of Environment and Conservation, 2006).
- E31. Wherever practical, piling activities must be undertaken using quieter alternative methods than impact or percussion piling, such as bored piles or vibrated piles.
- E32. Where feasible and reasonable, noise mitigation measures shall be implemented at the start of construction (or at other times during construction) to minimise construction noise impacts.

### Construction Noise Limits

- E33. The Development shall be constructed with the aim of achieving the construction noise management levels detailed in the *Interim Construction Noise Guideline* (Department of Environment and Climate Change, 2009). All feasible and reasonable noise mitigation measures shall be implemented and any activities that could exceed the construction noise management levels shall be identified and managed in accordance with the management and mitigation measures in the RTS.

*Note: The Interim Construction Noise Guideline identifies 'particularly annoying' activities that require the addition of 5dB(A) to the predicted level before comparing to the construction NML.*

### Construction Noise Management Plan

- E34. The Applicant shall prepare a **Construction Noise Management Plan (CNMP)** for the Development to manage high noise generating works. The CNMP shall:
- be prepared by a suitably qualified and experienced noise expert;
  - be approved by the Secretary prior to the commencement of construction;
  - describe procedures for achieving the noise management levels in the EPA's *Interim Construction Noise Guideline 2009*;
  - describe the measures to be implemented to manage high noise generating works such as piling, in close proximity to sensitive receivers;
  - include strategies that have been developed with the community for managing high noise generating works;
  - describe the community consultation undertaken to develop the strategies in e) above; and
  - include a complaints management system that would be implemented for the duration of the Development.

### Operational Noise Limits

- E35. The Applicant shall ensure that the noise generated by the operation of the Development does not exceed the noise limits set out in **Table 6** below.

**Table 6: Maximum Allowable Operational Noise Limits**

Location	Day	Evening	Night	
	L <sub>Aeq</sub> (15 minute)	L <sub>Aeq</sub> (15 minute)	L <sub>Aeq</sub> (15 minute)	L <sub>A1</sub> (1 minute)
L1 North of Warragamba Pipeline	37	37	37	47
L2 Horsley Park	39	39	39	49
L3 Kemps Creek, Mt Vernon, Jacfin and Capitol Hill	40	40	40	48

*Note: Noise generated by the Development is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy.*

### Noise Walls

- E36. The Applicant shall construct the noise walls shown in the RTS, prior to the commencement of operation of any part of the Development.

*Note: If construction of noise walls is to be staged, the Applicant shall submit a noise verification study to the satisfaction of the Secretary to demonstrate that the Development will comply with the noise limits in Condition E35 at all times.*

### Noise Verification – External Mechanical Plant

- E37. Prior to the construction of each warehouse building containing external mechanical plant, the Applicant shall prepare a **Noise Validation Report (NVR)** to demonstrate that operation of the mechanical plant meets the noise limits in Condition E35. The NVR shall:
- be prepared by an appropriately qualified and experienced noise expert;
  - be approved by the Secretary, prior to the installation of any external mechanical plant;
  - demonstrate that the location, design and operation of external mechanical plant would achieve the noise limits in Condition E35;
  - describe any acoustic treatments required to ensure compliance with the noise limits in Condition E35; and
  - if necessary, recommend, prioritise and implement measures to improve noise controls on-site to ensure the Development meets relevant criteria and protects off-site receivers from excess noise.

## Noise Management

- E38. The Applicant shall:
- (a) implement best management practice, including all reasonable and feasible measures to prevent and minimise noise and vibration during construction and operation of the Development (including low frequency noise and traffic noise);
  - (b) minimise the noise impacts of the Development during adverse meteorological conditions when noise criteria do not apply;
  - (c) maintain the effectiveness of any noise suppression equipment on plant at all times and ensure defective plant is not used operationally until fully repaired; and
  - (d) regularly assess noise monitoring data and relocate, modify and/or stop operations to ensure compliance with the relevant conditions of this consent.

## ABORIGINAL HERITAGE

- E39. In the event that impacts to Aboriginal Heritage Information Management System (AHIMS) sites 45-5-4528 (Oakdale South AS 3) and 45-5-4529 (Oakdale South AS 4) cannot be avoided, the Applicant shall undertake a salvage excavation prior to the commencement of bulk earthworks at the two AHIMS sites. In undertaking the salvage excavation, the Applicant shall prepare a salvage excavation methodology in consultation with the OEH and Aboriginal stakeholder groups.
- E40. The Applicant shall provide a copy of the final excavation report(s) required under Condition E39 to the Secretary and Council.
- E41. If any Aboriginal archaeological objects are uncovered which were not previously identified in the *Archaeological Test Excavation Report*, prepared by Artefact Heritage and dated September 2015 during construction works, the Applicant shall cease works immediately and notify the OEH and obtain any necessary approvals to continue the works. The Applicant shall comply with any request made by the OEH to cease works for the purpose of archaeological recording.

## EUROPEAN HERITAGE

### Archaeological Salvage

- E42. Prior to the commencement of bulk earthworks in Precinct 1, the Applicant shall:
- (a) submit an amended Archaeological Research Design and Excavation Methodology to take into account the potential State significant archaeology on-site to the satisfaction of the Heritage Council;
  - (b) nominate an Excavation Director to oversee all salvage excavation on-site. The Excavation Director shall be endorsed by the Heritage Council prior to any salvage excavation works occurring on-site;
  - (c) undertake a full salvage excavation of all relics associated with the Lochwood Estate, including outbuildings and supporting elements; and
  - (d) ensure that any salvaged relics are retained by the land owner in a nominated repository on-site.
- E43. Within 12 months of the completion of the archaeological investigation on-site site, the Applicant shall prepare a **Final Archaeological Excavation Report** in accordance with Heritage Council guidelines. The Final Archaeological Excavation Report shall be submitted to the Secretary and a copy provided to the Heritage Council of NSW and Council.

### Unexpected Finds Protocol

- E44. If substantial intact archaeological deposits and/or State significant relics which were not previously identified in the *Results of Non-Aboriginal Archaeological Test Excavation*, prepared by Artefact Heritage, dated September 2015, are discovered during construction, the Applicant shall:
- (a) immediately cease works in the affected area(s) and contact a suitably qualified and experienced archaeologist to assess the finds;

- (b) not commence work until the Heritage Council has confirmed works may continue within the affected area(s);
- (c) address any request for information made by the Heritage Council, and provide copies of this information to the Secretary; and
- (d) update any relevant plans or strategies, if required by the Secretary.

### **Interpretation Plan**

- E45. Within 12 months of the completion of the Stage 1 DA works, the Applicant shall prepare Heritage Interpretation Plan addressing Aboriginal Cultural Heritage, the former Lochwood Estate and Lenore Closer Solder Settlement Scheme for the Secretary's approval. The Heritage Interpretation Plan shall be prepared in consultation with the Heritage Council and the OEH and include information obtained through the historical research and archaeological investigations of the subject land (Aboriginal and historic) to enable future users of the site to understand the sites history.

### **BIODIVERSITY**

#### **Offsets**

- E46. Within 12 months of the date of this consent, or as otherwise agreed by the Secretary, the Applicant shall retire 160 ecosystem credits to offset the removal of native vegetation on-site.

#### **Vegetation Management Plan**

- E47. Prior to the issue of any Construction Certificate that includes creek realignment works, the Applicant shall submit a revised **Vegetation Management Plan (VMP)**. The revised VMP shall;
- (a) be submitted to the satisfaction of the Secretary;
  - (b) be prepared in consultation with the OEH;
  - (c) remove any geographic overlap with Figure 4.3 in the *Biodiversity Offset Strategy*, prepared by Cumberland Ecology, dated 16 September 2015; and
  - (d) be consistent with the management measures and recommendations of the draft Vegetation Management Plan prepared by EcoHort Pty Ltd, dated 31 August 2015.

*Note: The intent of this condition is to ensure the 5 year vegetation management restoration/rehabilitation measures proposed under the VMP are not included within the proposed biobank area to avoid precluding the creation of the proposed biobank site under clause 11 of the Threatened Species Conservation (Biodiversity Banking) Regulation 2008.*

### **AIR QUALITY**

- E48. The Applicant shall:
- (a) implement best management practice, including all reasonable and feasible mitigation measures to prevent and minimise dust and odour emissions from operation of the Development; and
  - (b) minimise any visible off-site air pollution that occurs as a result of construction and operation the Development.

#### **Dust Minimisation**

- E49. The Applicant shall implement all reasonable and feasible measures to minimise dust and odour emissions generated during demolition, earthworks, construction and operation of the Development.
- E50. During construction, the Applicant shall ensure that:
- (a) exposed surfaces and stockpiles are suppressed by regular watering;
  - (b) all trucks entering or leaving the site with loads have their loads covered;
  - (c) trucks associated with the Development do not track dirt onto the public road network;
  - (d) public roads used by these trucks are kept clean; and

- (e) land stabilisation works are carried out progressively on-site to minimise exposed surfaces.

## ENERGY EFFICIENCY AND GREENHOUSE GASES

- E51. Prior to the issue of a Construction Certificate for each warehouse building, the Applicant shall submit a **Sustainability Management Plan** outlining the specific sustainability measures that will be installed in each warehouse. Each plan must:
- (a) be approved by the Secretary;
  - (b) be consistent with the Sustainability Strategy approved under Condition B17;
  - (c) confirm the total greenhouse gas savings achieved in comparison to a base case development (i.e. a development constructed in accordance with the minimum requirements of Section J of the BCA);
  - (d) include a calculation of water requirements and measures incorporated to reduce water use;
  - (e) include a program to monitor and report annually on the efficiency of the measures implemented; and
  - (f) ensure the Development will continue to operate at industry best practice over time.
- E52. The Applicant shall include all sustainability measures outlined in the approved Sustainability Management Plan(s) in the Construction Certificate drawings for each warehouse building prior to the issue of any Occupation Certificate.

## HAZARDS AND RISK

### Dangerous Goods

- E53. The storage of Dangerous Goods shall not exceed the thresholds outlined in the *Hazardous and Offensive Development Application Guidelines: Applying SEPP 33*.
- E54. Dangerous Goods, as defined by the *Australian Dangerous Goods Code*, shall be stored and handled strictly in accordance with all relevant Australian Standards.

### Bunding

- E55. The Applicant shall store all chemicals, fuels and oils used on-site in appropriately banded areas in accordance with the requirements of all relevant Australian Standards, and/or the EPA's *Storing and Handling of Liquids: Environmental Protection – Participants Handbook*.

## CONTAMINATION

- E56. Prior to the commencement of bulk or detailed earthworks, the Applicant shall prepare an **Unexpected Finds Protocol** to ensure that potentially contaminated material is appropriately managed. Any material identified as contaminated shall be disposed off-site, with the disposal location and results of testing submitted to Council, prior to its removal from the site.
- E57. The Applicant shall implement the Unexpected Finds Protocol developed under Condition E56 for the duration of works.

## WASTE

### Classification

- E58. The Applicant shall ensure that any waste generated on the site is classified in accordance with the EPA's *Waste Classification Guidelines* (DECCW, 2009), or any superseding document and disposed of to a facility that may lawfully accept the waste.

## Waste Management

- E59. The Applicant shall implement the Waste Management Plan at Appendix W of the EIS for the duration of construction works and for the operational life of the Development.
- E60. For the life of the Development, the Applicant shall:
- monitor the amount of waste generated by the Development;
  - investigate ways to minimise waste generated by the Development; and
  - implement reasonable and feasible measures to minimise waste generated by the Development in accordance with the EPA's *NSW Waste Avoidance and Resource Recovery Strategy 2014-2021*.

## VISUAL AMENITY

### Landscaping

- E61. Prior to the commencement of construction, the Applicant shall prepare and submit a **Landscape Management Plan** (LMP) to the satisfaction of the Secretary. The LMP shall:
- be prepared in consultation with Council and submitted to the Secretary;
  - ensure landscaping is undertaken in accordance with the Landscape Plans prepared by Site Image contained within the EIS as amended by the RTS and the letter titled 'Re: *Oakdale South Estate – State Significant Development Application Ref. 6917*' and all annexures, prepared by Urban Advisory Services, dated 8 September 2016; and
  - detail the management measures to be implemented for the maintenance of the perimeter landscape treatments along the southern and eastern boundaries, including the earth bund wall along the southern property boundary of the site, for the life of the Development.
- E62. The Applicant shall install the perimeter landscape treatments detailed in the RTS and the letter titled 'Re: *Oakdale South Estate – State Significant Development Application Ref. 6917*' and all annexures, prepared by Urban Advisory Services, dated 8 September 2016 so they provide:
- a minimum depth of 30 m along the section of the southern property boundary to the east and west of the TransGrid easement; and
  - a minimum depth of 10 m for the full length of the eastern property boundary.
- E63. Where practicable and feasible, the Applicant shall implement the perimeter landscape treatments prior to the commencement of construction, to ensure sufficient time for the establishment of a landscape buffer.
- E64. Within three months of the commencement of operation, other than the perimeter landscape treatments, the Applicant shall provide evidence to the satisfaction of the Secretary, demonstrating that the landscaping has been implemented in accordance with the LMP.
- E65. The Applicant shall maintain all site perimeter landscaping, in accordance with the approved LMP for the life of the Development.

### Lighting

- E66. The Applicant shall ensure that the lighting associated with the Development:
- complies with the latest version of *AS 4282 (INT) - Control of Obtrusive Effects of Outdoor Lighting*; and
  - is mounted, screened and directed in such a manner that it does not create a nuisance to surrounding properties or the public road network.

### Signage and Fencing

- E67. All signage and fencing shall be erected in accordance with the Development plans included in the EIS as amended by the RTS.

**Note:** *This condition does not apply to temporary construction-related and safety-related signage.*

- E68. Prior to the installation of signage on each warehouse building, the Applicant shall submit detailed plans of the façade signage and elevations of each warehouse building to the satisfaction of the Secretary, demonstrating the signage complies with the requirements of Condition B13.

### **Reflectivity**

- E69. The visible light reflectivity from building materials used in the facades of the buildings shall not exceed 20 per cent and shall be designed so as to minimise glare. A report demonstrating compliance with these requirements is to be submitted to the satisfaction of the Certifying Authority prior to the issue of the relevant Construction Certificate.

## **TRANSMISSION REQUIREMENTS**

### **Impacts During Construction and Operation**

- E70. To ensure that the integrity of the TransGrid transmission towers (including associated land and infrastructure) are not adversely affected during operation, the Applicant shall undertake the following works in consultation with TransGrid and to the satisfaction of the Secretary:
- (a) install and maintain traffic barriers along trafficable areas adjacent to the TransGrid site frontage, to restrain B-double vehicles, generally in accordance with any road safety audit outcomes and the relevant Austroad and RMS design standards; and
  - (b) ensure that all activities associated with the operation of the Development are undertaken in a manner that does not restrict TransGrid from operating and maintaining its transmission towers.
- E71. The Applicant shall ensure a 25 m horizontal clearance is maintained from each transmission tower leg at all times during construction and operation.
- E72. The Applicant shall notify TransGrid prior to any amendment or modifications to the proposed Development and obtain written approval from TransGrid for any amended or modified encroachment into the easement

### **Drainage**

- E73. Prior to the issue of any Construction Certificate for any infrastructure works within 30 m of the TransGrid transmission line easement, the Applicant shall:
- (a) design the easement drainage in consultation with and to the satisfaction of TransGrid, prior to the commencement of bulk or detailed earthworks adjacent to the easement; and
  - (b) provide details of the final easement drainage designs endorsed by TransGrid to the Secretary.
- E74. Prior to the issue of any Construction Certificate of any warehouse building adjacent to the TransGrid easement, the Applicant shall submit revised design drawings prepared in consultation with TransGrid demonstrating that stormwater accumulated on-site is directed away from the TransGrid easement, to the satisfaction of the Secretary.

### **Earthworks and Construction**

- E75. All works are to be carried out during construction in accordance with the NSW WorkCover *Work Near Overhead Powerlines Code of Practice 2006* and TransGrid's *Easement Guidelines for Third Party Development*. The Applicant shall:
- (a) notify TransGrid at least two weeks prior to the commencement of earthworks and construction of each stage of the Development;
  - (b) notify TransGrid at least two weeks prior to the commencement of any work within 30 m of the transmission towers;
  - (c) implement traffic control measures to ensure vehicles do not collide with the transmission towers; and
  - (d) not store or stockpile materials or soil within the easement at any time.

## SCHEDULE F ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING

### ENVIRONMENTAL MANAGEMENT

#### Construction Environmental Management Plan

- F1. Prior to the issue of a Construction Certificate, the Applicant shall prepare a **Construction Environmental Management Plan (CEMP)** to the satisfaction of the Secretary. The CEMP must:
- (a) be prepared by a suitable qualified and experienced person in consultation with Council and TransGrid;
  - (b) approved by the Secretary prior to the commencement of construction;
  - (c) identify all statutory approvals that apply to the Development;
  - (d) outline all environmental management practices and procedures to be followed during construction works associated with the Development;
  - (e) describe all activities to be undertaken on the site during construction of the Development, including a clear indication of construction stages;
  - (f) detail how the environmental performance of the construction works will be monitored, and what actions will be taken to address identified adverse environmental impacts;
  - (g) describe of the roles and responsibilities for all relevant employees involved in construction works associated with the Development; and
  - (h) include all sub-management plans required under Condition F2 of this consent.
- F2. As part of the CEMP required under Condition F1 of this consent, the Applicant shall append the following sub-management documents:
- (a) construction traffic management plan (see Condition E1);
  - (b) stormwater management plan (see Condition E13)
  - (c) fill importation protocol (see Condition E23);
  - (d) unexpected finds protocol (see Condition E56);
  - (e) landscape management (see Condition E61); and
  - (f) community consultation and complaints handling.
- F3. The approved CEMP (as revised and approved by the Secretary from time to time) must be implemented by the Applicant for the duration of the construction works.

#### Operational Environmental Management Plan

- F4. The Applicant shall prepare an **Operational Environmental Management Plan (OEMP)** for the development and be submitted to the satisfaction of the Secretary prior to the commencement of operations. The OEMP must:
- (a) provide the strategic framework for environmental management of the development;
  - (b) identify the statutory approvals that apply to the development;
  - (c) include a copy of all relevant management plans and monitoring requirements and programs relevant under this consent;
  - (d) outline all environmental management practices and procedures to be followed during operation;
  - (e) describe all activities to be undertaken on the site during operation;
  - (f) detail how the environmental performance of the operation of the development will be monitored, and what actions will be taken to address identified adverse environmental impacts;
  - (g) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the development;
  - (h) describe the procedures that will be implemented to:
    - (i) keep the local community and relevant agencies informed about the operation and environmental performance of the development;
    - (ii) receive, handle, respond to, and record complaints;
    - (iii) resolve any disputes that may arise during the course of the development;
    - (iv) respond to any non-compliance;
    - (v) respond to emergencies;
    - (vi) include copies of any strategies, plans and programs approved under the



- (vii) conditions of this consent; and
- (viii) a clear plan depicting all the monitoring required to be carried out under the conditions of this consent.

F5. The approved OEMP (as revised and approved by the Secretary from time to time) shall be implemented by the Applicant for the life of the Development.

## **ENVIRONMENTAL REPORTING**

### **Incident Reporting**

F6. Upon detecting an exceedance of the limits/performance criteria in this consent or the occurrence of an incident that causes (or may cause) material harm to the environment, the Applicant shall immediately (or as soon as practical thereafter) notify the Secretary and other relevant agencies of the exceedance/incident. Within seven days of the date of the incident, the Applicant shall provide the Secretary and any relevant agencies with a detailed report on the incident, and such further reports as may be requested.

### **Regular Reporting**

F7. The Applicant shall provide regular reporting on the environmental performance of the Development on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this consent.

## **ACCESS TO INFORMATION**

F8. The Applicant shall make the following information publicly available on its website and keep the information up to date:

- (a) the EIS;
- (b) the RTS;
- (c) current statutory approvals for the Development;
- (d) approved strategies, plans or programs;
- (e) a complaints register, updated on an annual basis; and
- (f) any other matter required by the Secretary.

**Note:** This condition does not require any confidential information to be made available to the public.

---

## APPENDIX 1 - SCHEDULE OF APPROVED CONCEPT PROPOSAL DRAWINGS

<b>Master Plan Drawings Prepared by SBA Architects</b>			
<b>Drawing No.</b>	<b>Rev.</b>	<b>Name of Plan</b>	<b>Date</b>
OAK MP 01	H	Cover Sheet	18/04/2016
OAK MP 02	M	SSDA Masterplan	18/04/2016
OAK MP 03	G	SSDA Stage 1 Development	18/04/2016
OAK MP 04	K	Precinct 1 Plan	18/04/2016
OAK MP 05	M	Precinct 4 & 5 Plan	05/07/2016
OAK MP 06	G	Indicative Ultimate Lot Layout	18/04/2016
OAK MP 07	H	Site Analysis Plan	18/04/2016
OAK MP 08	F	Existing Zoning	18/04/2016
OAK MP 09	F	Infrastructure Staging Plan	18/04/2016
OAK MP 10	F	Building Staging Plan (Indicative)	18/04/2016
OAK MP 11	G	Signage Precinct 1 Plan	18/04/2016
OAK MP 12	F	Signage Precinct 4 & 5 Plan	18/04/2016
OAK MP 13	D	Fire Protection Plan	18/04/2016
OAK MP 14	D	Vegetation Management Plan	18/04/2016
OAK MP 15	C	Fencing Plan	18/04/2016
<b>Concept Landscape Plans prepared by Site Image Landscape Architects</b>			
<b>Drawing No.</b>	<b>Rev.</b>	<b>Name of Plan</b>	<b>Date</b>
LR-003	B	Landscape Concept Master Plan	04/09/2015
LR-004	B	Typical Site Section	04/09/2015
LR-005	B	Vegetation Typologies	04/09/2016
LR-006	B	Typical Species List and Reference Table	04/09/2015
LR-007	B	Street Master Plan	04/09/2015
LR-008	B	Streetscape Typical Detail	04/09/2015
LR-009	B	Landscape Node 1 – Plan & Section	04/09/2015
LR-010	B	Landscape Node 2 – Plan/Section	04/09/2015
LR-011	B	Landscape Node 3 – Plan/Section	04/09/2015
LR-012	B	Signage Landscape Treatment	04/09/2015
<b>Proposed Service Strategy Drawings prepared by AT&amp;L</b>			
<b>Drawing No.</b>	<b>Rev.</b>	<b>Name of Plan</b>	<b>Date</b>
SKC149	P1	Sewer Strategy – Concept Scheme Plan	August 2015
SKC150	P1	Potable Water Strategy – Concept Scheme Plan	August 2015
SKC151	P1	High Voltage – Concept Scheme Plan	August 2015
SKC152	P1	Proposed Gas Main Strategy – Concept Scheme Plan	August 2015
SKC153	P1	Telecommunications Strategy – Concept Scheme Plan	August 2015
SKC154	P1	Proposed Rainwater Re-Use – Concept Scheme Plan	August 2015

## APPENDIX 2 - SCHEDULE OF APPROVED STAGE 1 DA DRAWINGS

Stage 1 Architectural Drawings Prepared by SBA Architects			
Drawing No.	Rev.	Name of Plan	Date
<b>Building 1A</b>			
OAK 1A DA 10	K	Proposed Industrial Facility - Building 1A – Site Plan/Floor Plan	18/04/2016
OAK 1A DA 11	E	Proposed Industrial Facility - Building 1A – Roof Plan	18/04/2016
OAK 1A Da 12	E	Proposed Industrial Facility - Building 1A – 1A Office 1&2 Floor Plans	18/04/2016
OAK 1A DA 13	D	Proposed Industrial Facility - Building 1A – Office 1A-3 Floor Plans	18/04/2016
OAK 1A DA 14	D	Proposed Industrial Facility - Building 1A – Office 1A-4 Floor Plan	18/04/2016
OAK 1A DA 15	D	Proposed Industrial Facility - Building 1A – Elevations/Sections 1A	18/04/2016
OAK 1A DA 16	D	Proposed Industrial Facility - Building 1A – Elevations Office 1A	18/04/2016
OAK 1A DA 17	D	Proposed Industrial Facility - Building 1A – Office Elevations 2	18/04/2016
OAK 1A DA 18	D	Proposed Industrial Facility - Building 1A – Elevations Office 3	18/04/2016
OAK 1A DA 19	D	Proposed Industrial Facility - Building 1A – Elevations Office 4	18/04/2016
<b>Building 1B</b>			
OAK 1B DA 20	J	Proposed Industrial Facility – Building 1B – Site Plan/Floor	18/04/2016
OAK 1B DA 21	E	Proposed Industrial Facility – Building 1B – Roof Plan	18/04/2016
OAK 1B DA 22	E	Proposed Industrial Facility – Building 1B – 1B Office Plan	18/04/2016
OAK 1B DA 24	E	Proposed Industrial Facility – Building 1B – Elevations 1B	18/04/2016
OAK 1B DA 25	E	Proposed Industrial Facility – Building 1B – Sections 1B	18/04/2016
OAK 1B DA 26	D	Proposed Industrial Facility – Building 1B – Elevations Office	18/04/2016
<b>Building 1C</b>			
OAK 1C DA 30	K	Proposed Industrial Facility – Building 1C – Site Plan/Floor Plan	18/04/2016
OAK 1C DA 31	E	Proposed Industrial Facility – Building 1C – Roof Plan	18/04/2016
OAK 1C DA 32	E	Proposed Industrial Facility – Building 1C – Office 1C-1 Floor Plans	18/04/2016
OAK 1C DA 33	E	Proposed Industrial Facility – Building 1C – 1C-2 Office Floor Plans	18/04/2016
OAK 1C DA 34	E	Proposed Industrial Facility – Building 1C – Elevations 1C	18/04/2016
OAK 1C DA 35	E	Proposed Industrial Facility – Building 1C – Sections 1C	18/04/2016
OAK 1C DA 36	D	Proposed Industrial Facility – Building 1C – Office Elevations 1	18/04/2016
OAK 1C DA 37	D	Proposed Industrial Facility – Building 1C – Office Elevations 2	18/04/2016
<b>Building 1D</b>			
OAK 1D DA 40	J	Proposed Industrial Facility – Building 1D – Site Plan/Floor Plan	18/04/2016
OAK 1D DA 41	E	Proposed Industrial Facility – Building 1D – Roof Plan	18/04/2016
OAK 1D DA 42	E	Proposed Industrial Facility – Building 1D – 1D – Office Floor Plans	18/04/2016
OAK 1D DA 44	E	Proposed Industrial Facility – Building 1D – Elevations 1D	18/04/2016
OAK 1D DA 45	E	Proposed Industrial Facility – Building 1D – Sections 1D	18/04/2016
OAK 1D DA 46	D	Proposed Industrial Facility – Building 1D – Office Elevations	18/04/2016
<b>Building 4A</b>			
OAK 4A DA 50	J	Proposed Industrial Facility – Building 4A – Site Plan/Floor Plan	04/09/2015
OAK 4A DA 51	D	Proposed Industrial Facility – Building 4A –Roof Plan	04/09/2015
OAK 4A DA 52	C	Proposed Industrial Facility – Building 4A – 4A Office Plan	04/09/2015
OAK 4A DA 54	D	Proposed Industrial Facility – Building 4A –Elevations 4A	04/09/2015
OAK 4A DA 55	D	Proposed Industrial Facility – Building 4A – Sections 4A	04/09/2015
OAK 4A DA 56	C	Proposed Industrial Facility – Building 4A –Elevations Office	04/09/2015
<b>Building 4B</b>			
OAK 4B DA 61	J	Proposed Industrial Facility – Building 4B – Site Plan/Floor Plan	04/09/2015
OAK 4B DA 61	D	Proposed Industrial Facility – Building 4B – Roof Plan	04/09/2015
OAK 4B DA 62	C	Proposed Industrial Facility – Building 4B – Office 4B Floor Plans	04/09/2015
OAK 4B DA 64	D	Proposed Industrial Facility – Building 4B – Elevations 4B	04/09/2015
OAK 4B DA 65	D	Proposed Industrial Facility – Building 4B – Sections 4B	04/09/2015
OAK 4B DA 66	C	Proposed Industrial Facility – Building 4B – Elevations Office	04/09/2015
<b>Building 4C</b>			
OAK 4C DA 70	J	Proposed Industrial Facility – Building 4C – Site Plan/Floor Plan	04/09/2015
OAK 4C DA 71	D	Proposed Industrial Facility – Building 4C – Roof Plan	04/09/2015
OAK 4C DA 72	C	Proposed Industrial Facility – Building 4C – 4C Office Plan	04/09/2015

OAK 4C DA 74	D	Proposed Industrial Facility – Building 4C –Elevations 4C	04/09/2015
OAK 4C DA 75	D	Proposed Industrial Facility – Building 4C – Sections 4C	04/09/2015
OAK 4C DA 76	C	Proposed Industrial Facility – Building 4C –Elevations Office	04/09/2015
<b>Building 5A</b>			
OAK 5A DA 80	J	Proposed Industrial Facility – Building 5A – Site Plan/Floor Plan	04/09/2015
OAK 5A DA 81	D	Proposed Industrial Facility – Building 5A – Roof Plan	04/09/2015
OAK 5A DA 82	C	Proposed Industrial Facility – Building 5A – 5A Ground Floor Office Floor Plan	04/09/2015
OAK 5A DA 83	C	Proposed Industrial Facility – Building 5A – First Floor Office Plan	04/09/2015
OAK 5A DA 84	D	Proposed Industrial Facility – Building 5A – Elevations 5A – Sheet 1	04/09/2015
OAK 5A DA 85	D	Proposed Industrial Facility – Building 5A – Elevations 5A – Sheet 2	04/09/2015
OAK 5A DA 86	D	Proposed Industrial Facility – Building 5A – Sections 5A	04/09/2015
OAK 5A DA 87	C	Proposed Industrial Facility – Building 5A – Elevations Office	04/09/2015
<b>Landscape Drawings Prepared by Site Image</b>			
<b>Drawing No.</b>	<b>Rev.</b>	<b>Name of Plan</b>	<b>Date</b>
LR-013	B	Stage 1 Development – Landscape Scope of Works	04/09/2015
ELW-001	B	Stage 1 Development Works – Landscape Plan	04/09/2015
ELW-002	B	Estate Landscape Works – Landscape Plan	04/09/2015
ELW-003	B	Estate Landscape Works – Landscape Plan	04/09/2015
ELW-004	B	Estate Landscape Works – Landscape Plan	04/09/2015
ELW-005	B	Estate Landscape Works – Landscape Plan	04/09/2015
ELW-006	B	Estate Landscape Works – Landscape Plan	04/09/2015
ELW-007	B	Estate Landscape Works – Typical Details & Plant Schedule	04/09/2015
LP1-001	B	Lot Landscaping – Precinct 1 – Landscape Plan 1:2000	04/09/2015
LP1-002	B	Lot Landscaping – Precinct 1 – Primary Presentational Frontage – Typical Landscape Detail Plan	04/09/2015
LP1-003	B	Secondary Presentational Frontage Plan – Typical Landscape Detail Plan	04/09/2015
LP1-004	B	Lot Landscaping – Precinct 1 – Planting Palette	04/09/2015
LP4-001	B	Lot Landscaping – Precinct 4 – Landscape Plan 1:2000	04/09/2015
LP4-002	B	Lot Landscaping – Precinct 4 – Primary Presentational Frontage – Typical Landscape Detail Plan	04/09/2015
LP4-003	B	Lot Landscaping – Precinct 4 - Secondary Presentational Frontage Plan – Typical Landscape Detail Plan	04/09/2015
LP4-004	B	Lot Landscaping – Precinct 4 – Planting Palette	04/09/2015
LP5-001	B	Lot Landscaping – Precinct 5 – Landscape Plan 1:2000	04/09/2015
LP5-002	B	Lot Landscaping – Precinct 5 – Presentational Entry – Typical Landscape Detail Plan	04/09/2015
LP5-003	B	Lot Landscaping – Precinct 5 – Presentational Entry – Typical Landscape Section	04/09/2015
LP5-004	B	Lot Landscaping – Precinct 5 – Primary Presentational Frontage – Typical Landscape Detail Plan	04/09/2015
LP5-005	B	Lot Landscaping – Precinct 5 – Planting Palette	04/09/2015
<b>Southern and Eastern Boundary Treatments Prepared by Site Image Landscape Architects</b>			
<b>Drawing No.</b>	<b>Rev.</b>	<b>Name of Plan</b>	<b>Date</b>
002	D	Key Plan – Typical Boundary Planting	03/05/2016
003	D	Section AA and Section BB – Southern Boundary	03/05/2016
004	D	Section CC – Eastern Boundary	03/05/2016
005	D	Section DD – Southern Boundary	03/05/2016
006	D	Section EE – Eastern Boundary	03/05/2016
<b>Stage 1 Civil Drawings Prepared by AT&amp;L Project Number 14-193</b>			
<b>Drawing No.</b>	<b>Rev.</b>	<b>Name of Plan</b>	<b>Date</b>
C1000	A	Cover Sheet and Locality Plan	03/09/2015
C1001	A	Drawing List	03/09/2015
C1002	A	General Notes	03/09/2015
C1003	A	General Arrangement Plan	03/09/2015

C1004	A	Typical Sections Sheet 1	03/09/2015
C1005	A	Typical Sections Sheet 2	03/09/2015
C1006	A	Typical Sections Sheet 3	03/09/2015
C1007	A	Typical Sections Sheet 4	03/09/2015
C1008	A	Typical Sections Sheet 5	03/09/2015
C1009	A	Typical Sections Sheet 6	03/09/2015
C1010	A	Typical Sections Sheet 7	03/09/2015
C1015	A	Typical Details Plan	03/09/2015
C1020	A	Bulk Earthworks Cut/Fill Plan	03/09/2015
C1021	A	Infrastructure Staging Plan	03/09/2015
C1031	A	Earthworks and Stormwater Plan Sheet 1	03/09/2015
C1232	A	Earthworks and Stormwater Plan Sheet 2	03/09/2015
C1033	A	Earthworks and Stormwater Plan Sheet 3	03/09/2015
C1034	A	Earthworks and Stormwater Plan Sheet 4	03/09/2015
C1035	A	Earthworks and Stormwater Plan Sheet 5	03/09/2015
C1036	A	Earthworks and Stormwater Plan Sheet 6	03/09/2015
C1037	A	Earthworks and Stormwater Plan Sheet 7	03/09/2015
C1038	A	Earthworks and Stormwater Plan Sheet 8	03/09/2015
C1039	A	Earthworks and Stormwater Plan Sheet 9	03/09/2015
C1040	A	Earthworks and Stormwater Plan Sheet 10	03/09/2015
C1041	A	Earthworks and Stormwater Plan Sheet 11	03/09/2015
C1042	A	Earthworks and Stormwater Plan Sheet 12	03/09/2015
C1043	A	Earthworks and Stormwater Plan Sheet 13	03/09/2015
C1051	A	Services and Utilities Coordination Plan Sheet 1	03/09/2015
C1052	A	Services and Utilities Coordination Plan Sheet 2	03/09/2015
C1053	A	Services and Utilities Coordination Plan Sheet 3	03/09/2015
C1054	A	Services and Utilities Coordination Plan Sheet 4	03/09/2015
C1055	A	Services and Utilities Coordination Plan Sheet 5	03/09/2015
C1056	A	Services and Utilities Coordination Plan Sheet 6	03/09/2015
C1057	A	Services and Utilities Coordination Plan Sheet 7	03/09/2015
C1058	A	Services and Utilities Coordination Plan Sheet 8	03/09/2015
C1059	A	Services and Utilities Coordination Plan Sheet 9	03/09/2015
C1060	A	Services and Utilities Coordination Plan Sheet 10	03/09/2015
C1061	A	Services and Utilities Coordination Plan Sheet 11	03/09/2015
C1062	A	Services and Utilities Coordination Plan Sheet 12	03/09/2015
C1063	A	Services and Utilities Coordination Plan Sheet 13	03/09/2015
C1071	A	Erosion and Sediment Control Plan Sheet 1	03/09/2015
C1072	A	Erosion and Sediment Control Plan Sheet 2	03/09/2015
C1073	A	Erosion and Sediment Control Plan Sheet 3	03/09/2015
C1074	A	Erosion and Sediment Control Plan Sheet 4	03/09/2015
C1075	A	Erosion and Sediment Control Plan Sheet 5	03/09/2015
C1076	A	Erosion and Sediment Control Plan Sheet 6	03/09/2015
C1077	A	Erosion and Sediment Control Plan Sheet 7	03/09/2015
C1078	A	Erosion and Sediment Control Plan Sheet 8	03/09/2015
C1079	A	Erosion and Sediment Control Plan Sheet 9	03/09/2015
C1080	A	Erosion and Sediment Control Plan Sheet 10	03/09/2015
C1081	A	Erosion and Sediment Control Plan Sheet 11	03/09/2015
C1082	A	Erosion and Sediment Control Plan Sheet 12	03/09/2015
C1083	A	Erosion and Sediment Control Plan Sheet 13	03/09/2015
C1084	A	Erosion and Sediment Details	03/09/2015
C1091	A	Pavement Plan Sheet 1	03/09/2015
C1092	A	Pavement Plan Sheet 2	03/09/2015
C1093	A	Pavement Plan Sheet 3	03/09/2015
C1094	A	Pavement Plan Sheet 4	03/09/2015
C1095	A	Pavement Plan Sheet 5	03/09/2015
C1201	A	Roadworks Plan Sheet 1	03/09/2015

C1202	A	Roadworks Plan Sheet 2	03/09/2015
C1203	A	Roadworks Plan Sheet 3	03/09/2015
C1204	A	Roadworks Plan Sheet 4	03/09/2015
C1205	A	Roadworks Plan Sheet 5	03/09/2015
C1206	A	Roadworks Plan Sheet 6	03/09/2015
C1207	A	Roadworks Plan Sheet 7	03/09/2015
C1208	A	Roadworks Plan Sheet 8	03/09/2015
C1209	A	Roadworks Plan Sheet 9	03/09/2015
C1210	A	Roadworks Plan Sheet 10	03/09/2015
C1211	A	Roadworks Plan Sheet 11	03/09/2015
C1212	A	Roadworks Plan Sheet 12	03/09/2015
C1221	A	Road Longitudinal; Sections Sheet 1	03/09/2015
C1222	A	Road Longitudinal; Sections Sheet 2	03/09/2015
C1223	A	Road Longitudinal; Sections Sheet 3	03/09/2015
C1224	A	Road Longitudinal; Sections Sheet 4	03/09/2015
C1241	A	Bio-Retention Basin A Detail Plan	03/09/2015
C1244	A	Bio-Retention Basin B Detail Plan	03/09/2015
C1247	A	Bio-Retention Basin C Detail Plan	03/09/2015
C1250	A	Bio-Retention Basin D Detail Plan	03/09/2015
C1261	A	Stormwater Culvert Plan and Sections	03/09/2015
C1301	A	Stormwater Catchment Plan	03/09/2015
C2000	A	On-Lot General Arrangement Plan	03/09/2015
C2100	A	Building 1A General Arrangement Plan	03/09/2015
C2105	A	Building 1A Siteworks and Stormwater Drainage Plan - Sheet 1	03/09/2015
C2106	A	Building 1A Siteworks and Stormwater Drainage Plan - Sheet 2	03/09/2015
C2107	A	Building 1A Siteworks and Stormwater Drainage Plan - Sheet 3	03/09/2015
C2108	A	Building 1A Siteworks and Stormwater Drainage Plan - Sheet 4	03/09/2015
C2110	A	Building 1A Pavement Plan	03/09/2015
C2200	A	Building 1B General Arrangement Plan	03/09/2015
C2205	A	Building 1B Siteworks and Stormwater Drainage Plan - Sheet 1	03/09/2015
C2206	A	Building 1B Siteworks and Stormwater Drainage Plan - Sheet 2	03/09/2015
C2207	A	Building 1B Siteworks and Stormwater Drainage Plan - Sheet 3	03/09/2015
C2208	A	Building 1B Siteworks and Stormwater Drainage Plan - Sheet 4	03/09/2015
C2210	A	Building 1B Pavement Plan	03/09/2015
C2300	A	Building 1C General Arrangement Plan	03/09/2015
C2305	A	Building 1C Siteworks and Stormwater Drainage Plan - Sheet 1	03/09/2015
C2306	A	Building 1C Siteworks and Stormwater Drainage Plan - Sheet 2	03/09/2015
C2307	A	Building 1C Siteworks and Stormwater Drainage Plan - Sheet 3	03/09/2015
C2308	A	Building 1C Siteworks and Stormwater Drainage Plan - Sheet 4	03/09/2015
C2310	A	Building 1C Pavement Plan	03/09/2015
C2400	A	Building 1D General Arrangement Plan	03/09/2015
C2405	A	Building 1D Siteworks and Stormwater Drainage Plan Sheet 1	03/09/2015
C2406	A	Building 1D Siteworks and Stormwater Drainage Plan Sheet 2	03/09/2015
C2407	A	Building 1D Siteworks and Stormwater Drainage Plan Sheet 3	03/09/2015
C2408	A	Building 1D Siteworks and Stormwater Drainage Plan Sheet 4	03/09/2015
C2410	A	Building 1D Pavement Plan	03/09/2015
C2500	A	Building 4A General Arrangement Plan	03/09/2015
C2505	A	Building 4A Sitework and Stormwater Drainage Plan Sheet 1	03/09/2015
C2506	A	Building 4A Sitework and Stormwater Drainage Plan Sheet 2	03/09/2015
C2508	A	Building 4A Pavement Plan	03/09/2015
C2600	A	Building 4B General Arrangement Plan	03/09/2015
C2605	A	Building 4B Sitework and Stormwater Drainage Plan Sheet 1	03/09/2015
C2606	A	Building 4B Sitework and Stormwater Drainage Plan Sheet 2	03/09/2015
C2608	A	Building 4B Pavement Plan	03/09/2015
C2700	A	Building 4C General Arrangement Plan	03/09/2015
C2705	A	Building 4C Sitework and Stormwater Drainage Plan Sheet 1	03/09/2015

C2706	A	Building 4C Sitework and Stormwater Drainage Plan Sheet 2	03/09/2015
C2708	A	Building 4C Pavement Plan	03/09/2015
C2800	A	Building 5A General Arrangement Plan	03/09/2015
C2805	A	Building 5A Sitework and Stormwater Drainage Plan Sheet 1	03/09/2015
C2806	A	Building 5A Sitework and Stormwater Drainage Plan Sheet 2	03/09/2015
C2807	A	Building 5A Sitework and Stormwater Drainage Plan Sheet 3	03/09/2015
C2808	A	Building 5A Sitework and Stormwater Drainage Plan Sheet 4	03/09/2015
C2809	A	Building 5A Sitework and Stormwater Drainage Plan Sheet 5	03/09/2015
C2810	A	Building 5A Sitework and Stormwater Drainage Plan Sheet 6	03/09/2015
C2811	A	Building 5A Sitework and Stormwater Drainage Plan Sheet 7	03/09/2015
C2812	A	Building 5A Sitework and Stormwater Drainage Plan Sheet 8	03/09/2015
C2814	A	Building 5A Pavement Plan	03/09/2015
<b>Oakdale South Watercourse Realignment Works Plans, prepared by AECOM, Drawing Set 60333552-DWG-WC</b>			
<b>Drawing No.</b>	<b>Rev.</b>	<b>Name of Plan</b>	<b>Date</b>
1001	A	Watercourse Realignment Cover Sheet and Drawing Index	31/08/2015
1011	B	Watercourse Realignment Layout Plan Sheet 1	31/08/2015
1012	B	Watercourse Realignment Layout Plan Sheet 2	31/08/2015
1016	A	Watercourse Realignment Aerial Background Plan Sheet 1	31/08/2015
1017	A	Watercourse Realignment Aerial Background Plan Sheet 2	31/08/2015
1021	A	Watercourse Realignment Longitudinal Section	31/08/2015
1022	A	Watercourse Realignment Longitudinal Section - Stub	31/08/2015
1031	A	Watercourse Realignment Cross Sections - Watercourse 1 and Stub	31/08/2015
1036	A	Watercourse Realignment Cross Sections - Watercourse 2 Sheet 1	31/08/2015
1037	A	Watercourse Realignment Cross Sections - Watercourse 3 Sheet 2	31/08/2015
1041	A	Watercourse Realignment Rock Riffle Details Sheet 1	31/08/2015
1042	A	Watercourse Realignment Rock Riffle Details Sheet 2	31/08/2015
1043	A	Watercourse Realignment Rock Riffle Details Sheet 3	31/08/2015
1044	A	Watercourse Realignment Large Wood Debris Details	31/08/2015
1051	A	Watercourse Realignment Works Schedule	31/08/2015
1061	A	Watercourse Realignment Site Management Plan	31/08/2015
<b>Stormwater Plans prepared by AT&amp;L in the Civil, Stormwater and Infrastructure Services Report at Appendix J of the EIS</b>			
<b>Drawing No.</b>	<b>Rev.</b>	<b>Name of Plan</b>	<b>Date</b>
C1301	A	Stormwater Catchment Plan	3/09/2015
SKC008	P1	Existing Catchment Plan	25/08/2015
<b>TransGrid Easement Drainage Plans prepared by AT&amp;L in Annexure A of the Supplementary RTS dated 18 May 2016</b>			
<b>Drawing No.</b>	<b>Rev.</b>	<b>Name of Plan</b>	<b>Date</b>
SKC208	P1	TransGrid Easement Plan Sheet 1	17/5/2016
SKC209	P1	TransGrid Easement Plan Sheet 2	17/5/2016
SKC210	P1	Existing TransGrid Easement Sections	17/5/2016
SKC207	P1	Stormwater Catchment Plan	17/5/2016

## APPENDIX 3 - MANAGEMENT AND MITIGATION MEASURES (Source: RTS)

OSE - State Significant Development Application

### Consolidated Mitigation Measures

The collective measures required to mitigate the Impacts associated with the proposed works are detailed in the table below. These measures have been derived from the Impact assessment and response to submissions prepared in respect of the SSDA.

OSE SSDA – Consolidated Summary of Mitigation Measures

ISSUE	SSDA COMPONENT	MITIGATION AND MANAGEMENT
<b>Construction Management</b>		
General Construction Management	Stage 1 Development	- A CEMP to be prepared for the OSE Stage 1 Development capturing standard and specific management and mitigation measures as described in the SSDA, EIS and supporting technical documents.
<b>Operational Management</b>		
General Operational Management	Concept Proposal Stage 1 Precinct Development	- An OEMP to be prepared for the OSE capturing standard and specific operational management and mitigation measures as described in the SSDA, EIS and supporting technical documents.
<b>Transport</b>		
Construction Traffic	Stage 1 Development	- Preparation of a CTMP to form part of the CEMP addressing issues such as: <ul style="list-style-type: none"> <li>• Truck haul routes, delivery schedules and curfews;</li> <li>• Protocols for the management of construction traffic moving onto and off the site.</li> </ul>
<b>Urban Design and Visual</b>		
Site Layout and Design	Concept Proposal	- Future development of the OSE to proceed in accordance with the approved Development Concept Proposal and DCP.
Development Controls	Concept Proposal	- Design and development controls to be established for the OSE in the form of a DCP to guide future development on the site.
Visual Impact	Concept Proposal/Stage 1 Development	- Additional landscape planting to be introduced along the southern and eastern boundaries of the OSE to mitigate visual impacts on existing and proposed rural residential lands to the south and east of the site. - Landscaping of this boundary to be undertaken in accordance with the revised landscape plans included at Appendix D to the RTS. - Landscaping of the southern and eastern site boundaries to be implemented in the early stages of the development to maximise time for vegetation to mature as development on the site progresses. - Adoption of a colour pallet for exposed building elevations that compliments the natural colours of the surrounding landscape and inclusion of provisions with respect to the use of this pallet in the development controls for the site. - Design and development controls to be established for



ISSUE	SSDA COMPONENT	MITIGATION AND MANAGEMENT
		the OSE in the form of a DCP to guide future development on the site.
<b>Soils and Water</b>		
Water Usage	Stage 1 Development	<ul style="list-style-type: none"> <li>- Rainwater tanks to be provided for each development site with size determined in accordance with Penrith Council DCP requirements.</li> <li>- Irrigation and toilet flushing for development to be plumbed to rainwater tanks.</li> <li>- Consideration to be given to other possible rainwater reuse opportunities such as for truck washing.</li> <li>- Measures and considerations for the minimisation of water use during construction and operation to be incorporated into CEMP and OEMP as relevant.</li> </ul>
Soils	Stage 1 Development	<ul style="list-style-type: none"> <li>- Mitigation measures inherent to the civil design of the proposal.</li> <li>- Sedimentation and erosion control measures are proposed as detailed in Appendix E and J.</li> </ul>
Salinity	Stage 1 Development	<ul style="list-style-type: none"> <li>- A Salinity Management Plan has been prepared for the proposed development and is included in Appendix T.</li> <li>- Management measures described in the Salinity Management Plan to be adopted in the CEMP and OEMP as relevant.</li> </ul>
Contamination	Stage 1 Development	<ul style="list-style-type: none"> <li>- Identified areas of potential contamination to be subject to further investigation prior to the development of affected land.</li> </ul>
Earthworks	Stage 1 Development	<ul style="list-style-type: none"> <li>- Civil design achieves appropriate site levels with minimal impact upon hydrology.</li> <li>- Import of fill to be managed in accordance with CEMP.</li> <li>- Erosion and sediment controls included in SSDA package (Appendix E).</li> </ul>
Mineral Resources	Concept Proposal	<ul style="list-style-type: none"> <li>- No mitigation required provided that mining activities under the existing mining lease applying to land to the east of the site (ref. ML1636) would not be constrained by the OSE development.</li> </ul>
Surface Water	Stage 1 Development	<ul style="list-style-type: none"> <li>- Stormwater issues addressed through design measures incorporated into proposed development.</li> <li>- Stormwater management system designed to meet the requirements of Penrith Council's Engineering Works and WSUD guidelines and relevant NOW guidelines.</li> <li>- Detailed on-lot stormwater for future stages of the OSE to be designed and assessed under future applications.</li> </ul>
Groundwater	Stage 1 Development	<ul style="list-style-type: none"> <li>- Methods and management of any required dewatering required during construction works to be detailed in the CEMP.</li> </ul>

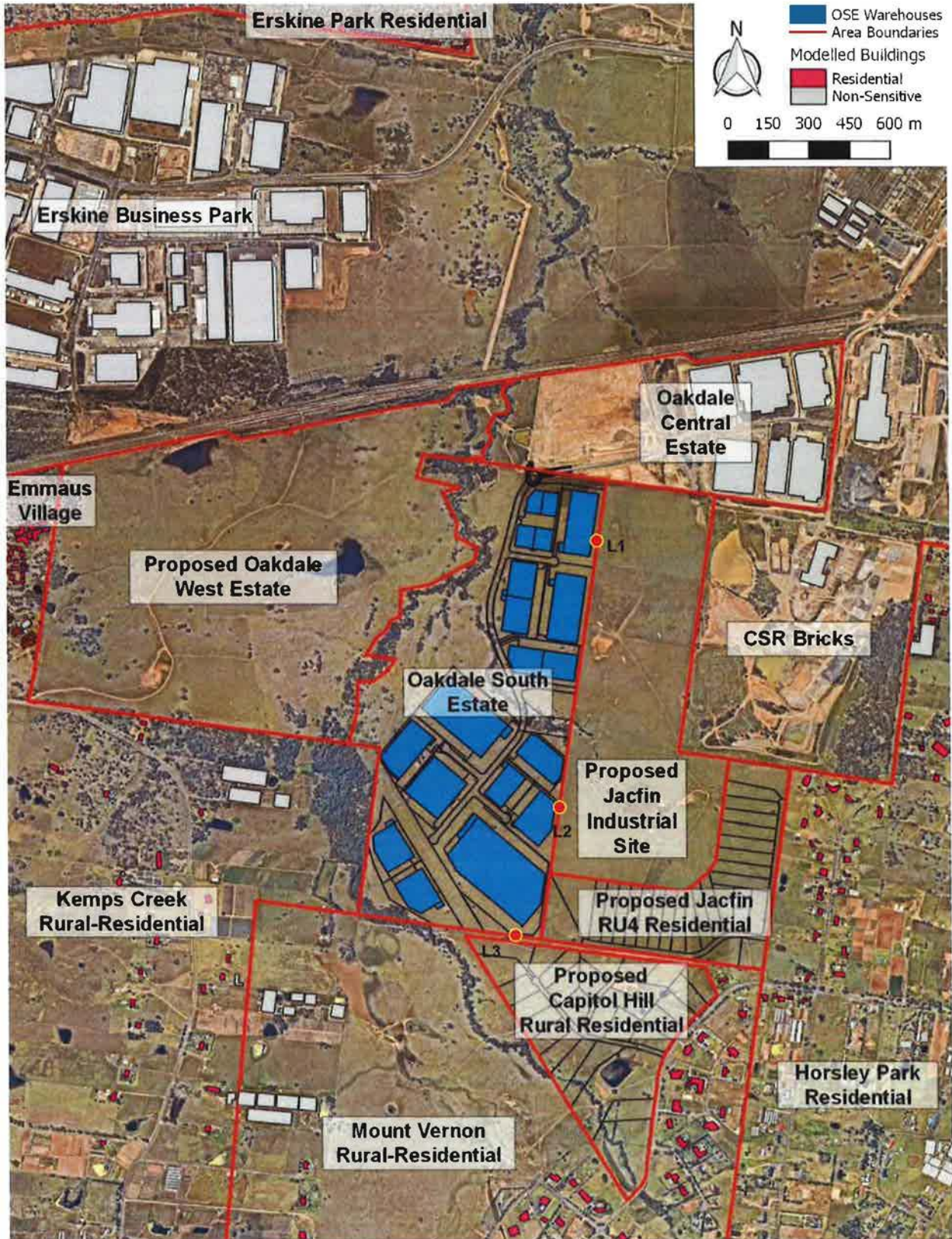
ISSUE	SSDA COMPONENT	MITIGATION AND MANAGEMENT
Flooding	Stage 1 Development	<ul style="list-style-type: none"> <li>- OSD designed to ensure that development does not increase stormwater peak flows in downstream areas for events up to and including 1:100 year ARI.</li> <li>- OSD designed to mitigate post-development flows to pre-development flows for peak ARI events.</li> <li>- Finished floor levels to have minimum 500mm freeboard to 100 year overland flows.</li> <li>- Flood impacts on Transgrid easement would be mitigated through minor compensatory earthworks on the floodplain to convey locally diverted flows. These works are detailed in the civil drawings at Appendix E.</li> </ul>
Water Quality	Stage 1 Development	<ul style="list-style-type: none"> <li>- Erosion and sediment controls as detailed in Appendix E and Appendix J to be implemented through CEMP.</li> <li>- Stormwater to be treated to compliant levels prior to discharge.</li> <li>- Gross Pollutant Trap (GPT) to be installed within each development site on the final downstream stormwater pit prior to discharge.</li> <li>- WSUD measures adopted to achieve target reductions for the OSE:                             <ul style="list-style-type: none"> <li>• 85% Total Suspended Solids</li> <li>• 60% Total Phosphorus</li> <li>• 45% Total Nitrogen</li> <li>• 90% Gross Pollutants</li> </ul> </li> </ul>
<b>Infrastructure</b>		
Capacity and Upgrades	Concept Proposal	<ul style="list-style-type: none"> <li>- Management of issues in respect of infrastructure capacity and upgrades is in the form of design responses described in Section 4.0 of the EIS.</li> </ul>
Delivery and Staging	Concept Proposal/Stage 1 Development	<ul style="list-style-type: none"> <li>- Management of issues in respect of infrastructure capacity and upgrades is in the form of design responses described in Section 4.0 of the EIS.</li> <li>- Staging of development of the OSE would be aligned with infrastructure and services delivery.</li> </ul>
Transgrid Easement	Concept Proposal/Stage 1 Development	<ul style="list-style-type: none"> <li>- Further consultation would be undertaken with Transgrid in relation to potential impacts and required mitigation.</li> </ul>
<b>Other Environmental Issues</b>		
Flora and Fauna	Concept Proposal Stage 1 Development	<ul style="list-style-type: none"> <li>- Implementation of the Biodiversity Offset Strategy for the site including:                             <ul style="list-style-type: none"> <li>• Formal establishment of a Biodiversity Offset Area as part of the OSE Concept Proposal as described in the EIS and supporting documents.</li> <li>• Biodiversity Offset Area to be established and managed under a BioBanking Agreement. A BioBanking Agreement Application for the site would be sought following approval of the SSDA.</li> <li>• Ecosystem credits to be acquired and retired to offset impacts to the HN528 EEC as part of the</li> </ul> </li> </ul>

ISSUE	SSDA COMPONENT	MITIGATION AND MANAGEMENT
		<p>proposal following approval of the SSDA.</p> <ul style="list-style-type: none"> <li>- Preparation of a Biodiversity Management Plan for the site to inform the CEMP and OEMP as relevant to manage potential impacts to biodiversity during construction and operation.</li> <li>- Finalisation and implementation of a VMP for the OSE addressing: <ul style="list-style-type: none"> <li>• Restoration of retained areas of vegetation on the site including riparian corridors and the Biodiversity Offset Area;</li> <li>• Native grassland restoration to other areas of the site including road batters and outside batters of bio-retention basins; and</li> <li>• Ongoing maintenance and management of these areas in accordance with the provisions of the Biodiversity Offset Strategy.</li> </ul> </li> </ul>
Waterways and Riparian Lands		<ul style="list-style-type: none"> <li>- Realignment of Drainage Line to occur in accordance with design and management measures described in Appendix M including: <ul style="list-style-type: none"> <li>• Retention of bank and bench vegetation where possible.</li> <li>• Provenance plant material to be used for planting where practicable.</li> <li>• Reinstatement of the realigned drainage line to a plant community type characteristic of the EEC Forest Red Gum – Rough-barked Apple grassy woodland.</li> </ul> </li> <li>- Ongoing management of riparian lands on the site to be in accordance with the Biodiversity Offset Strategy and VMP as described above.</li> </ul>
Construction Noise	Stage 1 Development	<ul style="list-style-type: none"> <li>- Construction hours to be limited to 7.00am-6.00pm Monday to Friday and 8.00am-1.00pm Saturdays.</li> <li>- Further noise management measures to be incorporated into the CEMP as appropriate.</li> </ul>
Operational Noise	Stage 1 Development	<ul style="list-style-type: none"> <li>- Construction of a five metre noise barrier on the retaining wall along the southern site boundary and along part of the eastern site boundary to the extent of the proposed rural-residential lands to mitigate potential noise impacts. The noise wall would be constructed behind the landscape setbacks to the southern and eastern boundaries.</li> <li>- Cumulative sound power levels of fixed plant for each building within the OSE to be limited to 100dBA.</li> <li>- Further assessment of potential operational noise impacts to be undertaken in respect of any specific</li> </ul>

ISSUE	SEDA COMPONENT	MITIGATION AND MANAGEMENT
		<p>operations proposed within the OSE with an atypical noise profile.</p> <ul style="list-style-type: none"> <li>- Assessment of future fixed plant to ensure specifications minimise noise emissions or apply local attenuation to manage potential noise impacts.</li> </ul>
Air Quality and Odour - Construction	Stage 1 Development	<ul style="list-style-type: none"> <li>- CEMP to include standard air quality control measures, contingency plans and response procedures and suitable reporting and performance monitoring procedures.</li> <li>- CEMP to include standard odour mitigation measures for construction including keeping excavation surfaces moist, covering excavation faces and/or stockpiles, use of soil vapour extraction systems and regular monitoring of discharges as appropriate.</li> </ul>
Air Quality and Odour - Operational	Stage 1 Development	<ul style="list-style-type: none"> <li>- Further assessment of potential air quality impacts to be undertaken in respect of any specific operations proposed within the OSE with an atypical air emissions profile.</li> <li>- Specific operations proposed within the OSE with the potential for generation of odour would be subject to further assessment.</li> </ul>
Indigenous heritage	Stage 1 Development	<ul style="list-style-type: none"> <li>- Archaeological salvage excavation and monitoring to be undertaken in the presence of relevant Aboriginal stakeholders prior to ground disturbance and excavation work in identified areas.</li> <li>- Results of detailed archaeological excavation and any suitable salvaged materials to be managed in accordance with the NPW Act and direction from relevant Aboriginal stakeholders.</li> </ul>
Non-indigenous heritage	Stage 1 Development	<ul style="list-style-type: none"> <li>- Archaeological salvage excavation and monitoring to be undertaken prior to ground disturbance and excavation work in the Lochwood Estate outbuildings area.</li> <li>- Results of detailed archaeological excavation and any suitable salvaged materials to be considered as part of heritage interpretation within the OSE development.</li> </ul>
Greenhouse Gas and Energy Efficiency	Stage 1 Development	<ul style="list-style-type: none"> <li>- Future stages of development within the OSE would be subject to assessment in relation to energy efficiency and greenhouse gas emissions.</li> </ul>
Waste Management - Construction	Stage 1 Development	<ul style="list-style-type: none"> <li>- Detailed construction waste minimisation and management measures to be included in the CEMP as described in Appendix W.</li> </ul>
Waste Management - Operations	Stage 1 Development	<ul style="list-style-type: none"> <li>- Detailed operational waste minimisation and management measures to be included in the OEMP as described in Appendix W.</li> </ul>

## APPENDIX 4 - NOISE RECEIVER LOCATIONS

Receiver Area	Sensitive Receivers within Area
L1 North of Warragamba Pipeline	Includes all rural-residential dwellings in Kemps Creek and the Emmaus Village residential complex.
L2 Horsley Park	Includes all residential and rural-residential dwellings in Horsley Park and Mount Vernon.
L3 Kemps Creek, Mt Vernon, Jacfin and Capitol Hill	Includes all residential dwellings in Erskine Park to the north.



## APPENDIX 5 - DEED OF VARIATION

Dated

## Deed of Variation to Planning Agreement

Parties

**Minister for Planning**  
(ABN 38 755 709681)

**Goodman Property Services (Aust) Pty Ltd**  
(ACN 088 981 793)

**BGAI 6 Pty Ltd**  
(ACN 128 775 799)

**BGMG 8 Pty Ltd**  
(ACN 161 602 768)

**BGAI 2 Pty Ltd**  
(ACN 120 605 718)

**The Austral Brick Co Pty Ltd**  
(ACN 000 005 550)

Felicity Rourke  
Norton Rose Fulbright Australia  
Grosvenor Place, 225 George Street  
Sydney NSW 2000  
Telephone: +61 (0)2 9330 8665  
nortonrosefulbright.com  
Our ref: 2836270

Handwritten signature and initials in black ink, appearing to be 'nrh'.

## Contents

1	Definitions and interpretation.....	2
2	Variation of Planning Agreement.....	2
3	Registration of this deed.....	4
4	General.....	4
5	Expenses.....	4
6	Variations not to affect accrued rights and obligations.....	5
7	Trustees.....	5
8	Confirmation.....	5
	Schedule I.....	1
	Schedule II.....	2
	Schedule III.....	3
	Schedule IV.....	6
	Schedule V.....	7



**This Deed** dated

**Parties**      **MINISTER FOR PLANNING** (ABN 38 755 709681)  
of Level 15, 52 Martin Place, Sydney NSW 2000  
(**Planning Minister**)

**GOODMAN PROPERTY SERVICES (AUST) PTY LTD** (ACN 088 981 793)  
of Level 17, 60 Castlereagh Street, Sydney NSW 2000  
(**GPS**);

**BGAI 6 PTY LTD** (ACN 128 775 799)  
of Level 17, 60 Castlereagh Street, Sydney NSW 2000  
(**Oakdale Central Landowner**);

**BGMG 8 PTY LTD** (ACN 161 602 768)  
of Level 17, 60 Castlereagh Street, Sydney NSW 2000  
(**Oakdale South Landowner**); and

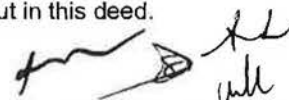
**BGAI 2 PTY LTD** (ACN 120 605 718)  
of Level 17, 60 Castlereagh Street, Sydney NSW 2000  
(**Erskine Park Landowner**)

(collectively **the Developers**)

**THE AUSTRAL BRICK CO PTY LTD** (ACN 000 005 550) of 738-780 Wallgrove  
Road, Horsley Park NSW 2175  
(**Austral**)

## **Introduction**

- A**      On 12 March 2015, the Planning Minister and the Developers entered into the Planning Agreement relating to the Oakdale Central and Oakdale South Industrial Estates. At the time of executing the Planning Agreement, GPS had not submitted a development application for the Oakdale South Development.
- B**      In September 2015, GPS lodged the SSD Application which is presently being assessed by the Department.
- C**      An additional land parcel known as Lot 87 is included in the land to which the SSD Application relates but is not land to which the Planning Agreement relates.
- D**      As a consequence of the development proposed in the SSD Application, GPS has proposed amendments to the Planning Agreement in an offer to the Planning Minister.
- E**      Lot 87 is owned by Austral. Austral has entered into an agreement with the Oakdale South Landowner granting the Oakdale South Landowner the right to develop Lot 87 and requiring Austral to transfer Lot 87 to the Oakdale South Landowner.
- F**      Austral will by means of this deed become a party to the Planning Agreement in its capacity as landowner of Lot 87.
- G**      The parties wish to vary the Planning Agreement as set out in this deed.



## **It is agreed**

### **1 Definitions and interpretation**

#### **1.1 Definitions**

In this deed:

- (1) **Lot 87** means Lot 87 in DP 752041;
- (2) **Planning Agreement** means the voluntary planning agreement entered into between the Minister and the Developers dated 12 March 2015; and
- (3) **SSD Application means** SSD Application No 6917, which seeks development consent for the staged development of the Oakdale South Development.

#### **1.2 Interpretation**

- (1) In this deed, unless the contrary intention appears:
  - (a) Expressions and phrases used but not defined in this deed will have the same meanings as they have in the Planning Agreement;
  - (b) Clause 1 of the Planning Agreement will apply to the interpretation and construction of this deed.

### **2 Variation of Planning Agreement**

#### **2.1 Variation**

The Planning Agreement is varied as set out in this clause 2.

#### **2.2 Introduction**

The text at para. B. in the Introduction to the Planning Agreement is replaced with the following:

"The Oakdale South Landowner owns the Oakdale South Land (except Lot 87, which will be transferred to the Oakdale South Landowner by Austral)."

#### **2.3 Clause 1.1 Definitions**

A reference in the Planning Agreement to:

- (1) 'Oakdale South Lot 1A' is replaced with 'Oakdale South Lot 1';
- (2) 'Oakdale South Lot 1B' is replaced with 'Oakdale South Lot 2';
- (3) 'Oakdale South Lot 2' is replaced with 'Oakdale South Lot 3';
- (4) 'Oakdale South Lot 3' is replaced with 'Oakdale South Lot 4';
- (5) 'Oakdale South Lot 4A' is replaced with 'Oakdale South Lot 5'; and
- (6) 'Oakdale South Lot 4B' is replaced with 'Oakdale South Lot 6'.

**2.4 Schedule 2 - Address for Service**

Schedule 2 of the Planning Agreement is varied to add the following:

**Austral**

Company: Austral Brick Co Pty Ltd

Contact: Susan Leppinus, Company Secretary

Address: 730 - 780 Wallgrove Road  
HORSLEY PARK NSW 2175

Facsimile No: (02) 9831 3771

**2.5 Schedule 3 – Land**

The table entitled "Land (clause 1.1)" at Schedule 3 of the Planning Agreement is deleted, and replaced with the table at Schedule 1 to this deed.

**2.6 Austral as a party to Planning Agreement**

- (1) Austral is added as a party to the Planning Agreement.
- (2) The Parties acknowledge and agree that:
  - (a) Austral will transfer Lot 87 to the Oakdale South Landowner within 90 days of the date of this deed, time being of the essence;
  - (b) Clause 10.2 of the Planning Agreement does not apply to the Dealing referred to in clause 2.6(2)(a) of this deed; and
  - (c) Once the Dealing referred to in clause 2.6(2)(a) of this deed has been completed and evidence of the registration under the Real Property Act of the transfer of Lot 87 to the Oakdale South Landowner has been provided to the Planning Minister's satisfaction, the Planning Agreement is further varied to:
    - (i) remove Austral as a party;
    - (ii) replace the words "The Austral Brick Co Pty Ltd" at Schedule 1 to this deed with "BGMG8 Pty Ltd"; and
    - (iii) reverse the variations at clause 2.2 and 2.4 of this deed.
  - (d) If the Dealing referred to in clause 2.6(2)(a) of this deed has not been completed within 90 days of the date of this deed, clauses 2.6(2)(b) and 2.6(2)(c) of this deed shall have no application.

**2.7 Annexure A – Oakdale Central and Oakdale South lots**

On and from the date of this deed, the plan entitled "Subdivision Plan – OAK SK119(B)" at Annexure A to the Planning Agreement:

- (1) has effect only insofar as it identifies the original lot references referred to in the Planning Agreement; but

- (2) otherwise is of no effect, and is replaced with the plan at Schedule II to this deed.

## **2.8 Monetary Contributions**

- (1) The two tables at Clause 1(a) and Clause 1(b) of Schedule 4 of the Planning Agreement are deleted, and replaced with the two tables at Schedule III to this deed, respectively.
- (2) The text below the heading "Oakdale South" in the table entitled "Monetary Contribution Component estimates and offsets" which appears on the second page of Annexure B of the Planning Agreement is deleted, and replaced with the table at Schedule IV to this deed.

## **2.9 Altered Design of the Estate Road**

- (1) The plan entitled "Oakdale Central + South – Monetary Contribution (Estimate) – OAK SK117(D)" at Annexure C to the Planning Agreement is deleted, and replaced with the plan at Schedule V to this deed.

## **3 Registration of this deed**

### **3.1 Registration**

- (1) As contemplated by section 93H of the Planning Act, the Developers agree to lodge this deed for registration under the Real Property Act in the relevant folios of the Register for all of the Oakdale Land within 10 Business Days after the date on which a counterpart of this deed which the Planning Minister has executed is returned to the Developer.
- (2) As contemplated by section 93H of the Planning Act, Austral agrees to lodge both this deed and the Planning Agreement for registration under the Real Property Act in the relevant folio for Lot 87 within 10 Business Days after the date on which a counterpart of this deed which the Planning Minister has executed is returned to Austral.
- (3) The Developers will provide the Planning Minister with a copy of the relevant folio of the Register and a copy of the registered dealing which provide evidence that clause 3.1(1) and clause 3.1(2) have been satisfied, within 10 Business Days after the date of registration.

## **4 General**

- 4.1 This deed and the Planning Agreement constitute the entire agreement between the parties regarding the matters set out in it and supersede any prior representations, understandings or arrangements between the parties, whether orally or in writing.

## **5 Expenses**

- 5.1 The Developers must pay their own, Austral's and the Planning Minister's reasonable legal costs and disbursements in connection with the negotiation, preparation, execution and carrying into effect of this deed.
- 5.2 The Developers must pay for all costs and expenses associated with the giving of public notice of this deed and the Explanatory Note in accordance with the Planning Regulation.

- 5.3 The Developers must pay all Taxes assessed on or in respect of this deed and any instrument or transaction required or contemplated by or necessary to give effect to this deed (including stamp duty and registration fees, if applicable).
- 5.4 The Developers must provide the Planning Minister with bank cheques in respect of the Planning Minister's costs pursuant to clauses 5.1 and 5.2 above:
- (1) where the Planning Minister has provided the Developer with written notice of the sum of such costs prior to execution, on the date of execution of this deed; or
  - (2) where the Planning Minister has not provided the Developer with prior written notice of the sum of such costs prior to execution, within 10 Business Days of demand by the Planning Minister for payment.

## **6 Variations not to affect accrued rights and obligations**

- 6.1 The variations to the Planning Agreement do not affect the validity or enforceability of the Planning Agreement as varied.
- 6.2 Nothing in this deed:
- (1) prejudices or adversely affects any right, power, authority, discretion or remedy arising under the Planning Agreement before the date of this deed; or
  - (2) discharges, releases or otherwise affects any liability or obligation arising under the Planning Agreement before the date of this deed.

## **7 Trustees**

Clause 11.3 and Schedule 7 of the Planning Agreement are incorporated as though fully set out in this Deed.

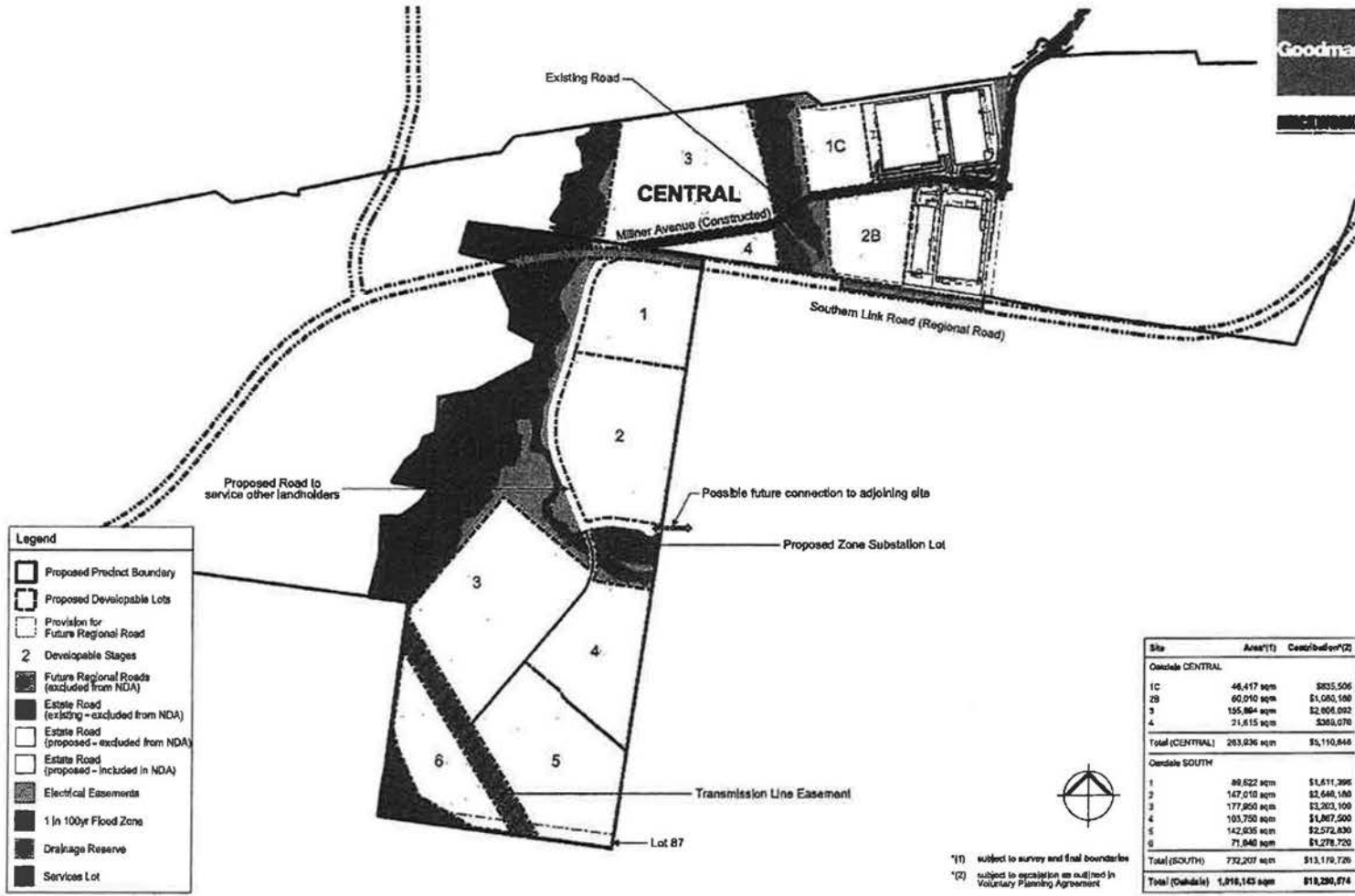
## **8 Confirmation**

Each party is bound by the Planning Agreement as varied by this Deed.

## Schedule I

### Land (clause 1.1)

Land		Lot	Deposited Plan	Registered proprietor
Oakdale Land	Oakdale Central Land	21	1173181	BGAI 6 Pty Ltd
	Oakdale South Land	12	1178389	BGMG 8 Pty Ltd
		87	752041	The Austral Brick Co Pty Ltd
Erskine Park Land		1	1124329	BGAI2 Pty Ltd
		2	1124329	BGAI2 Pty Ltd
		3	1124329	BGAI2 Pty Ltd
		4	1124329	BGAI2 Pty Ltd
		5	1124329	BGAI2 Pty Ltd
		6	1124329	Ministerial Corporation



### Schedule III

1. (a)

Item	Monetary Contribution and Land Component	Amount / Value (subject to clause 2)	Indexation	Manner of Delivery	Timing
1.	The Monetary Contribution Component payable in relation to Oakdale Central Lot 1B ( <b>Oakdale Central Lot 1B Contribution</b> ).	\$1,058,400	Yes (see clause 3 of this Schedule 4)	Cash, bank cheque or electronic funds transfer.	Pursuant to clause 5 of this Schedule 4.
2.	The Monetary Contribution Component payable in relation to the Erskine Park Land ( <b>Erskine Park Contribution</b> ).	\$3,414,056	Yes (see clause 3 of this Schedule 4)	Cash, bank cheque or electronic funds transfer.	Pursuant to clause 5 of this Schedule 4.
3.	The Monetary Contribution Component payable in relation to Oakdale Central Lot 1C ( <b>Oakdale Central Lot 1C Contribution</b> ).	To be calculated pursuant to clause 2 of this Schedule 4.	Yes (see clause 3 of this Schedule 4)	Cash, bank cheque or electronic funds transfer.	Pursuant to clause 5 of this Schedule 4.
4.	The Monetary Contribution Component payable in relation to Oakdale Central Lot 2B ( <b>Oakdale Central Lot 2B Contribution</b> ).	To be calculated pursuant to clause 2 of this Schedule 4.	Yes (see clause 3 of this Schedule 4)	Cash, bank cheque or electronic funds transfer.	Pursuant to clause 5 of this Schedule 4.
5.	The Monetary Contribution Component payable in relation to Oakdale Central Lot 3 ( <b>Oakdale Central Lot 3 Contribution</b> ).	To be calculated pursuant to clause 2 of this Schedule 4.	Yes (see clause 3 of this Schedule 4)	Cash, bank cheque or electronic funds transfer.	Pursuant to clause 5 of this Schedule 4.
6.	The Monetary Contribution Component payable in relation to Oakdale Central Lot 4 ( <b>Oakdale Central Lot 4 Contribution</b> ).	To be calculated pursuant to clause 2 of this Schedule 4.	Yes (see clause 3 of this Schedule 4)	Cash, bank cheque or electronic funds transfer.	Pursuant to clause 5 of this Schedule 4.
7.	The Monetary Contribution	To be calculated	Yes (see clause 3 of	Cash, bank cheque or	Pursuant to clause 5 of



Item	Monetary Contribution and Land Component	Amount / Value (subject to clause 2)	Indexation	Manner of Delivery	Timing
	Component payable in relation to Oakdale South Lot 1 ( <b>Oakdale South Lot 1 Contribution</b> ).	pursuant to clause 2 of this Schedule 4.	this Schedule 4)	electronic funds transfer.	this Schedule 4.
8.	The Monetary Contribution Component payable in relation to Oakdale South Lot 2 ( <b>Oakdale South Lot 2 Contribution</b> ).	To be calculated pursuant to clause 2 of this Schedule 4.	Yes (see clause 3 of this Schedule 4)	Cash, bank cheque or electronic funds transfer.	Pursuant to clause 5 of this Schedule 4.
9.	The Monetary Contribution Component payable in relation to Oakdale South Lot 3 ( <b>Oakdale South Lot 3 Contribution</b> ).	To be calculated pursuant to clause 2 of this Schedule 4.	Yes (see clause 3 of this Schedule 4)	Cash, bank cheque or electronic funds transfer.	Pursuant to clause 5 of this Schedule 4.
10.	The Monetary Contribution Component payable in relation to Oakdale South Lot 4 ( <b>Oakdale South Lot 4 Contribution</b> ).	To be calculated pursuant to clause 2 of this Schedule 4.	Yes (see clause 3 of this Schedule 4)	Cash, bank cheque or electronic funds transfer.	Pursuant to clause 5 of this Schedule 4.
11.	The Monetary Contribution Component payable in relation to Oakdale South Lot 5 ( <b>Oakdale South Lot 5 Contribution</b> ).	To be calculated pursuant to clause 2 of this Schedule 4.	Yes (see clause 3 of this Schedule 4)	Cash, bank cheque or electronic funds transfer.	Pursuant to clause 5 of this Schedule 4.
12.	The Monetary Contribution Component payable in relation to Oakdale South Lot 6 ( <b>Oakdale South Lot 6 Contribution</b> ).	To be calculated pursuant to clause 2 of this Schedule 4.	Yes (see clause 3 of this Schedule 4)	Cash, bank cheque or electronic funds transfer.	Pursuant to clause 5 of this Schedule 4.

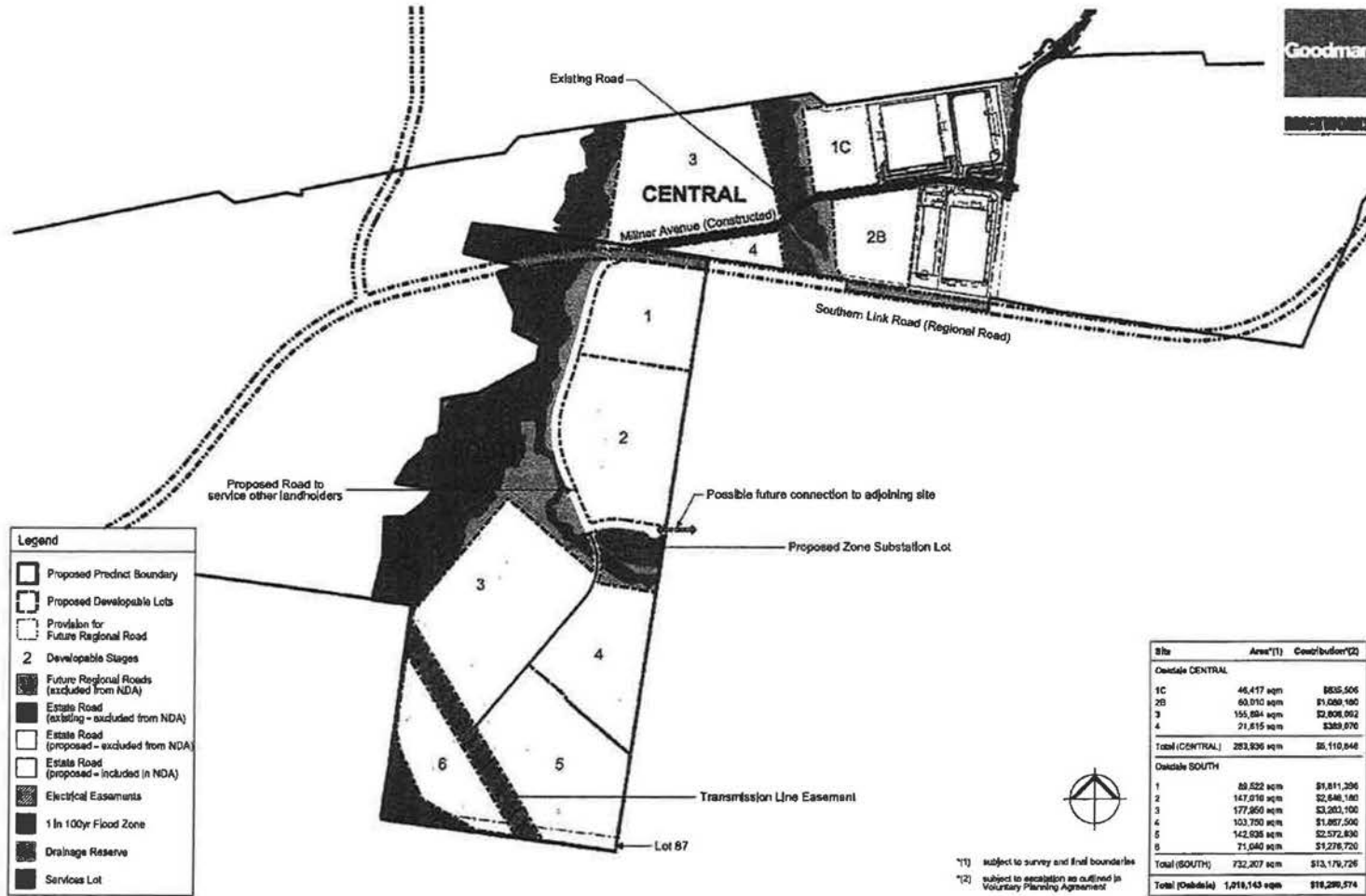
1. (b)

Land Component	Indicative NDA (as at date of this deed)	Indicative contribution amount (based on indicative NDA)
Oakdale Central Land		

<b>Land Component</b>	<b>Indicative NDA (as at date of this deed)</b>	<b>Indicative contribution amount (based on indicative NDA)</b>
Oakdale Central Lot 1C	4.6417 hectares	\$835,506 calculated pursuant to clause 2 of this Schedule 4.
Oakdale Central Lot 2B	6.001 hectares	\$1,080,180 calculated pursuant to clause 2 of this Schedule 4.
Oakdale Central Lot 3	15.5894 hectares	\$2,806,092 calculated pursuant to clause 2 of this Schedule 4.
Oakdale Central Lot 4	2.161 hectares	\$389,070 calculated pursuant to clause 2 of this Schedule 4.
<b>Oakdale South Land</b>		
Oakdale South Lot 1	8.9522 hectares	\$1,611,396 calculated pursuant to clause 2 of this Schedule 4
Oakdale South Lot 2	14.7010 hectares	\$2,646,180 calculated pursuant to clause 2 of this Schedule 4
Oakdale South Lot 3	17.7950 hectares	\$3,203,100 calculated pursuant to clause 2 of this Schedule 4
Oakdale South Lot 4	10.3750 hectares	\$1,867,500 calculated pursuant to clause 2 of this Schedule 4
Oakdale South Lot 5	14.2935 hectares	\$2,572,830 calculated pursuant to clause 2 of this Schedule 4
Oakdale South Lot 6	7.1040 hectares	\$1,278,720 calculated pursuant to clause 2 of this Schedule 4

#### Schedule IV

<b>Site</b>	<b>Land area (m2)</b>	<b>Contribution</b>
Site 1	89,522	\$1,611,396
Site 2	147,010	\$2,646,180
Site 3	177,950	\$3,203,100
Site 4	103,750	\$1,867,500
Site 5	142,935	\$2,572,830
Site 6	71,040	\$1,278,720
<b>Total (South)</b>	<b>732,207</b>	<b>\$13,179,726</b>
<b>TOTAL</b>	<b>1,016,143</b>	<b>\$21,704,630</b>



**Executed** as a deed.

**Signed sealed and delivered** for and on behalf of the **Minister for Planning** in the presence of:

_____ Signature of Witness	_____ Signature as delegate of the Minister for Planning
_____ Name of Witness in full	_____ Full name of delegate

**Signed, sealed and delivered** for and on behalf of **BGAI 6 Pty Ltd** (ABN 19 128 775 799) by its attorneys under a power of attorney dated 18/11/13 registered in NISW with in in the presence of: Book 4659 No 705

Susan Leppinos  
Signature of witness

SUSAN LEPPINOS  
Full name of witness

MA  
Signature of witness

Michelle Ban  
Full name of witness

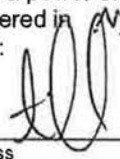
Megan M Kublins  
Signature of attorney who declares that the attorney has not received any notice of the revocation of the power of attorney

MEGAN M KUBLINS  
Full name of attorney

Samantha Evans  
Signature of attorney who declares that the attorney has not received any notice of the revocation of the power of attorney

SAMANTHA EVANS  
Full name of attorney

**Signed, sealed and delivered** for and on behalf of **BGMG 8 Pty Ltd** (ABN 65 161 602 768) by its attorneys under a power of attorney dated 19/12/13 registered in NSW with B/C 4644 No 963 in the presence of:



Signature of witness

Andriana Birkic

Full name of witness

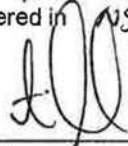


Signature of witness

Michelle Ban

Full name of witness

**Signed, sealed and delivered** for and on behalf of **BGAI 2 Pty Ltd** (ABN 49 120 605 718) by its attorneys under a power of attorney dated 18/11/13 registered in NSW with Book 4659 No 701 in the presence of:



Signature of witness

Andriana Birkic

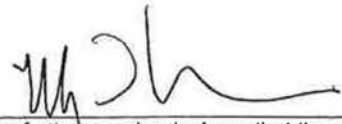
Full name of witness



Signature of witness

Michelle Ban

Full name of witness



Signature of attorney who declares that the attorney has not received any notice of the revocation of the power of attorney

MEGAN M KUBLINS

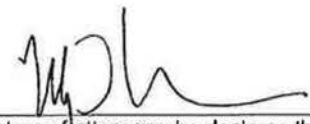
Full name of attorney



Signature of attorney who declares that the attorney has not received any notice of the revocation of the power of attorney

SAMANTHA EVANS

Full name of attorney



Signature of attorney who declares that the attorney has not received any notice of the revocation of the power of attorney

MEGAN M KUBLINS

Full name of attorney



Signature of attorney who declares that the attorney has not received any notice of the revocation of the power of attorney

SAMANTHA EVANS

Full name of attorney

Signed, sealed and delivered for and on behalf of Goodman Property Services (Aust) Pty Limited (ABN 40 088 981 793) by its attorneys under a power of attorney dated 18/12/06 registered in NSW with ~~with~~ in the presence of: BK 4502 No 75

*Michelle Ban*

Signature of witness

Michelle Ban

Full name of witness

Signature of witness

Full name of witness

*[Signature]*

Signature of attorney who declares that the attorney has not received any notice of the revocation of the power of attorney

SAMANTHA EVANS

Full name of attorney

Signature of attorney who declares that the attorney has not received any notice of the revocation of the power of attorney

Full name of attorney

Executed by The Austral Brick Co Pty Ltd ACN 000 005 550 in accordance with section 127 of the Corporations Act 2001:

*Susan Leppinuis*  
Director/company secretary

SUSAN LEPPINUIS  
Name of director/company secretary (BLOCK LETTERS)

*[Signature]*

Director

GRANT DONALD  
Name of director (BLOCK LETTERS)

# Appendix C

---

## AT&L – List of Civil Works & Erosion and Sediment Control Drawings



<b>Drawing No.</b>	<b>Rev.</b>	<b>Name of Plan</b>	<b>Date</b>
C1000	A	Cover Sheet and Locality Plan	03-09-15
C1001	A	Drawing List	03-09-15
C1002	A	General Notes	03-09-15
C1003	A	General Arrangement Plan	03-09-15
C1004	A	Typical Sections Sheet 1	03-09-15
C1005	A	Typical Sections Sheet 2	03-09-15
C1006	A	Typical Sections Sheet 3	03-09-15
C1007	A	Typical Sections Sheet 4	03-09-15
C1008	A	Typical Sections Sheet 5	03-09-15
C1009	A	Typical Sections Sheet 6	03-09-15
C1010	A	Typical Sections Sheet 7	03-09-15
C1015	A	Typical Details Plan	03-09-15
C1020	A	Bulk Earthworks Cut/Fill Plan	03-09-15
C1021	A	Infrastructure Staging Plan	03-09-15
C1031	A	Earthworks and Stormwater Plan Sheet 1	03-09-15
C1232	A	Earthworks and Stormwater Plan Sheet 2	03-09-15
C1033	A	Earthworks and Stormwater Plan Sheet 3	03-09-15
C1034	A	Earthworks and Stormwater Plan Sheet 4	03-09-15
C1035	A	Earthworks and Stormwater Plan Sheet 5	03-09-15
C1036	A	Earthworks and Stormwater Plan Sheet 6	03-09-15
C1037	A	Earthworks and Stormwater Plan Sheet 7	03-09-15
C1038	A	Earthworks and Stormwater Plan Sheet 8	03-09-15
C1039	A	Earthworks and Stormwater Plan Sheet 9	03-09-15
C1040	A	Earthworks and Stormwater Plan Sheet 10	03-09-15
C1041	A	Earthworks and Stormwater Plan Sheet 11	03-09-15
C1042	A	Earthworks and Stormwater Plan Sheet 12	03-09-15
C1043	A	Earthworks and Stormwater Plan Sheet 13	03-09-15
C1051	A	Services and Utilities Coordination Plan Sheet 1	03-09-15
C1052	A	Services and Utilities Coordination Plan Sheet 2	03-09-15
C1053	A	Services and Utilities Coordination Plan Sheet 3	03-09-15
C1054	A	Services and Utilities Coordination Plan Sheet 4	03-09-15
C1055	A	Services and Utilities Coordination Plan Sheet 5	03-09-15
C1056	A	Services and Utilities Coordination Plan Sheet 6	03-09-15
C1057	A	Services and Utilities Coordination Plan Sheet 7	03-09-15
C1058	A	Services and Utilities Coordination Plan Sheet 8	03-09-15
C1059	A	Services and Utilities Coordination Plan Sheet 9	03-09-15
C1060	A	Services and Utilities Coordination Plan Sheet 10	03-09-15
C1061	A	Services and Utilities Coordination Plan Sheet 11	03-09-15
C1062	A	Services and Utilities Coordination Plan Sheet 12	03-09-15
C1063	A	Services and Utilities Coordination Plan Sheet 13	03-09-15
C1071	A	Erosion and Sediment Control Plan Sheet 1	03-09-15
C1072	A	Erosion and Sediment Control Plan Sheet 2	03-09-15
C1073	A	Erosion and Sediment Control Plan Sheet 3	03-09-15
C1074	A	Erosion and Sediment Control Plan Sheet 4	03-09-15
C1075	A	Erosion and Sediment Control Plan Sheet 5	03-09-15
C1076	A	Erosion and Sediment Control Plan Sheet 6	03-09-15
C1077	A	Erosion and Sediment Control Plan Sheet 7	03-09-15
C1078	A	Erosion and Sediment Control Plan Sheet 8	03-09-15
C1079	A	Erosion and Sediment Control Plan Sheet 9	03-09-15

C1080	A	Erosion and Sediment Control Plan Sheet 10	03-09-15
C1081	A	Erosion and Sediment Control Plan Sheet 11	03-09-15
C1082	A	Erosion and Sediment Control Plan Sheet 12	03-09-15
C1083	A	Erosion and Sediment Control Plan Sheet 13	03-09-15
C1084	A	Erosion and Sediment Details	03-09-15
C1091	A	Pavement Plan Sheet 1	03-09-15
C1092	A	Pavement Plan Sheet 2	03-09-15
C1093	A	Pavement Plan Sheet 3	03-09-15
C1094	A	Pavement Plan Sheet 4	03-09-15
C1095	A	Pavement Plan Sheet 5	03-09-15
C1201	A	Roadworks Plan Sheet 1	03-09-15
C1202	A	Roadworks Plan Sheet 2	03-09-15
C1203	A	Roadworks Plan Sheet 3	03-09-15
C1204	A	Roadworks Plan Sheet 4	03-09-15
C1205	A	Roadworks Plan Sheet 5	03-09-15
C1206	A	Roadworks Plan Sheet 6	03-09-15
C1207	A	Roadworks Plan Sheet 7	03-09-15
C1208	A	Roadworks Plan Sheet 8	03-09-15
C1209	A	Roadworks Plan Sheet 9	03-09-15
C1210	A	Roadworks Plan Sheet 10	03-09-15
C1211	A	Roadworks Plan Sheet 11	03-09-15
C1212	A	Roadworks Plan Sheet 12	03-09-15
C1221	A	Road Longitudinal; Sections Sheet 1	03-09-15
C1222	A	Road Longitudinal; Sections Sheet 2	03-09-15
C1223	A	Road Longitudinal; Sections Sheet 3	03-09-15
C1224	A	Road Longitudinal; Sections Sheet 4	03-09-15
C1241	A	Bio-Retention Basin A Detail Plan	03-09-15
C1244	A	Bio-Retention Basin B Detail Plan	03-09-15
C1247	A	Bio-Retention Basin C Detail Plan	03-09-15
C1250	A	Bio-Retention Basin D Detail Plan	03-09-15
C1261	A	Stormwater Culvert Plan and Sections	03-09-15
C1301	A	Stormwater Catchment Plan	03-09-15
C2000	A	On-Lot General Arrangement Plan	03-09-15
C2100	A	Building 1A General Arrangement Plan	03-09-15
C2105	A	Building 1A Siteworks and Stormwater Drainage Plan - Sheet 1	03-09-15
C2106	A	Building 1A Siteworks and Stormwater Drainage Plan - Sheet 2	03-09-15
C2107	A	Building 1A Siteworks and Stormwater Drainage Plan - Sheet 3	03-09-15
C2108	A	Building 1A Siteworks and Stormwater Drainage Plan - Sheet 4	03-09-15
C2110	A	Building 1A Pavement Plan	03-09-15
C2200	A	Building 1B General Arrangement Plan	03-09-15
C2205	A	Building 1B Siteworks and Stormwater Drainage Plan - Sheet 1	03-09-15
C2206	A	Building 1B Siteworks and Stormwater Drainage Plan - Sheet 2	03-09-15
C2207	A	Building 1B Siteworks and Stormwater Drainage Plan - Sheet 3	03-09-15
C2208	A	Building 1B Siteworks and Stormwater Drainage Plan - Sheet 4	03-09-15
C2210	A	Building 1B Pavement Plan	03-09-15
C2300	A	Building 1C General Arrangement Plan	03-09-15
C2305	A	Building 1C Siteworks and Stormwater Drainage Plan - Sheet 1	03-09-15
C2306	A	Building 1C Siteworks and Stormwater Drainage Plan - Sheet 2	03-09-15
C2307	A	Building 1C Siteworks and Stormwater Drainage Plan - Sheet 3	03-09-15
C2308	A	Building 1C Siteworks and Stormwater Drainage Plan - Sheet 4	03-09-15

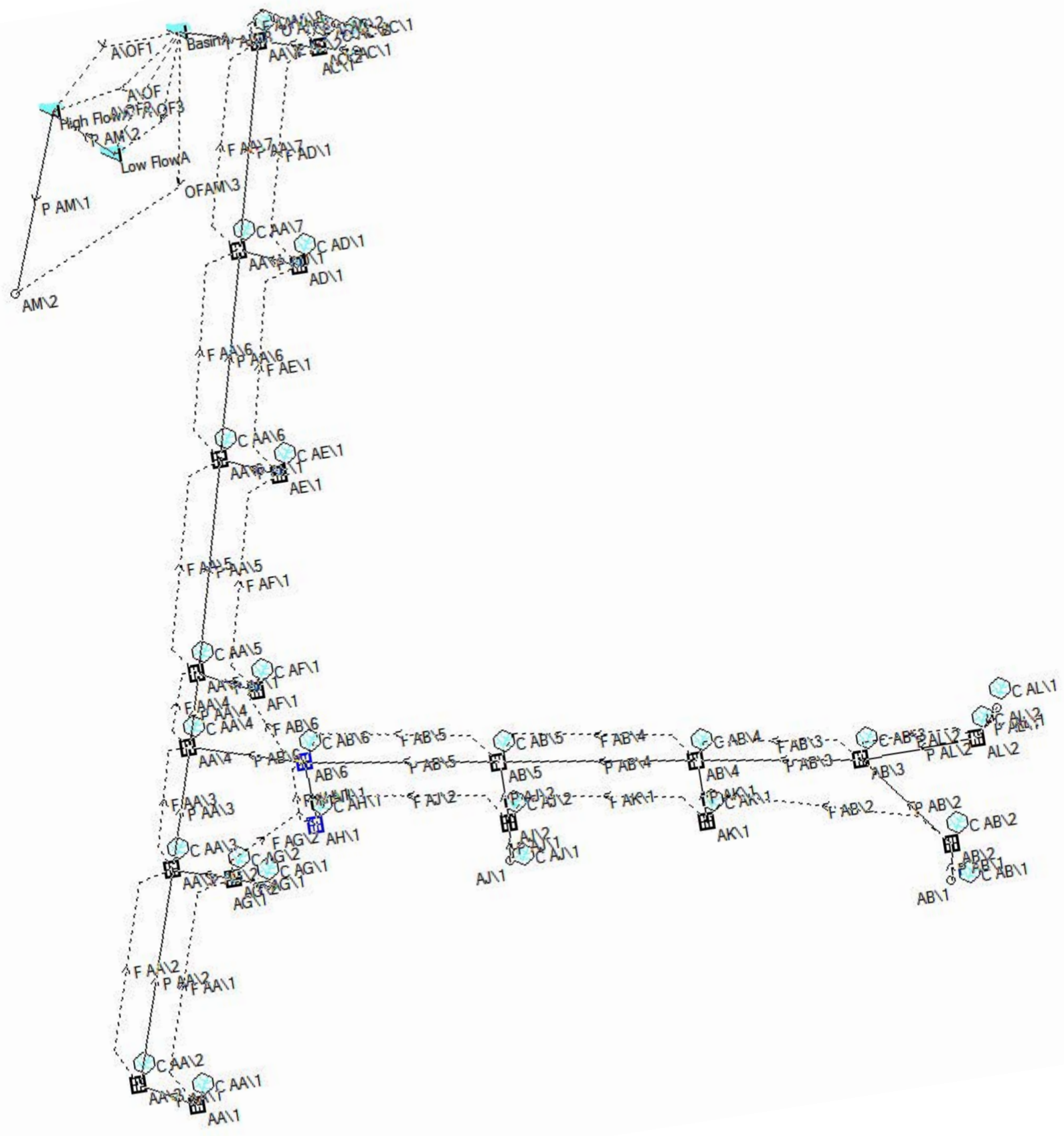
C2310	A	Building 1C Pavement Plan	03-09-15
C2400	A	Building 1D General Arrangement Plan	03-09-15
C2405	A	Building 1D Siteworks and Stormwater Drainage Plan Sheet 1	03-09-15
C2406	A	Building 1D Siteworks and Stormwater Drainage Plan Sheet 2	03-09-15
C2407	A	Building 1D Siteworks and Stormwater Drainage Plan Sheet 3	03-09-15
C2408	A	Building 1D Siteworks and Stormwater Drainage Plan Sheet 4	03-09-15
C2410	A	Building 1D Pavement Plan	03-09-15
C2500	A	Building 4A General Arrangement Plan	03-09-15
C2505	A	Building 4A Sitework and Stormwater Drainage Plan Sheet 1	03-09-15
C2506	A	Building 4A Sitework and Stormwater Drainage Plan Sheet 2	03-09-15
C2508	A	Building 4A Pavement Plan	03-09-15
C2600	A	Building 46 General Arrangement Plan	03-09-15
C2605	A	Building 48 Sitework and Stormwater Drainage Plan Sheet 1	03-09-15
C2606	A	Building 48 Sitework and Stormwater Drainage Plan Sheet 2	03-09-15
C2608	A	Building 48 Pavement Plan	03-09-15
C2700	A	Building 4C General Arrangement Plan	03-09-15
C2705	A	Building 4C Sitework and Stormwater Drainage Plan Sheet 1	03-09-15
C2706	A	Building 4C Sitework and Stormwater Drainage Plan Sheet 2	03-09-15
C2708	A	Building 4C Pavement Plan	03-09-15
C2800	A	Building SA General Arrangement Plan	03-09-15
C2805	A	Building SA Sitework and Stormwater Drainage Plan Sheet 1	03-09-15
C2806	A	Building SA Sitework and Stormwater Drainage Plan Sheet 2	03-09-15
C2807	A	Building SA Sitework and Stormwater Drainage Plan Sheet 3	03-09-15
C2808	A	Building SA Sitework and Stormwater Drainage Plan Sheet 4	03-09-15
C2809	A	Building SA Sitework and Stormwater Drainage Plan Sheet 5	03-09-15
C2810	A	Building SA Sitework and Stormwater Drainage Plan Sheet 6	03-09-15
C2811	A	Building SA Sitework and Stormwater Drainage Plan Sheet 7	03-09-15
C2812	A	Building SA Sitework and Stormwater Drainage Plan Sheet 8	03-09-15
C2814	A	Building SA Pavement Plan	03-09-15

# Appendix D

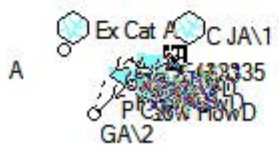
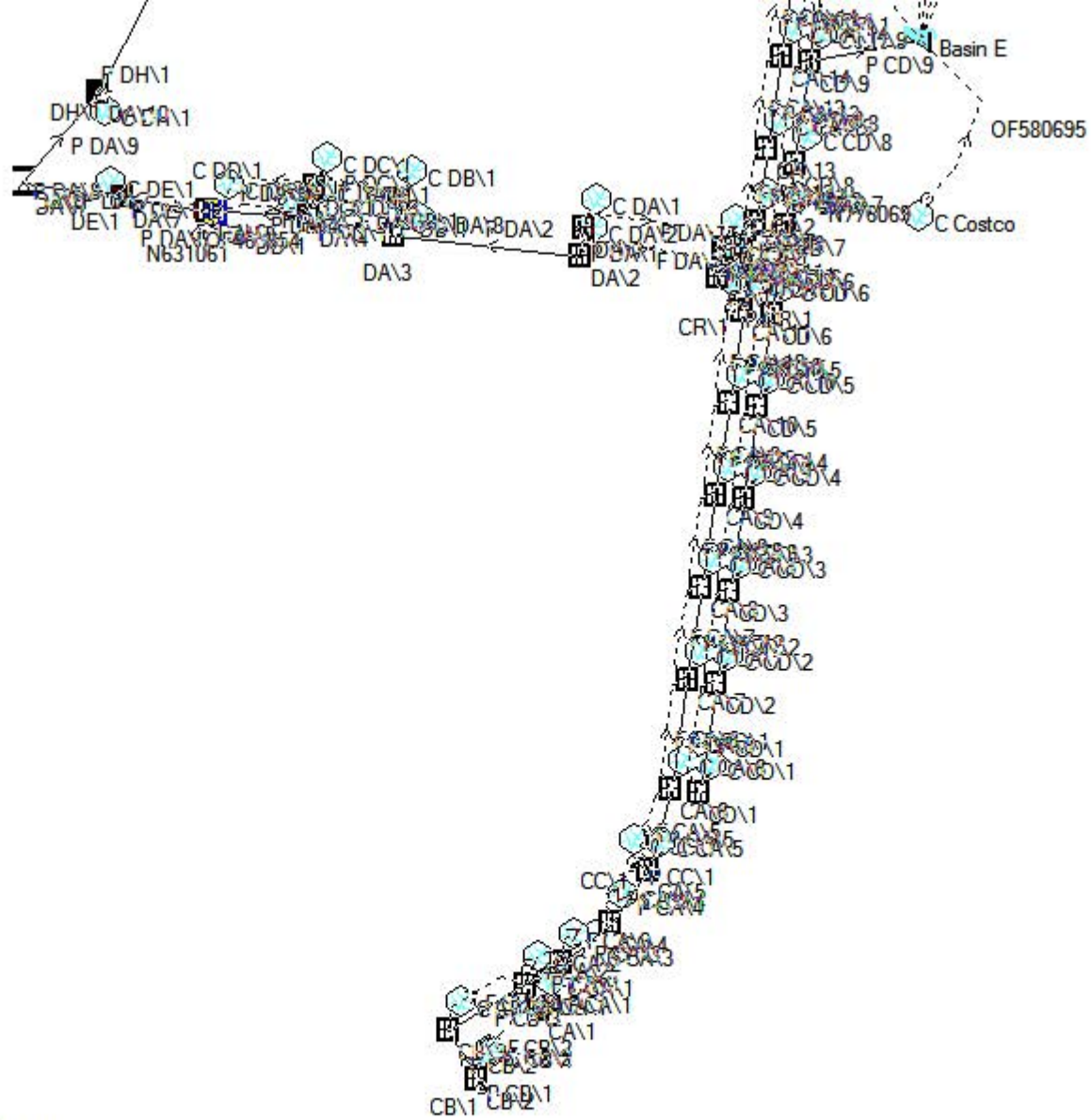
---

## DRAINS Model

G  
Ex Cat G







# Appendix E

---

## MUSIC Model & Results



Create Model Run and Analyse MUSIC-link Settings Help

Pan Zoom Run (F5) Properties Edit

Drainage Link Source Node Treatment Node Other Node

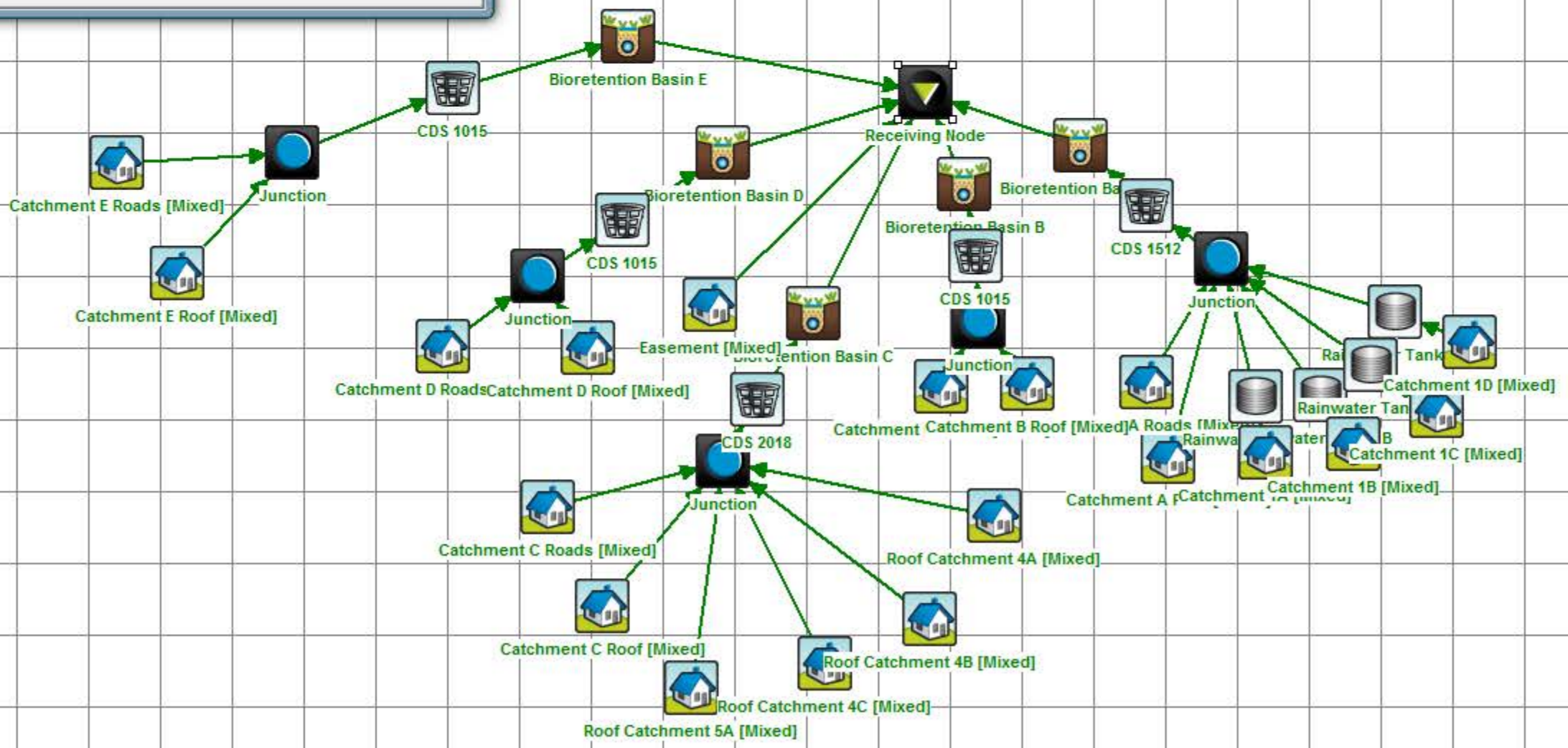
Primary Secondary Urban Wetland Junction

Background Import / Export

Overall Site 16-06-14 (wi...)

**Treatment Train Effectiveness - Receiving Node**

	Sources	Residual Load	% Reduction
<b>Flow (ML/yr)</b>	423	403	4.7
<b>Total Suspended Solids (kg/yr)</b>	77200	11500	85.2
<b>Total Phosphorus (kg/yr)</b>	154	49.2	68
<b>Total Nitrogen (kg/yr)</b>	968	482	50.3
<b>Gross Pollutants (kg/yr)</b>	12300	362	97



# Appendix F

---

## Cardno – Flood Impact Assessment

# Flood Impact Assessment

Oakdale South Industrial Estate

59915094



Prepared for  
Goodman Ltd

1 August 2016

## Contact Information

### Cardno (NSW/ACT) Pty Ltd

ABN 95 001 145 035

Level 9, The Forum  
203 Pacific Highway St Leonards NSW 2065

Telephone: 61 2 9496 7700  
Facsimile: 61 2 9439 5170  
International: 61 2 9496 7700

sydney@cardno.com.au  
www.cardno.com

## Document Information

Prepared for Goodman Ltd  
Project Name Oakdale South Industrial Estate  
File Reference 59915094 Oakdale Sth R003  
11Jul16.doc  
Job Reference 59914136  
Date 11 July 2016

## Document Control

Version	Date	Description of Revision	Prepared By	Prepared (Signature)	Reviewed By	Reviewed (Signature)
1	16/9/2015	Draft Final	BCP	<i>Brett C. Phillips</i>	A Tweedie	
2	27/5/2016	Updated Draft Final	BCP	<i>Brett C. Phillips</i>	R Hogan	
3	31/5/2016	Updated Final	BCP	<i>Brett C. Phillips</i>	R Hogan	
4	11/7/2016	Updated Final	BCP	<i>Brett C. Phillips</i>	R Hogan	
4A	1/8/2016	Updated Final	BCP	<i>Brett C. Phillips</i>	R Hogan	

Version	Reason for Issue	Approved for Release By	Approved (Signature)	Approved Release Date
1	Final Report	BCP	<i>Brett C. Phillips</i>	16/9/2015
2	Updated Draft Final Report	BCP	<i>Brett C. Phillips</i>	27/5/2016
3	Updated Final Report	BCP	<i>Brett C. Phillips</i>	31/5/2016
4	Updated Final Report	BCP	<i>Brett C. Phillips</i>	11/7/2016
4A	Updated Final Report	BCP	<i>Brett C. Phillips</i>	1/8/2016

Document Reference: N:\Projects\599\FY15\094\_FA Oakdale South Development\Report\59915094 Oakdale Sth R003  
1Aug16.doc

© Cardno 2016. Copyright in the whole and every part of this document belongs to Cardno and may not be used, sold, transferred, copied or reproduced in whole or in part in any manner or form or in or on any media to any person other than by agreement with Cardno.

This document is produced by Cardno solely for the benefit and use by the client in accordance with the terms of the engagement. Cardno does not and shall not assume any responsibility or liability whatsoever to any third party arising out of any use or reliance by any third party on the content of this document.

## Executive Summary

An updated flood impact assessment has been prepared to address the Oakdale South – Secretary's Environmental Assessment Requirements in relation to Soils and Water which require in part:

*An assessment of flooding impacts associated with the proposal including details of any flood liability of the site and changes to flood behaviour.*

As part of the master planning for the precinct the existing flood modelling was reviewed, re-run and an assessment was undertaken of the impacts on flooding of the proposed earthworks and measures associated with the planned development of the Oakdale South Industrial Estate.

This flood impact assessment report should be read in conjunction with AT&L's Civil, Stormwater and Infrastructure Services Report.

### **100 yr ARI Flood**

It is concluded that the proposed updated development will have a minor impact on 100 yr ARI flooding on the Ropes Creek floodplain which will not adversely impact on any adjoining property subject to Post-Development peak flows being limited to Pre-Development levels.

A zone of local increases in 100 yr ARI flood levels also occurs within the power line easement adjacent to the proposed development in an area already inundated in a 100 yr ARI flood under Existing Conditions. It is noted that within the easement the 100yr ARI flood extents are reduced, velocities maintained and that while the depth is locally increased (generally 0.1-0.2 m increase with local increases of 0.2-0.5 m) these local impacts are located around 60m from the existing transmission tower. It is concluded that these local flood impacts, which are confined close to the development, are expected to have negligible impact on the maintenance of TransGrid's easement and do not pose a risk to existing transmission stanchions.

It is further concluded that within the Ropes Creek floodplain that there are some zones with local increases in the 100 yr ARI velocities which is associated with local earthworks and /or due to the walls of local retarding basins; and these changes are confined within the 100 yr ARI flood extent which is not significantly changed by proposed earthworks.

The 100 yr ARI flood levels in the vicinity of the Warragamba Pipelines Corridor either do not increase or slightly decrease while the 100 yr ARI flood velocities in the vicinity of the Warragamba Pipelines Corridor are effectively unchanged.

### **PMF**

As expected based on the severity of flooding, a number of flowpaths through the development would be activated by PMF flows discharged into the development along existing drainage lines. This includes a flowpath along the eastern boundary. A wall is located on the eastern boundary just south of the existing drainage line which flows between Basin E and Road 03 to contain within the site the flows which activate a flowpath along the eastern boundary in an event approaching the PMF.

It is concluded that under the proposed updated development that within the Ropes Creek floodplain that there are zones of both local reductions and local increases in the PMF levels. These minor changes in PMF levels do not significantly change the PMF extents on any adjoining properties. It is noted that there is a local small increase in the PMF level on a tributary of Ropes Creek which appears associated with the earthworks undertaken immediately north of the subject site.

It is further concluded that within the Ropes Creek floodplain that there are some zones with local increases in the PMF levels which is associated with local earthworks and /or due to the walls of local retarding basins; and these changes are confined within the PMF flood extent which is not significantly changed by proposed earthworks.

The PMF levels in the vicinity of the Warragamba Pipelines Corridor are largely unchanged or slightly reduce in level. It is noted that there are some local small increase in the PMF level adjacent to the corridor which appears associated with the earthworks undertaken immediately north of the subject site in Oakdale Central.

The PMF velocities in the vicinity of the Warragamba Pipelines Corridor are effectively unchanged

# Table of Contents

<b>Executive Summary</b>	<b>ii</b>
<b>1 Introduction</b>	<b>1</b>
1.1 Purpose of this Report	1
1.2 Location	1
1.3 Concept Stormwater Masterplan	1
1.4 Previous GHD Studies	1
1.5 Previous Cardno Studies	1
<b>2 Hydrology</b>	<b>3</b>
2.1 Existing (Pre-Development) Conditions	3
2.2 Future (Post-Development) Conditions	3
<b>3 Flooding Assessment</b>	<b>4</b>
3.1 Existing Conditions	4
3.1.1 100 yr ARI	4
3.1.2 PMF	6
3.2 Future Conditions	6
3.2.1 100 yr ARI	7
3.2.2 PMF	7
<b>4 Flood Impact Assessment</b>	<b>8</b>
<b>5 Conclusions</b>	<b>10</b>
5.1 100 yr ARI Flood	10
5.2 PMF	10
<b>6 References</b>	<b>12</b>

## Appendices

**Appendix A Figures**

**Appendix B Assessing the Impact of Development Controls on Design Flows**

## List of Tables

Table 1	Estimated 100 yr ARI and PMF Levels at Reference Locations
Table B.1	Estimated Peak Flows (m <sup>3</sup> /s)
Table B.2	Accuracy of Estimated Peak Flows (m <sup>3</sup> /s)
Table B.3	Estimated Peak PMF Flows (m <sup>3</sup> /s)

## List of Figures

Figure 1	Location of Oakdale South Precinct (after Figure 1, GHD, 2008)
Figure 2	100 yr ARI Flood Map (Rev A, June 2007) (after GHD, 2008)
Figure 3	Concept Oakdale Industrial Estate Masterplan
Figure 4	Subcatchment Boundaries in the vicinity of Oakdale South under Existing Conditions
Figure 5	Subcatchment Boundaries under Future Conditions
Figure 6	<b>xpraf</b> ts Link-Node Diagrams – Existing Conditions
Figure 7	100 yr ARI Inflow Locations in TUFLOW Model - Existing Conditions
Figure 8	100 yr ARI Critical Storm Burst Durations - Existing Conditions
Figure 9	100 yr ARI Flood Extents and Flood Levels - Existing Conditions
Figure 10	100 yr ARI Flood Depths - Existing Conditions
Figure 11	100 yr ARI Flood Velocities - Existing Conditions
Figure 12	100 yr ARI Flood Velocity x Depth - Existing Conditions
Figure 13	100 yr ARI Flood Hazards - Existing Conditions
Figure 14	PMF Inflow Locations in TUFLOW Model - Existing Conditions
Figure 15	PMF Critical Storm Burst Durations - Existing Conditions
Figure 16	PMF Flood Extents and Flood Levels - Existing Conditions
Figure 17	PMF Flood Depths - Existing Conditions
Figure 18	PMF Flood Velocities - Existing Conditions
Figure 19	PMF Flood Velocity x Depth - Existing Conditions
Figure 20	PMF Flood Hazards - Existing Conditions
Figure 21	Proposed Development Layout for Oakdale South Estate



## List of Figures Continued

- Figure 22 100 yr ARI Inflow Locations in TUFLOW Model - Future Conditions
- Figure 23 100 yr ARI Critical Storm Burst Durations - Future Conditions
- Figure 24 100 yr ARI Flood Extents and Flood Levels - Future Conditions
- Figure 25 100 yr ARI Flood Depths - Future Conditions
- Figure 26 100 yr ARI Flood Velocities - Future Conditions
- Figure 27 100 yr ARI Flood Velocity x Depth - Future Conditions
- Figure 28 100 yr ARI Flood Hazards - Future Conditions
- Figure 29 100 yr ARI Level Differences - (Future – Existing Conditions)
- Figure 30 100 yr ARI Velocity Differences - (Future – Existing Conditions)
- Figure 31 PMF Inflow Locations in TUFLOW Model - Future Conditions
- Figure 32 PMF Critical Storm Burst Durations - Future Conditions
- Figure 33 PMF Flood Extents and Flood Levels - Future Conditions
- Figure 34 PMF Flood Depths - Future Conditions
- Figure 35 PMF Flood Velocities - Future Conditions
- Figure 36 PMF Flood Velocity x Depth - Future Conditions
- Figure 37 PMF Flood Hazards - Future Conditions
- Figure 38 PMF Level Differences - (Future – Existing Conditions)
- Figure 39 PMF Velocity Differences - (Future – Existing Conditions)
- Figure 40 Reference Locations
- 
- Figure B.1 Comparison of 1% AEP Outflow Hydrographs for Various Scenarios

# 1 Introduction

## 1.1 Purpose of this Report

This report details the updated flood impact assessment which has been prepared to address the Oakdale South – Secretary’s Environmental Assessment Requirements in relation to Soils and Water which require in part:

*An assessment of flooding impacts associated with the proposal including details of any flood liability of the site and changes to flood behaviour.*

As part of the master planning for the precinct an assessment was undertaken of the impacts on flooding of the proposed updated earthworks and measures associated with the planned development of the Oakdale South Industrial Estate.

This flood impact assessment report should be read in conjunction with AT&L’s Civil, Stormwater and Infrastructure Services Report.

## 1.2 Location

The location of the Oakdale South precinct is indicated in **Figure 1**. The property is located in the upper reach of the Ropes Creek catchment.

## 1.3 Concept Stormwater Masterplan

The updated Oakdale Industrial Estate Stormwater Masterplan prepared in June 2016 is given in **Figure 3**.

## 1.4 Previous GHD Studies

In 2008 GHD undertook hydrological and hydraulic modelling of the upper Ropes Creek catchment including the overall Oakdale development.

Hydrological modelling was undertaken at the catchment and development scale. Results for the catchment hydrological modelling were not included in the 2008 report.

Hydraulic modelling was undertaken using a 1D/2D TUFLOW model. The 100 yr ARI flood extents and flood levels estimated in the 2008 floodplain modelling are given in **Figure 2**.

An addendum to this report was produced in 2013 as part of the detailed design of Oakdale Central (GHD, 2013). This report indicated that the adopted 2D grid size was 5 m x 5 m.

## 1.5 Previous Cardno Studies

Cardno prepared a flood impact assessments in September 2015 and May 2016 to address the Oakdale South – Secretary’s Environmental Assessment Requirements in relation to Soils and Water.

As part of the master planning for the precinct the existing flood modelling was reviewed, re-run and an assessment was undertaken of the impacts on flooding of the proposed earthworks and measures associated with the planned development of the Oakdale South Industrial Estate.

It was concluded that the proposed development will have a minor impact on 100 yr ARI flooding on the Ropes Creek floodplain which will not adversely impact on any adjoining property subject to Post-Development peak flows being limited to Pre-Development levels.

## 2 Hydrology

Hydrological modelling of the upper Ropes Creek catchment was undertaken at the catchment and development scale using **xprafits**.

### 2.1 Existing (Pre-Development) Conditions

The subcatchment boundaries under Existing Conditions in the vicinity of the estate are given in **Figure 4**.

The **xprafits** link-node diagram for the Existing Conditions model is given in **Figure 6**.

### 2.2 Future (Post-Development) Conditions

The GHD Post-Development model was modified based on a Catchment Plan received on 24 August 2015. This required the creation of new subcatchments and adjustment of subcatchments N3, N4, N5 and N7. **Figure 3** details the modified subcatchment layout while **Figure 6** details the changes to the SSDA layout.

The impact of the modification of subcatchments and model layout was checked at Node N7 being the nearest mainstream node downstream of the proposed development. It was concluded that the modification has had minimal impact on the estimated 100 yr ARI peak flow.

## 3 Flooding Assessment

The updated assessment of the impact or otherwise of development was undertaken using a TUFLOW floodplain model of the upper Ropes Creek floodplain.

The model extent covers the subject site.

### 3.1 Existing Conditions

#### 3.1.1 100 yr ARI

The locations at which 100yr ARI hydrographs from the **xprafits** model were input into the TUFLOW floodplain model are identified in **Figure 7**. The TUFLOW floodplain model was run for a range of storm durations up to 9 hours. It was found that the critical storm burst duration varied depending on location as identified in **Figure 8**.

The estimated 100 year ARI flood levels and extent, depths and velocities under benchmark Existing Conditions are plotted in **Figures 9, 10 and 11** respectively.

When initially considering pedestrian and vehicular stability, three velocity x depth criteria were identified as follows:

Velocity x Depth	Comment
$\leq 0.4 \text{ m}^2/\text{s}$	This is typically adopted by Councils as a limit of stability for pedestrians
$0.4 - 0.6 \text{ m}^2/\text{s}$	Unsafe for pedestrians but safe for vehicles if overland flood depths do not exceed around 0.3 m
$> 0.6 \text{ m}^2/\text{s}$	This is typically adopted by Councils as a limit of stability for vehicles

As part of the current revision of Australian Rainfall & Runoff (ARR) a series of research projects have been undertaken to inform the updating of the current edition of ARR. This includes ARR Project 10 Appropriate Safety Criteria for Vehicles. Most recently in December 2013 a draft version of Book 9 Chapter 6 Safety Design Criteria has been released by Engineers Australia for industry review (Download from: <http://www.arr.org.au/downloads-and-software/chapters/>).

In the draft Chapter 6 Book 9 *stability criteria based on the best available information for stationary small passenger cars, large passenger cars and large 4WD vehicles in various flow situations are presented in Figure 9.6.6 and Table 9.6.2* This Table and Figure are reproduced below.

In the draft Chapter 6 Book 9 it is further advised that:

*Shand et al (2011) concludes that the available datasets do not adequately account for the following factors and that more research is needed in these areas:*

- *Friction coefficients for contemporary vehicle tyres in flood flows;*
- *Buoyancy changes in modern cars;*
- *The effect of vehicle orientation to flow direction (including vehicle movement);*
- *Information for additional categories including small and large commercial vehicles and emergency service vehicles*

Table 9.6.2. Interim Flow Hazard Regimes for Vehicles (Shand et al, 2011)

Class of vehicle	Length (m)	Kerb Weight (kg)	Ground clearance (m)	Limiting still water depth <sup>1</sup>	Limiting high velocity flow depth <sup>2</sup>	Limiting velocity <sup>3</sup>	Equation of stability
Small passenger	< 4.3	< 1250	< 0.12	0.3	0.1	3.0	$DV \leq 0.3$
Large passenger	> 4.3	> 1250	> 0.12	0.4	0.15	3.0	$DV \leq 0.45$
Large 4WD	> 4.5	> 2000	> 0.22	0.5	0.2	3.0	$DV \leq 0.6$

<sup>1</sup>At velocity = 0 ms<sup>-1</sup>; <sup>2</sup>At velocity = 3.0 ms<sup>-1</sup>; <sup>3</sup>At low depth

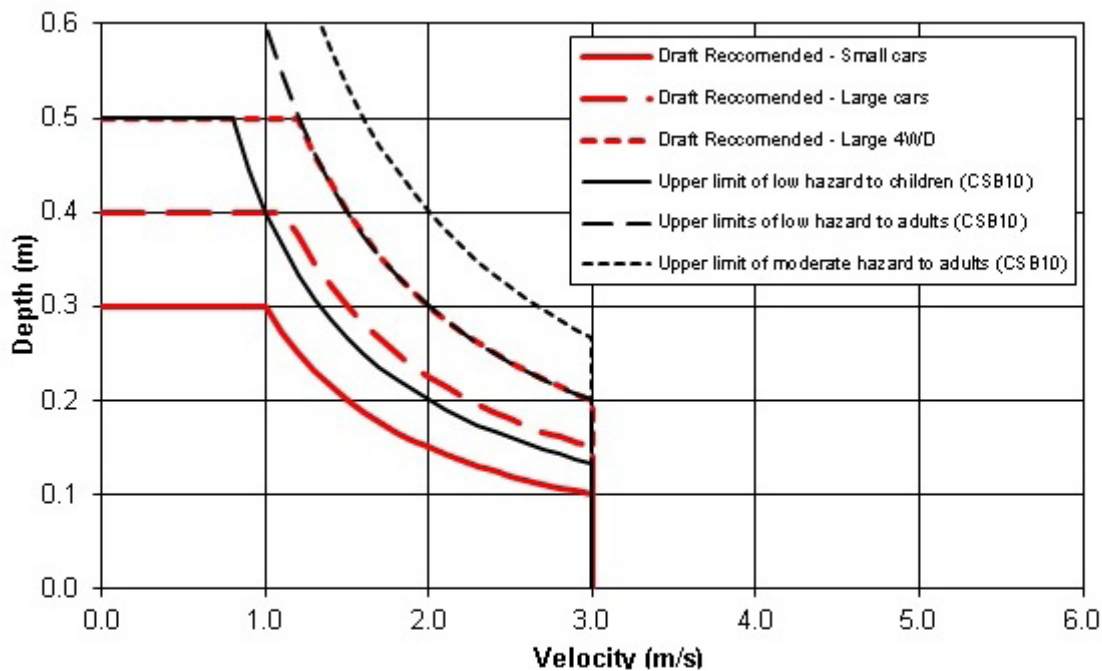
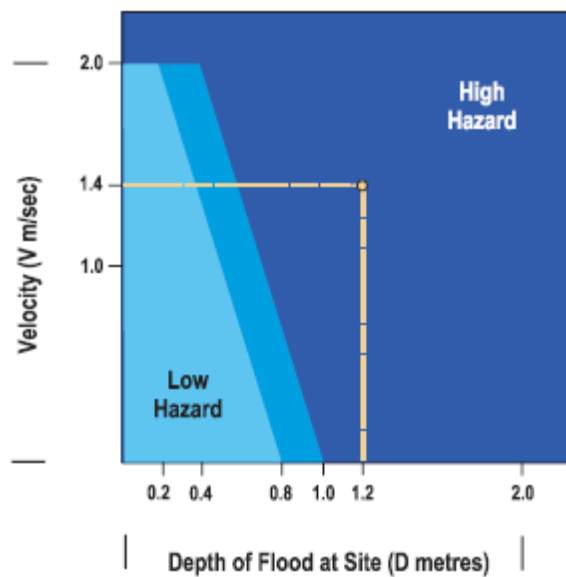


Figure 9.6.6. Interim Safety Criteria for Vehicles in Variable Flow Conditions (After Shand et al, 2011)

The estimated 100 year ARI velocity x depth under Existing Conditions is plotted in **Figure 12**.

Experience from studies of floods throughout NSW and elsewhere has allowed authorities to develop methods of assessing the hazard to life and property on floodplains. This experience has been used in developing the NSW Floodplain Development Manual to provide guidelines for managing this hazard. These guidelines are shown schematically below.

To use the diagram, it is necessary to know the average depth and velocity of floodwaters at a given location. If the product of depth and velocity exceeds a critical value (as shown below), the flood flow will create a high hazard to life and property. There will probably be danger to persons caught in the floodwaters, and possible structural damage. Evacuation of persons would be difficult. By contrast, in low hazard areas people and their possessions can be evacuated safely by trucks. Between the two categories a transition zone is defined in which the degree of hazard is dependent on site conditions and the nature of the proposed development.



Provisional Hazard Categories (after Figure L2, NSW Government, 2005)

This calculation leads to a provisional hazard rating. The provisional hazard rating may be modified by consideration of effective flood warning times, the rate of rise of floodwaters, duration of flooding and ease or otherwise of evacuation in times of flood. The estimated 100 year ARI provisional flood hazard under Existing Conditions is plotted in **Figure 13**.

### 3.1.2 PMF

The locations at which PMF hydrographs from the **xprafits** model were input into the TUFLOW floodplain model are identified in **Figure 14**. The TUFLOW floodplain model was run for a range of PMP storm durations up to 6 hours. It was found that the critical PMP storm duration varied depending on location as identified in **Figure 15**.

The estimated PMF flood levels and extent, depths and velocities under benchmark Existing Conditions are plotted in **Figures 16, 17** and **18** respectively.

The estimated PMF velocity x depth under Existing Conditions is plotted in **Figure 19**.

The estimated PMF provisional flood hazard under Existing Conditions is plotted in **Figure 20**.

## 3.2 Future Conditions

Prior to assessing flooding under future conditions the proposed development terrain was imported using a supplied TIN. The proposed updated development layout is given in **Figure 21**. Features of the proposed development include (refer **Figure 21**):

- The diversion of upstream 100 yr ARI runoff from Subcatchment N4b (refer **Figure 4**) immediately west to Ropes Creek;
- The proposed construction of Basins A, B, C, D and E comprising bio-retention in the base of the basin to achieve quality objectives and active basin storage to limit Post-Development peak flows to Pre-Development levels;
- Re-alignment of the Ropes Creek tributary upstream of Road 01 to direct flows into a 1 x 3.6 m (W) x 1.8 m (H) RCBC + 1 x 1.2 m (W) x 1.2 m (H) RCBC crossing under Road 01; and

- Re-alignment of a reach of the Ropes Creek tributary downstream of Road 01 to re-direct flows into an existing watercourse;
- Input of local runoff from within the easement at the downstream northern end of the easement (refer **Figure 22**);
- Inclusion of a wall on the eastern boundary just south of existing drainage line which flows between Basin E and Road 03 (refer **Figure 21**) to contain flows which activate a flowpath along the eastern boundary in an event approaching the PMF within the site.

### 3.2.1 100 yr ARI

The model was the run to estimate 100 yr ARI flooding under Future Conditions based on the approach adopted by GHD previously when assessing Future Conditions (as discussed in **Appendix B**).

The TUFLOW floodplain model was run for a range of storm durations up to 9 hours. It was found that the critical storm burst duration varied depending on location as identified in **Figure 23**.

The estimated 100 year ARI flood levels and extent, depths, velocities, velocity x depth and hazards under Future Conditions are plotted in **Figures 24, 25, 26, 27** and **28** respectively.

### 3.2.2 PMF

The model was the run to estimate PMF under Future Conditions based on the approach discussed in **Appendix B**.

While 100 yr ARI runoff from Subcatchment N4b (refer **Figure 4**) is proposed to be diverted immediately west to Ropes Creek, the local PMF runoff greatly exceeds the 100 yr ARI runoff. Accordingly the PMF runoff from Subcatchment N4b was input on the alignment of the current local watercourse (refer **Figure 31**)

The TUFLOW floodplain model was run for a range of PMP storm durations up to 6 hours. It was found that the critical PMP storm duration varied depending on location as identified in **Figure 32**.

The estimated PMF flood levels and extent, depths and velocities under benchmark Future Conditions are plotted in **Figures 33, 34** and **35** respectively.

The estimated PMF velocity x depth under Future Conditions is plotted in **Figure 36**.

The estimated PMF provisional flood hazard under Future Conditions is plotted in **Figure 37**.



## 4 Flood Impact Assessment

The estimated impact of Future Conditions on 100 year ARI flood levels and velocities are plotted in **Figures 29** and **30** respectively. The estimated impact of Future Conditions on PMF levels and velocities are plotted in **Figures 38** and **39** respectively.

100 yr ARI flood levels and PMF levels at 8 reference locations identified in **Figure 40** are summarised in **Table 1**.

**Table 1 Estimated 100 yr ARI and PMF Levels at Reference Locations**

Location	Existing Conditions			Future Conditions				Existing	Future
	100yr 2hr (m AHD)	100hr 9hr (m AHD)	Max WL (m AHD) (a)	100yr 2hr (m AHD)	100hr 9hr (m AHD)	Max WL (m AHD) (c)	Difference (cm) (c)-(a)	PMF (m AHD)	PMF (m AHD)
R1	62.97	62.79	62.97	62.72	62.65	62.72	-25	64.20	64.12
R2	60.96	60.84	60.96	60.86	60.84	60.86	-10	62.11	62.44
R3	60.02	59.94	60.02	60.07	60.05	60.07	4	60.97	61.21
R4	58.85	58.80	58.85	58.94	58.93	58.94	8	59.89	59.92
R5	58.31	58.25	58.31	58.20	58.18	58.20	-12	59.40	59.50
R6	57.47	57.43	57.47	57.43	57.43	57.43	-4	58.62	58.66
R7	56.62	56.64	56.64	56.65	56.66	56.66	2	57.57	57.68
R8	54.93	54.95	54.95	54.91	54.93	54.93	-2	56.20	56.18

It is noted from **Figure 29** that:

- within the Ropes Creek floodplain that there are zones of both minor reductions and minor increases in the 100 yr ARI flood levels;
- The reductions in flood levels are attributed primarily to the changes to a number of inflow locations under Future Conditions;
- the minor changes in flood levels do not change the flood extents on any adjoining properties;
- the 100 yr ARI flood levels in the vicinity of the Warragamba Pipelines Corridor either do not increase or slightly decrease;
- a zone of local increases in 100 yr ARI flood levels also occurs within the power line easement adjacent to the proposed development in an area already inundated in a 100 yr ARI flood under Existing Conditions;
- within the power line easement the 100yr ARI flood extents are reduced, velocities maintained and that while the depth is locally increased (generally 0.1-0.2 m increase with local increases of 0.2-0.5 m) these local impacts are located around 60m from the existing transmission tower.

It is noted from **Figure 30** that 100 yr ARI velocity impacts are primarily located within the middle reach of the development and where it is proposed to construct a new channel(s). The 100 yr ARI flood velocities in the vicinity of the Warragamba Pipelines Corridor are effectively unchanged.

As expected based on the severity of flooding, a number of flowpaths through the development would be activated by PMF flows discharged into the development along existing drainage lines. This includes a flowpath along the eastern boundary. A wall is located on the eastern boundary just south of the existing drainage line which flows between Basin E and Road 03 to contain within the site the flows which activate a flowpath along the eastern boundary in an event approaching the PMF.

The estimated PMF level differences under Future Conditions in comparison with Existing Conditions are plotted in **Figure 38**. It is noted from **Figure 38** that:

- within the Ropes Creek floodplain that there are zones of both local reductions and local increases in the PMF levels;
- the minor changes in PMF levels do not significantly change the PMF extents on any adjoining properties;
- PMF levels in the vicinity of the Warragamba Pipelines Corridor are largely unchanged or slightly reduce in level. It is noted that there are some local small increase in the PMF level adjacent to the corridor which appears associated with the earthworks undertaken immediately north of the subject site in Oakdale Central; and
- It is noted that there is a local small increase in the PMF level on a tributary of Ropes Creek which appears associated with the earthworks undertaken immediately north of the subject site.

The estimated PMF velocity differences under Future Conditions in comparison with Existing Conditions are plotted in **Figure 39**. It is noted from **Figure 39** that:

- within the Ropes Creek floodplain that there are some zones with local increases in the PMF velocities which is associated with local earthworks and /or due to the walls of local retarding basins;
- these changes are confined within the PMF flood extent which is not significantly changed by proposed earthworks;
- PMF velocities in the vicinity of the Warragamba Pipelines Corridor are effectively unchanged.

## 5 Conclusions

An updated flood impact assessment has been prepared to address the Oakdale South – Secretary's Environmental Assessment Requirements in relation to Soils and Water which require in part:

*An assessment of flooding impacts associated with the proposal including details of any flood liability of the site and changes to flood behaviour.*

As part of the master planning for the precinct the existing flood modelling was reviewed, re-run and an assessment was undertaken of the impacts on flooding of the proposed earthworks and measures associated with the planned development of the Oakdale South Industrial Estate.

This flood impact assessment report should be read in conjunction with AT&L's Civil, Stormwater and Infrastructure Services Report.

### 5.1 100 yr ARI Flood

It is concluded that the proposed updated development will have a minor impact on 100 yr ARI flooding on the Ropes Creek floodplain which will not adversely impact on any adjoining property subject to Post-Development peak flows being limited to Pre-Development levels.

A zone of local increases in 100 yr ARI flood levels also occurs within the power line easement adjacent to the proposed development in an area already inundated in a 100 yr ARI flood under Existing Conditions. It is noted that within the easement the 100yr ARI flood extents are reduced, velocities maintained and that while the depth is locally increased (generally 0.1-0.2 m increase with local increases of 0.2-0.5 m) these local impacts are located around 60m from the existing transmission tower. It is concluded that these local flood impacts, which are confined close to the development, are expected to have negligible impact on the maintenance of TransGrid's easement and do not pose a risk to existing transmission stanchions.

It is further concluded that within the Ropes Creek floodplain that there are some zones with local increases in the 100 yr ARI velocities which is associated with local earthworks and /or due to the walls of local retarding basins; and these changes are confined within the 100 yr ARI flood extent which is not significantly changed by proposed earthworks.

The 100 yr ARI flood levels in the vicinity of the Warragamba Pipelines Corridor either do not increase or slightly decrease while the 100 yr ARI flood velocities in the vicinity of the Warragamba Pipelines Corridor are effectively unchanged.

### 5.2 PMF

As expected based on the severity of flooding, a number of flowpaths through the development would be activated by PMF flows discharged into the development along existing drainage lines. This includes a flowpath along the eastern boundary. A wall is located on the eastern boundary just south of the existing drainage line which flows between Basin E and Road 03 to contain within the site the flows which activate a flowpath along the eastern boundary in an event approaching the PMF.

It is concluded that under the proposed updated development that within the Ropes Creek floodplain that there are zones of both local reductions and local increases in the PMF levels. These minor changes in PMF levels do not significantly change the PMF extents on any adjoining properties. It is noted that there is a local small increase in the PMF level on a tributary of Ropes Creek which appears associated with the

earthworks undertaken immediately north of the subject site.

It is further concluded that within the Ropes Creek floodplain that there are some zones with local increases in the PMF levels which is associated with local earthworks and /or due to the walls of local retarding basins; and these changes are confined within the PMF flood extent which is not significantly changed by proposed earthworks.

The PMF levels in the vicinity of the Warragamba Pipelines Corridor are largely unchanged or slightly reduce in level. It is noted that there are some local small increase in the PMF level adjacent to the corridor which appears associated with the earthworks undertaken immediately north of the subject site in Oakdale Central.

The PMF velocities in the vicinity of the Warragamba Pipelines Corridor are effectively unchanged.

## 6 References

Cardno (2015) "Oakdale South Industrial Development, Flood Impact Assessment", *Final Report*, prepared for Goodman, September, 9 pp + Apps.

GHD (2008) "Oakdale Concept Plan, Water Sensitive Urban Design Strategy", *Final Report*, prepared for Goodman International Limited, May, 27 pp + Apps.

GHD (2013) "S75W Mod 5 Application, Oakdale Stage 1 Ropes Creek Flood Study", *Addendum*, prepared for Goodman International Limited, July, 7 pp + Apps

Oakdale South Industrial Estate

**APPENDIX A**  
FIGURES

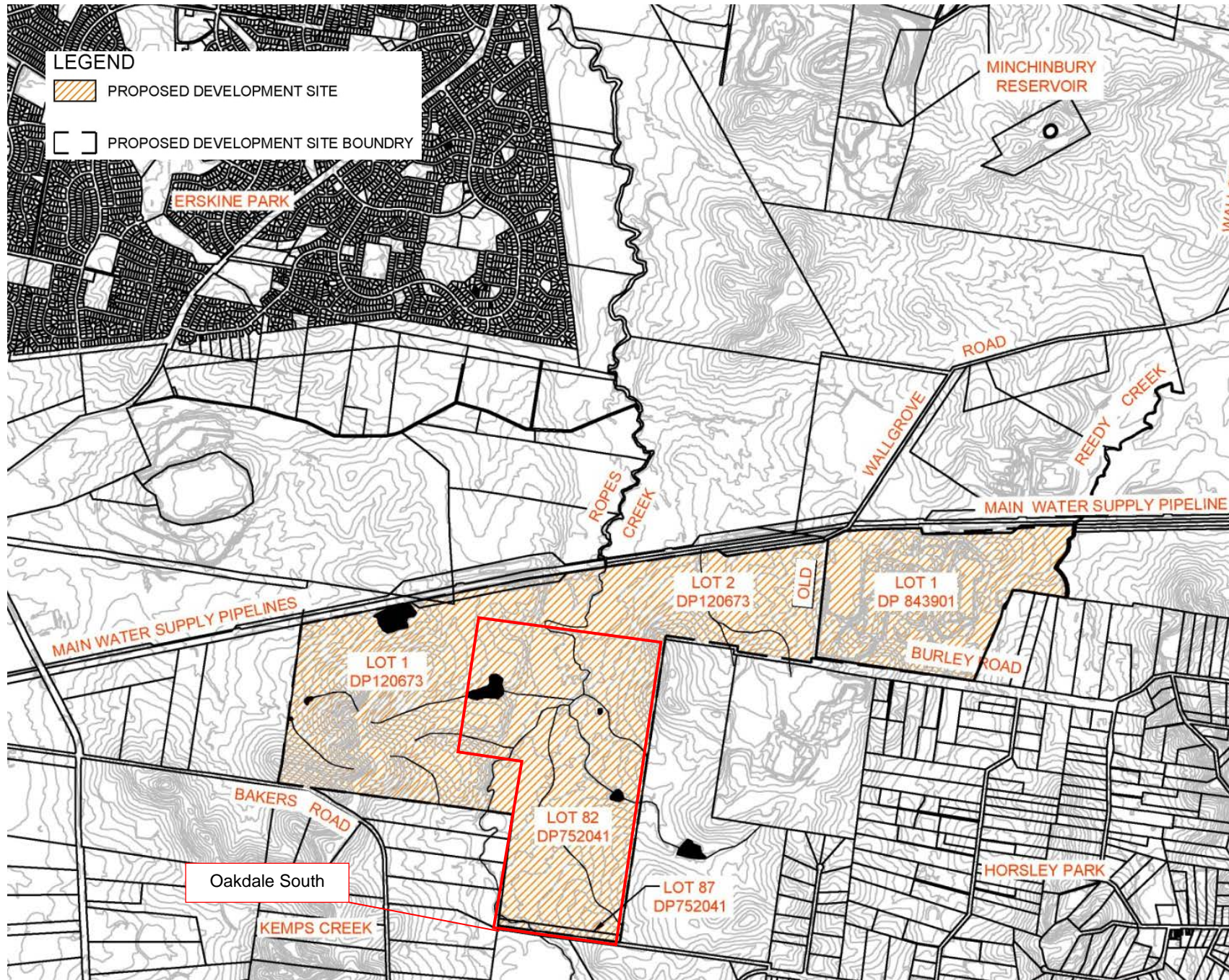


Figure 1 Location of Oakdale South Precinct (after Figure 1, GHD, 2008)

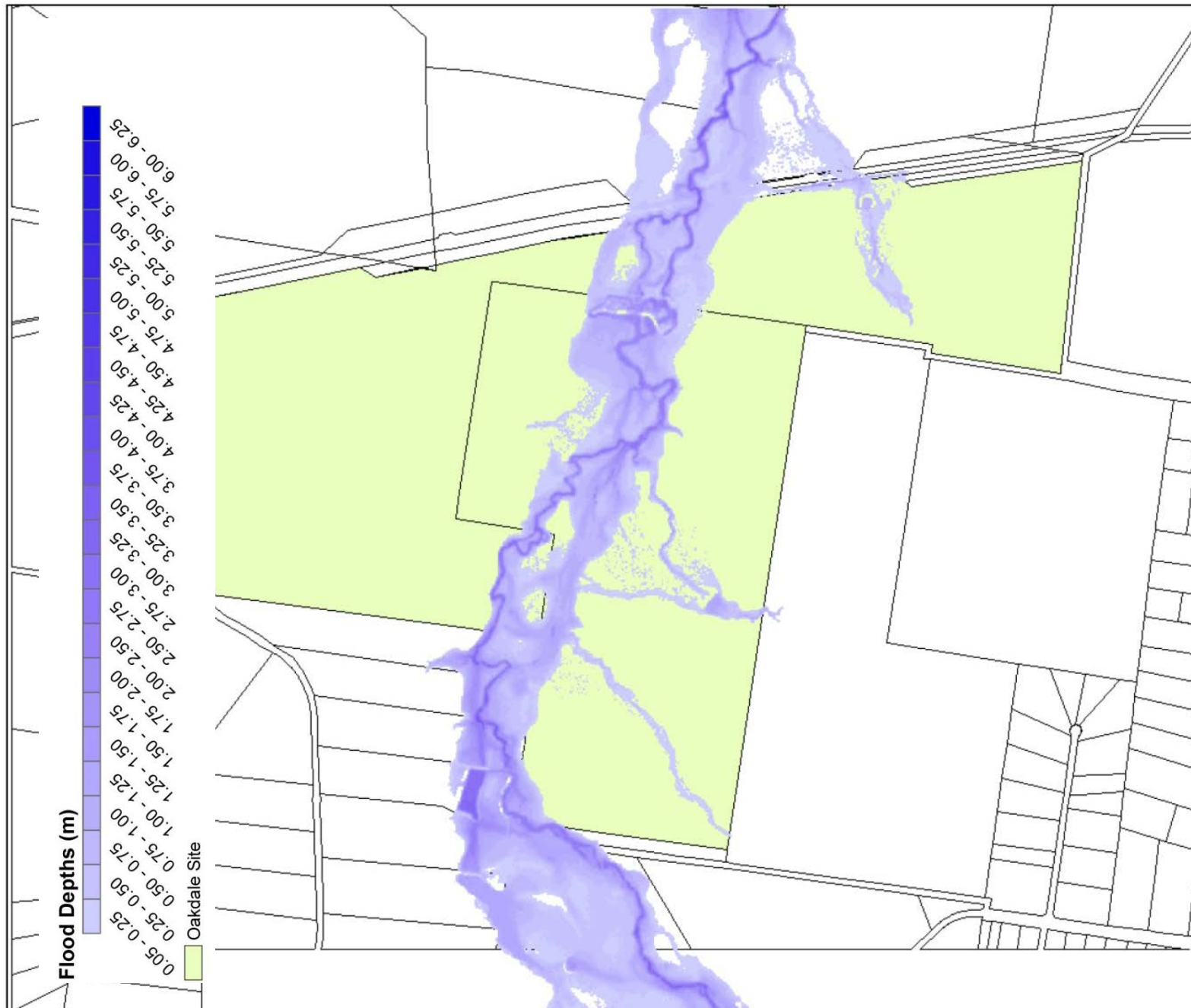


Figure 2 100 yr ARI Flood Map (Rev A, June 2007) (after GHD, 2008)



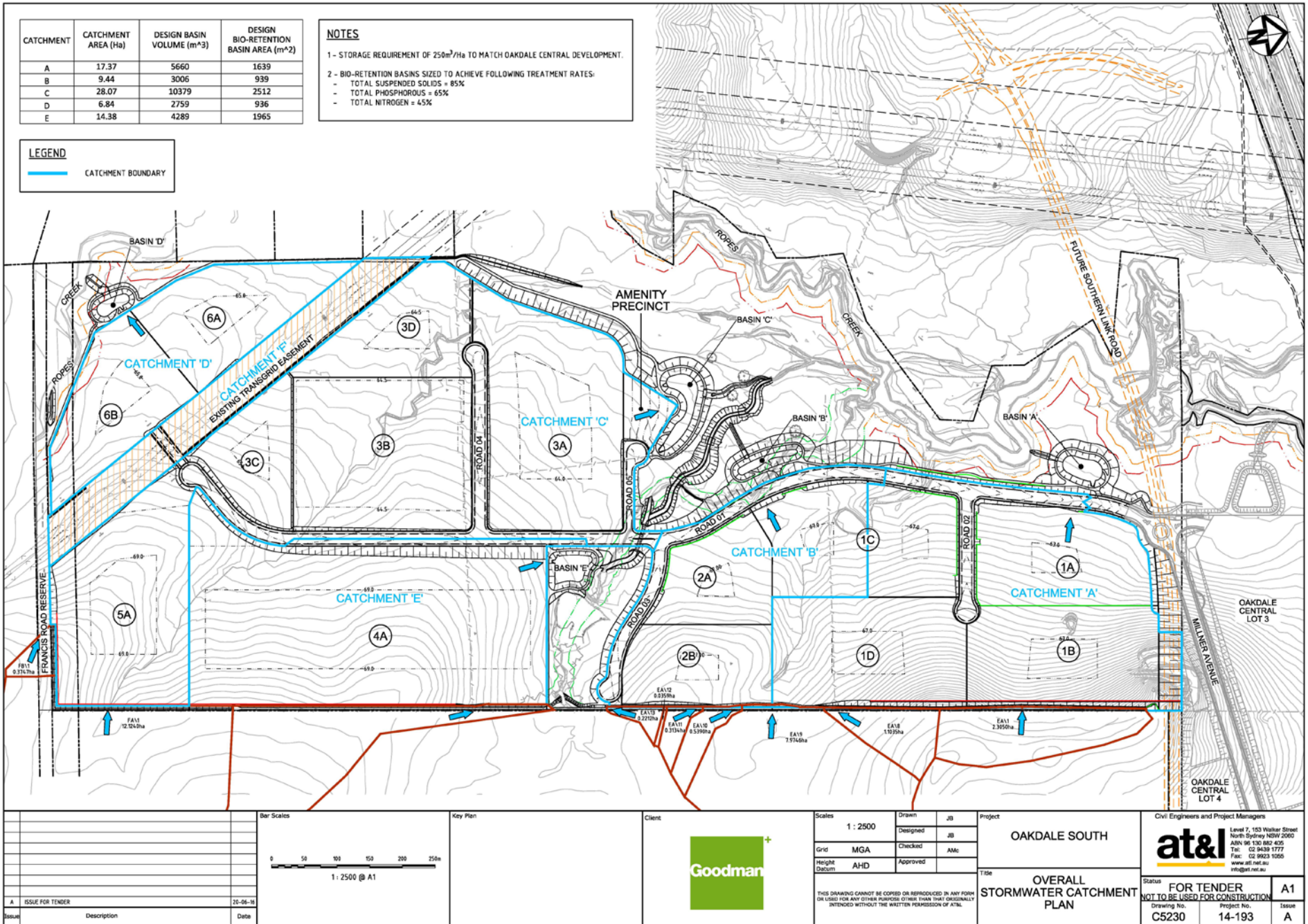


Figure 3 Concept Oakdale Industrial Estate Masterplan

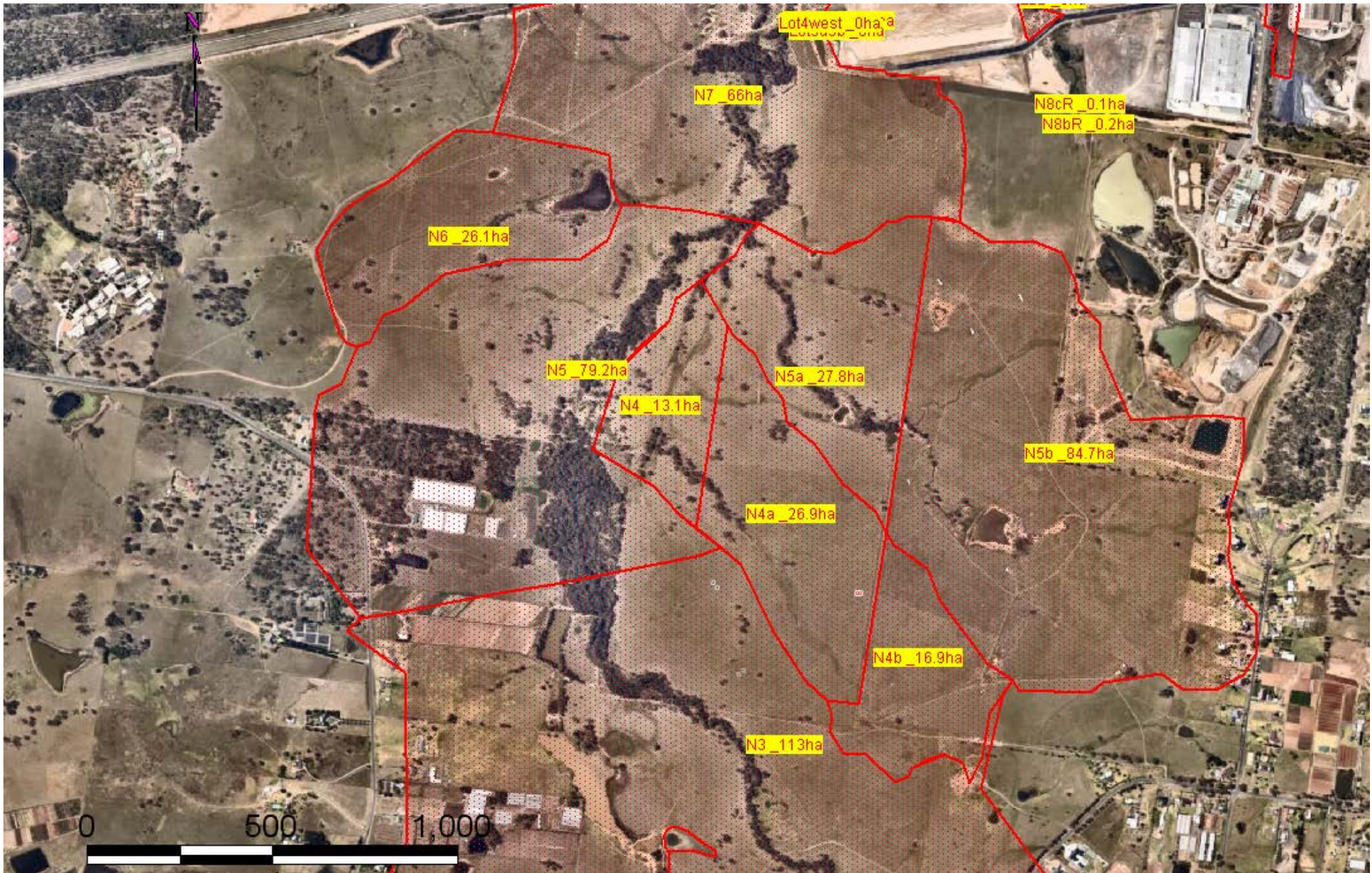


Figure 4 Subcatchment Boundaries in the vicinity of Oakdale South under Existing Conditions

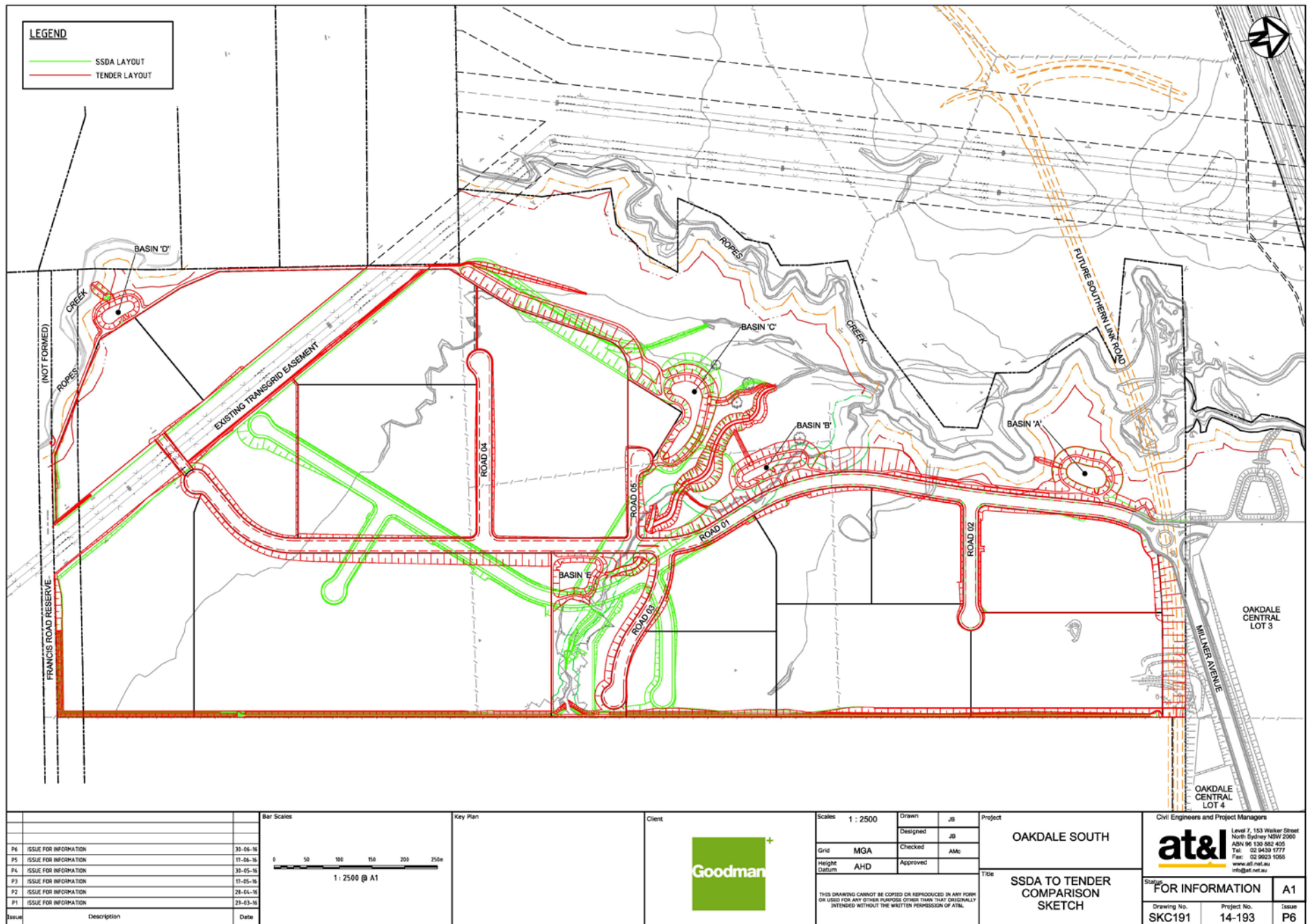


Figure 5 Subcatchment Boundaries under Future Conditions

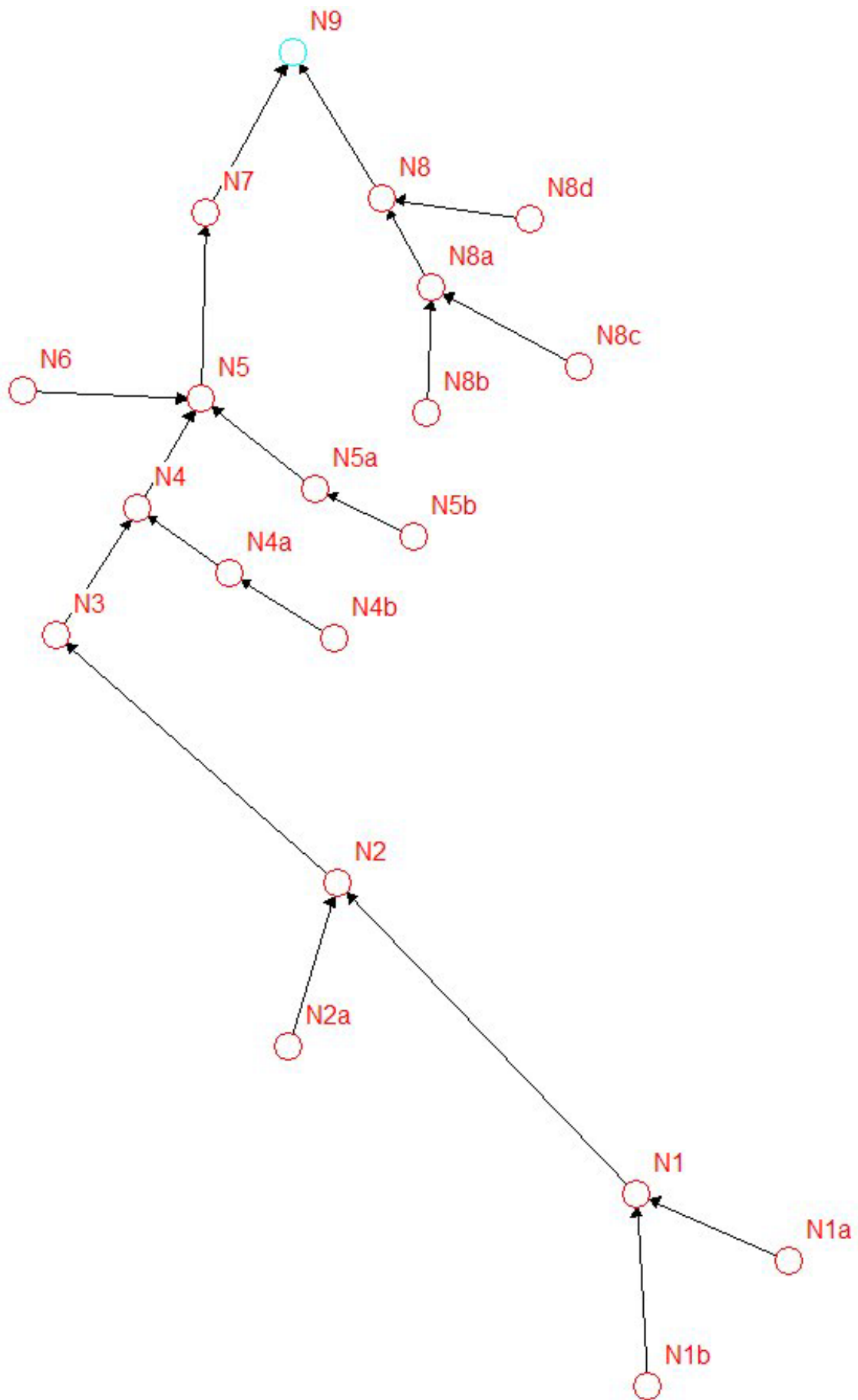


Figure 6 xprafits Link-Node Diagrams – Existing Conditions

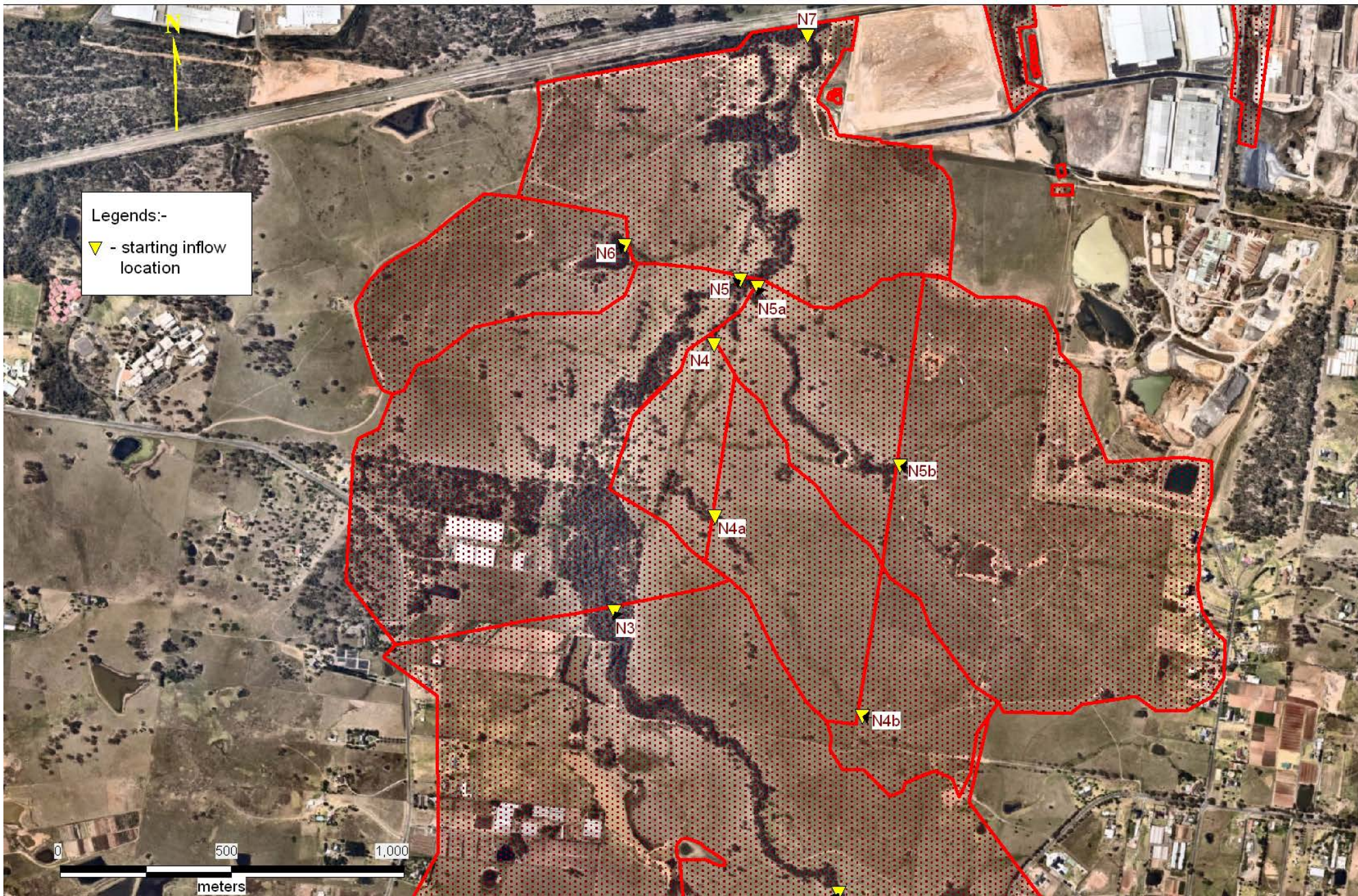


Figure 7 100 yr ARI Inflow Locations in TUFLOW Model - Existing Conditions

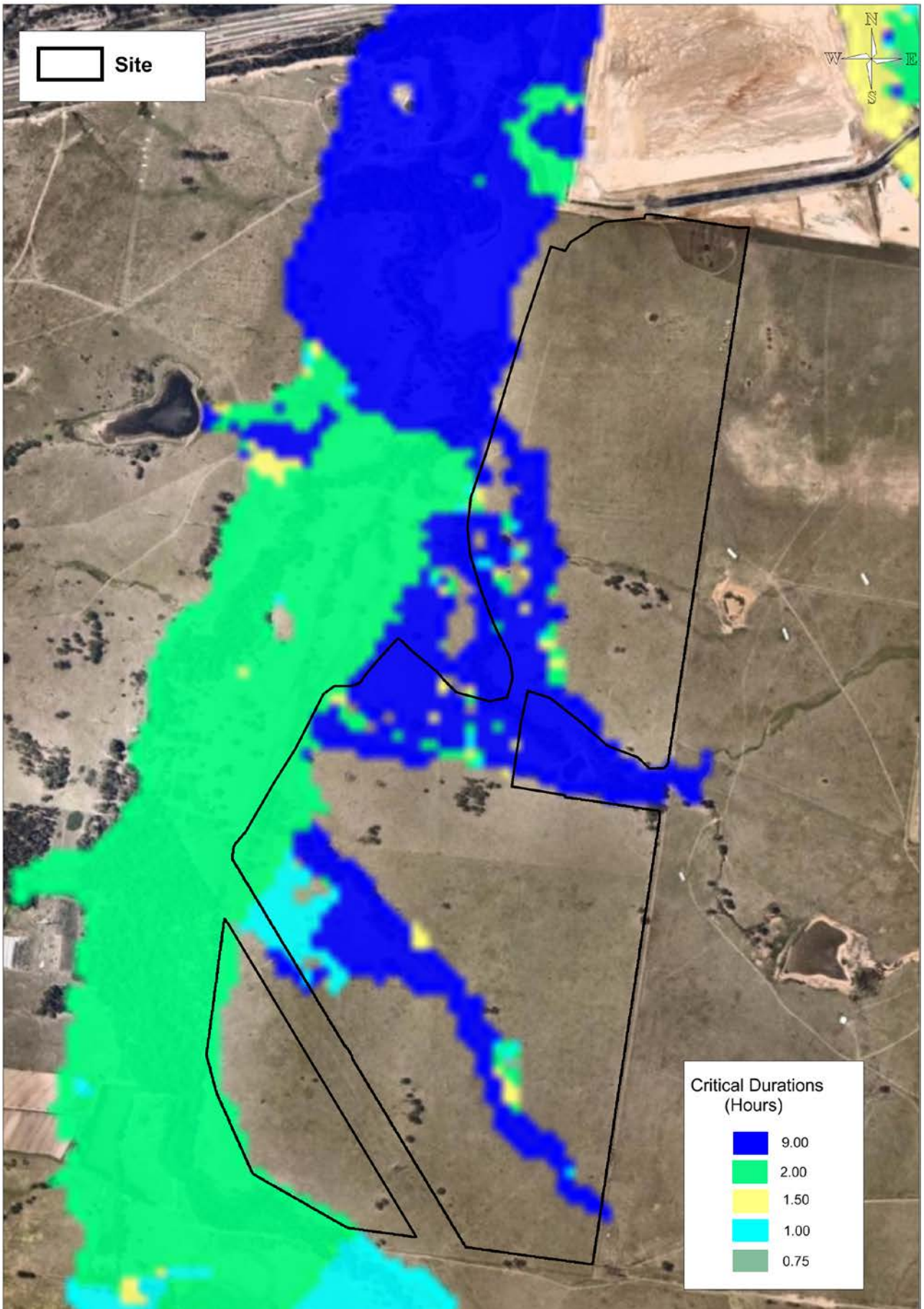


Figure 8 100 yr ARI Critical Storm Burst Durations - Existing Conditions

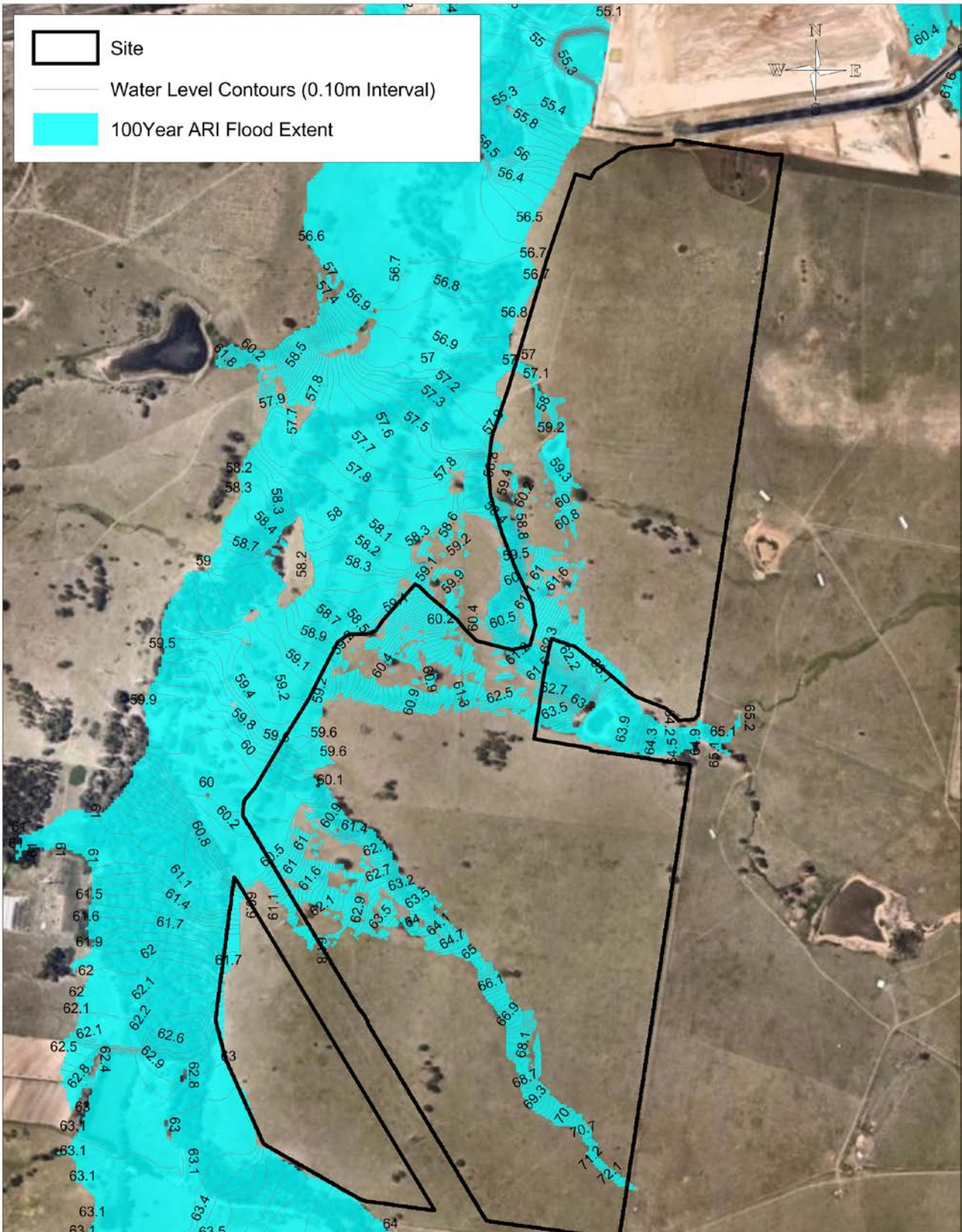


Figure 9 100 yr ARI Flood Extents and Flood Levels - Existing Conditions

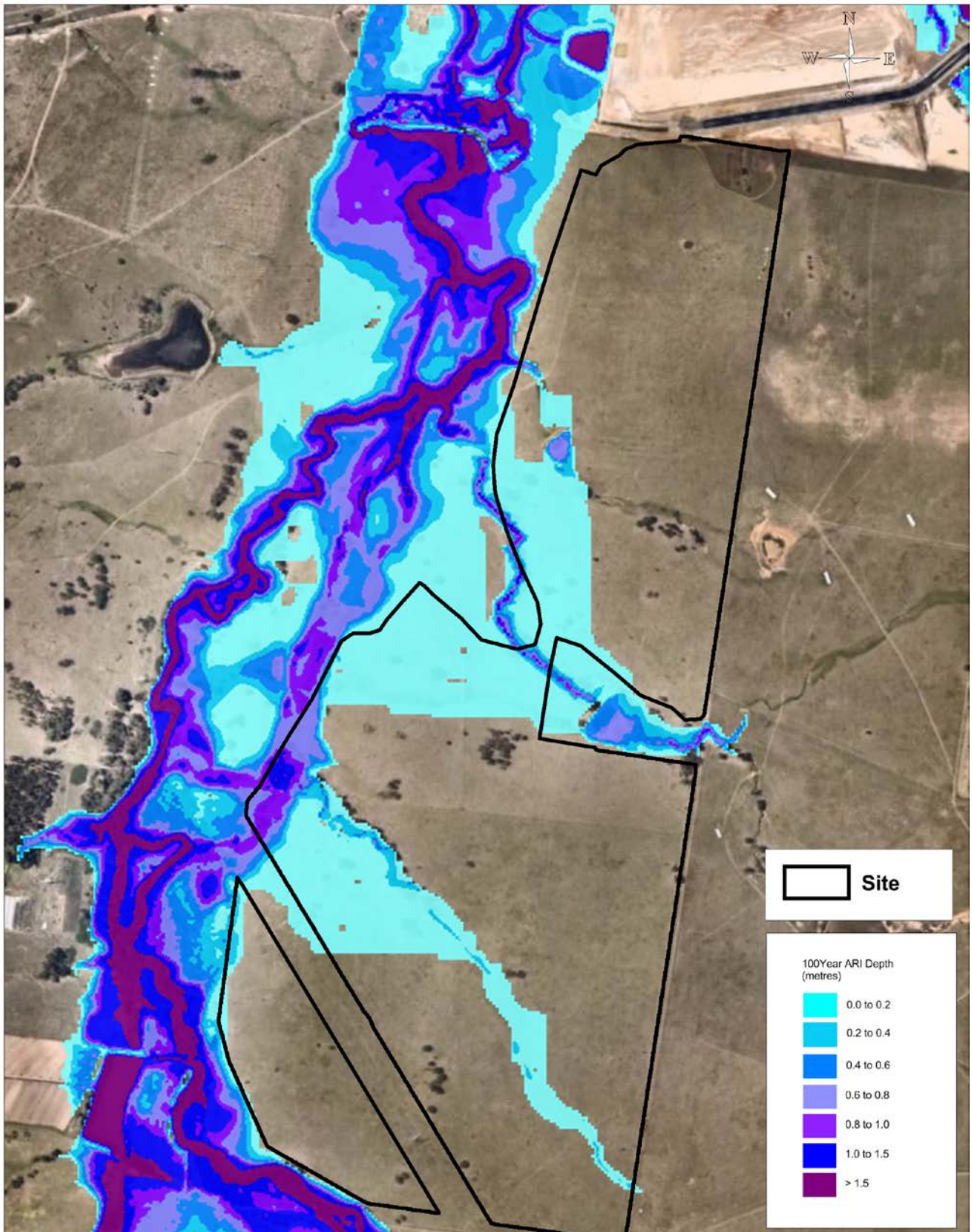


Figure 10 100 yr ARI Flood Depths - Existing Conditions



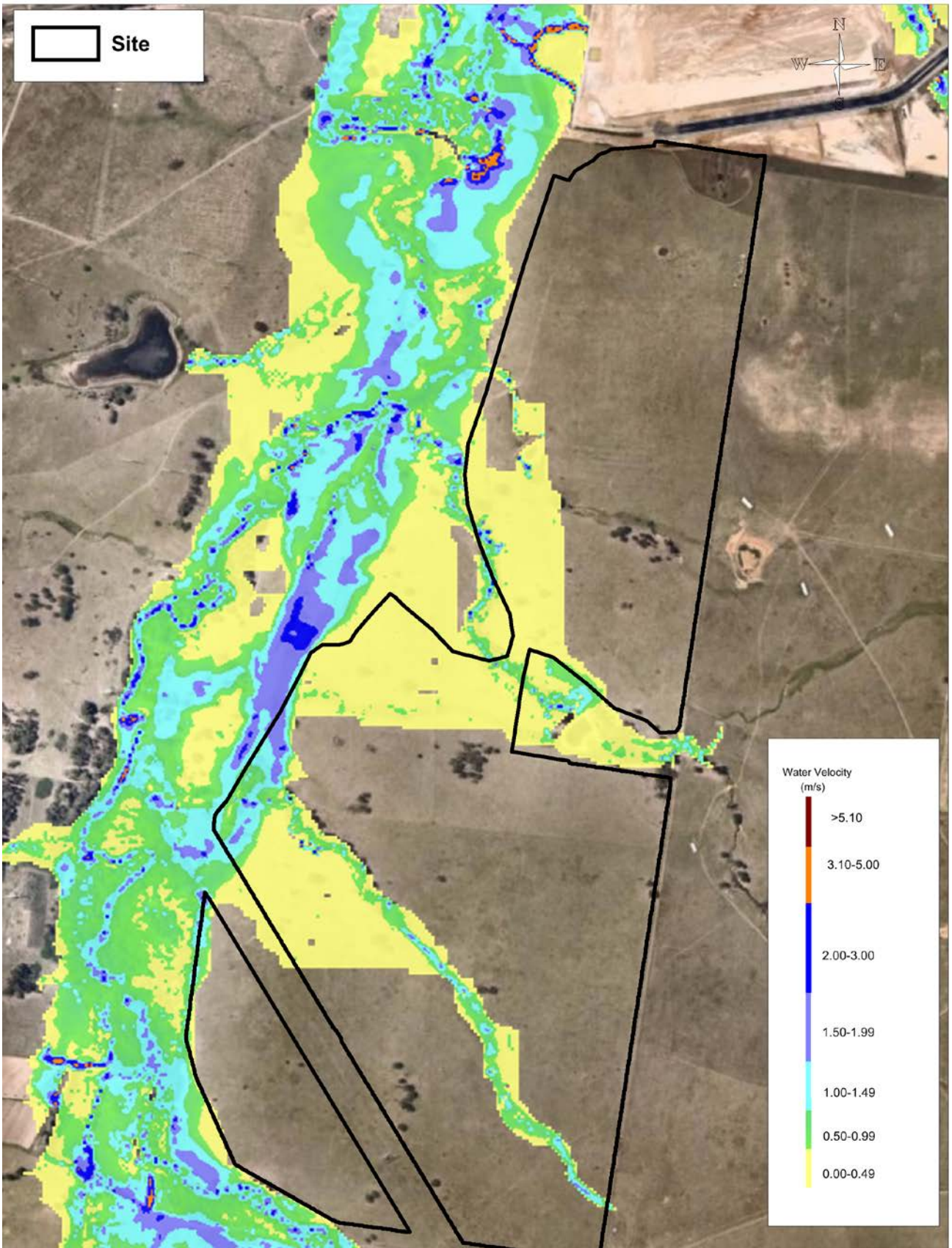


Figure 11 100 yr ARI Flood Velocities - Existing Conditions

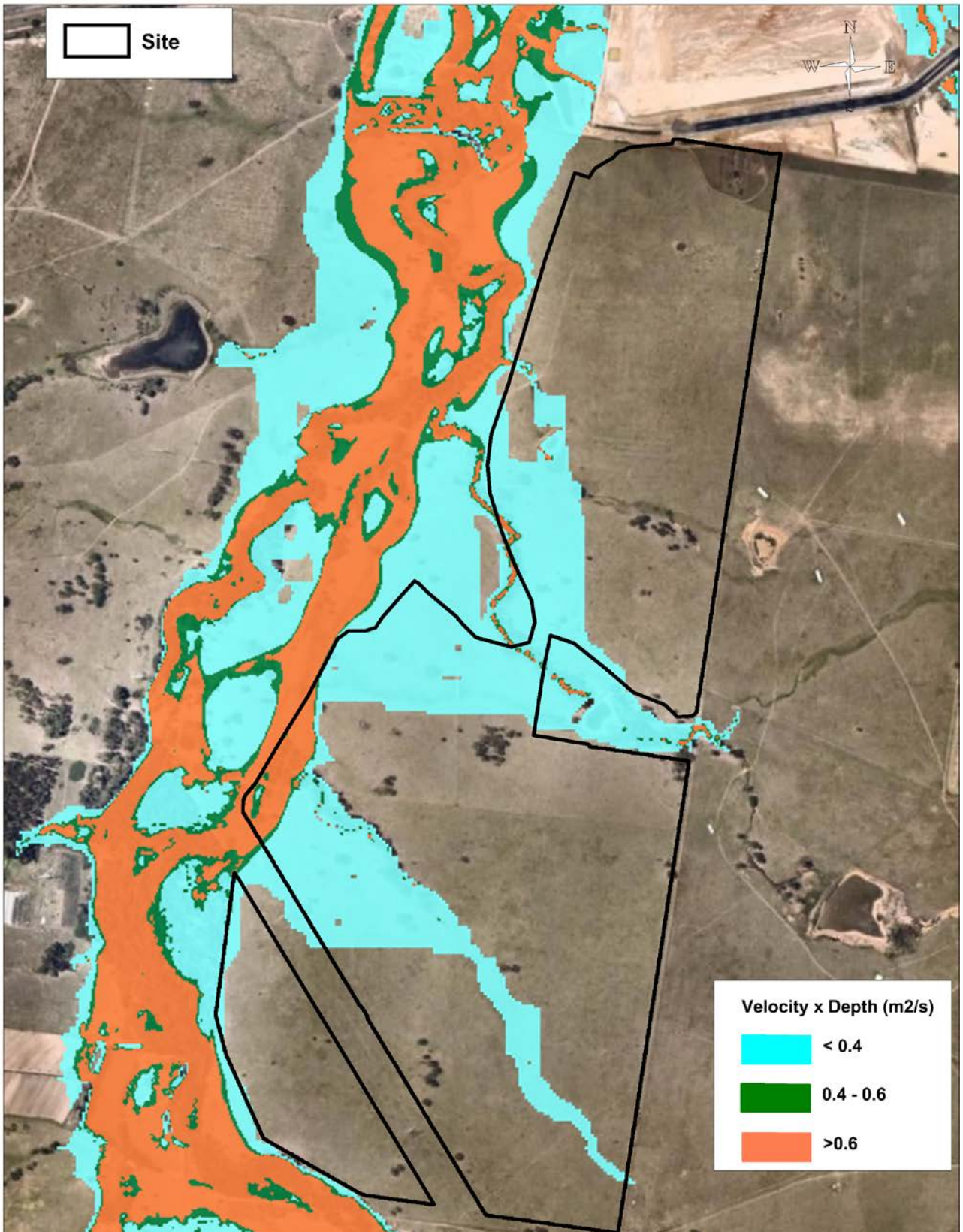


Figure 12 100 yr ARI Flood Velocity x Depth - Existing Conditions

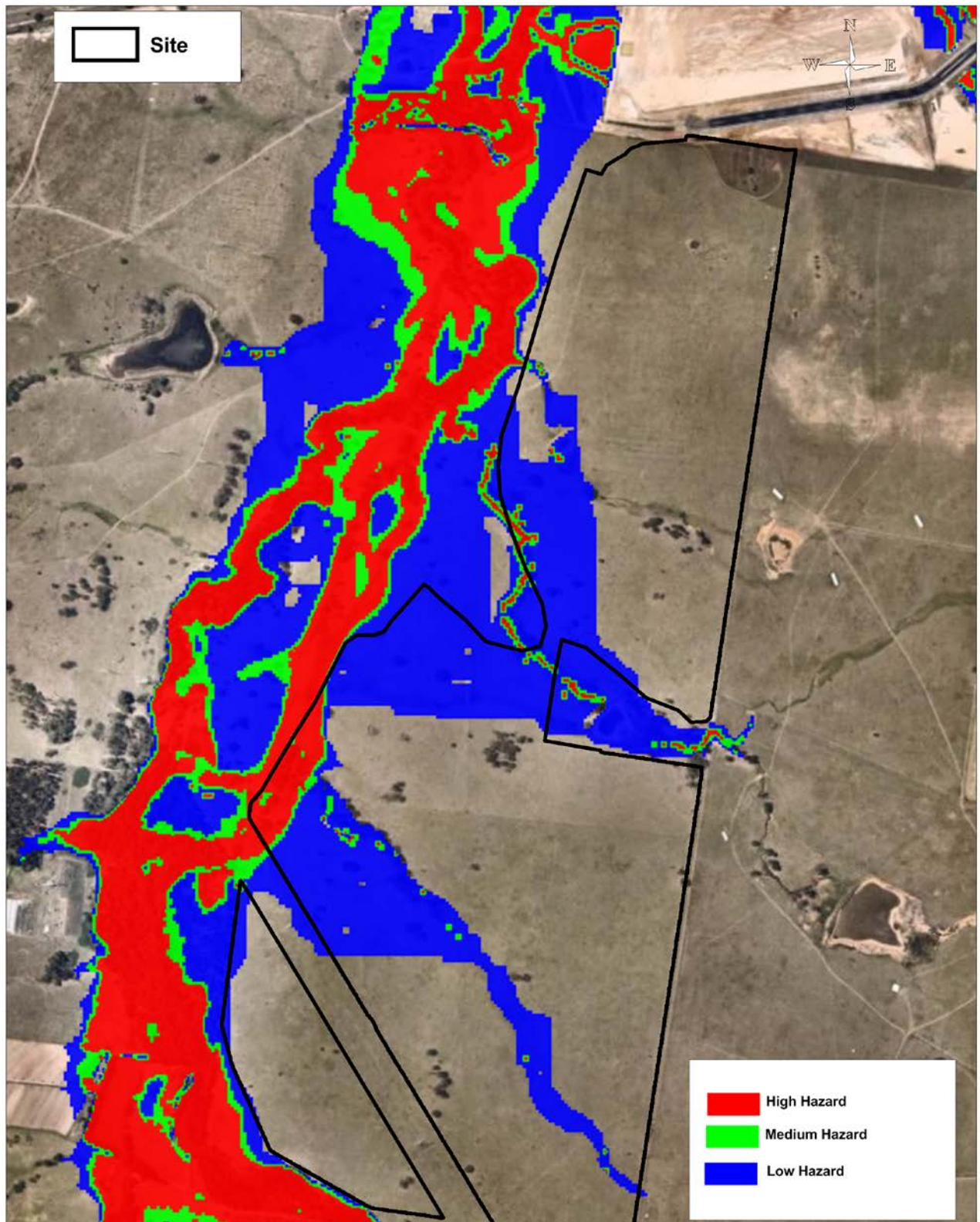


Figure 13 100 yr ARI Flood Hazards - Existing Conditions

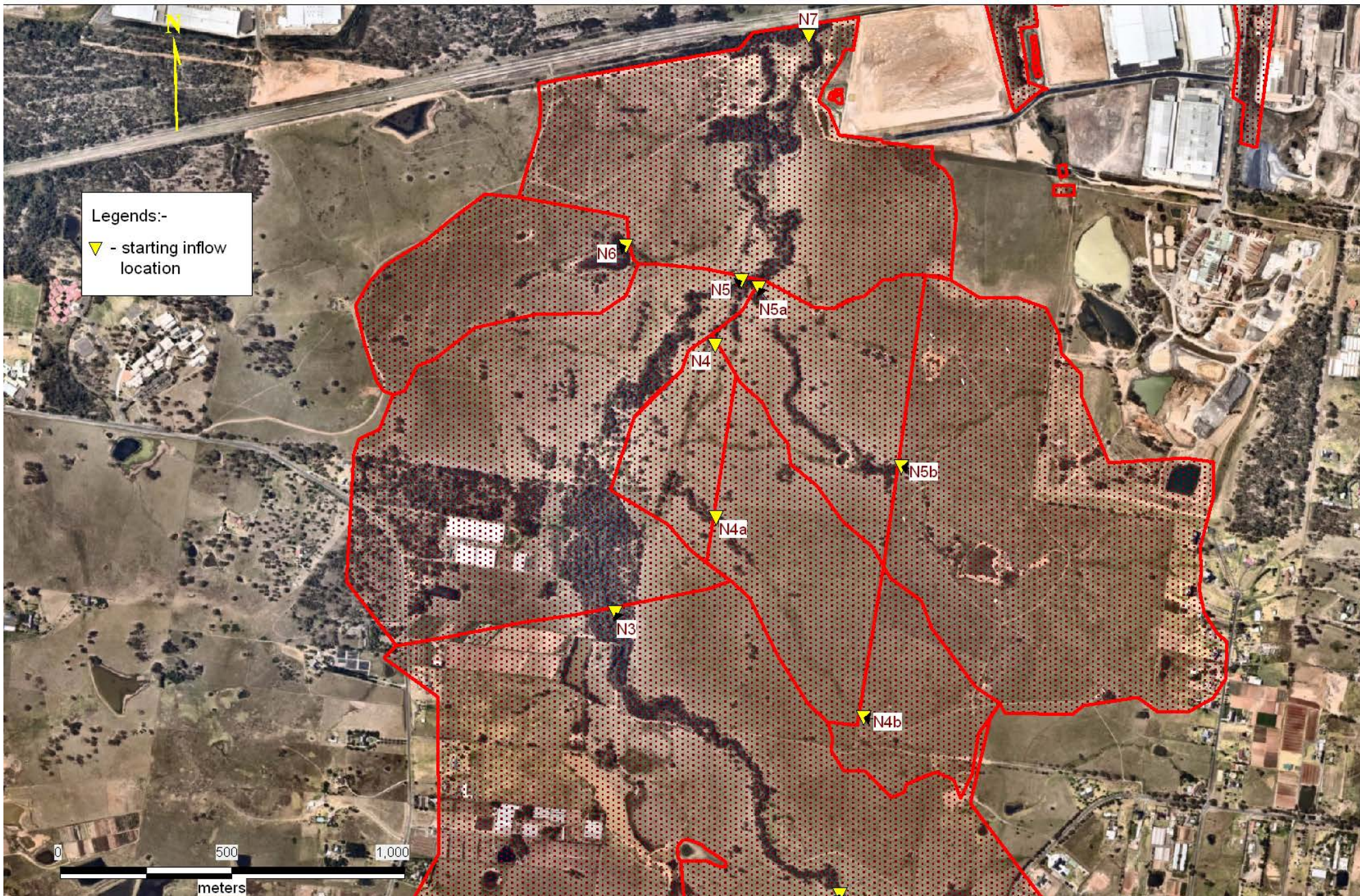


Figure 14 PMF Inflow Locations in TUFLOW Model - Existing Conditions

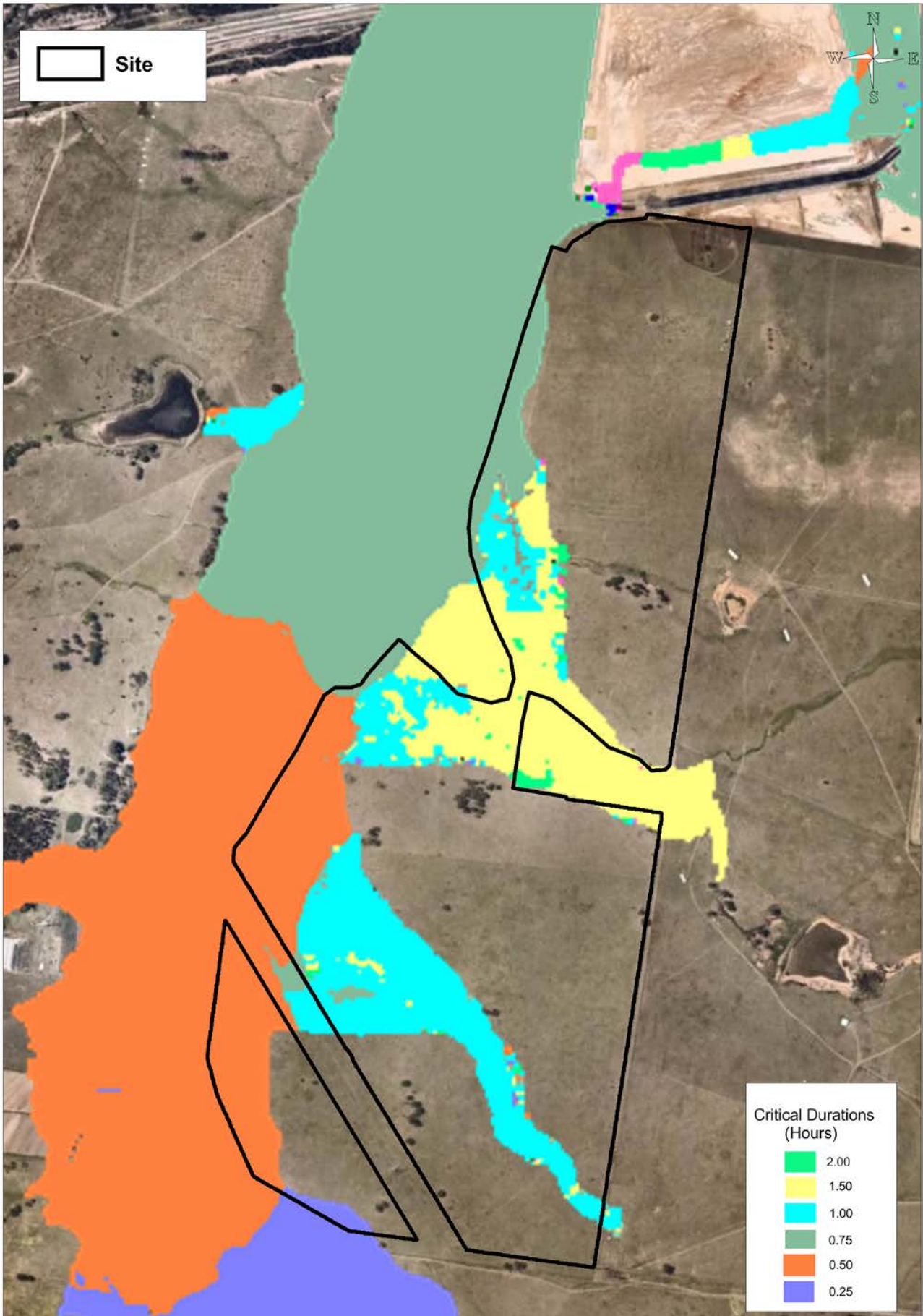


Figure 15 PMF Critical Storm Burst Durations - Existing Conditions

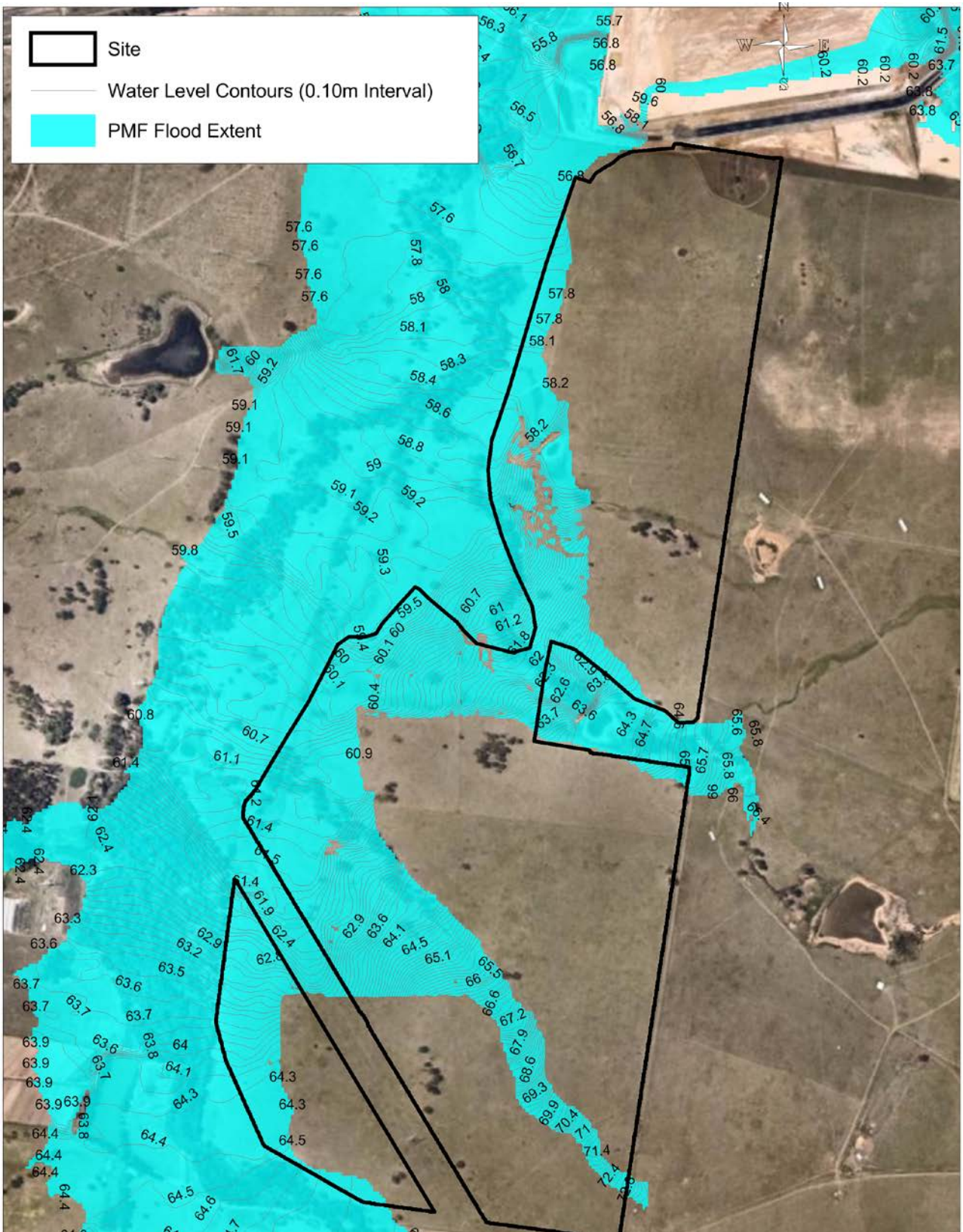


Figure 16 PMF Flood Extents and Flood Levels - Existing Conditions

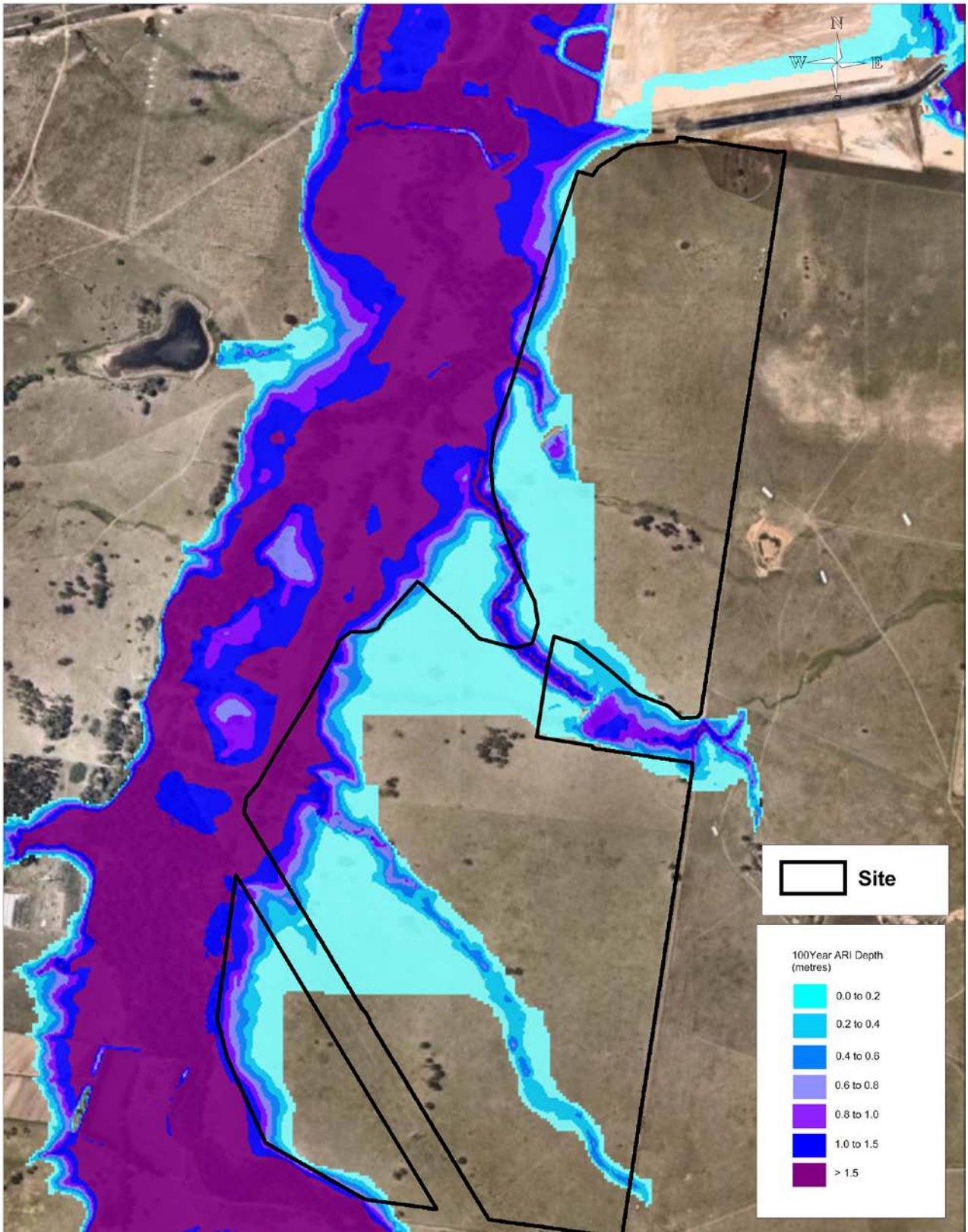


Figure 17 PMF Flood Depths - Existing Conditions

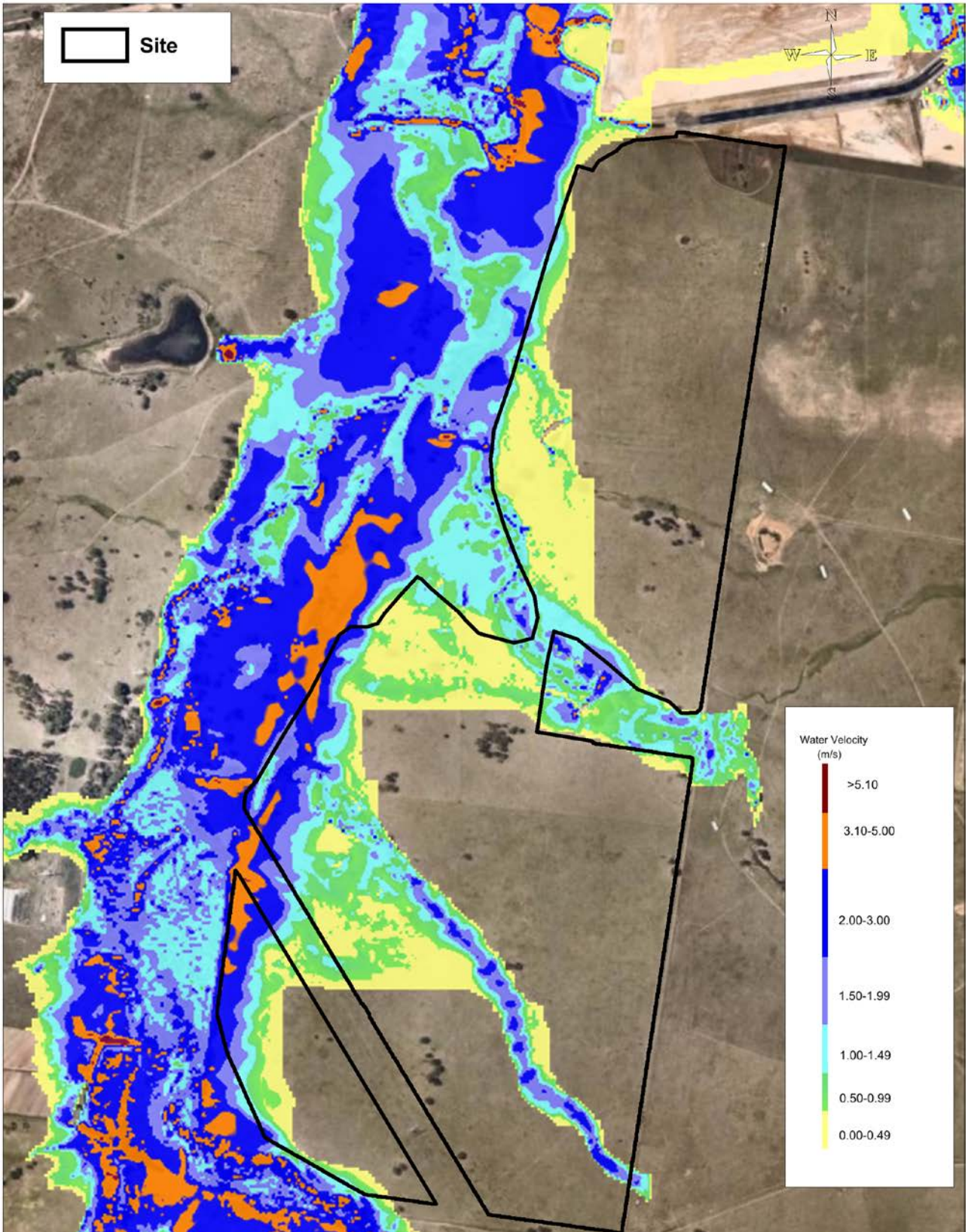


Figure 18 PMF Flood Velocities - Existing Conditions



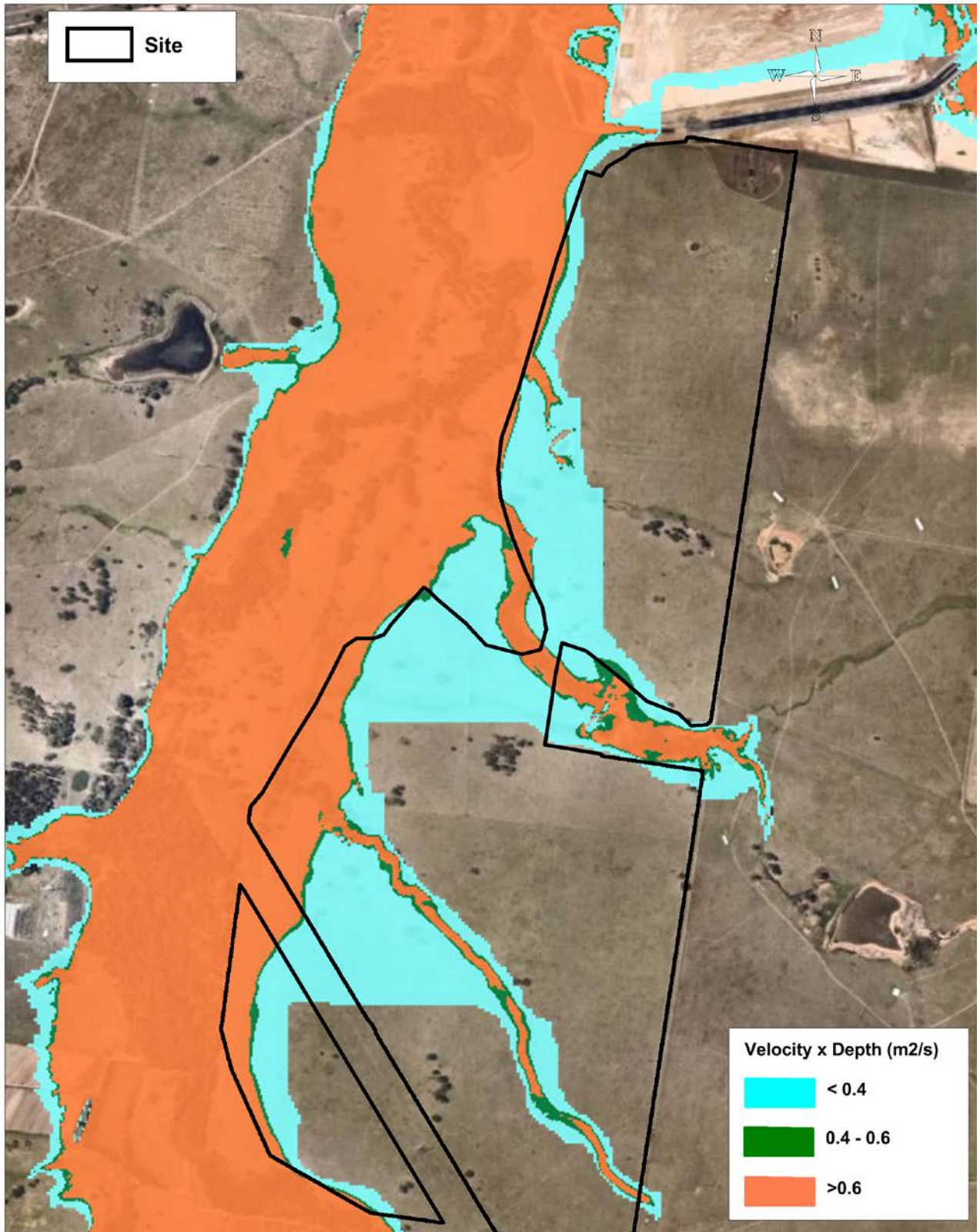


Figure 19 PMF Flood Velocity x Depth - Existing Conditions

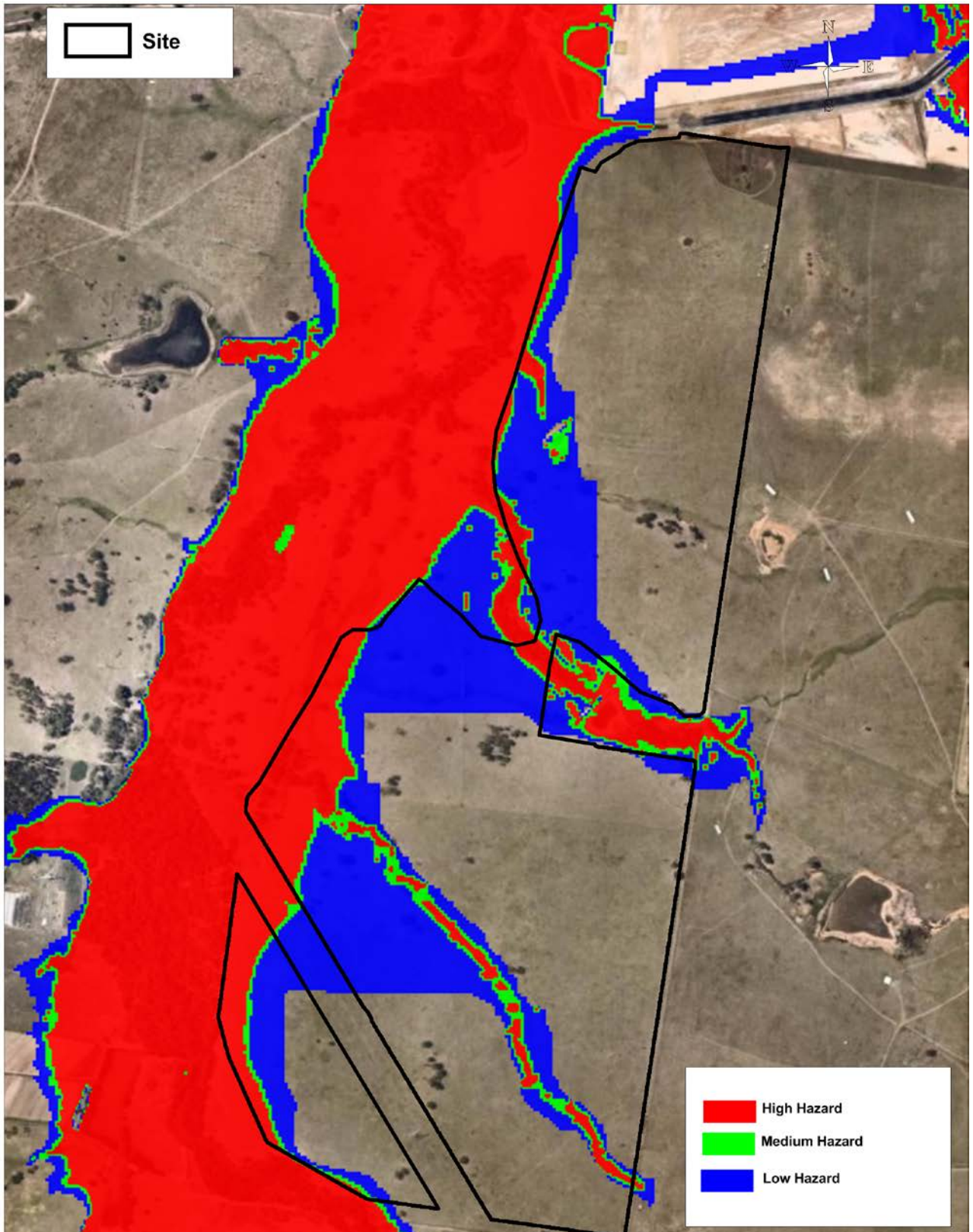
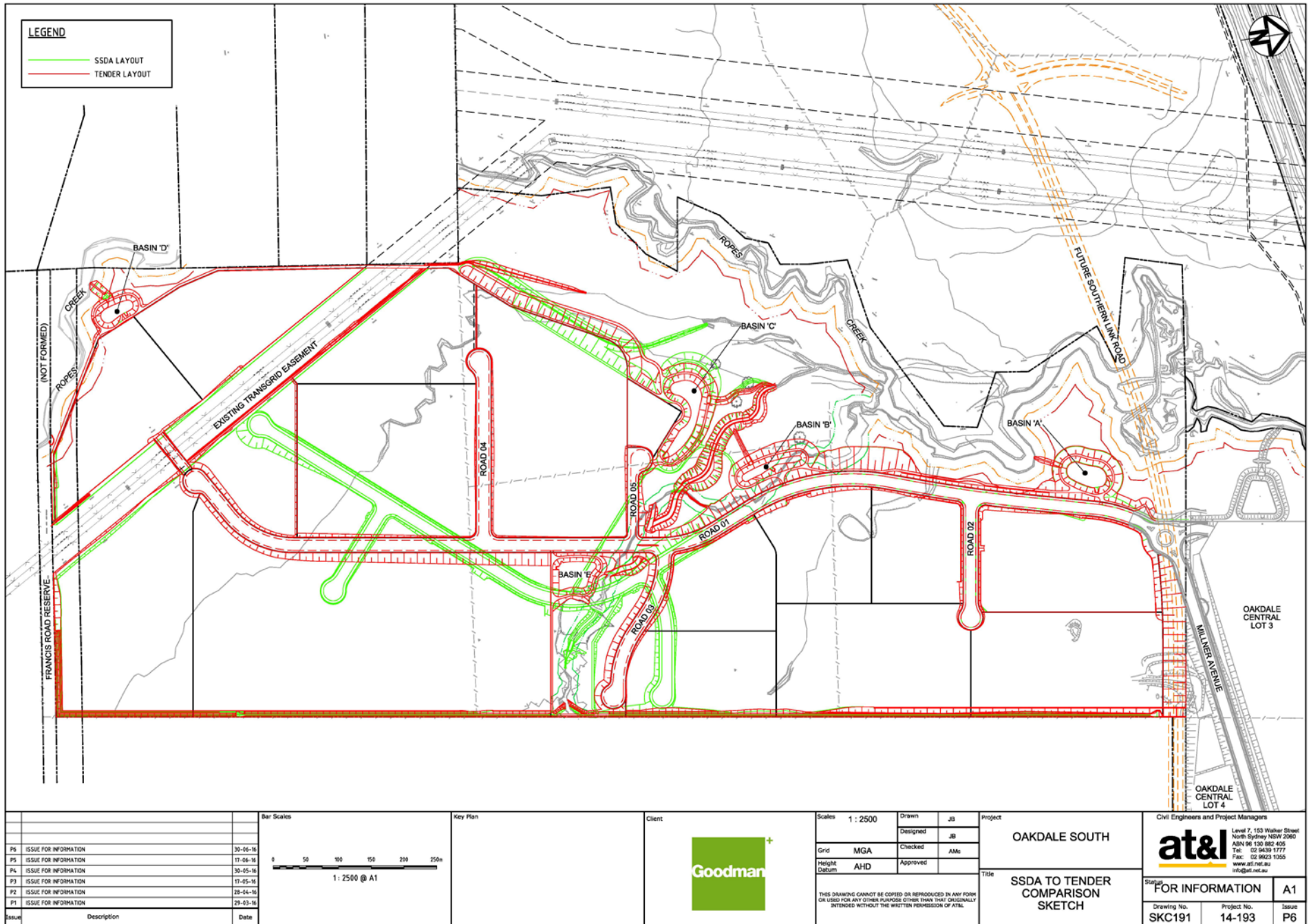
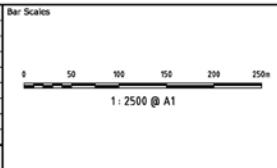


Figure 20 PMF Flood Hazards - Existing Conditions



Issue	Description	Date
P6	ISSUE FOR INFORMATION	30-06-16
P5	ISSUE FOR INFORMATION	17-06-16
P4	ISSUE FOR INFORMATION	30-05-16
P3	ISSUE FOR INFORMATION	17-05-16
P2	ISSUE FOR INFORMATION	28-04-16
P1	ISSUE FOR INFORMATION	29-03-16



Key Plan



Scale	1 : 2500	Drawn	JB
		Designed	JB
Grid	MGA	Checked	AMc
Height Datum	AHD	Approved	

THIS DRAWING CANNOT BE COPIED OR REPRODUCED IN ANY FORM OR USED FOR ANY OTHER PURPOSES OTHER THAN THAT ORIGINALLY INTENDED WITHOUT THE WRITTEN PERMISSION OF AT&I.

Project

**OAKDALE SOUTH**

Title

**SSDA TO TENDER COMPARISON SKETCH**

Civil Engineers and Project Managers

Level 7, 153 Walker Street  
North Sydney NSW 2060  
A/N 06 150 382 405  
Tel: 02 9439 1777  
Fax: 02 9623 1055  
www.atand.net.au  
info@atand.net.au

Status	FOR INFORMATION	A1
Drawing No.	SKC191	Project No. 14-193
Issue	P6	

Figure 21 Proposed Development Layout for Oakdale South Estate



Figure 22 100 yr ARI Inflow Locations in TUFLOW Model - Future Conditions

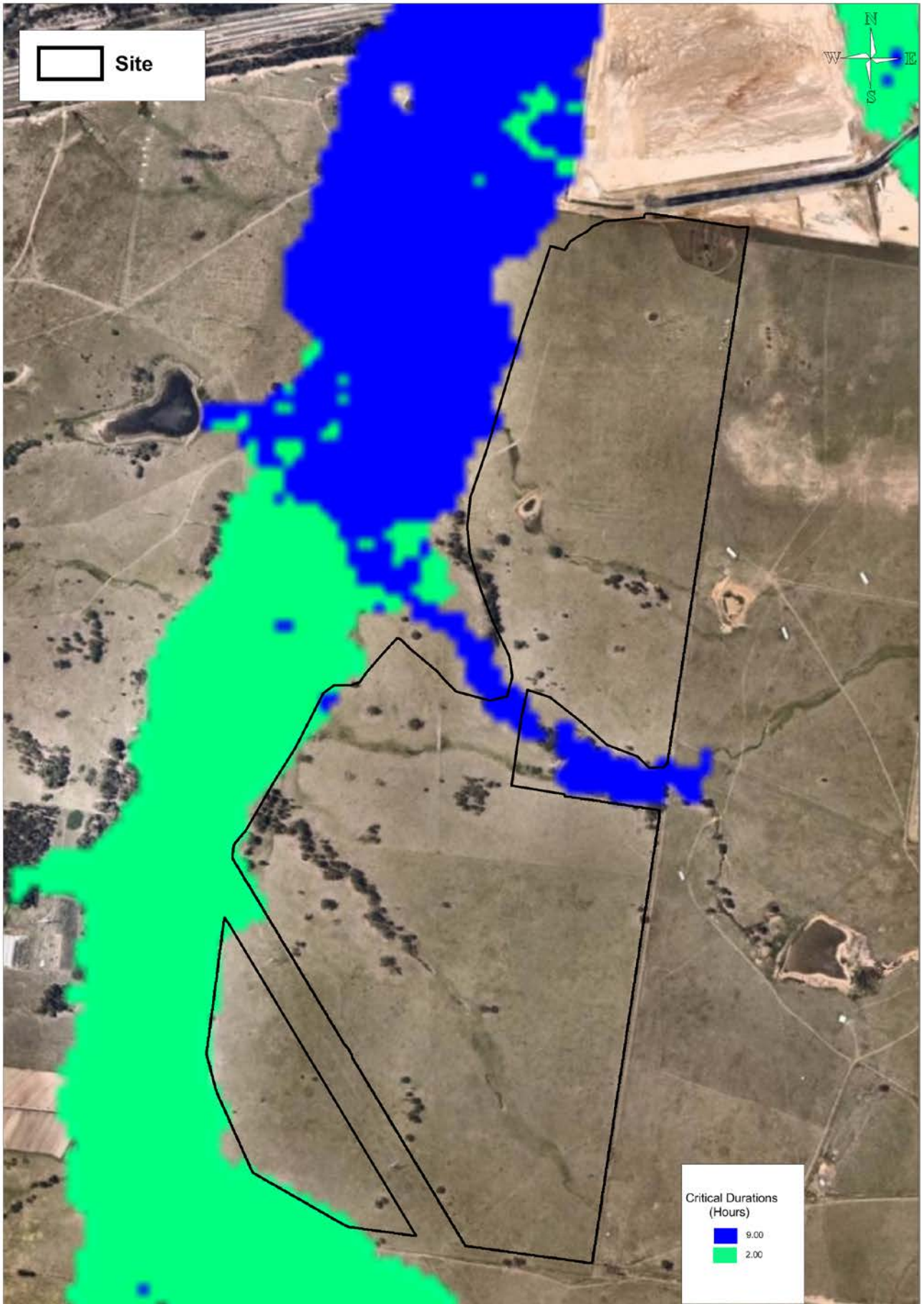


Figure 23 100 yr ARI Critical Storm Burst Durations - Future Conditions

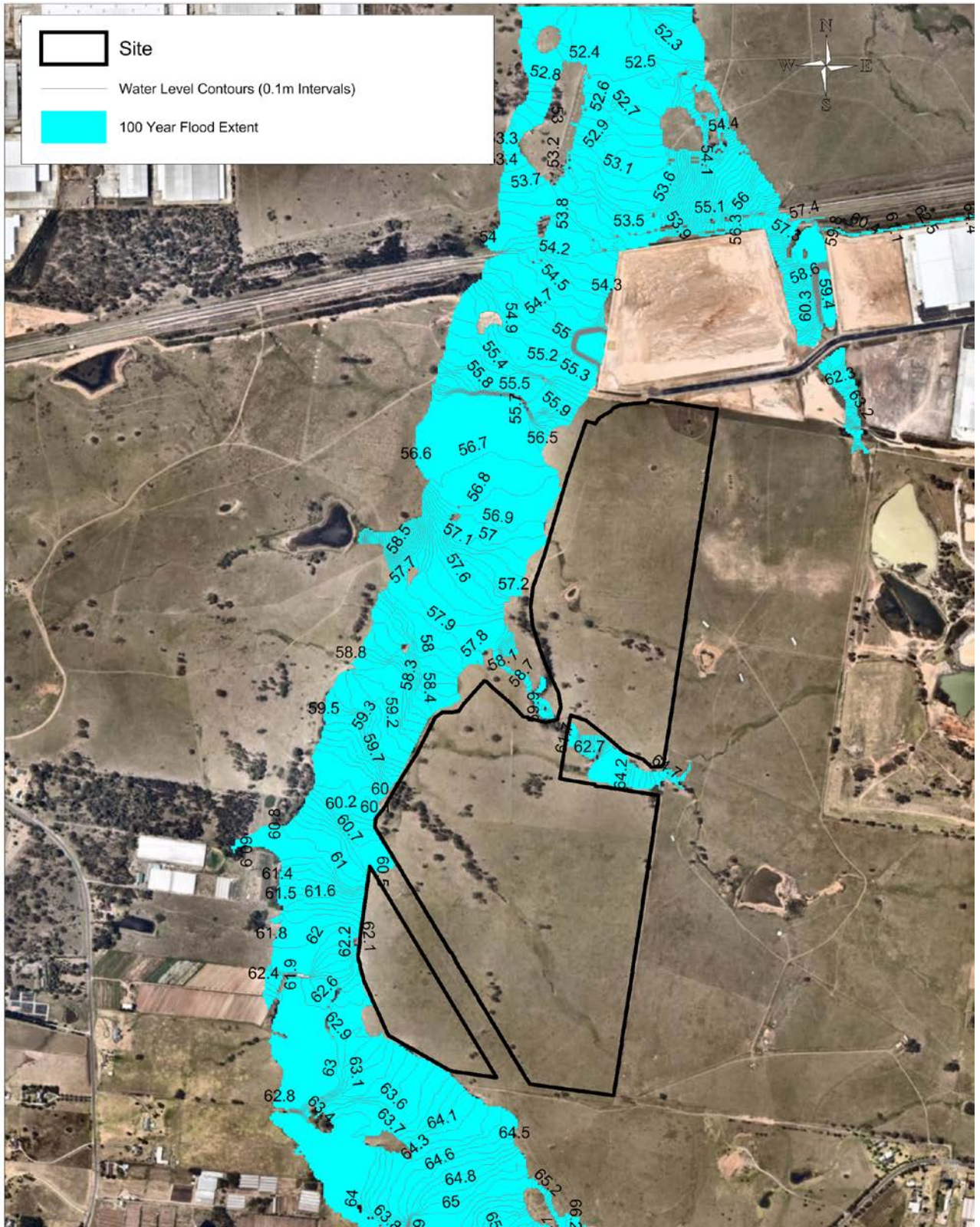


Figure 24 100 yr ARI Flood Extents and Flood Levels - Future Conditions

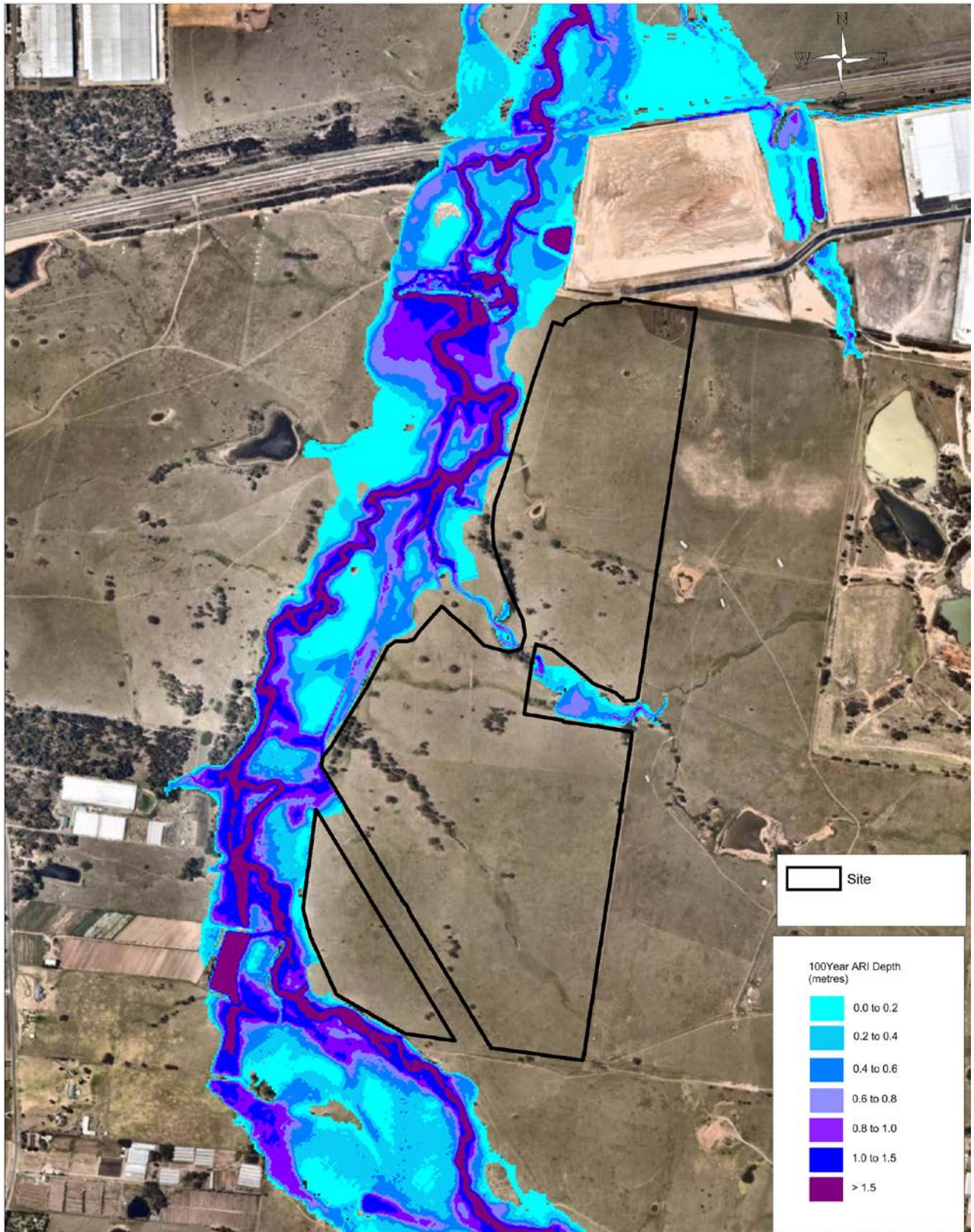


Figure 25 100 yr ARI Flood Depths - Future Conditions

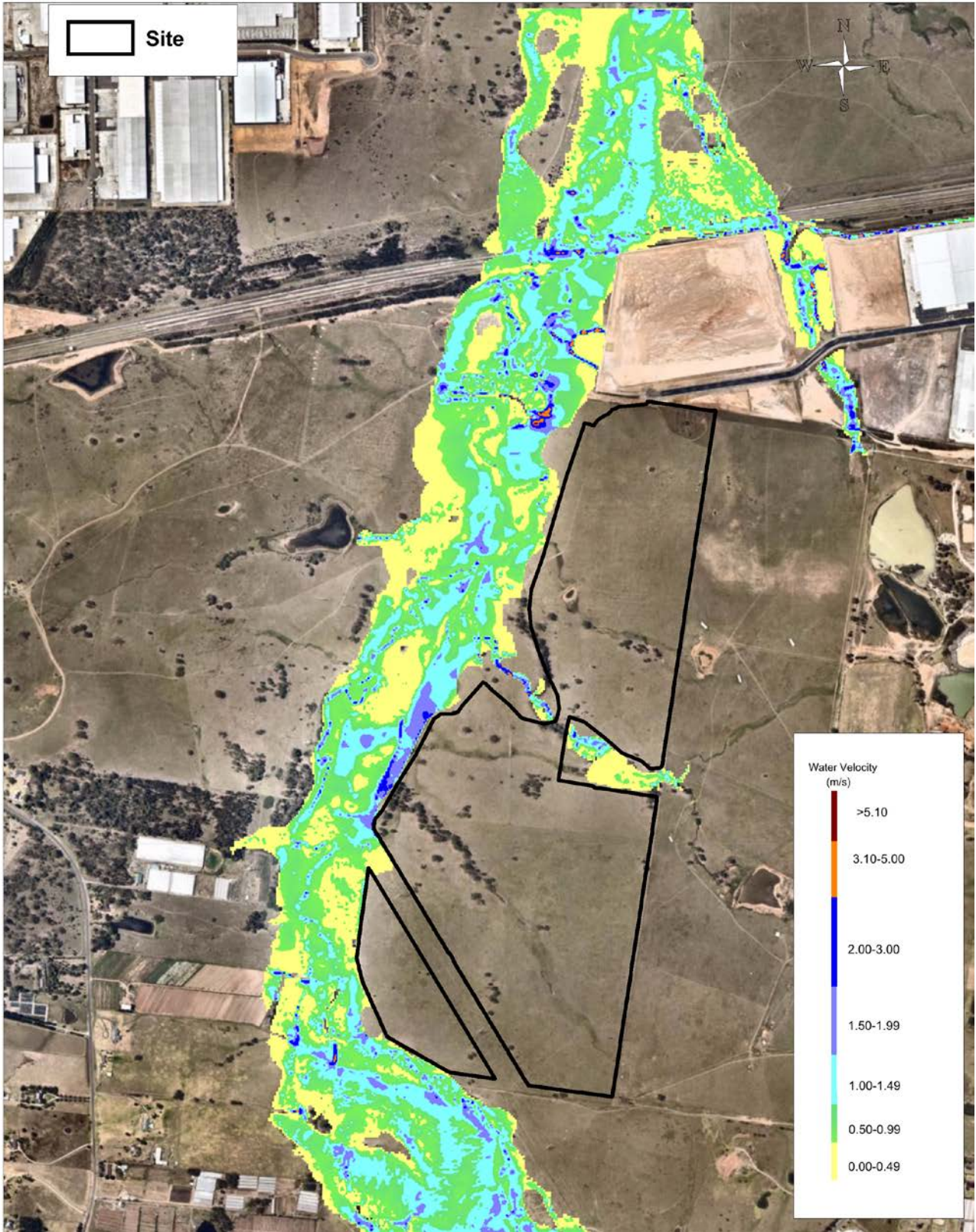


Figure 26 100 yr ARI Flood Velocities - Future Conditions



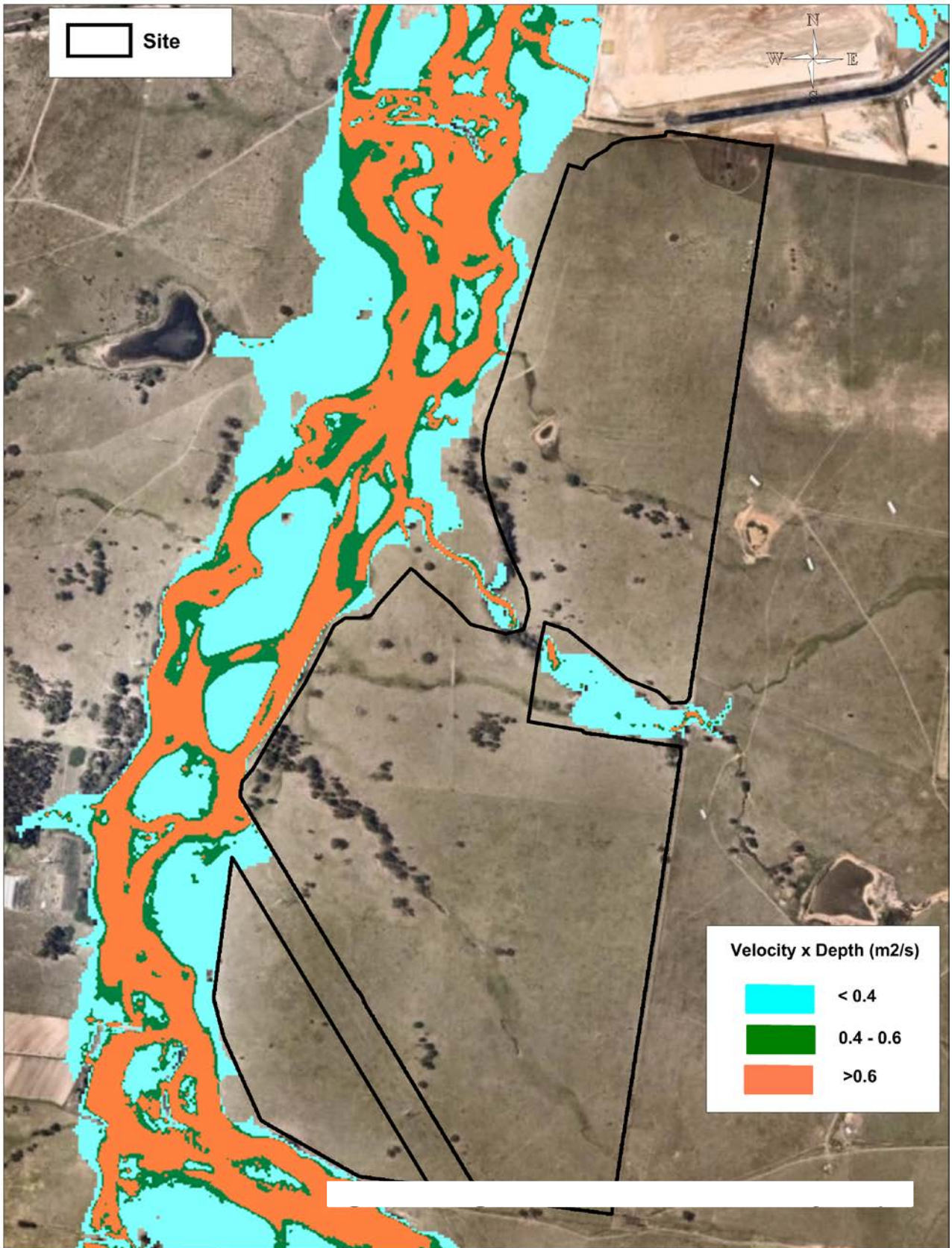


Figure 27 100 yr ARI Flood Velocity x Depth - Future Conditions

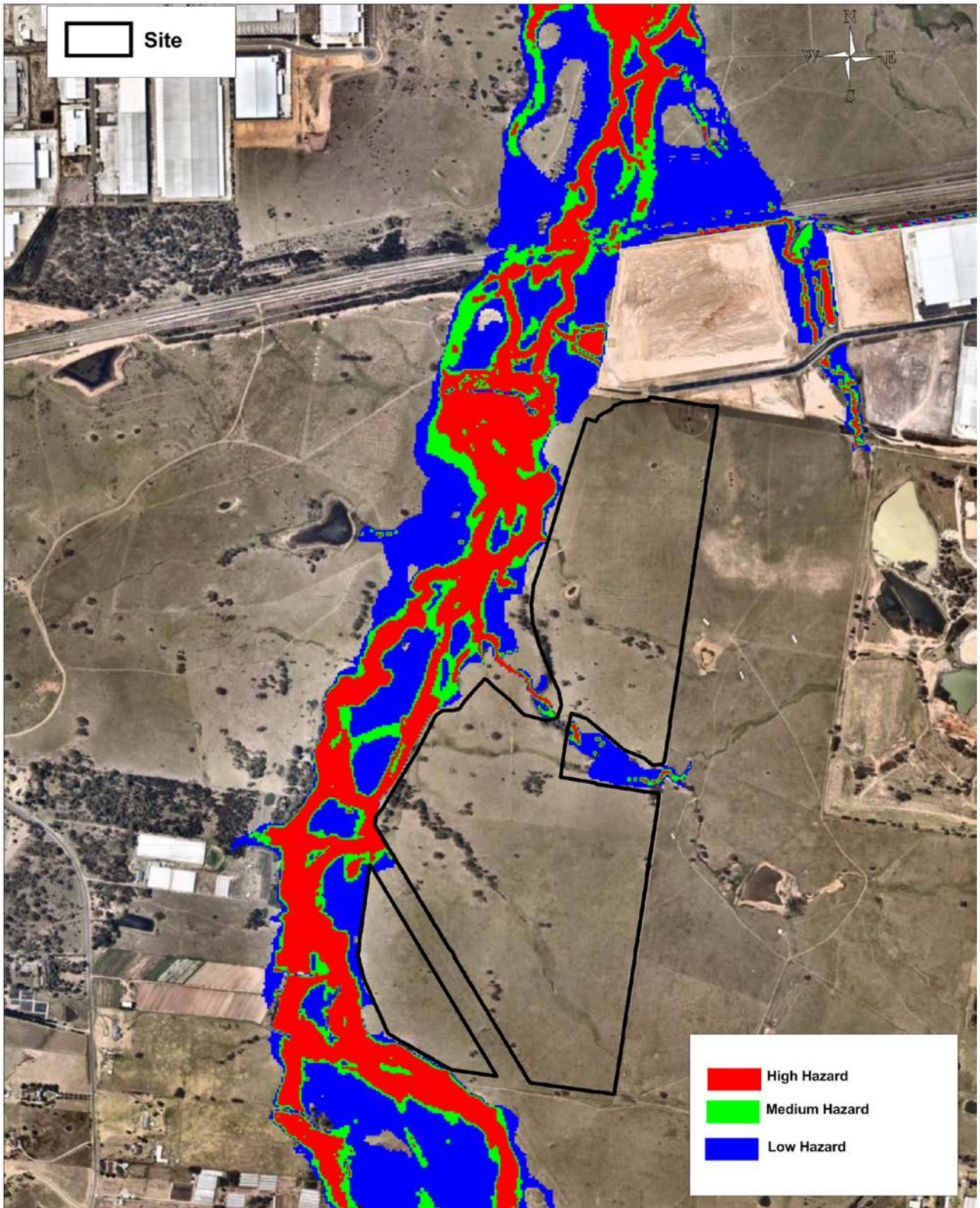


Figure 28 100 yr ARI Flood Hazards - Future Conditions

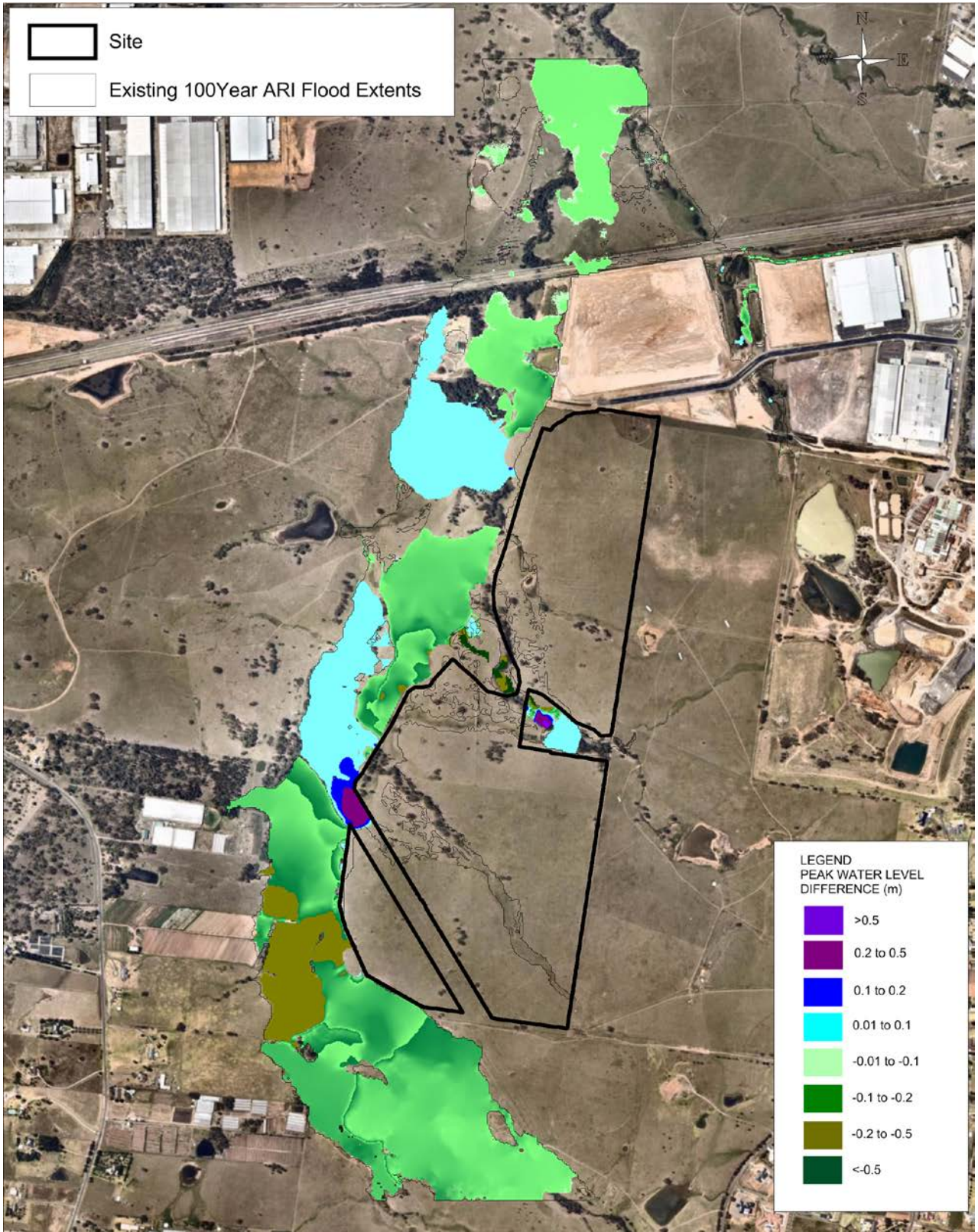


Figure 29 100 yr ARI Level Differences - (Future – Existing Conditions)

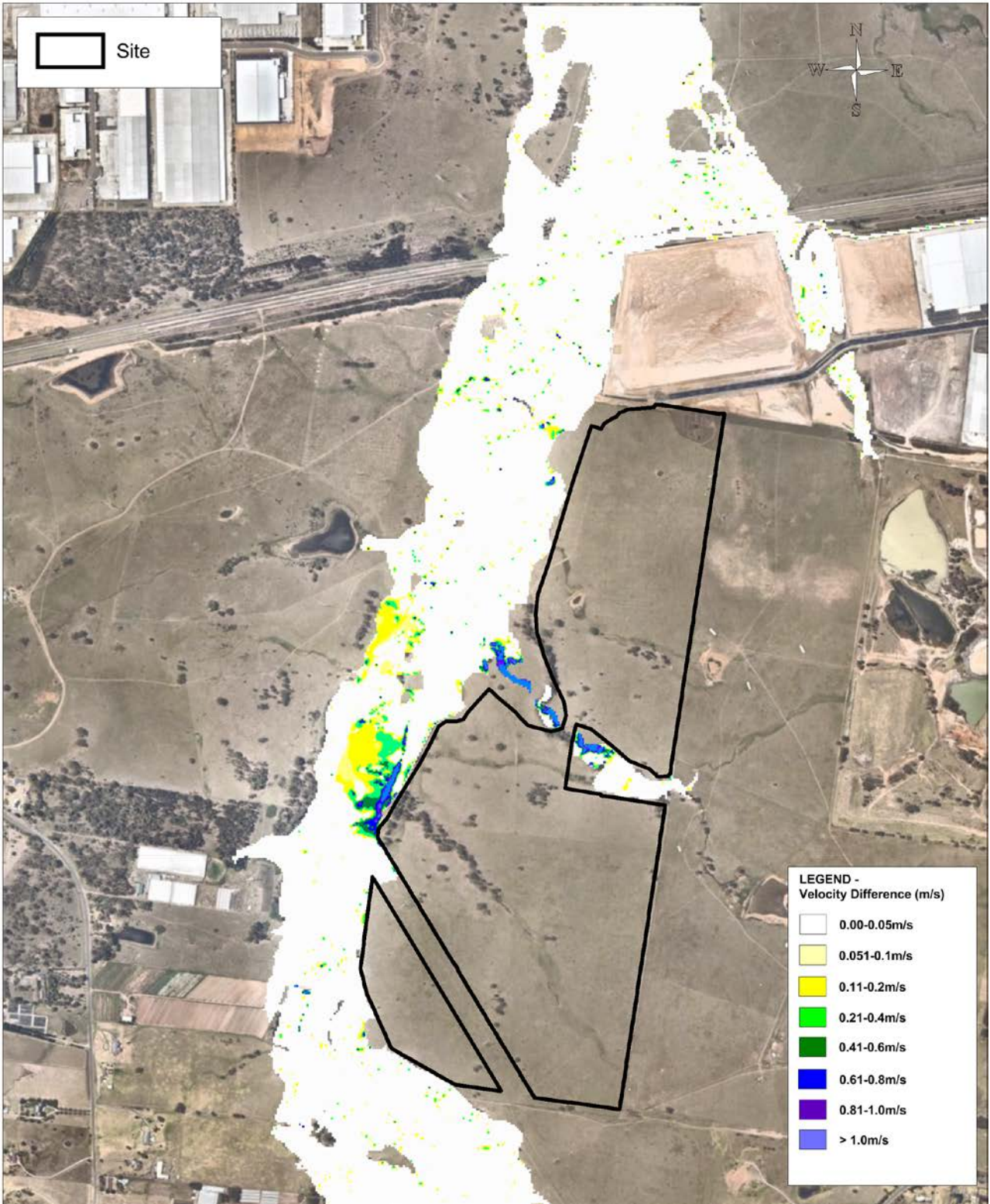


Figure 30 100 yr ARI Velocity Differences - (Future – Existing Conditions)



Figure 31 PMF Inflow Locations in TUFLOW Model - Future Conditions

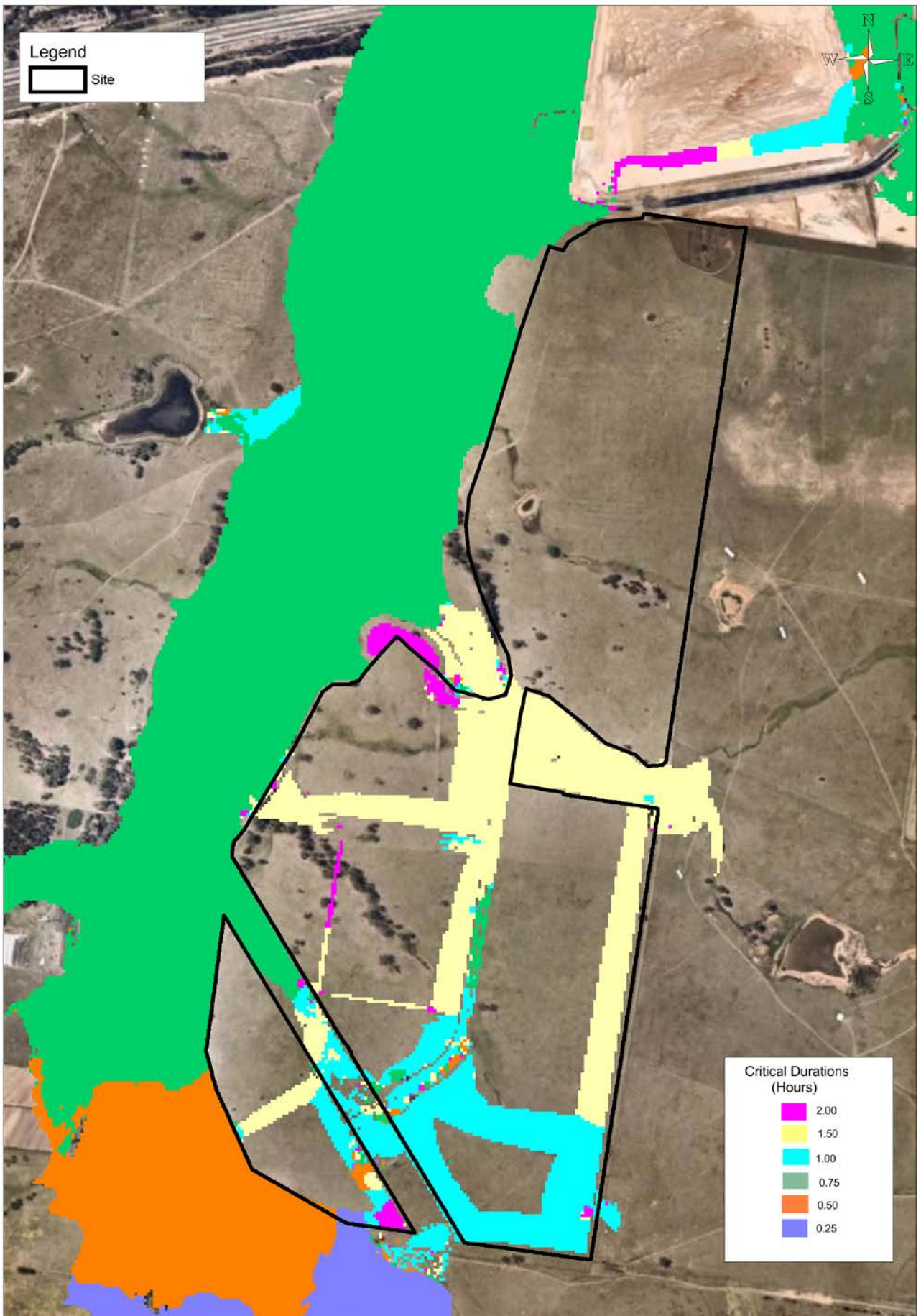


Figure 32 PMF Critical Storm Burst Durations - Future Conditions

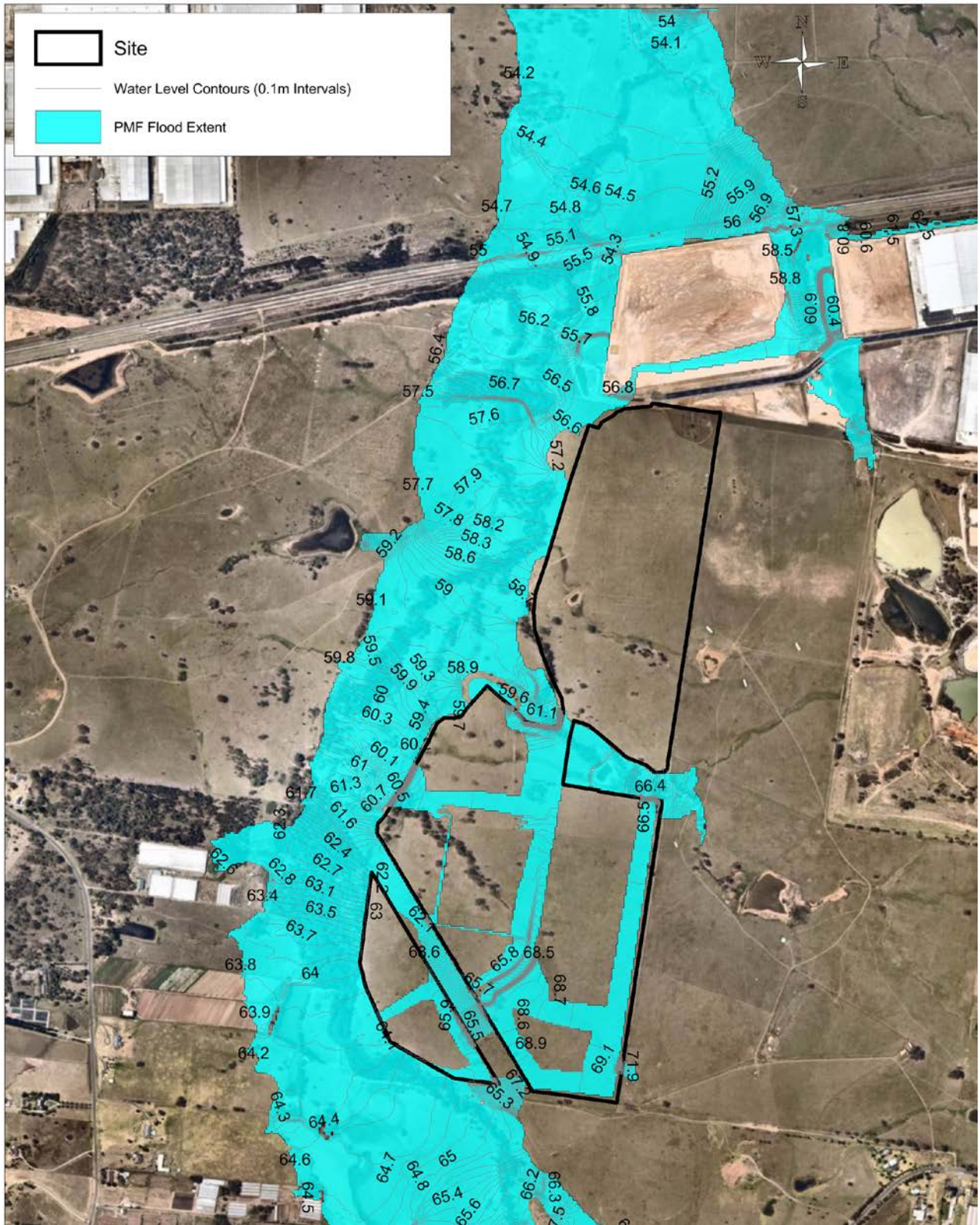


Figure 33 PMF Flood Extents and Flood Levels - Future Conditions

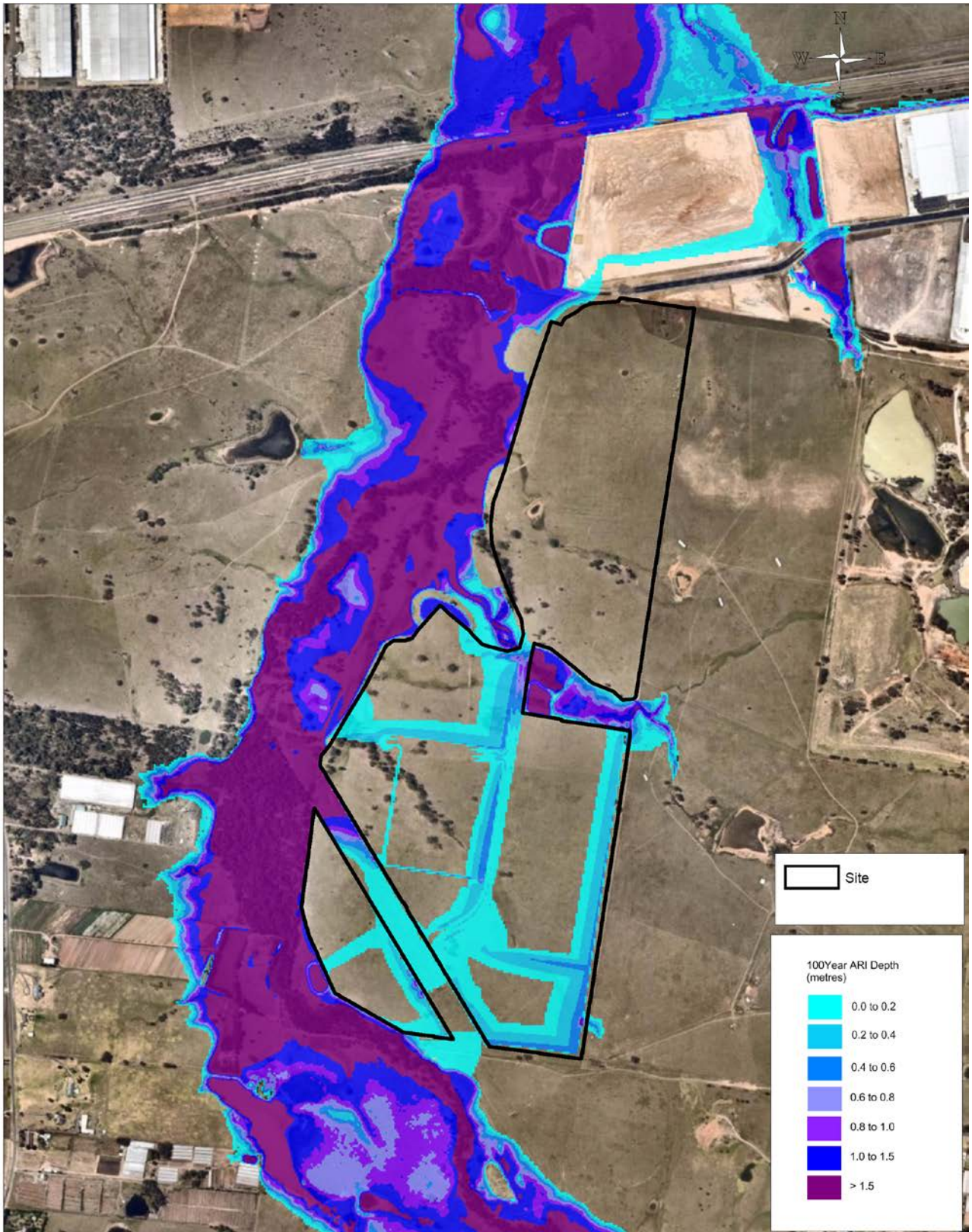


Figure 34 PMF Flood Depths - Future Conditions



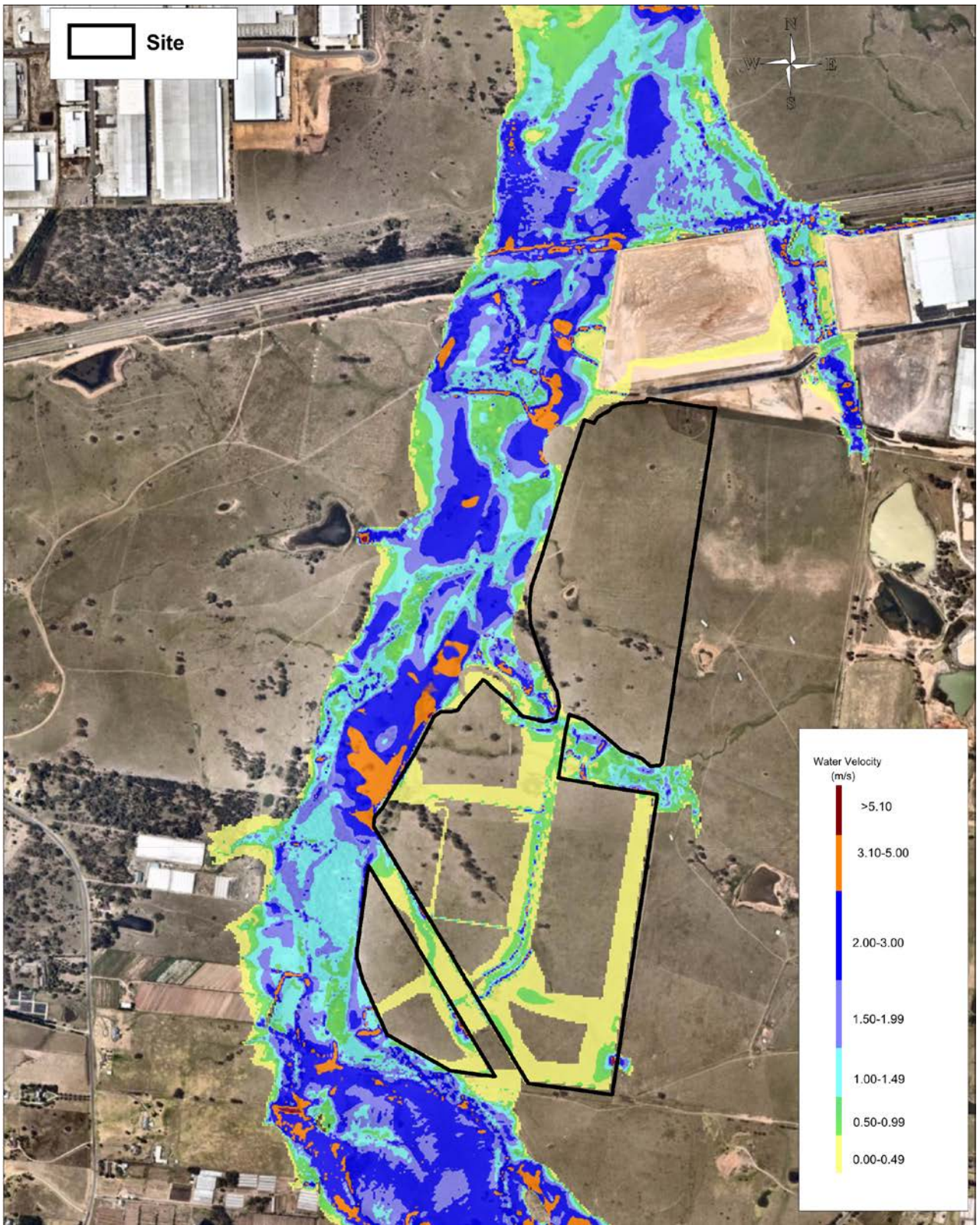


Figure 35 PMF Flood Velocities - Future Conditions

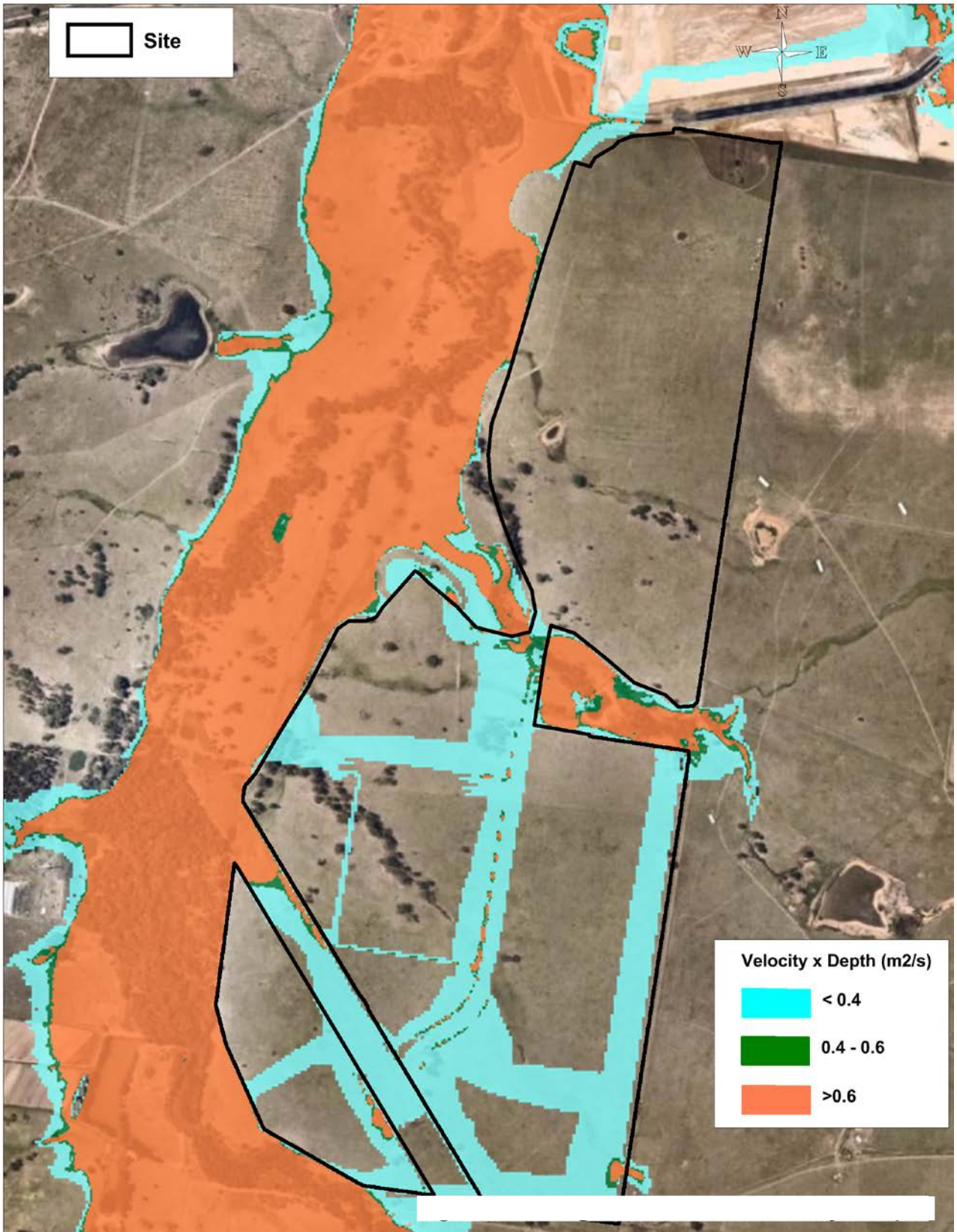


Figure36 PMF Flood Velocity x Depth - Future Conditions

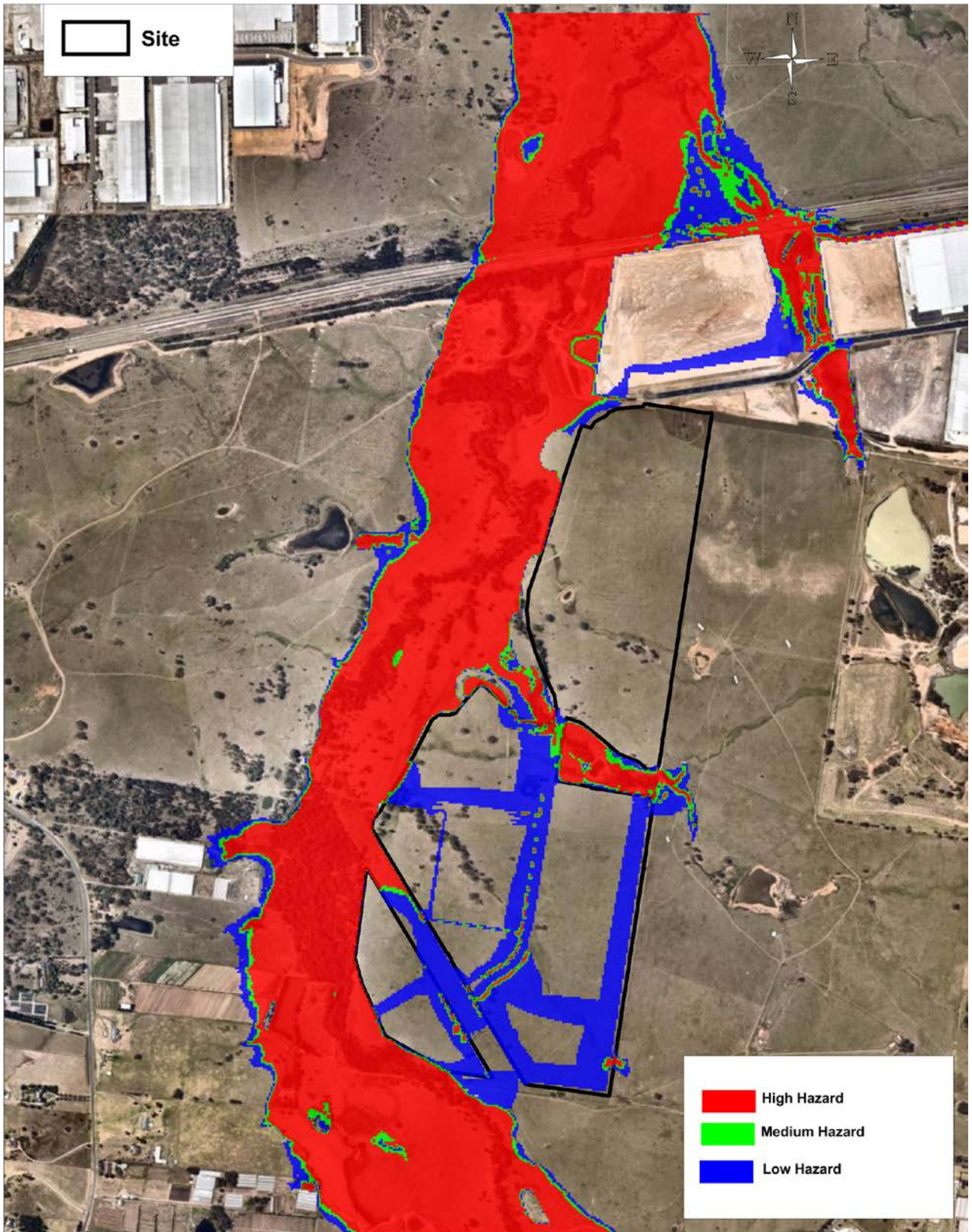


Figure 37 PMF Flood Hazards - Future Conditions

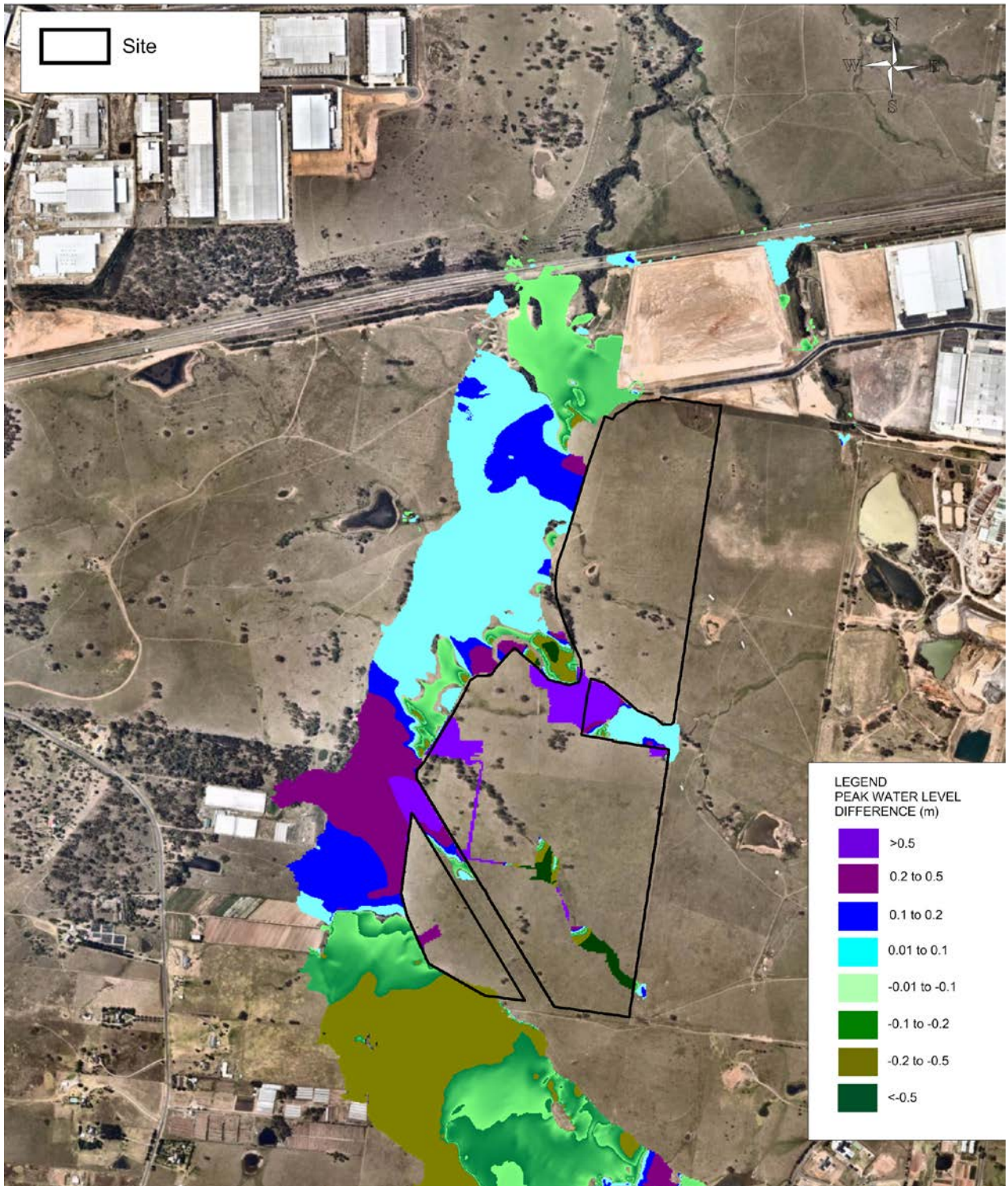


Figure 38 PMF Level Differences - (Future – Existing Conditions)

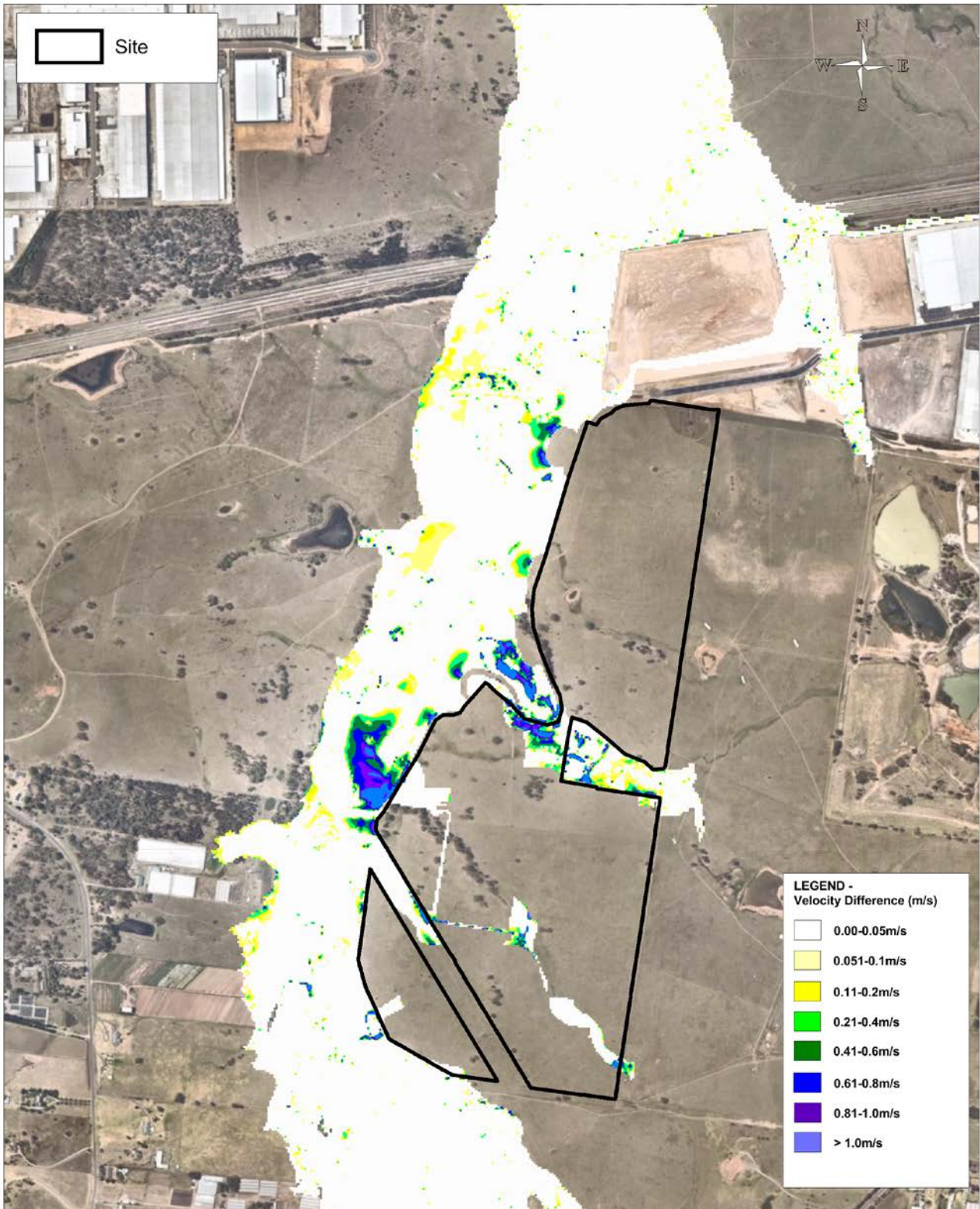


Figure 39 PMF Velocity Differences - (Future – Existing Conditions)

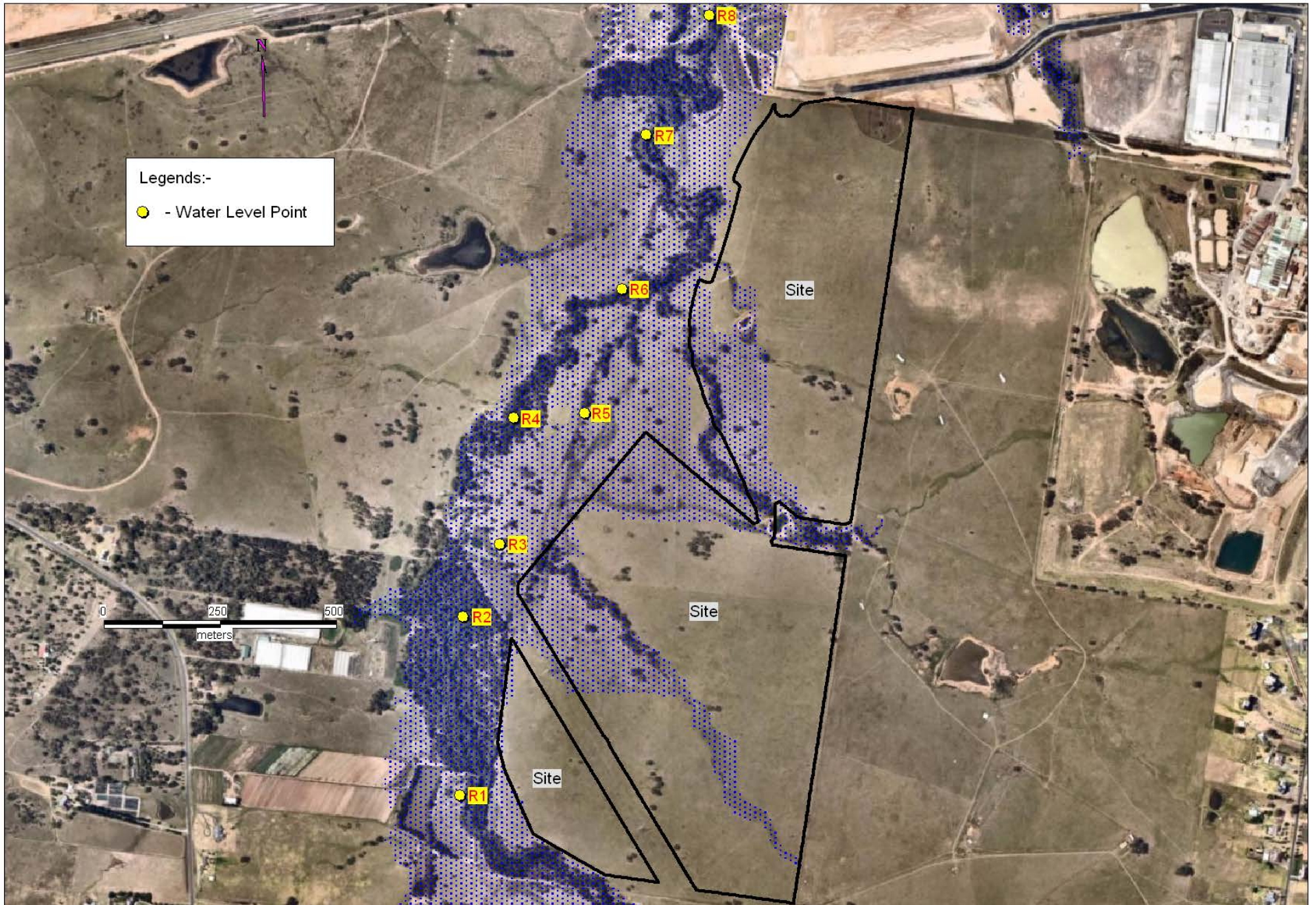


Figure 40 Reference Locations

Oakdale South Industrial Estate

**APPENDIX B**  
ASSESSING THE IMPACT OF  
DEVELOPMENT CONTROLS ON  
DESIGN FLOWS

## B.1 Aim

For strategic planning purposes, the approach adopted by GHD when assessing Future Conditions was to assume that post-development flows would be the same as flows under Existing Conditions on the basis that retarding basins would be constructed to limit peak flows under post-development conditions to pre-development peak flows.

The accuracy of this approach was assessed by analysing a representative subcatchment in the upper Ropes Creek catchment (refer Subcatchment N5a in **Figure 4**).

## B.2 Test Catchment Properties

The properties of the test catchment under Existing Conditions were:

Subcatchment area (ha)	27.81
Imperviousness	5%
Vector average slope	1.28%

Pervious area roughness	0.06
Impervious area roughness	0.025

The rainfall losses adopted by GHD were as follows:

Surface Type	Initial Loss (mm)	Continuing Loss (mm/h)
Pervious	15	2
Impervious	2.5	0

GHD adopted these losses for both 100 yr ARI and PMF assessments.

For the purposes of these assessments the same rainfall losses were adopted for the 100 yr ARI assessments. In the case of PMF assessments the following losses were adopted:

Surface Type	PMF Initial Loss (mm)	PMF Continuing Loss (mm/h)
Pervious	1	1
Impervious	0	0

The modelling approach was based on “split subcatchments”.

## B.3 100 yr ARI Scenarios

Six 100 yr ARI scenarios were assessed as follows.

PreDevN5a Pre-development Conditions where the adopted imperviousness was 5%;

PDevN5a Post-development Conditions where the assumed the imperviousness is 80%;

PreDn5aAdj1 Pre-development Conditions where the pervious rainfall losses were area weighted losses under Post-development Conditions ie. initial loss = 5 mm and continuing loss = 0.4 mm/h;

PreDn5aAdj2 Pre-development Conditions where the adopted rainfall losses were area weighted losses under Post-development Conditions and the subcatchment was modelled as a lumped subcatchment with 0% imperviousness;



**PDev+Bas** Post-development Conditions with a basin with a volume required to contain 100 yr ARI runoff in the basin without overtopping. It was further assumed that the basin would be 1 m deep and that the rectangular slot outlet would be sized to give an outflow at 1 m depth which matches the target peak flow under Pre-development Conditions.

**PDevN5aBX** Post-development Conditions with the B values adjusted to approximate a basin that limits the peak outflow to the peak flow under Pre-development Conditions.

### B.4 100 yr ARI Results

The peak flows were assessed for each scenario for storm burst durations from 30 minutes to 9 hours. The estimated peak outflows are summarised in **Table B.1**.

**Table B.1 Estimated Peak Flows (m<sup>3</sup>/s)**

Node	Storm Burst Duration (mins)									Max
	30	45	60	90	120	180	270	360	540	
PreDevN5a	1.09	1.40	1.66	2.06	2.25	2.28	2.22	2.35	2.52	2.52
PDevN5a	10.83	9.87	10.50	11.14	10.44	6.04	5.42	4.18	3.77	11.14
PreDn5aAdj1	1.52	1.92	2.25	2.56	2.71	2.65	2.57	2.74	2.66	2.74
PreDn5aAdj2	1.40	1.91	2.25	2.57	2.70	2.66	2.56	2.71	2.62	2.71
PDev+Bas	1.63	1.97	2.15	2.25	2.35	2.26	2.23	2.41	2.56	2.56
PDevN5aBX	1.42	1.89	2.22	2.43	2.54	2.42	2.29	2.45	2.28	2.54

**Table B.2 Accuracy of Estimated Peak Flows (m<sup>3</sup>/s)**

Node	Storm Burst Duration (mins)									Max
	30	45	60	90	120	180	270	360	540	
PreDevN5a	-33%	-29%	-23%	-9%	-4%	1.0%	-0.5%	-2.5%	-1.4%	-1.4%
PDevN5a	565%	401%	389%	395%	344%	167%	143%	74%	47%	335%
PreDn5aAdj1	-7%	-3%	4.9%	13.8%	15.3%	17%	15.2%	13.9%	3.8%	7.0%
PreDn5aAdj2	-14%	-3%	4.8%	14.3%	15.1%	18%	14.8%	12.8%	2.3%	6.0%
PDevN5aBX	-13%	-4%	3.4%	7.8%	8.2%	7.1%	2.9%	1.7%	-11%	-0.7%

For assessment purposes the Post-Development Conditions with a basin were adopted as the benchmark when assessing the accuracy of any alternative approach. The differences between the estimated peak flows for each scenario against the benchmark peak flows are given in **Table B.2**.

It was found that the 9 hour storm burst is critical under Pre-development Conditions and the 90 minute storm burst is critical under Post-development Conditions. With a basin in place the critical storm burst duration is 9 hours.

**Figure B.1** plots and compares hydrographs generated by the 2 hour and 9 hour storm bursts under the various scenarios.

It is concluded that in relation to 100 yr ARI flooding:

- (i) Adopting Pre-Development Conditions as a surrogate for Post-Development Conditions with a basin would match the peak flow to within 2% in a 9 hour storm burst but would underestimate peak flows in shorter duration storm bursts less than 2 hours duration. It would also underestimate the overall volume of runoff;
- (ii) Adopting Pre-Development Conditions and adjusting the rainfall loss rates improves the estimated volume of runoff and would also match the peak flow to within 4% in a 9 hour storm burst but would overestimate peak flows in shorter duration storm bursts around 2 hours duration by up to 15%;
- (iii) The approach adopted to representing the catchment with areal weighted rainfall losses had little impact on the estimated peak flows;
- (iv) Increasing the BX value as a surrogate for development with a basin could match the Pre-Development peak flow but in a 2 hour storm burst and would underestimate the peak flow in a 9 hour storm burst by around 11%.

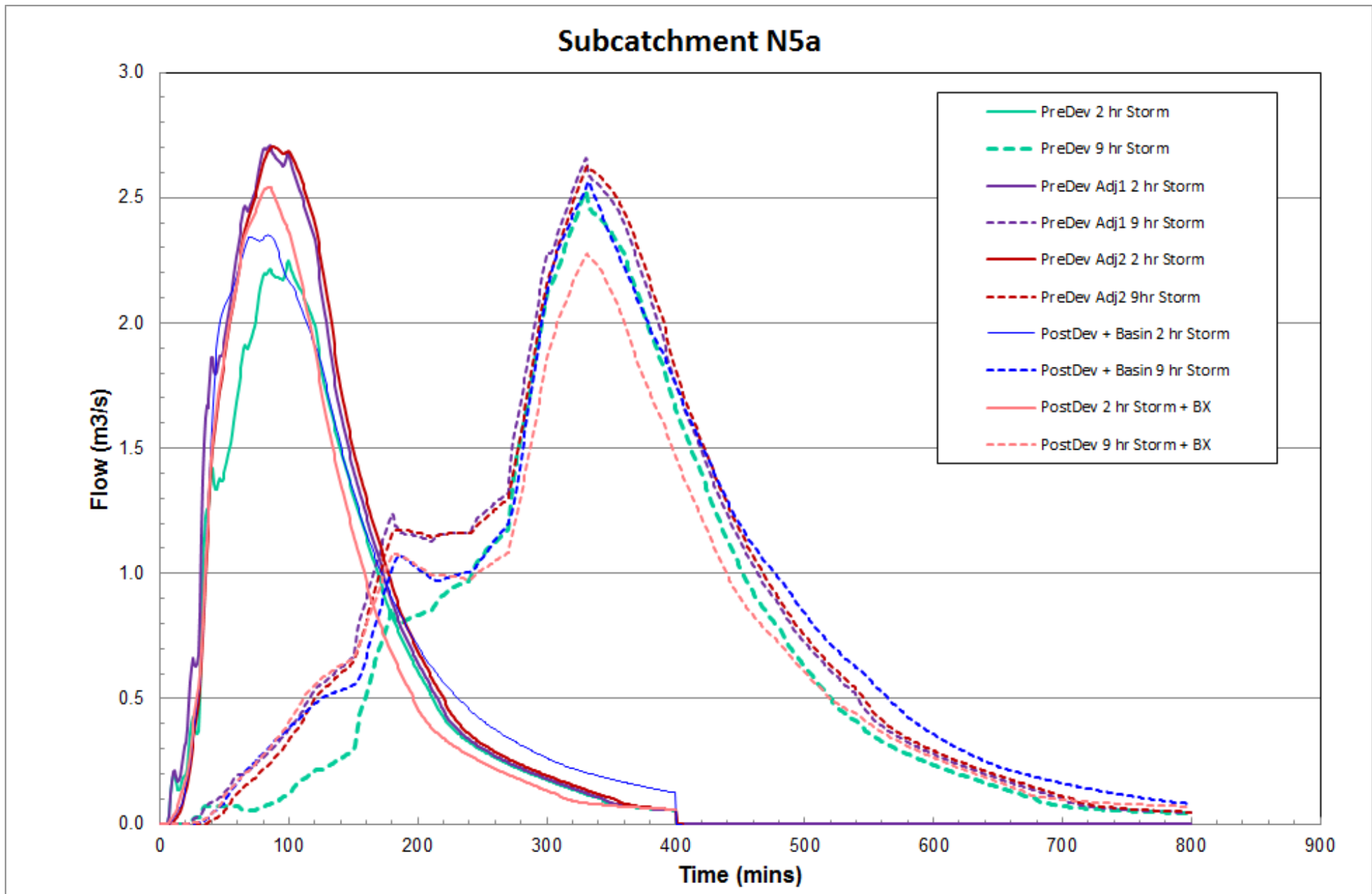


Figure B.1 Comparison of 1% AEP Outflow Hydrographs for Various Scenarios

# Appendix G

---

Extract from Oakdale Concept Plan – Water Balance  
Options Report



Appendix D  
Water Demands- End Uses



#### **4. Preamble**

Water system demands are estimated based on planned water usage for the proposed development site using an end use model. The water demands are based on 'efficient' (generally a WELS rating of '3-stars') fixtures water usage and implementation of subsurface irrigation.

The analysis was undertaken considering that the development would be utilised for warehouse /office use.

#### **5. Water Usage Analysis**

##### **5.1 Water Usage Demand Overview**

The Water Supply Code of Australia 03-2002 v2.2 estimated water demands in light industrial and/or commercial developments to be 41 kL/hectare/day. In addition, Sydney Water Corporation conducted audits in a number of commercial buildings in Sydney and determined 'current best practice' water usage to equate to 22 kL/hectare of net lettable office space/day.

However, GHD experience in other projects such as the Eastern Creek Business Park, which have been developments of similar nature to that of the proposed Oakdale development site (i.e. predominantly light industrial in nature) have exhibited average water demands in the order of 2.3- 3 kL/ net hectare /day.

As such, GHD assume that adopting published data (by the Water Services Association of Australia and Sydney Water Cooperation) water demand values across the Oakdale development would significantly overestimate actual water demands, as published data and audits were undertaken in higher density developments and are applicable to generalised planning and design of trunk system infrastructure.

GHD have adopted an average water demand in the order of 2.3-3 kL/ net hectare/ day based on the assumption of adopting 27 EP /hectare from previous 'like' GHD project experience.

##### **5.2 Water Usage Demands**

GHD understand that the site will be developed by 'generic proposed warehouse facilities' which occupy on average 2 .04 net hectares each- of which 60 % of the total lot area is occupied by warehouse space and 5% of the total lot area is occupied by office space.

In addition to the warehouses land uses which will predominantly inhabit the site demanding water, a number of open space areas will occupy the site demanding water for irrigation.

GHD have identified the following water demanding end uses across the development:

- » toilet and urinal flushing, hand basin washing, showering;
- » kitchen (food preparation, washing), drinking;
- » Air conditioning cooling;
- » Internal Cleaning;
- » Leaking water devices.
- » Unaccounted for Water;
- » Truck/Car wash;
- » External cleaning; and
- » Watering (outdoor garden use);

The basis for selection of water demands volumes by end use have been discussed individually below:



### **2.2.1 Toilet and Urinal flushing**

Plumbing policies Australia-wide either require or encourage that for the installation of a new bathroom, a 6/3 L dual flush cistern or a proven authorized equivalent is installed. A 6/3L dual flush cistern corresponds to an average flush volume of 3.6 L<sup>1</sup>, which equates to a WELS water usage rating of '3-stars' (water usage of between 3.5-4 L).

In addition, AS/NZS 3500.1 *Plumbing and drainage*, Part 1 specifies that a flush of more than 2.5L per single urinal stall is not allowed, as such GHD will adopt a urinal which utilises approximately 2 L per flush which is equivalent to a '3-star' rating (i.e. water usage not more than 2L/flush).

The 2001 *Census of Population and Housing* (Australian Bureau of Statistics) indicated that 63% and 37% of full time employees are male and female respectively.

GHD has assumed that each ET will visit the toilet three times a day, comprising of 2 part flushes and 1 full flush. GHD assume that all males (assumed to be 37% of the working population) will use the urinal for partial flushes.

### **2.2.2 Hand Washing Basin**

SWC encourage the usage of a minimum '3-star' rating of tap, using between 7.5-9 L/min, in addition SWC distributes flow aerators for taps that equate to a flow of 9L/min. However, taps are available with flows down to 4.5 L/min (and potentially lower flows).

GHD will adopt an 'efficient' tap flow rate of 8.5 L/min- equivalent to a '3-star' water rating.

GHD will assume that the hand washing basin will be used by each equivalent tenement each time the toilet or urinal is visited. GHD assume that each use of the hand washing basin will be carried out for approximately 15 seconds.

### **2.2.3 Showering**

The most efficient shower head 'star' rating currently specified by WELS is a '3-star' water rating, equating to a water usage of between 7.5-9 L/min. WELS are currently undertaking 'comfort tests to ensure that flow rates less than 7.5L/min perform effectively and are acceptable to consumers'.

GHD has adopted a shower head which equates to a water usage of 8L/min- equivalent to a '3-star' water rating.

Sydney Water Corporation End Use analysis (SWC, 2006) indicates that within a residential setting, the average shower frequency is 0.8 showers per capita per day with an average duration of 7.3 minutes for each shower.

GHD has adopted a similar average shower duration for showers taken within the development (warehouse/office) setting, that is a duration of 8 minutes / shower. In addition, GHD have assumed that as 0.8 showers per capita per day take place within a residential environment, the remaining 20% of the population shower within the workplace (assuming that on average each person showers once a day). As such, GHD will assume that within the development, 20% of employees shower within the workplace each day, for a duration of 8 minutes with an average shower flow rate of 8L/min.

### **2.2.4 Kitchen – Food Preparation, Washing and Drinking**

---

<sup>1</sup> The average water consumption for a dual flush toilet is calculated as the average of one full flush and four reduced flushes.



GHD have assumed that the taps installed within the kitchen will be similar to that installed within the bathroom basins, that is utilise 8.5L/minute (equivalent to a '3-star' water rating).

GHD assume that each equivalent tenement will demand 2L/day for food preparation or washing in the kitchen, in addition to 1L/day for drinking. As such, the total water demand adopted in the kitchen will be equivalent to 3L/day per equivalent tenement in the development.

### 2.2.5 Air Conditioning Cooling

Sydney Water's publication '*Save Water, Money and the Environment*' has stated that air conditioning consumes between 10-25% of a commercial buildings total water usage. However, traditionally warehouse or light industrial land uses demand lower extents of air conditioning which compared to commercial land uses.

It is assumed that only the office areas of each development will be air conditioned and as such only 10% of each generic lot area will demand water for air conditioning cooling. As such, GHD have adopted that only 10% of the developments total water usage will be demanded by air conditioning cooling end use.

In addition, Sydney Water's publication '*Water Conservation- Best Practice Guidelines for Cooling Towers in Commercial Buildings*' have stated that water demand in cooling towers comprises of that shown in the table below. As such, GHD will assume that of the total portion of water demanded for air conditioning cooling, 88% of the water will be lost to evaporation- the remainder (12%) of which will travel to the sewer or be available for recycling (as appropriate). This hypothesis assumes that the air conditioning cooling systems installed in the development will manage the potential for 'bleed, drift, slash and overflow' to occur to equate these demands to negligible requirements (therefore, not considered).

**Table: Air Conditioning Water Usage Make Up (Sydney Water Corporation)**

Air Conditioning Process	Demand Per Process as a Portion of Total Air Conditioning Water Demand (%)	Description
Evaporation	88%	Part of the water cooling process.
Bleed	5%	To prevent build up of dissolved and suspended solids from evaporated portion of water. Generally the bleed valve transports the 'bleed' water to sewer
Drift and Splash	7%	Drift- Water lost from the cooling process as liquids entrained in the exhaust air.  Splash- Water accidentally emitted due to splashing (by strong wind, falling water etc).  GHD assume that the water losses to drift and splash will be negligible within the developments air conditioning system due to adequate design.





<p>Overflow</p>	<p>Overflow occurs when the water level within the air conditioning system basin rises above a predetermined design level. Traditionally, this 'overflow' water travels to sewer and can account for up to 40% of daily water demands. However, GHD have assumed that the air conditioning cooling systems will have adequately designed systems, and therefore 'overflow' has not been considered or accounted for with the water demands.</p>
-----------------	---

**2.2.6 Internal Cleaning**

It is assumed that each 'generic proposed warehouse facility' comprises of four bathrooms (2 male and 2 female bathrooms, each bathroom containing two toilets and two sinks). GHD additionally assume that each 'generic proposed warehouse facility' contains one kitchen area.

As such, it is assumed that cleaning of the bathroom and kitchen facilities takes place on a daily basis via:

- » Flushing each toilet each day (part flush) within each bathroom- equivalent to eight toilets (part flushes);
- » Mopping (assume this incorporates cleaning in the kitchen sink) – assume each of the four bathrooms and the one kitchen, that is five separate rooms gets cleaned each day with one bucket of water (for mopping) once a day. Assume that each bucket of water utilises 10 L of water.

Therefore, GHD have assumed that the total daily water usage for internal cleaning is 74 L/day within each 'generic proposed warehouse facility'.

**2.2.7 Leaking Water Devices**

The Department of Planning have estimated that the current average portion of water that is attributed to leaking devices or fittings is 0.7% of total water consumption within a residential water setting. While this data is representative of residential settings only, GHD have assumed that the development will water fittings will be efficient, installed corrected and maintained appropriately – and as a result water demand due to leaking devices will be minimal and therefore is considered to be negligible (and disregarded).

**2.2.8 Unaccounted for Water**

Unaccounted for water is the difference between potable water release from the storage reservoir and the water supplied to customers. The SWC annual report 2005 indicated that 10% of overall water demand (currently potable water demand) was unaccounted for water.

Similarly, GHD has adopted that 10% of total potable water demand is unaccounted for water demand in the Oakdale Development Site. In addition, GHD have assumed that a further 10% of overall recycled (black or grey) water will result in unaccounted for water being an additional pressurised system.

It should be noted that unaccounted for water is a water demand that does not enter the sewer, it is assumed to be "lost" to the groundwater table or other.

**2.2.9 Truck and Car Wash**

Car washing in Sydney is currently only permitted if conducted using a bucket, that is, the use of hoses for car washing is illegal using potable water. As such, it has been assumed for the purposes of this study and estimating water usage of cars/trucks- should potable was be required for vehicle washing, a bucket, and therefore minimal water will be utilised.



It is assumed that a hose will be used for vehicle washing purposes in the warehouse/office environment. In addition it is assumed that an alternative source to potable water will be used for vehicle washing (either recycled, rainwater or greywater) and as a result car washing would be permissible.

A truck washing quote was obtained from 'Wash N Go'. 'Wash N Go' run a mobile truck wash service which includes the supply of the initial 1000L of water in a tank, which they envisage being fit to wash approximately 6-7 'average sized delivery' trucks. 'Wash N Go' estimate a wash time of 10-15 minutes per truck. Based on the 'Wash N Go' quote, an 'average sized delivery truck' would require approximately 166 L per car wash.

It is assumed that an average tap flow rate of 8.5 L/min is adopted (see Bathroom tap assumptions) at the development and an average truck wash time of 15 minutes (from 'Wash N Go'). GHD have roughly calculated that a truck would require 128 L of water per wash.

As it has been estimated the volume of water required to wash each truck ranging between 128 and 166 L of water, the average truck wash water demand of 150 L / wash has been adopted.

It is assumed that on average two trucks get washed each day within each proposed warehouse facility lot. Therefore, it is assumed that 300 L/day is required for vehicle washing in each development lot.

In addition, it is assumed that the water utilised for truck washing is not recycled as black or greywater – however is captured by stormwater drains or other.

#### **2.2.10 External Cleaning**

It is assumed that two buckets of water will be utilised for external (mopping or otherwise) purposes externally. It is assumed that each bucket of water contains 10L (as per internal cleaning).

#### **2.2.11 Watering (Outdoor)**

It is assumed that watering will only be conducted via subsurface irrigation techniques across the development area.

In a study conducted by an unavailable source (2006), water usage data was collected from 2000 residential dwellings across five geographic/climatic zones across Sydney. The results of the research suggest that the residential watering requirements do not take into account the absolute value of rainfall received by the garden. Although, with a combination of increased education leading to behavioural changes and installation of fixed irrigation system (for instance subsurface irrigation) for the Cumberland Plain Zone can be lowered to an efficient water demand of 0.87 mm / m<sup>2</sup>/ day. As such, GHD have adopted a similar (0.87mm/day) irrigation requirement within the industrial development at Oakdale (despite this being a industrial development and not residential in nature).

# Appendix H

---

Table 3 from Water Sensitive Urban Design – Book 4  
Maintenance

**Table 3 |** Routine monitoring requirement for bioretention basins.

ITEM TO BE MONITORED	PURPOSE OF MONITORING	PERFORMANCE TARGET	SCHEDULE MAINTENANCE OR INVESTIGATION	IMMEDIATE ACTION REQUIRED	MAINTENANCE ACTION REQUIRED
<b>STRUCTURES</b>	The inlet and outlet structures of a bioretention system should be free of debris, litter and sediment to ensure flow is not impeded. Large storms (or flood) events and vehicles can also damage or block these structures and prevent the system working as designed. The main structural elements of a bioretention system are:				
	- GPT / trash rack/s	GPT clear of litter	GPT 10 percent full	greater than 30 percent full	Contact cleaning service.  Generally a GPT will require clean-out four times per year. For proprietary GPTs it is recommended that a vacuum based cleaner be used on at least one occasion per year, or when frequent overflow of litter from the GPT is evident. For all other clean-outs, a mechanical grab is sufficient.
	- Inlet structures	Clear and undamaged	Partially Blocked Observed damage	Mostly blocked Severe damage	Schedule removal of debris or contact relevant authority within Council for structural damage.  Inspect the bioretention system for scour or erosion damage and fix accordingly (refer to maintenance line item "bioretention system profile" for advise).
	- Overflow pits				
	- Underdrains	Free flowing	Trickle flow while basin ponding is observed	No outflow while basin ponding is observed	
	- Sediment Forebay	Sediment absent	Sediment accumulation appears excessive	Sediment accumulated to half the basin depth	Schedule removal of sediment from forebay area.
<b>EROSION</b>	Erosion impairs bioretention systems by changing the bed profile and preventing uniform distribution of flow across the system.  If left untreated, small sites of erosion can quickly spread over large areas becoming costly to repair.	Erosion absent	Erosion damage visible, but function not impaired	Severe erosion. Damage impairing function of device	Schedule investigation to identify cause of profile damage.  Once source of damage is rectified, scour holes should be replaced with appropriate filter media.  Lightly spread and compact replaced filter media using either hand tools, an excavator bucket or a pozitrack bobcat (DO NOT drive over the media with any vehicle but a pozitrack bobcat).  Replace any damaged plants to meet the design plant schedule.

ITEM TO BE MONITORED	PURPOSE OF MONITORING	PERFORMANCE TARGET	SCHEDULE MAINTENANCE OR INVESTIGATION	IMMEDIATE ACTION REQUIRED	MAINTENANCE ACTION REQUIRED
<p><b>SEDIMENT BUILD UP</b></p>	<p>The accumulation of sediment in the sediment forebay of the bioretention system is a prescribed function of this zone. However, sediment must be regularly removed to ensure that the sediment trapping performance of this zone is sustained.</p> <p>If sediment accumulates on the bioretention surface, percolation of water into the media may be reduced, resulting in poor treatment performance.</p>	<p>Sediment absent</p>	<p>Sediment accumulation appears excessive in sediment forebay</p> <p>Fine sediment accumulation apparent on bioretention media surface</p>	<p>Sediment accumulated to half the forebay depth</p> <p>Coarse sediment or large volumes of sediment accumulation apparent on the bioretention media surface</p>	<p>Schedule investigation to identify sediment source.</p> <p>Once sediment source is stabilised, remove accumulated sediment and replace the top 100 mm of filter media from the bioretention system. The filter media specifications should be as per the design intent.</p> <p>Common sense should be exercised in deciding if plantings need to be replaced as part of maintenance work. If the sediment build-up is extensive and smothering vegetation, it may be easier and less costly to remove the plantings and replant once the filter media has been replaced. Conversely, if the sediment build-up is small and isolated or the system is planted with trees, it may only be necessary to scrape away the accumulated sediment and the top 100mm of filter media and replace without disturbing the plants within the bioretention system.</p> <p>Lightly spread and compact replaced filter media using either hand tools, an excavator bucket or a pozitrack bobcat (DO NOT drive over the media with any vehicle but a pozitrack bobcat).</p> <p>Replace any damaged plants to meet the design plant schedule.</p>
<p><b>COMPACTION</b></p>	<p>Percolation into the media may be reduced if the media surface has been compacted, i.e. by pedestrian traffic, poor construction methods.</p>	<p>No compaction evident</p>	<p>Localised compaction or subsidence evident. Localised ponding longer than 24 hours after storm event</p>	<p>Water remains ponding longer than 24hours after storm event</p>	<p>Schedule investigation to identify cause of compaction.</p> <p>If compaction is localised, remove top 500 mm of filter media with auger.</p> <ul style="list-style-type: none"> <li>- Break-up removed filter media so that it is no longer compacted.</li> <li>- Refill hole with uncompacted filter media (that is, there is no need to replace with new filter media).</li> </ul> <p>If compaction is extensive, seek expert advice.</p>
<p><b>WEEDS AND INVASIVE PLANTS</b></p>	<p>The growth of weeds can impair a bioretention system's performance by</p> <ul style="list-style-type: none"> <li>- Changing flow paths across the bioretention system</li> <li>- Shading and out-competing plant species that are important for water treatment, or filter media stability.</li> </ul> <p>Weeds can spread to downstream environments, compromising ecosystem health.</p> <p>Weeds compromise the visual amenity of the bioretention system.</p>	<p>No weeds present</p>	<p>Weeds present</p>	<p>Noxious or environmental weeds present, or weed cover more than 25 percent</p>	<p>Hand removal or targeted herbicide treatment (herbicides registered for use around waterways).</p> <p>Note: Herbicides should not be routinely used to maintain edges and batter slopes. General spraying of batter slopes should not be undertaken without follow up revegetation with native species.</p>

ITEM TO BE MONITORED	PURPOSE OF MONITORING	PERFORMANCE TARGET	SCHEDULE MAINTENANCE OR INVESTIGATION	IMMEDIATE ACTION REQUIRED	MAINTENANCE ACTION REQUIRED
<b>PLANT CONDITION</b>	<p>Plants are crucial to the performance of a bioretention system.</p> <p><u>During dry periods:</u> Plants help maintain the structure and porosity of the filter media.</p> <p><u>During rainfall events:</u> Vegetation aboveground acts to retard and distribute flows, and provides scour protection if the bioretention system is designed as a swale. Below ground the roots provide an important media for trapping or absorbing pollutants as they percolate through the media.</p> <p>The accumulation of dead plant material can detract from the visual amenity of the bioretention system.</p>	Healthy vegetation	Poorly growing or visibly stressed	Die back / dead plants	<p>Schedule an investigation into the cause of plant die-back or poor health.</p> <p>Maintenance action will depend on the cause of die-back or poor plant health. Once the problem is rectified, infill planting may be required, especially if more than 1 square meter of plantings has died. Infill planting must be as per the original planting schedule.</p>
<b>LITTER (ORGANIC)</b>	<p>Organic litter can provide an additional source of nutrients to the bioretention system, introduce non-native species, which out-compete native plants and block the filter media.</p> <p>Accumulated organic matter / litter can also cause offensive odours (such as methane gas and hydrogen sulphide, i.e. rotten egg gas) and can reduce percolation of water into the filter media.</p>	No litter visible	Litter visible	Litter thickly covers filter media surface or detracting from visual amenity	<p>Identify source of organic litter and address with appropriate response action: e.g. change of landscape maintenance practices; community education re: litter dumping (appropriate for repeat incidences).</p> <p>In the interim, all litter must be removed by maintenance crews.</p>
<b>LITTER (ANTHROPOGENIC)</b>	Litter can potentially block the inlet and outlet structures of the bioretention system resulting in flooding, as well as detract from the system's visual amenity.	No litter visible	Litter visible	Litter blocking structures or detracting from visual amenity	<p>Identify source of rubbish: e.g. from catchment (commercial precinct); overflow of rubbish bins; accumulation in backwater area and schedule general maintenance to remove rubbish. Where required address source of rubbish (e.g. increase in frequency of rubbish bin emptying; gross pollutant traps in high load generation land uses). In the interim, all litter must be removed by maintenance crews.</p> <p><b>WARNING:</b> Contact with sharp objects, including hypodermic needles is a risk when removing litter. All workers must be made aware of this risk, wear appropriate protective gear and use caution.</p>
<b>OIL SLICKS</b>	Oil spills / inflows are not necessarily an impediment to bioretention system function. Bioretention systems are designed to remove oils from stormwater; hydrocarbons decompose relatively quickly in the presence of soil microbes and water. It is expected that fuel or oil trapped in the bioretention basin would decompose within two to three weeks, depending on the size of the oil spill.	No visible oil	Persistent but limited visible oil	Extensive or localised thick layer of oil visible	<p>Do not isolate bioretention system in the case of an oil spill - it is better that the oil is contained within the system than allowed to flow to the downstream water course.</p> <p>Notify the EPA of the spill and clean-up requirements</p> <p><b>NOTE:</b> do not add any fertiliser, or other nitrogen based product to the system. The microbes within the filter media are capable of decomposing hydrocarbons.</p>

# Appendix I

---

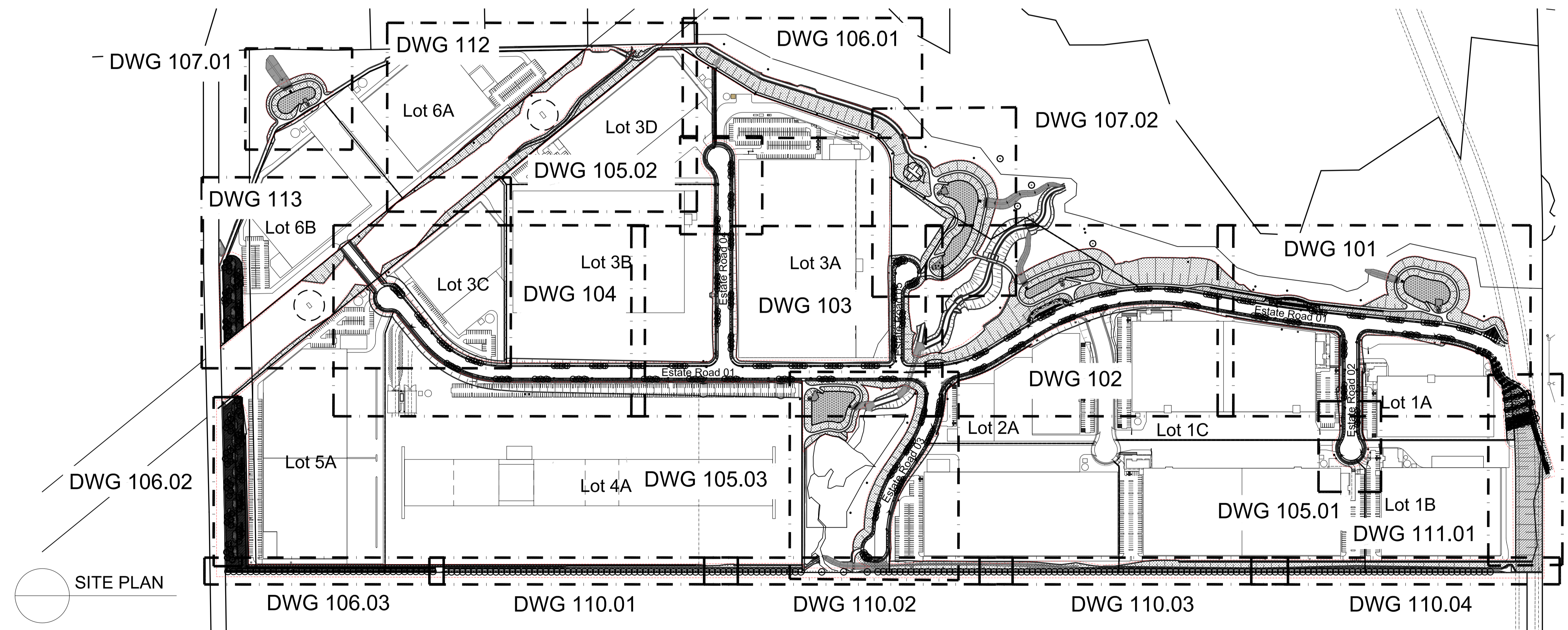
## Landscape Drawings

# OAKDALE SOUTH - OPEN SPACE

INDUSTRIAL ESTATE, OAKDALE SOUTH, HORSLEY PARK 2175 NSW

## LANDSCAPE CONSTRUCTION DRAWINGS

DRAWINGS			DWG NO.	DRAWING TITLE	SCALE
DWG NO.	DRAWING TITLE	SCALE	ELW-112	LANDSCAPE PLAN	1:500
ELW-000	COVERSHEET	N/A	ELW-113	LANDSCAPE PLAN	1:500
ELW-101	LANDSCAPE PLAN	1:500	ELW-114	LANDSCAPE PLAN	1:100
ELW-102	LANDSCAPE PLAN	1:500	ELW-115	LANDSCAPE PLAN	1:100
ELW-103	LANDSCAPE PLAN	1:500	ELW-116	LANDSCAPE PLAN	1:100
ELW-104	LANDSCAPE PLAN	1:500	ELW-117	LANDSCAPE PLAN	1:100
ELW-105	LANDSCAPE PLAN	1:500	ELW-501	LANDSCAPE DETAILS	AS SHOWN
ELW-106	LANDSCAPE PLAN	1:500	ELW-502	LANDSCAPE DETAILS	AS SHOWN
ELW-107	LANDSCAPE PLAN	1:100	ELW-601	LANDSCAPE NODE 2	AS SHOWN
ELW-108	LANDSCAPE PLAN	1:100	ELW-602	LANDSCAPE NODE 1	AS SHOWN
ELW-109	LANDSCAPE PLAN	1:100	ELW-603	LANDSCAPE BOUNDARY SECTIONS	AS SHOWN
ELW-110	LANDSCAPE PLAN	1:500	ELW-701	IRRIGATION PLAN	1:2500
ELW-111	LANDSCAPE PLAN	1:500	ELW-801	LMP PLAN	1:2500



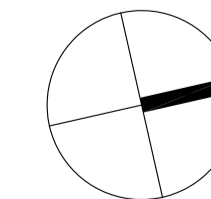
© 2015 Site Image (NSW) Pty Ltd ABN 44 801 262 380 as agent for Site Image NSW Partnership. All rights reserved. This drawing is copyright and shall not be reproduced or copied in any form or by any means (graphic, electronic or mechanical including photocopy) without the written permission of Site Image (NSW) Pty Ltd. Any license, expressed or implied, to use this document for any purpose what so ever is restricted to the terms of the written agreement between Site Image (NSW) Pty Ltd and the instructing party.

The contractor shall check and verify all work on site (including work by others) before commencing the landscape installation. Any discrepancies are to be reported to the Project Manager or Landscape Architect prior to commencing work. Do not scale this drawing. Any required dimensions not shown shall be referred to the Landscape Architect for confirmation.

Issue	Revision Description	Drawn	Check	Date
T	Minor Amendments	JW	NM	15.12.2017
S	Revised for Comments	JW	NM	06.12.2017
R	Street Tree Coordination	JW	NM	25.10.2017
Q	Landscape Amendments	JW	NM	09.10.2017
P	Revised For Comments	JW	NM	22.09.2017
O	Architectural Coordination	JW	NM	06.09.2017
N	Buffer Planting Amendments	JW	NM	30.05.2017
M	Entry Embankment Amendments	JW	NM	17.11.2016
L	Issued for Construction	JW	NM	19.10.2016
K	Boundary Amendments	JW	NM	12.10.2016
J	Civil Coordination	JW	NM	11.10.2016
I	Landscape Amendments	JW	NM	22.09.2016
H	Lighting Coordination	JW	NM	02.08.2016
G	Entry Amendments	JW	NM	29.07.2016
F	Planting Amendments	JW	NM	21.07.2016

### LEGEND

Key Plan:



SITE IMAGE



Landscape Architects  
Level 1, 3-5 Baptist Street  
Redfern NSW 2016  
Australia

Tel: (61 2) 8332 5600  
Fax: (61 2) 9698 2877  
www.siteimage.com.au

Client:  
Goodman

Project:  
Estate Open Space Plan  
Oakdale South  
Horsley Park

Drawing Name:  
Oakdale South  
Site Plan

FOR CONSTRUCTION  
Scale: 1:2500 @ A1  
Job Number: SS15-3057  
Drawing Number: ELW-000  
Issue: T



Refer DWG 102

Refer DWG 109.01

Node 1 Planting  
Refer ELW-109

Basin Floor  
6356 Ca

Bioretention  
Refer detail 08/ELW501

Maintenance access,  
refer Civil

Refer DWG 114

Lot 1C

Lot 1A

Refer DWG 115

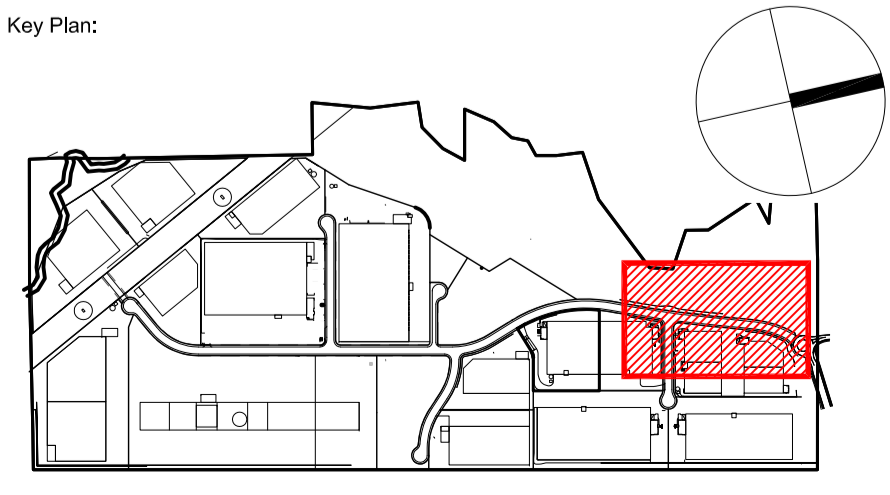
Refer DWG 116

© 2015 Site Image (NSW) Pty Ltd ABN 44 801 262 380 as agent for Site Image NSW Partnership. All rights reserved. This drawing is copyright and shall not be reproduced or copied in any form or by any means (graphic, electronic or mechanical including photocopy) without the written permission of Site Image (NSW) Pty Ltd. Any license, expressed or implied, to use this document for any purpose whatsoever is restricted to the terms of the written agreement between Site Image (NSW) Pty Ltd and the instructing party.

The contractor shall check and verify all work on site (including work by others) before commencing the landscape installation. Any discrepancies are to be reported to the Project Manager or Landscape Architect prior to commencing work. Do not scale this drawing. Any required dimensions not shown shall be referred to the Landscape Architect for confirmation.

Issue	Revision Description	Drawn	Check	Date
R	Minor Amendments	JW	NM	15.12.2017
Q	Revised for Comments	JW	NM	06.12.2017
P	Street Tree Coordination	JW	NM	25.10.2017
O	Landscape Amendments	JW	NM	09.10.2017
N	Revised For Comments	JW	NM	22.09.2017
M	Architectural Coordination	JW	NM	06.09.2017
L	Buffer Planting Amendments	JW	NM	30.05.2017
K	Issued for Construction	JW	NM	19.10.2016
J	Civil Coordination	JW	NM	11.10.2016
I	Landscape Amendments	JW	NM	22.09.2016
H	Lighting Coordination	JW	NM	02.08.2016
G	Entry Amendments	JW	NM	29.07.2016
F	Planting Amendments	JW	NM	21.07.2016
E	Tree Coordination	JW	NM	20.06.2016
D	Revised for Comments	JW	NM	16.06.2016

LEGEND	
	Scope of Works
	Proposed Trees
	Ballast
	Proposed Grasses and Groundcovers
	Turf Type 1 - (Buffalo, Refer Spec.)
	Turf Type 2 - (Couch, Refer Spec.)
	Couch Spray Seeding
	Basin Treatment: Tubestock Basin Planting
	Paving Type 1: (Refer Landscape Specification)



**SITE IMAGE**  
Landscape Architects  
Level 1, 3-5 Baptist Street  
Redfern NSW 2016  
Australia  
Tel: (61 2) 8332 5600  
Fax: (61 2) 9698 2877  
www.siteimage.com.au

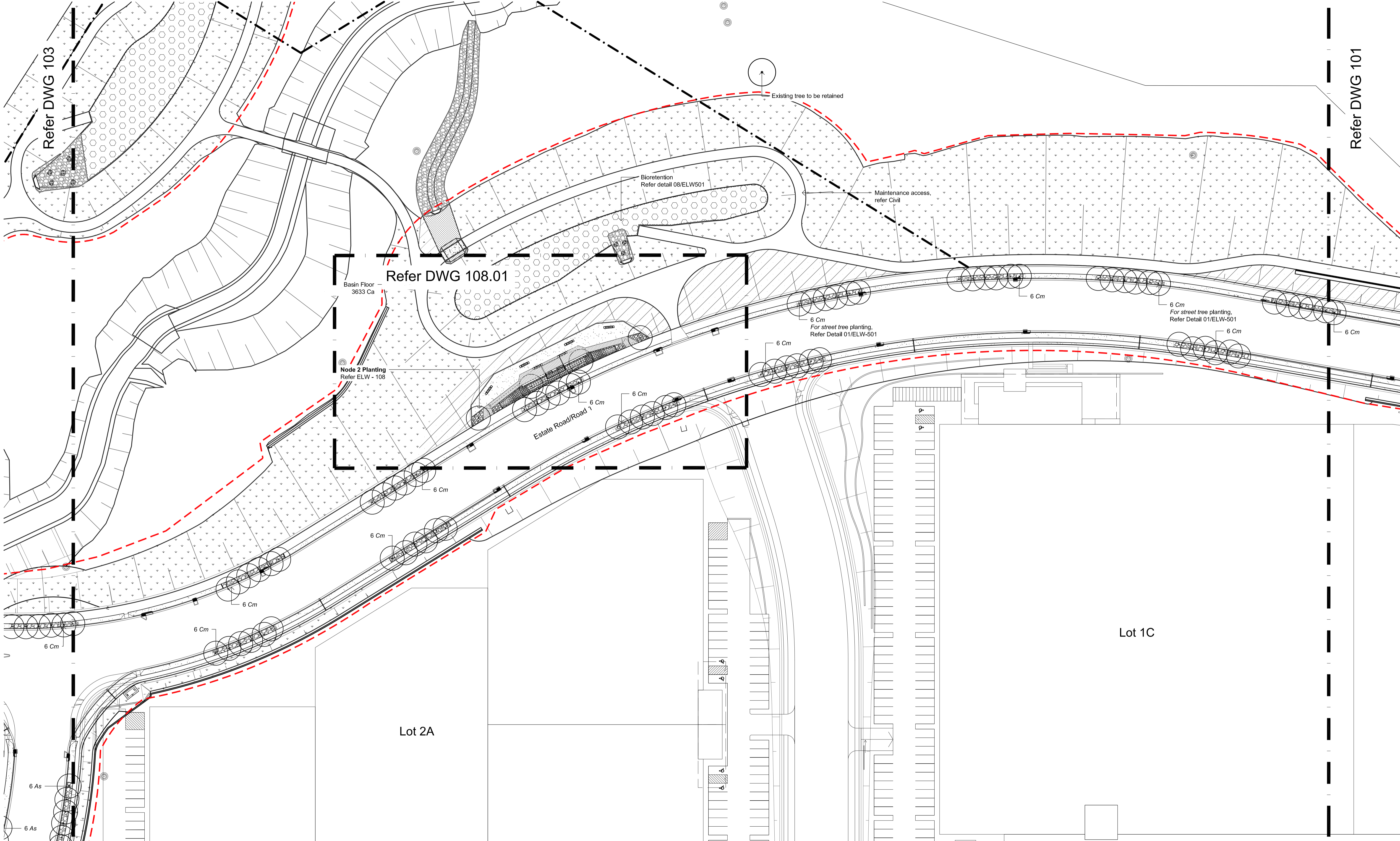
Client:  
**Goodman**

Project:  
**Estate Open Space Plan**  
**Oakdale South**  
**Horsley Park**

Drawing Name:  
**Landscape Plan**

**FOR CONSTRUCTION**

Scale: 1:500 @ A1  
Job Number: SS15-3057  
Drawing Number: ELW-101  
Issue: R



Refer DWG 103

Refer DWG 101

Refer DWG 108.01

Lot 1C

Lot 2A

© 2015 Site Image (NSW) Pty Ltd. All rights reserved. This drawing is copyright and shall not be reproduced or copied in any form or by any means (graphic, electronic or mechanical including photocopy) without the written permission of Site Image (NSW) Pty Ltd. Any license, expressed or implied, to use this document for any purpose what so ever is restricted to the terms of the written agreement between Site Image (NSW) Pty Ltd and the instructing party.

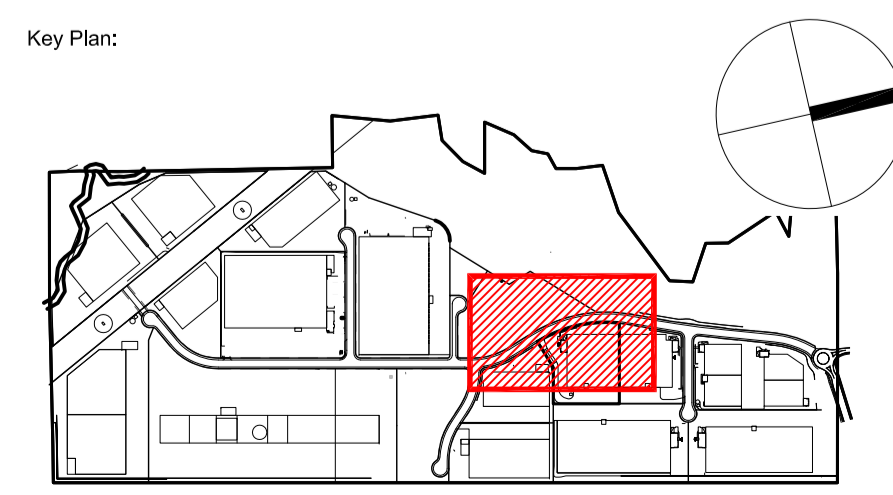
The contractor shall check and verify all work on site (including work by others) before commencing the landscape installation. Any discrepancies are to be reported to the Project Manager or Landscape Architect prior to commencing work. Do not scale this drawing. Any required dimensions not shown shall be referred to the Landscape Architect for confirmation.

R	Minor Amendments	JW	NM	15.12.2017
Q	Revised for Comments	JW	NM	06.12.2017
P	Street Tree Coordination	JW	NM	25.10.2017
O	Landscape Amendments	JW	NM	09.10.2017
N	Revised For Comments	JW	NM	22.09.2017
M	Architectural Coordination	JW	NM	06.09.2017
L	Buffer Planting Amendments	JW	NM	30.05.2017
K	Issued for Construction	JW	NM	19.10.2016
J	Civil Coordination	JW	NM	11.10.2016
I	Landscape Amendments	JW	NM	22.09.2016
H	Lighting Coordination	JW	NM	02.08.2016
G	Entry Amendments	JW	NM	29.07.2016
F	Planting Amendments	JW	NM	21.07.2016
E	Tree Coordination	JW	NM	20.06.2016
D	Revised for Comments	JW	NM	16.06.2016
Issue	Revision Description	Drawn	Check	Date

LEGEND	
	Scope of Works
	Proposed Trees
	Ballast
	Proposed Grasses and Groundcovers

	Turf Type 1 - (Buffalo, Refer Spec.)
	Turf Type 2 - (Couch, Refer Spec.)
	Couch Spray Seeding

	Basin Treatment: Tubestock Basin Planting
	Paving Type 1: (Refer Landscape Specification)



**SITE IMAGE**  
Landscape Architects  
Level 1, 3-5 Baptist Street  
Redfern NSW 2016  
Australia  
Tel: (61 2) 8332 5600  
Fax: (61 2) 9698 2877  
www.siteimage.com.au

Client:  
**Goodman**

Project:  
**Estate Open Space Plan**  
**Oakdale South**  
**Horsley Park**

Drawing Name:  
**Landscape Plan**

**FOR CONSTRUCTION**

Scale: 1:500 @ A1  
Job Number: SS15-3057  
Drawing Number: ELW-102  
Issue: R

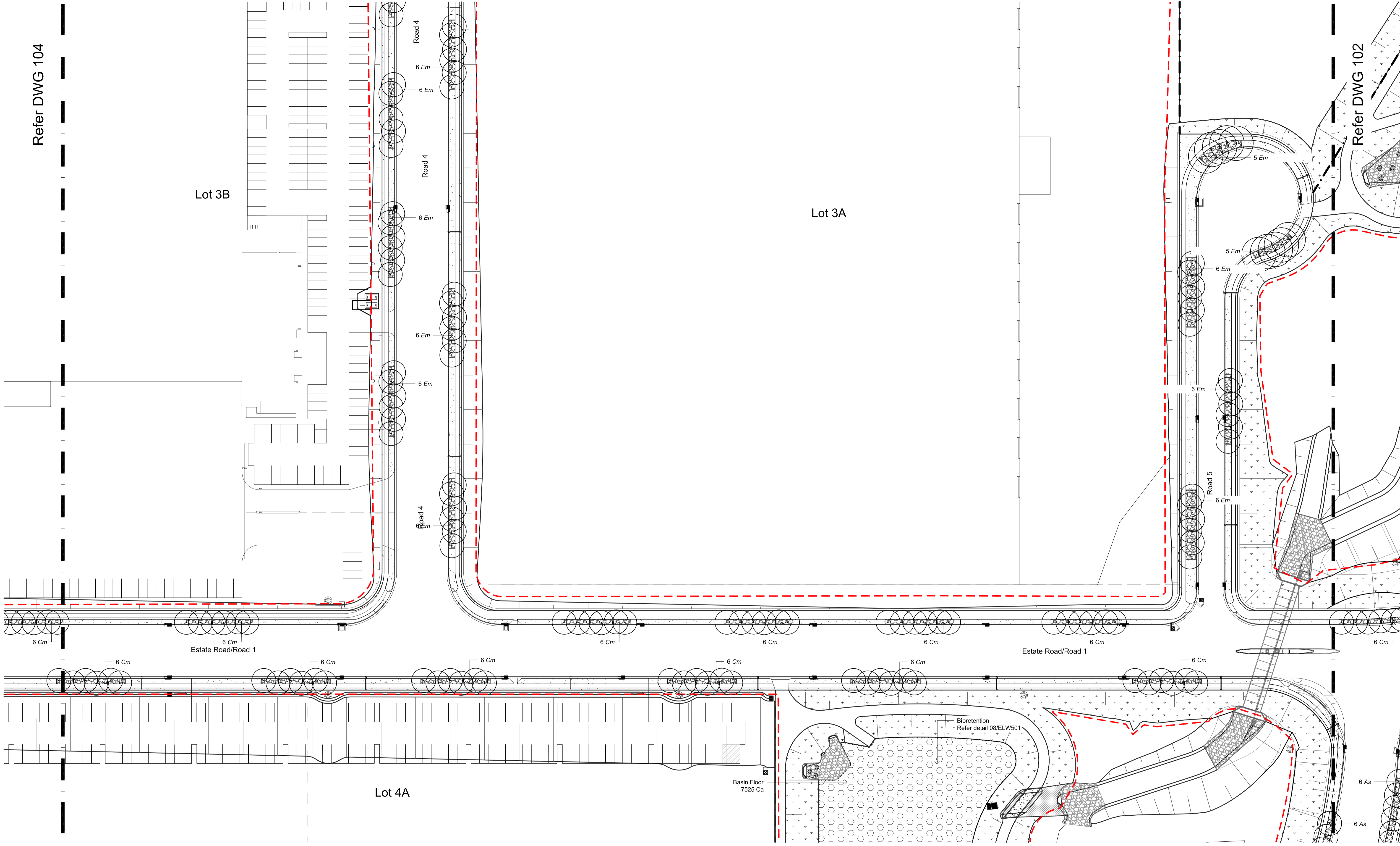
Refer DWG 104

Refer DWG 102

Lot 3B

Lot 3A

Lot 4A

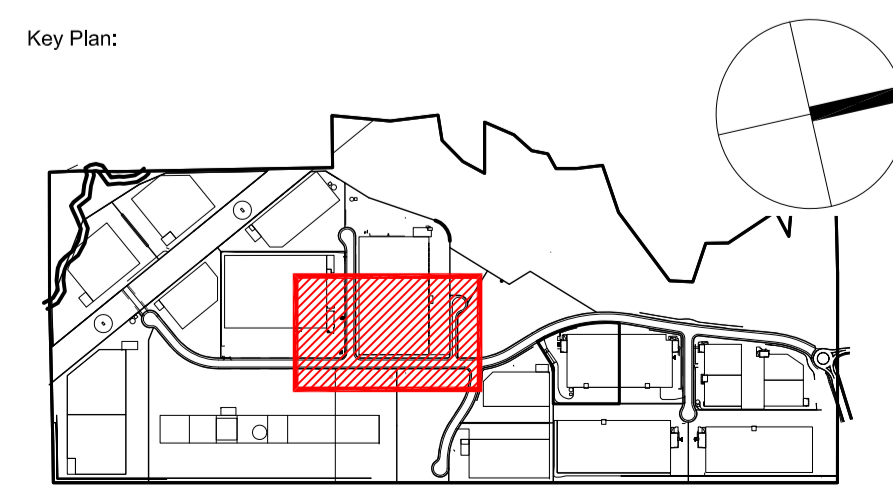


© 2015 Site Image (NSW) Pty Ltd. ABN 44 801 262 380 as agent for Site Image NSW Partnership. All rights reserved. This drawing is copyright and shall not be reproduced or copied in any form or by any means (graphic, electronic or mechanical including photocopy) without the written permission of Site Image (NSW) Pty Ltd. Any license, expressed or implied, to use this document for any purpose whatsoever is restricted to the terms of the written agreement between Site Image (NSW) Pty Ltd and the instructing party.

The contractor shall check and verify all work on site (including work by others) before commencing the landscape installation. Any discrepancies are to be reported to the Project Manager or Landscape Architect prior to commencing work. Do not scale this drawing. Any required dimensions not shown shall be referred to the Landscape Architect for confirmation.

Issue	Revision Description	Drawn	Check	Date
R	Minor Amendments	JW	NM	15.12.2017
Q	Revised for Comments	JW	NM	06.12.2017
P	Street Tree Coordination	JW	NM	25.10.2017
O	Landscape Amendments	JW	NM	09.10.2017
N	Revised For Comments	JW	NM	22.09.2017
M	Architectural Coordination	JW	NM	06.09.2017
L	Buffer Planting Amendments	JW	NM	30.05.2017
K	Issued for Construction	JW	NM	19.10.2016
J	Civil Coordination	JW	NM	11.10.2016
I	Landscape Amendments	JW	NM	22.09.2016
H	Lighting Coordination	JW	NM	02.08.2016
G	Entry Amendments	JW	NM	29.07.2016
F	Planting Amendments	JW	NM	21.07.2016
E	Tree Coordination	JW	NM	20.06.2016
D	Revised for Comments	JW	NM	16.06.2016

LEGEND	
	Scope of Works
	Proposed Trees
	Ballast
	Proposed Grasses and Groundcovers
	Turf Type 1 - (Buffalo, Refer Spec.)
	Turf Type 2 - (Couch, Refer Spec.)
	Couch Spray Seeding
	Basin Treatment: Tubestock Basin Planting
	Paving Type 1: (Refer Landscape Specification)



**SITE IMAGE**  
Landscape Architects  
Level 1, 3-5 Baptist Street  
Redfern NSW 2016  
Australia  
Tel: (61 2) 8332 5600  
Fax: (61 2) 9698 2877  
www.siteimage.com.au

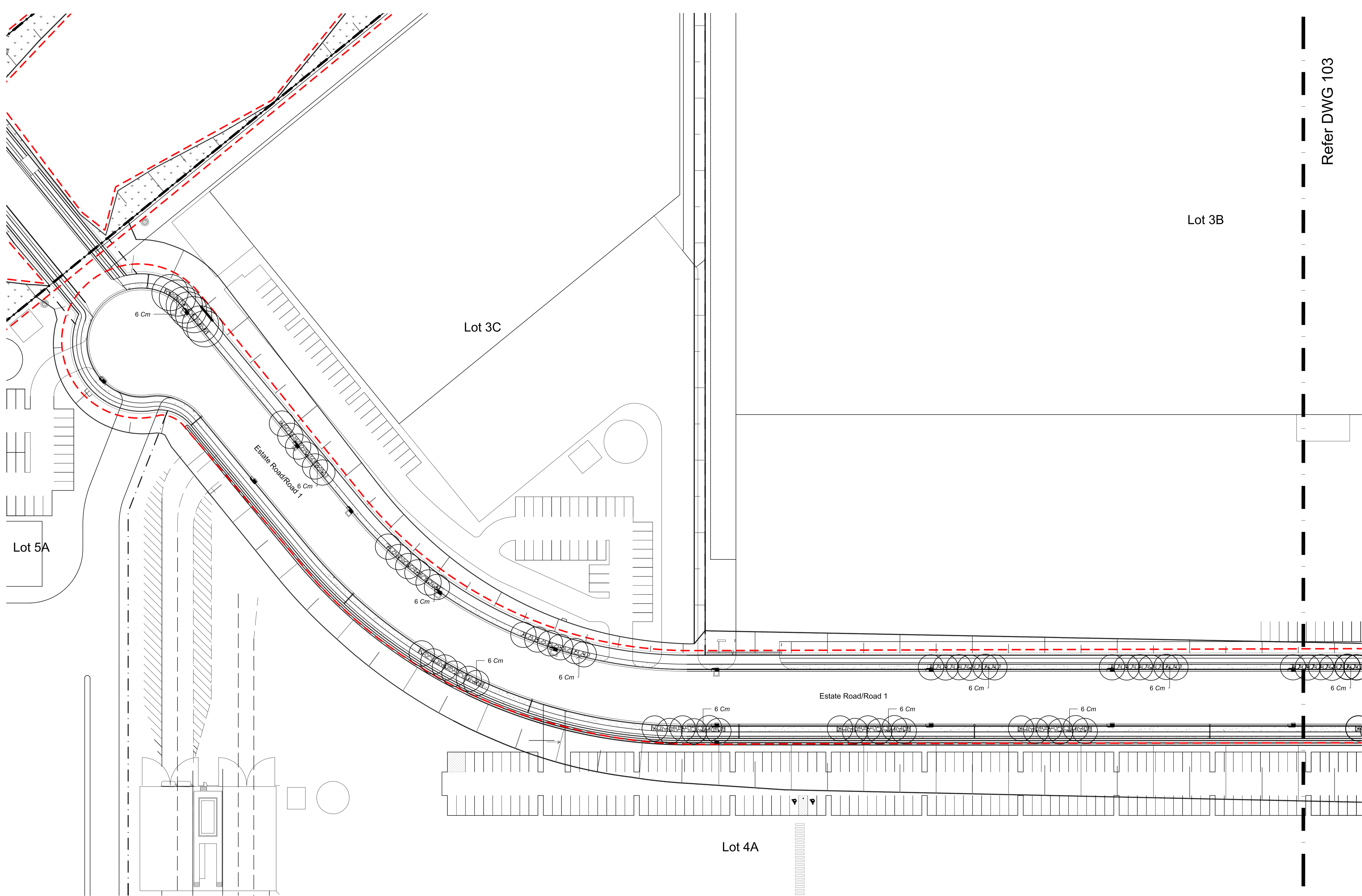
Client:  
**Goodman**

Project:  
**Estate Open Space Plan  
Oakdale South  
Horsley Park**

Drawing Name:  
**Landscape Plan**

**FOR CONSTRUCTION**

Scale: 1:500 @ A1  
Job Number: **SS15-3057**  
Drawing Number: **ELW-103**  
Issue: **R**



© 2015 Site Image (NSW) Pty Ltd ABN 44 801 262 380 as agent for Site Image NSW Partnership. All rights reserved. This drawing is copyright and shall not be reproduced or copied in any form or by any means (graphic, electronic or mechanical including photocopy) without the written permission of Site Image (NSW) Pty Ltd. Any license, expressed or implied, to use this document for any purpose what so ever is restricted to the terms of the written agreement between Site Image (NSW) Pty Ltd and the instructing party.

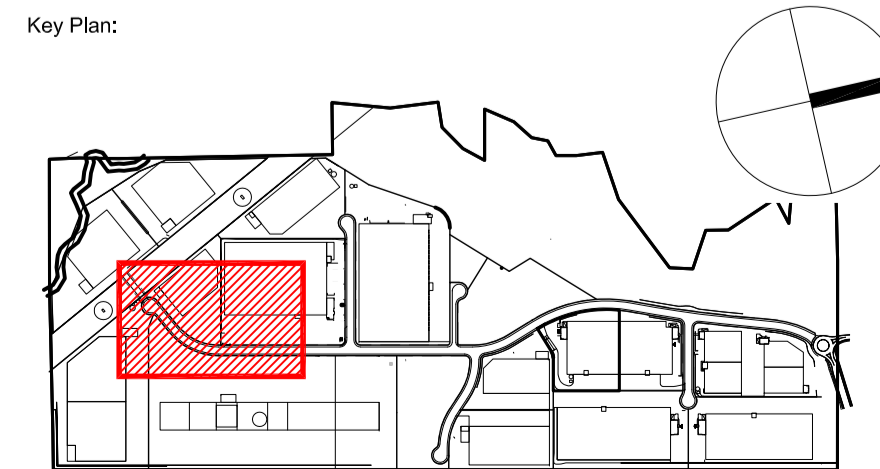
The contractor shall check and verify all work on site (including work by others) before commencing the landscape installation. Any discrepancies are to be reported to the Project Manager or Landscape Architect prior to commencing work. Do not scale this drawing. Any required dimensions not shown shall be referred to the Landscape Architect for confirmation.

Issue	Revision Description	Drawn	Check	Date
R	Minor Amendments	JW	NM	15.12.2017
Q	Revised for Comments	JW	NM	06.12.2017
P	Street Tree Coordination	JW	NM	25.10.2017
O	Landscape Amendments	JW	NM	09.10.2017
N	Revised For Comments	JW	NM	22.09.2017
M	Architectural Coordination	JW	NM	06.09.2017
L	Buffer Planting Amendments	JW	NM	30.05.2017
K	Issued for Construction	JW	NM	19.10.2016
J	Civil Coordination	JW	NM	11.10.2016
I	Landscape Amendments	JW	NM	22.09.2016
H	Lighting Coordination	JW	NM	02.08.2016
G	Entry Amendments	JW	NM	29.07.2016
F	Planting Amendments	JW	NM	21.07.2016
E	Tree Coordination	JW	NM	20.06.2016
D	Revised for Comments	JW	NM	16.06.2016

LEGEND	
	Scope of Works
	Proposed Trees
	Ballast
	Proposed Grasses and Groundcovers

	Turf Type 1 - (Buffalo, Refer Spec.)
	Turf Type 2 - (Couch, Refer Spec.)
	Couch Spray Seeding

	Basin Treatment: Tubestock Basin Planting
	Paving Type 1: (Refer Landscape Specification)



**SITE IMAGE**  
 Landscape Architects  
 Level 1, 3-5 Baptist Street  
 Redfern NSW 2016  
 Australia  
 Tel: (61 2) 8332 5600  
 Fax: (61 2) 9698 2677  
 www.siteimage.com.au

Client:  
**Goodman**

Project:  
**Estate Open Space Plan**  
**Oakdale South**  
**Horsley Park**

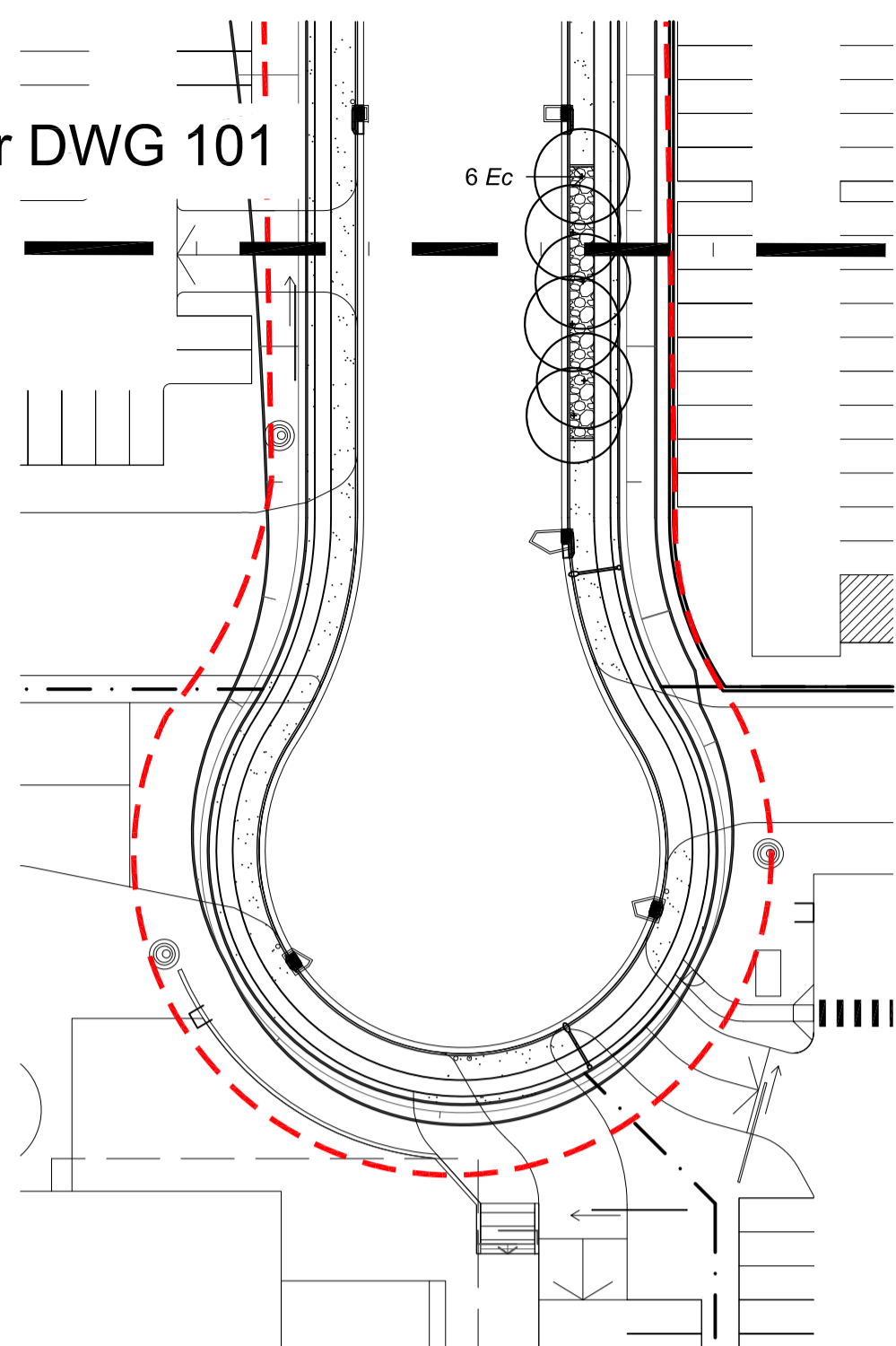
Drawing Name:  
**Landscape Plan**

**FOR CONSTRUCTION**

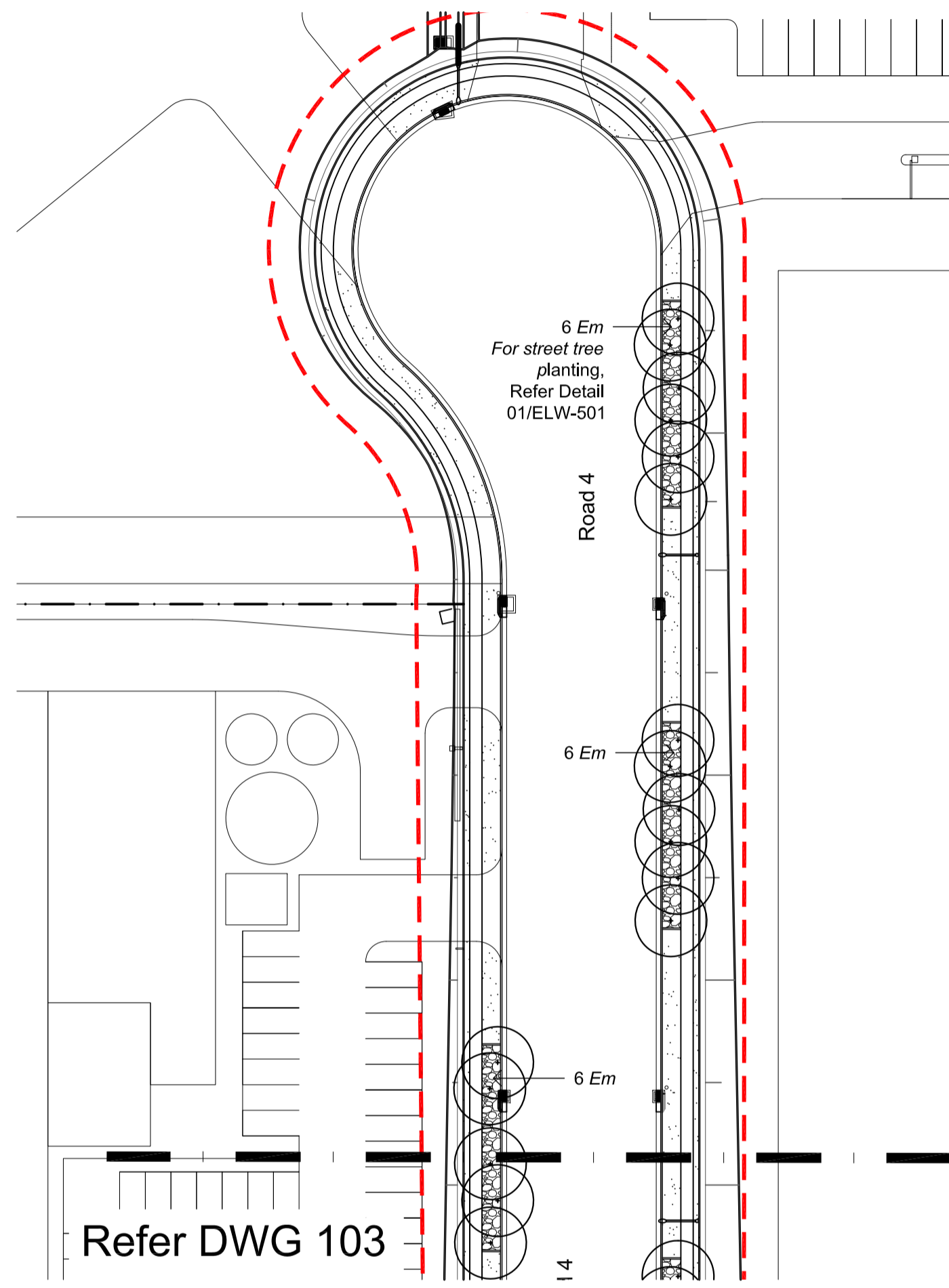
Scale: 1:500 @ A1  
 Job Number:  
**SS15-3057**

0 2 5 10 15 25m  
 Drawing Number:  
**ELW-104** Issue:  
**R**

Refer DWG 101

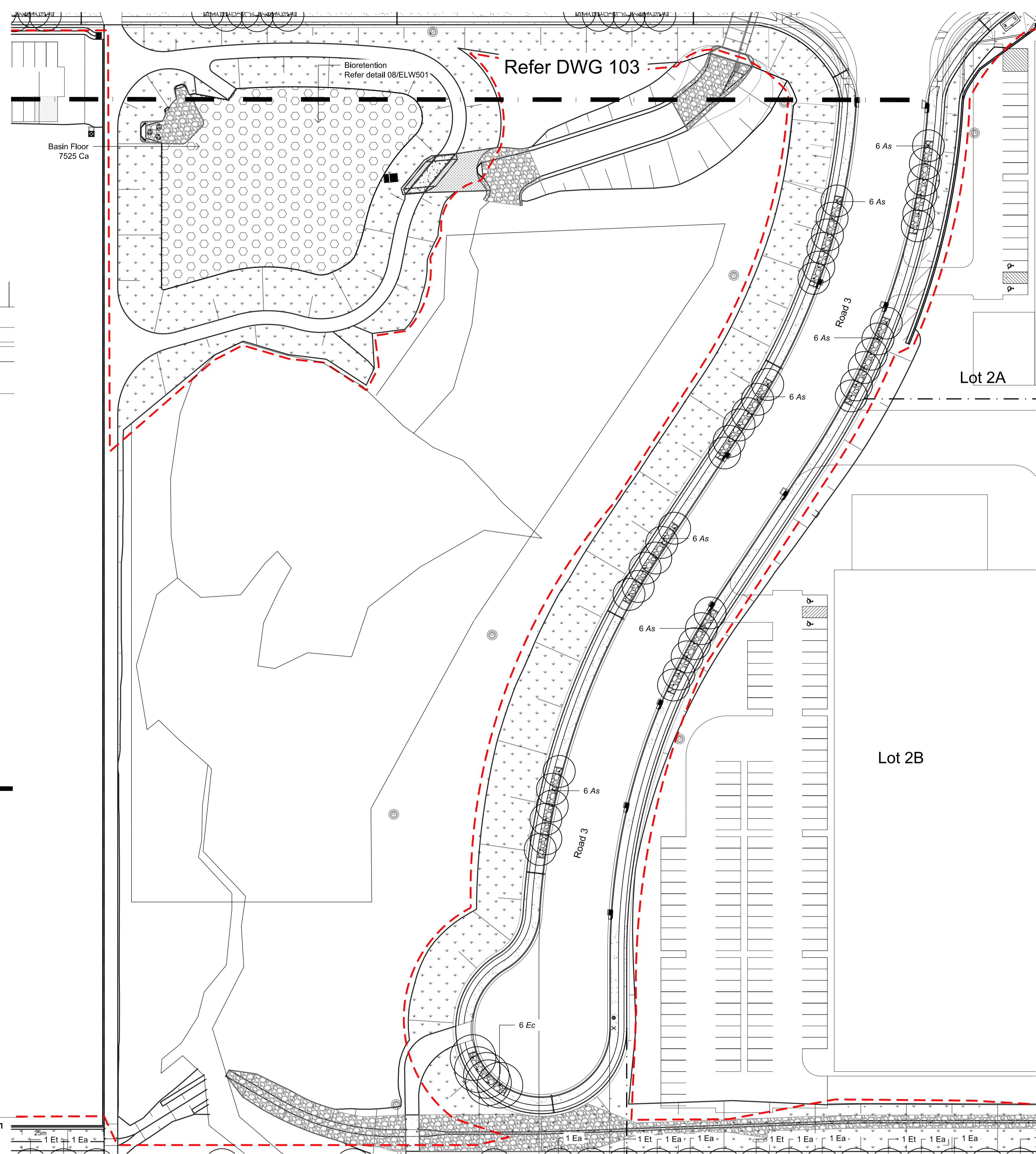


01 Landscape Plan  
105 1:500 @ A1



02 Landscape Plan  
105 1:500 @ A1

03 Landscape Plan  
105 1:500 @ A1



© 2015 Site Image (NSW) Pty Ltd. All rights reserved. This drawing is copyright and shall not be reproduced or copied in any form or by any means (graphic, electronic or mechanical including photocopy) without the written permission of Site Image (NSW) Pty Ltd. Any license, expressed or implied, to use this document for any purpose what so ever is restricted to the terms of the written agreement between Site Image (NSW) Pty Ltd and the instructing party.

The contractor shall check and verify all work on site (including work by others) before commencing the landscape installation. Any discrepancies are to be reported to the Project Manager or Landscape Architect prior to commencing work. Do not scale this drawing. Any required dimensions not shown shall be referred to the Landscape Architect for confirmation.

Issue	Revision Description
R	Minor Amendments
Q	Revised for Comments
P	Street Tree Coordination
O	Landscape Amendments
N	Revised For Comments
M	Architectural Coordination
L	Buffer Planting Amendments
K	Issued for Construction
J	Civil Coordination
I	Landscape Amendments
H	Lighting Coordination
G	Entry Amendments
F	Planting Amendments
E	Tree Coordination
D	Revised for Comments

Drawn	Check	Date
JW	NM	15.12.2017
JW	NM	06.12.2017
JW	NM	25.10.2017
JW	NM	09.10.2017
JW	NM	22.09.2017
JW	NM	06.09.2017
JW	NM	30.05.2017
JW	NM	19.10.2016
JW	NM	11.10.2016
JW	NM	22.09.2016
JW	NM	02.08.2016
JW	NM	29.07.2016
JW	NM	21.07.2016
JW	NM	20.06.2016
JW	NM	16.06.2016

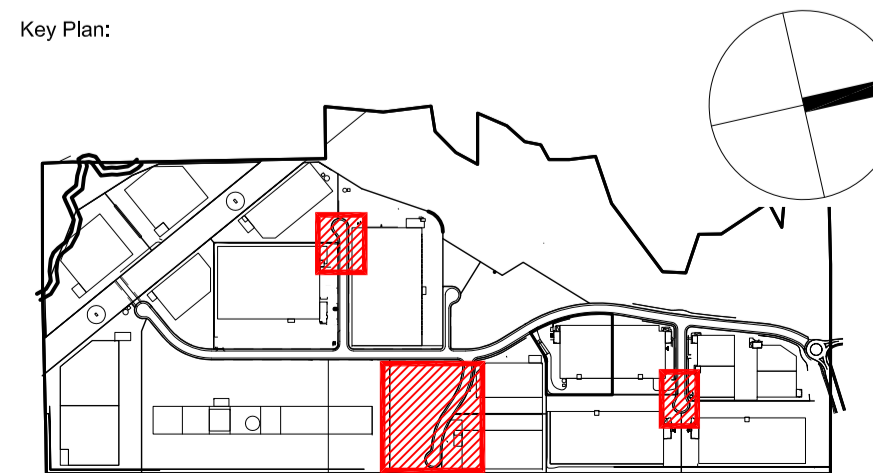
LEGEND

- Scope of Works
- Proposed Trees
- Ballast
- Proposed Grasses and Groundcovers

- Turf Type 1 - (Buffalo, Refer Spec.)
- Turf Type 2 - (Couch, Refer Spec.)
- Couch Spray Seeding

- Basin Treatment: Tubestock Basin Planting
- Paving Type 1: (Refer Landscape Specification)

Key Plan:



**SITE IMAGE**  
Landscape Architects  
Level 1, 3-5 Baptist Street  
Redfern NSW 2016  
Australia  
Tel: (61 2) 8332 5600  
Fax: (61 2) 9698 2877  
www.siteimage.com.au

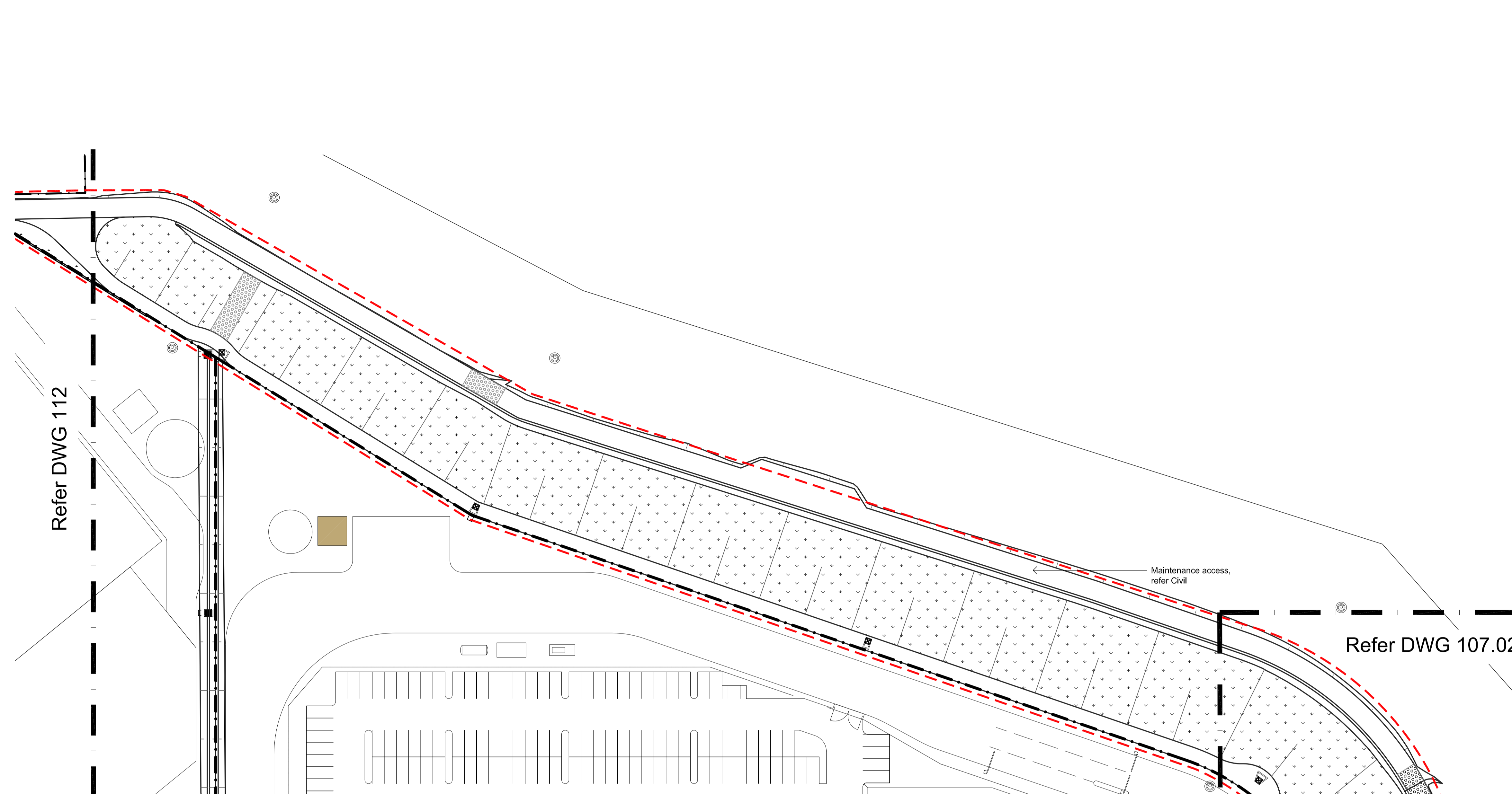
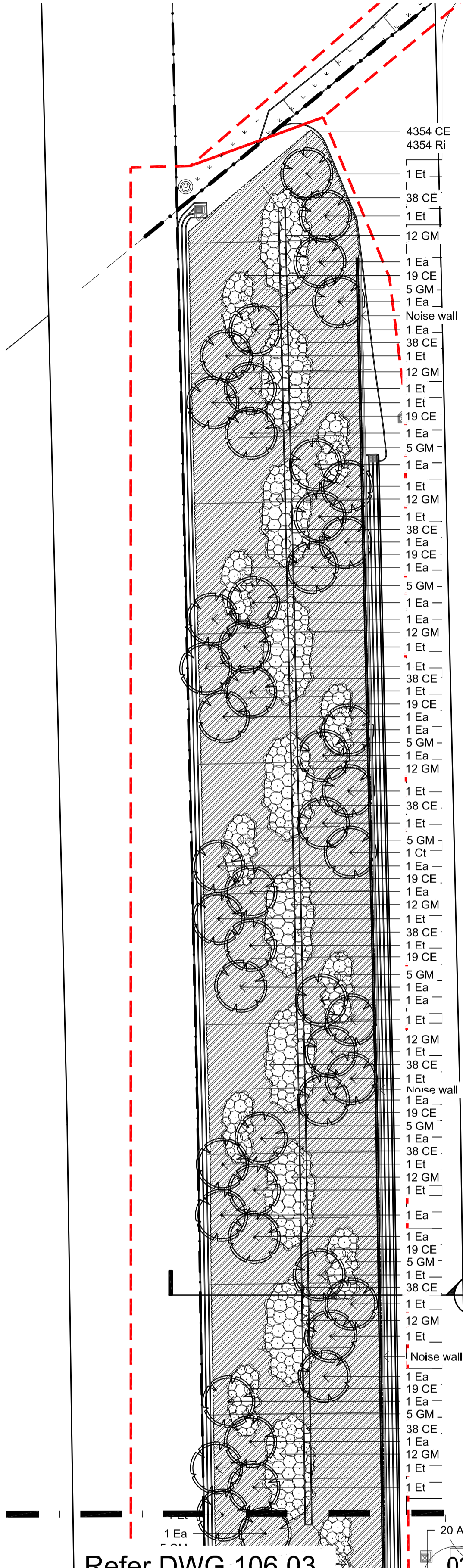
Client:  
**Goodman**

Project:  
**Estate Open Space Plan**  
**Oakdale South**  
**Horsley Park**

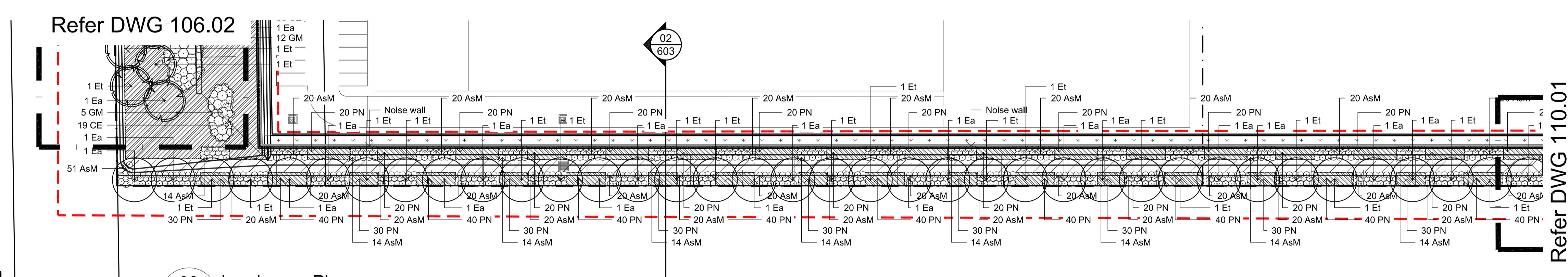
Drawing Name:  
**Landscape Plan**

**FOR CONSTRUCTION**

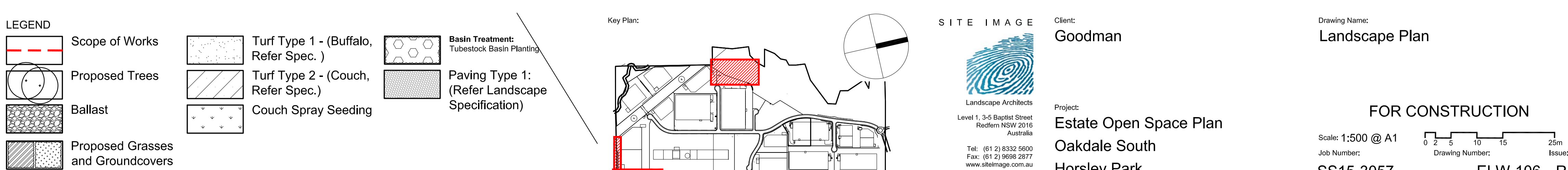
Scale:  
Job Number: **SS15-3057**  
Drawing Number: **ELW-105**  
Issue: **R**



01 Landscape Plan  
106 1:500 @ A1



02 Landscape Plan  
106 1:500 @ A1



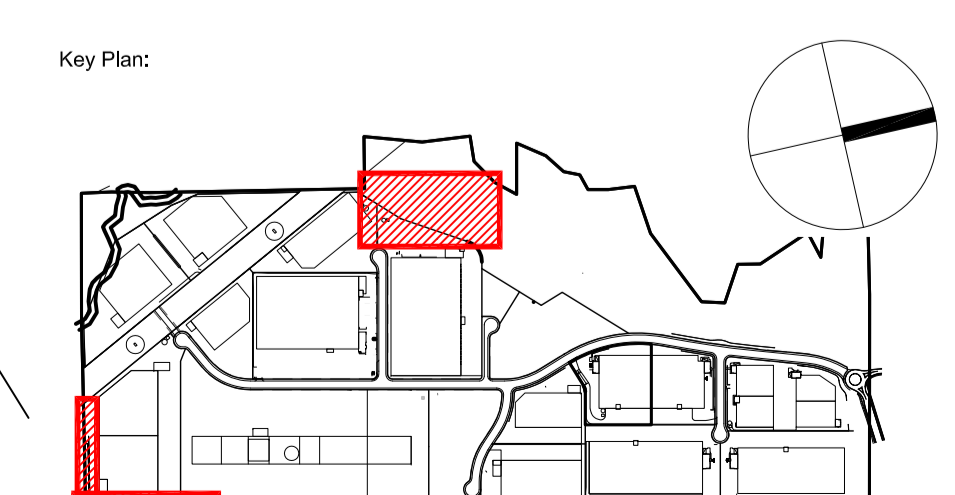
03 Landscape Plan  
106 1:500 @ A1

© 2015 Site Image (NSW) Pty Ltd ABN 44 801 262 380 as agent for Site Image NSW Partnership. All rights reserved. This drawing is copyright and shall not be reproduced or copied in any form or by any means (graphic, electronic or mechanical including photocopy) without the written permission of Site Image (NSW) Pty Ltd. Any license, expressed or implied, to use this document for any purpose what so ever is restricted to the terms of the written agreement between Site Image (NSW) Pty Ltd and the instructing party.

The contractor shall check and verify all work on site (including work by others) before commencing the landscape installation. Any discrepancies are to be reported to the Project Manager or Landscape Architect prior to commencing work. Do not scale this drawing. Any required dimensions not shown shall be referred to the Landscape Architect for confirmation.

Issue	Revision Description	Drawn	Check	Date
R	Minor Amendments	JW	NM	15.12.2017
Q	Revised for Comments	JW	NM	05.12.2017
P	Landscape Amendments	JW	NM	09.10.2017
O	Revised For Comments	JW	NM	22.09.2017
N	Architectural Coordination	JW	NM	06.09.2017
M	Buffer Planting Amendments	JW	NM	30.05.2017
L	Issued for Construction	JW	NM	19.10.2016
K	Boundary Amendments	JW	NM	12.10.2016
J	Civil Coordination	JW	NM	11.10.2016
I	Landscape Amendments	JW	NM	22.09.2016
H	Lighting Coordination	JW	NM	02.08.2016
G	Entry Amendments	JW	NM	29.07.2016
F	Planting Amendments	JW	NM	21.07.2016
E	Tree Coordination	JW	NM	20.06.2016
D	Revised for Comments	JW	NM	16.06.2016

LEGEND	
	Scope of Works
	Proposed Trees
	Ballast
	Proposed Grasses and Groundcovers
	Turf Type 1 - (Buffalo, Refer Spec.)
	Turf Type 2 - (Couch, Refer Spec.)
	Couch Spray Seeding
	Basin Treatment: Tubestock Basin Planting
	Paving Type 1: (Refer Landscape Specification)



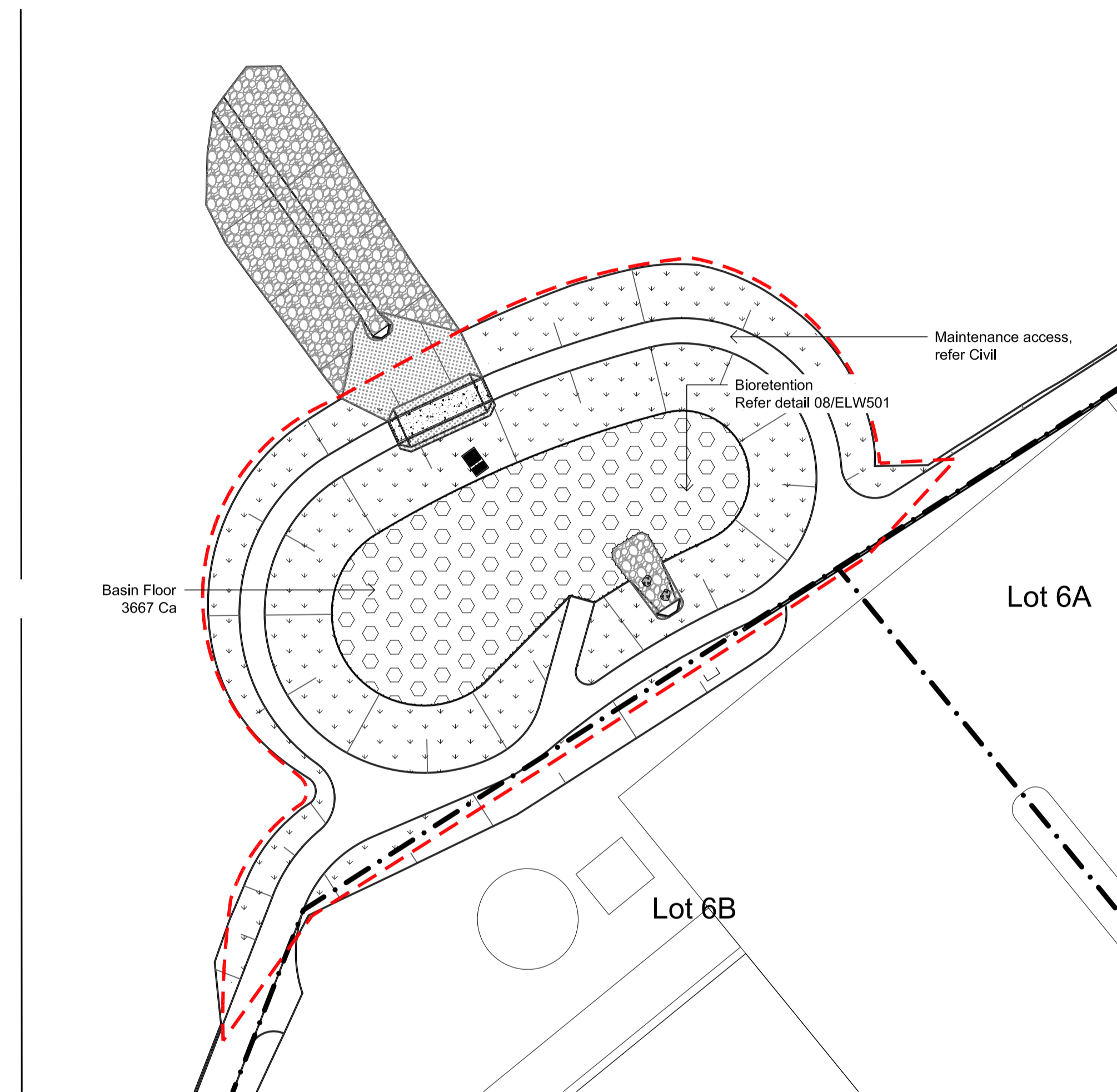
Client:  
**Goodman**

Project:  
**Estate Open Space Plan**  
**Oakdale South**  
**Horsley Park**

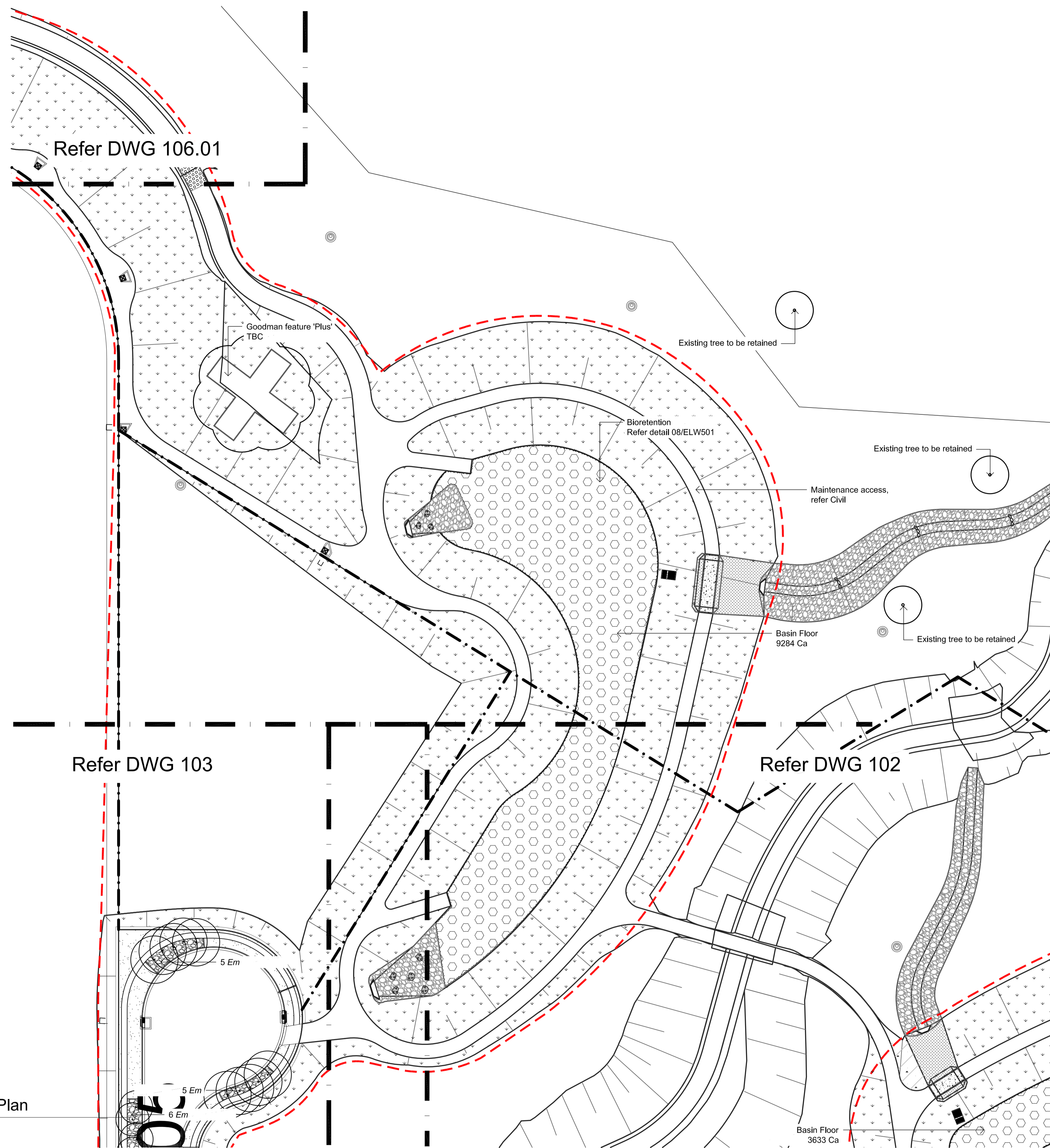
Drawing Name:  
**Landscape Plan**

**FOR CONSTRUCTION**

Scale: 1:500 @ A1  
Job Number: **SS15-3057**  
Drawing Number: **ELW-106**  
Issue: **R**



**01** Landscape Plan  
107 1:500 @ A1



**02** Landscape Plan  
107 1:500 @ A1

© 2015 Site Image (NSW) Pty Ltd ABN 44 801 262 380 as agent for Site Image NSW Partnership. All rights reserved. This drawing is copyright and shall not be reproduced or copied in any form or by any means (graphic, electronic or mechanical including photocopy) without the written permission of Site Image (NSW) Pty Ltd. Any license, expressed or implied, to use this document for any purpose what so ever is restricted to the terms of the written agreement between Site Image (NSW) Pty Ltd and the instructing party.

The contractor shall check and verify all work on site (including work by others) before commencing the landscape installation. Any discrepancies are to be reported to the Project Manager or Landscape Architect prior to commencing work. Do not scale this drawing. Any required dimensions not shown shall be referred to the Landscape Architect for confirmation.

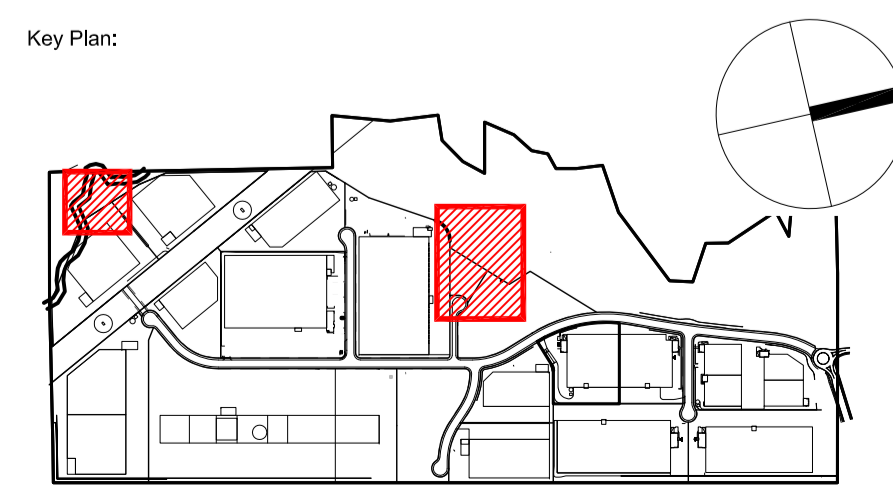
Issue	Revision Description	Drawn	Check	Date
Q	Minor Amendments	JW	NM	15.12.2017
P	Revised for Comments	JW	NM	06.12.2017
O	Landscape Amendments	JW	NM	09.10.2017
N	Revised For Comments	JW	NM	22.09.2017
M	Architectural Coordination	JW	NM	06.09.2017
L	Buffer Planting Amendments	JW	NM	30.05.2017
K	Issued for Construction	JW	NM	19.10.2016
J	Civil Coordination	JW	NM	11.10.2016
I	Landscape Amendments	JW	NM	22.09.2016
H	Lighting Coordination	JW	NM	02.08.2016
G	Entry Amendments	JW	NM	29.07.2016
F	Planting Amendments	JW	NM	21.07.2016
E	Tree Coordination	JW	NM	20.06.2016
D	Revised for Comments	JW	NM	16.06.2016
C	Tender Clarifications	JW	NM	31.05.2016

**LEGEND**

	Scope of Works
	Proposed Trees
	Ballast
	Proposed Grasses and Groundcovers

	Turf Type 1 - (Buffalo, Refer Spec.)
	Turf Type 2 - (Couch, Refer Spec.)
	Couch Spray Seeding

	Basin Treatment: Tubestock Basin Planting
	Paving Type 1: (Refer Landscape Specification)



**SITE IMAGE**  
Landscape Architects  
Level 1, 3-5 Baptist Street  
Redfern NSW 2016  
Australia  
Tel: (61 2) 8332 5600  
Fax: (61 2) 9698 2677  
www.siteimage.com.au

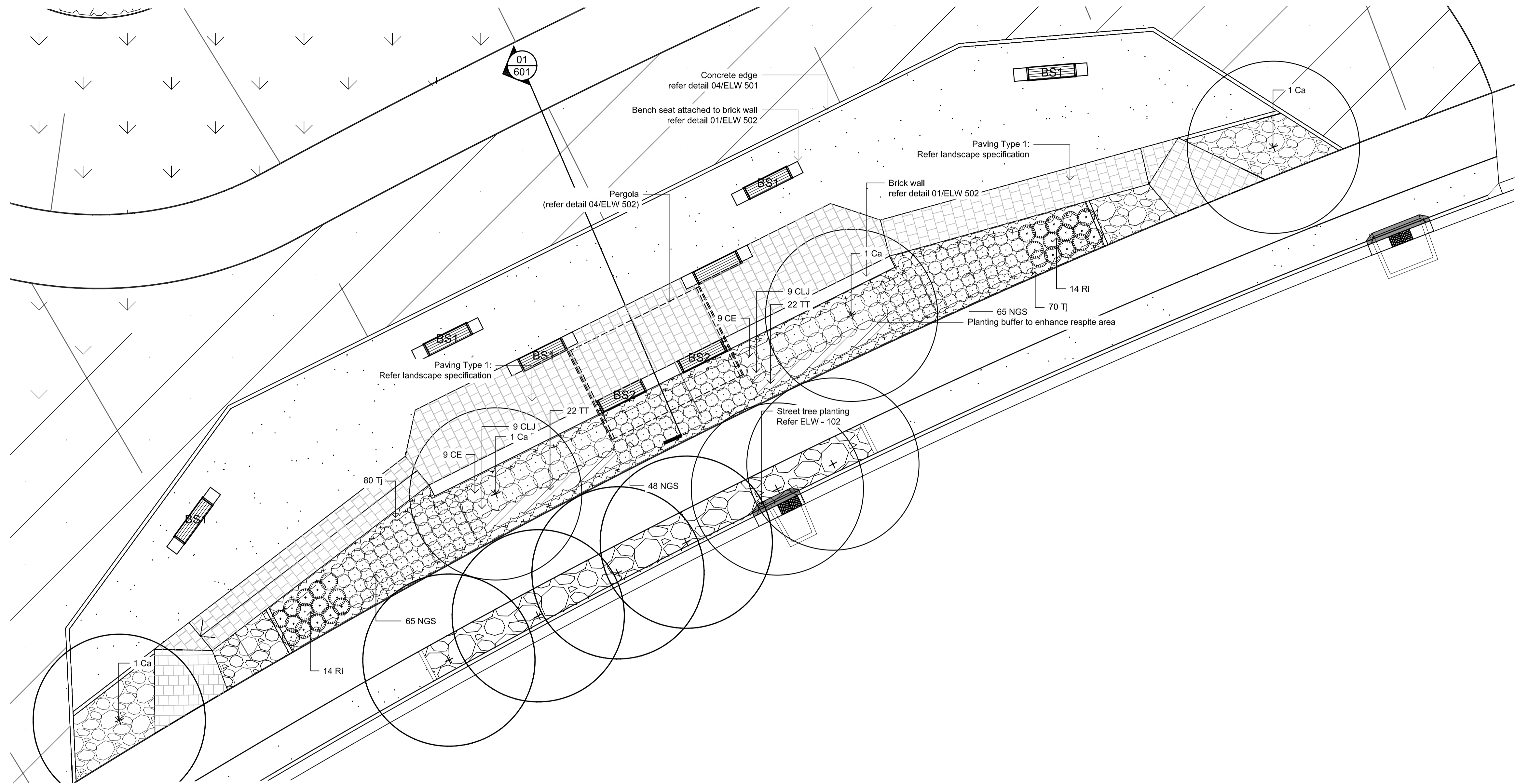
Client:  
**Goodman**

Project:  
**Estate Open Space Plan**  
**Oakdale South**  
**Horsley Park**

Drawing Name:  
**Landscape Plan**

**FOR CONSTRUCTION**

Scale: 1:500 @ A1  
Job Number: **SS15-3057**  
Drawing Number: **ELW-107**  
Issue: **Q**



01 Landscape Plan  
 108 1:100 @ A1

© 2015 Site Image (NSW) Pty Ltd ABN 44 801 262 380 as agent for Site Image NSW Partnership. All rights reserved. This drawing is copyright and shall not be reproduced or copied in any form or by any means (graphic, electronic or mechanical including photocopy) without the written permission of Site Image (NSW) Pty Ltd Any license, expressed or implied, to use this document for any purpose whatsoever is restricted to the terms of the written agreement between Site Image (NSW) Pty Ltd and the instructing party.

The contractor shall check and verify all work on site (including work by others) before commencing the landscape installation. Any discrepancies are to be reported to the Project Manager or Landscape Architect prior to commencing work. Do not scale this drawing. Any required dimensions not shown shall be referred to the Landscape Architect for confirmation.

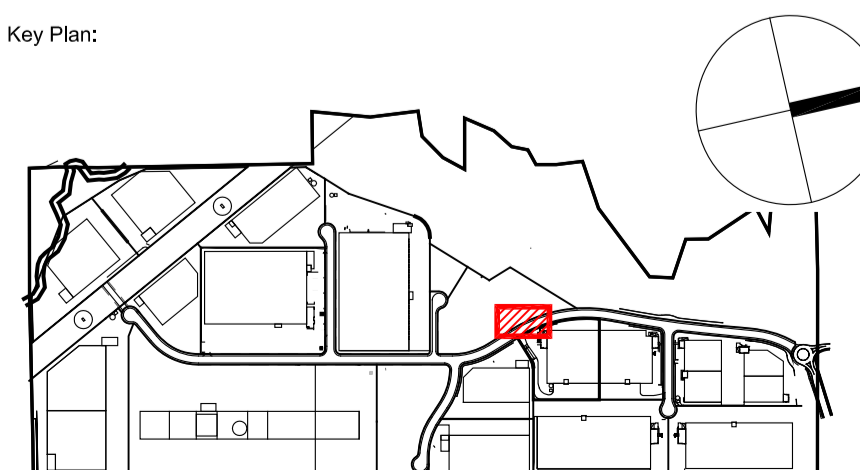
Issue	Revision Description	Drawn	Check	Date
P	Revised for Comments	JW	NM	05.12.2017
O	Landscape Amendments	JW	NM	08.10.2017
N	Revised For Comments	JW	NM	22.09.2017
M	Architectural Coordination	JW	NM	08.09.2017
L	Buffer Planting Amendments	JW	NM	30.05.2017
K	Issued for Construction	JW	NM	19.10.2016
J	Civil Coordination	JW	NM	11.10.2016
I	Landscape Amendments	JW	NM	22.09.2016
H	Lighting Coordination	JW	NM	02.08.2016
G	Entry Amendments	JW	NM	29.07.2016
F	Planting Amendments	JW	NM	21.07.2016
E	Tree Coordination	JW	NM	20.06.2016
D	Revised for Comments	JW	NM	18.06.2016
C	Tender Clarifications	JW	NM	31.05.2016
B	For Costing	JW	NM	26.05.2016

LEGEND

	Scope of Works		Turf Type 1 Buffalo, Refer Spec.
	Proposed Trees		Turf Type 2 Couch, Refer Spec.
	Concrete Edge		Deco Granite Paving
	Ballast		Proposed Grasses and Groundcovers

	Balustrade Type 1: (Refer Landscape Spec.)
	Paving Type 1: (Refer Landscape Spec.)
	BS1: Bench seat
	BS2: Bench seat with back + armrest
	W1: Brick Wall

Key Plan:



SITE IMAGE



Landscape Architects  
 Level 1, 3-5 Baptist Street  
 Redfern NSW 2016  
 Australia  
 Tel: (61 2) 8332 5600  
 Fax: (61 2) 9698 2877  
 www.siteimage.com.au

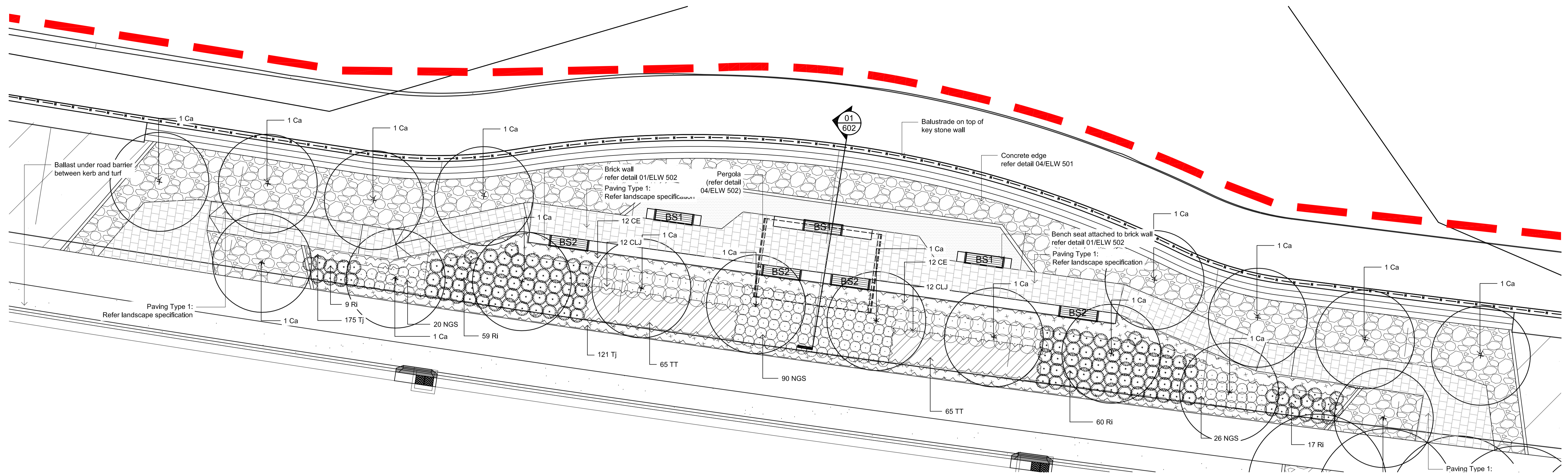
Client:  
 Goodman

Project:  
 Estate Open Space Plan  
 Oakdale South  
 Horsley Park

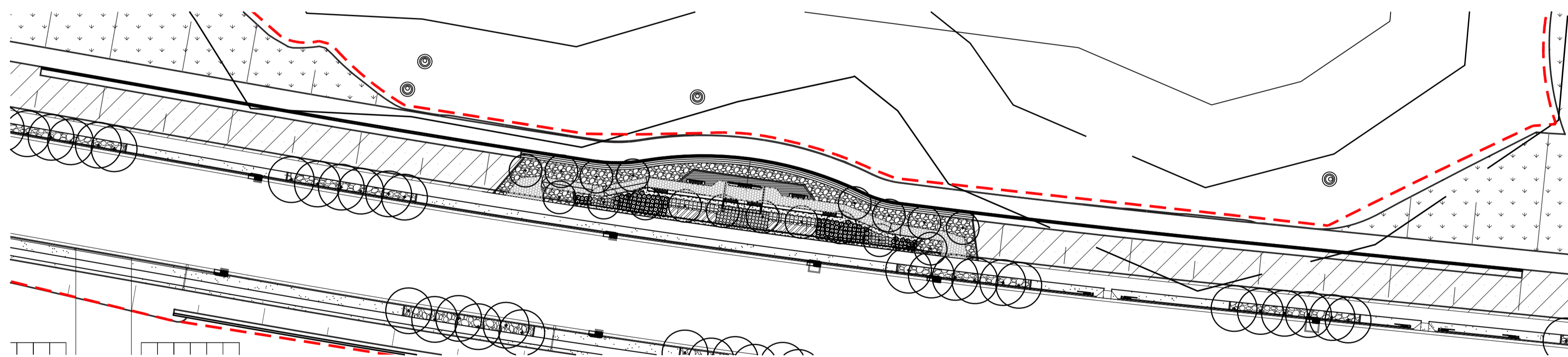
Drawing Name:  
 Landscape Plan

FOR CONSTRUCTION  
 Scale: 1:100 @ A1  
 Job Number:  
 SS15-3057  
 Drawing Number:  
 ELW-108  
 Issue:  
 P





**01 Landscape Plan**  
109 1:100 @ A1



**02 Landscape Plan - Handrail Extents**  
109 1:500 @ A1

© 2015 Site Image (NSW) Pty Ltd ABN 44 801 262 380 as agent for Site Image NSW Partnership. All rights reserved. This drawing is copyright and shall not be reproduced or copied in any form or by any means (graphic, electronic or mechanical including photocopy) without the written permission of Site Image (NSW) Pty Ltd. Any license, expressed or implied, to use this document for any purpose what so ever is restricted to the terms of the written agreement between Site Image (NSW) Pty Ltd and the instructing party.

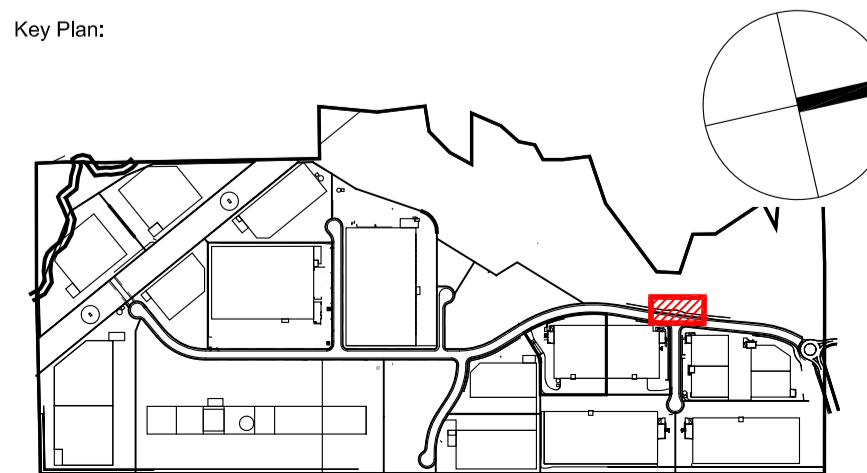
The contractor shall check and verify all work on site (including work by others) before commencing the landscape installation. Any discrepancies are to be reported to the Project Manager or Landscape Architect prior to commencing work. Do not scale this drawing. Any required dimensions not shown shall be referred to the Landscape Architect for confirmation.

Issue	Revision Description	Drawn	Check	Date
P	Revised for Comments	JW	NM	05.12.2017
O	Landscape Amendments	JW	NM	09.10.2017
N	Revised For Comments	JW	NM	22.09.2017
M	Architectural Coordination	JW	NM	08.09.2017
L	Buffer Planting Amendments	JW	NM	30.05.2017
K	Issued for Construction	JW	NM	19.10.2016
J	Civil Coordination	JW	NM	11.10.2016
I	Landscape Amendments	JW	NM	22.09.2016
H	Lighting Coordination	JW	NM	02.08.2016
G	Entry Amendments	JW	NM	29.07.2016
F	Planting Amendments	JW	NM	21.07.2016
E	Tree Coordination	JW	NM	20.06.2016
D	Revised for Comments	JW	NM	18.06.2016
C	Tender Clarifications	JW	NM	31.05.2016
B	For Costing	JW	NM	26.05.2016

LEGEND	
	Scope of Works
	Proposed Trees
	Concrete Edge
	Ballast
	Turf Type 1 Buffalo, Refer Spec.
	Turf Type 2 Couch, Refer Spec.
	Deco Granite Paving
	Proposed Grasses and Groundcovers

	Balustrade Type 1: (Refer Landscape Spec.)
	Paving Type 1: (Refer Landscape Spec.)
	BS1: Bench seat
	BS2: Bench seat with back + armrest
	W1: Brick Wall

Key Plan:



**SITE IMAGE**  
Landscape Architects  
Level 1, 3-5 Baptist Street  
Redfern NSW 2016  
Australia  
Tel: (61 2) 8332 5600  
Fax: (61 2) 9698 2877  
www.siteimage.com.au

Client:  
**Goodman**

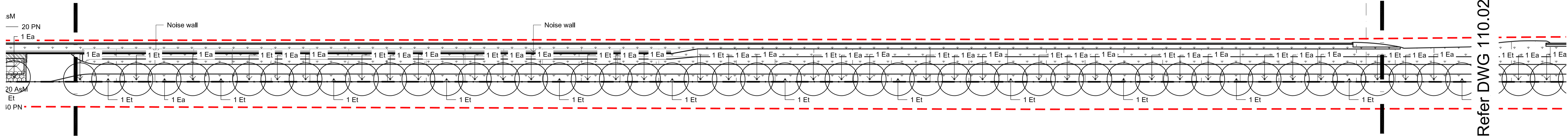
Project:  
**Estate Open Space Plan**  
**Oakdale South**  
**Horsley Park**

Drawing Name:  
**Landscape Plan**

**FOR CONSTRUCTION**

Scale: 1:100 @ A1  
Job Number: SS15-3057  
Drawing Number: ELW-109  
Issue: P

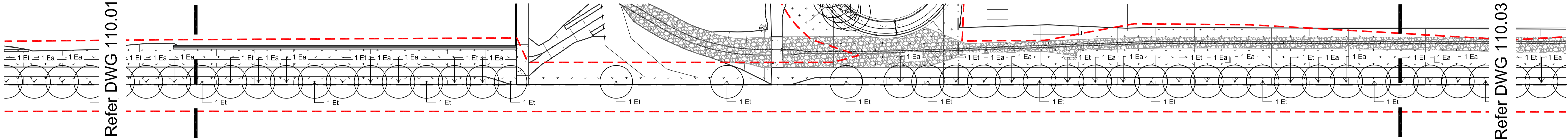
Refer DWG 106.03



Refer DWG 110.02

01 Landscape Plan  
110 1:500 @ A1

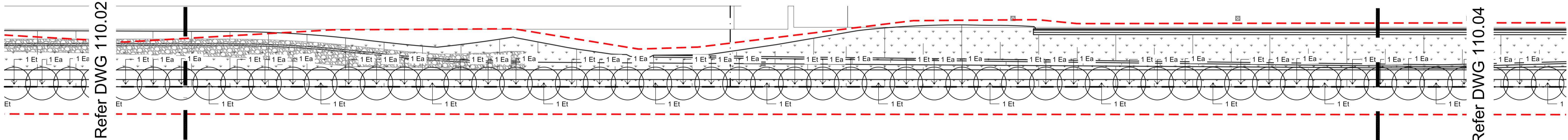
Refer DWG 110.01



Refer DWG 110.03

02 Landscape Plan  
110 1:500 @ A1

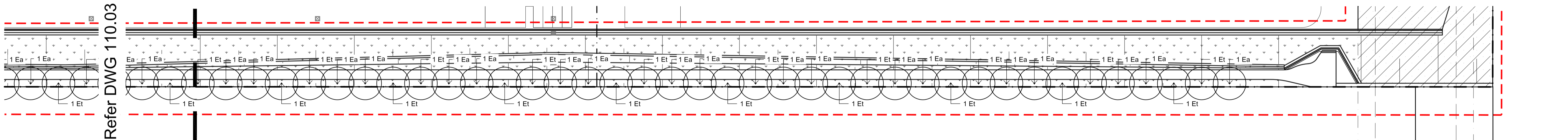
Refer DWG 110.02



Refer DWG 110.04

03 Landscape Plan  
110 1:500 @ A1

Refer DWG 110.03



04 Landscape Plan  
110 1:500 @ A1

© 2015 Site Image (NSW) Pty Ltd. All rights reserved. This drawing is copyright and shall not be reproduced or copied in any form or by any means (graphic, electronic or mechanical including photocopy) without the written permission of Site Image (NSW) Pty Ltd. Any license, expressed or implied, to use this document for any purpose whatsoever is restricted to the terms of the written agreement between Site Image (NSW) Pty Ltd and the instructing party.

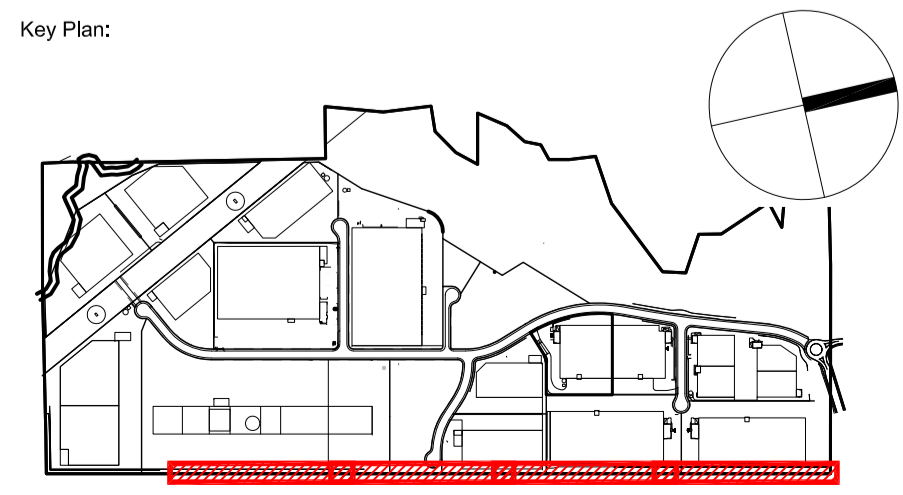
The contractor shall check and verify all work on site (including work by others) before commencing the landscape installation. Any discrepancies are to be reported to the Project Manager or Landscape Architect prior to commencing work. Do not scale this drawing. Any required dimensions not shown shall be referred to the Landscape Architect for confirmation.

Issue	Revision Description	Drawn	Check	Date
O	Minor Amendments	JW	NM	15.12.2017
N	Revised for Comments	JW	NM	06.12.2017
M	Landscape Amendments	JW	NM	09.10.2017
L	Revised For Comments	JW	NM	22.09.2017
K	Architectural Coordination	JW	NM	06.09.2017
J	Buffer Planting Amendments	JW	NM	30.05.2017
I	Issued for Construction	JW	NM	19.10.2016
H	Boundary Amendments	JW	NM	12.10.2016
G	Civil Coordination	JW	NM	11.10.2016
F	Landscape Amendments	JW	NM	22.09.2016
E	Lighting Coordination	JW	NM	02.08.2016
D	Entry Amendments	JW	NM	29.07.2016
C	Planting Amendments	JW	NM	21.07.2016
B	Tree Coordination	JW	NM	20.06.2016
A	Revised for Comments	JW	NM	16.06.2016

LEGEND	
	Scope of Works
	Proposed Trees
	Ballast
	Proposed Grasses and Groundcovers

	Turf Type 1 - (Buffalo, Refer Spec.)
	Turf Type 2 - (Couch, Refer Spec.)
	Couch Spray Seeding

	Basin Treatment: Tubestock Basin Planting
	Paving Type 1: (Refer Landscape Specification)



**SITE IMAGE**  
Landscape Architects  
Level 1, 3-5 Baptist Street  
Redfern NSW 2016  
Australia  
Tel: (61 2) 8332 5600  
Fax: (61 2) 9698 2877  
www.siteimage.com.au

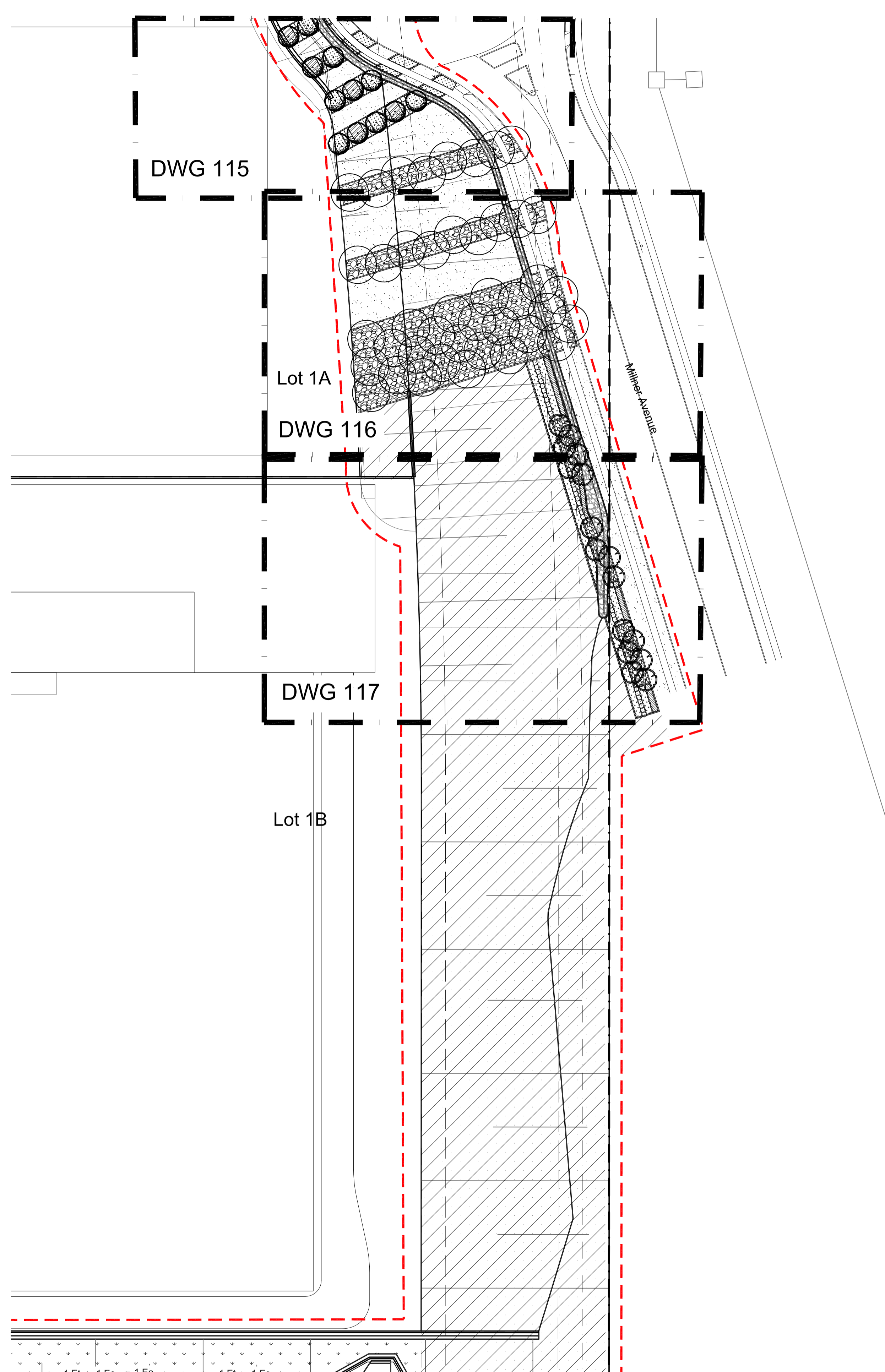
Client:  
**Goodman**

Project:  
**Estate Open Space Plan**  
**Oakdale South**  
**Horsley Park**

Drawing Name:  
**Landscape Plan**

**FOR CONSTRUCTION**

Scale: 1:500 @ A1  
Job Number: SS15-3057  
Drawing Number: ELW-110  
Issue: O



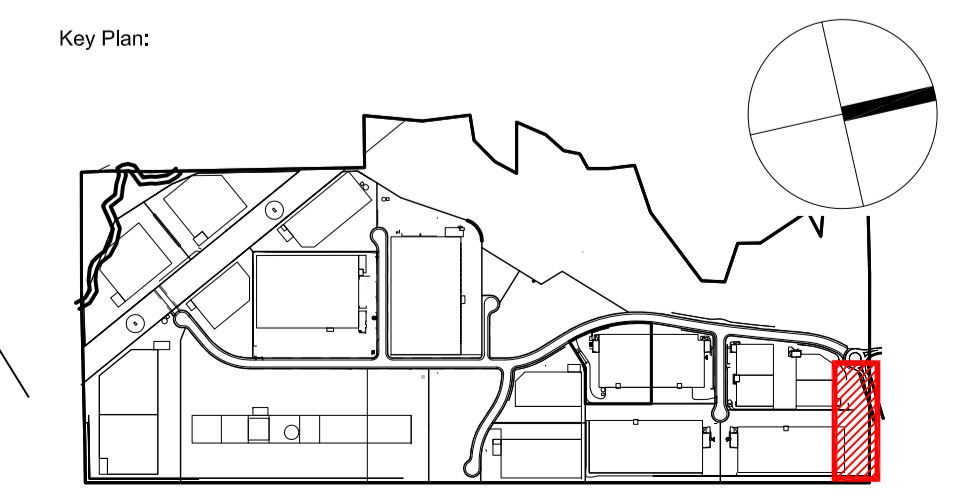
01 Landscape Plan  
111 1:500 @ A1

© 2015 Site Image (NSW) Pty Ltd ABN 44 801 262 380 as agent for Site Image NSW Partnership. All rights reserved. This drawing is copyright and shall not be reproduced or copied in any form or by any means (graphic, electronic or mechanical including photocopy) without the written permission of Site Image (NSW) Pty Ltd. Any license, expressed or implied, to use this document for any purpose what so ever is restricted to the terms of the written agreement between Site Image (NSW) Pty Ltd and the instructing party.

The contractor shall check and verify all work on site (including work by others) before commencing the landscape installation. Any discrepancies are to be reported to the Project Manager or Landscape Architect prior to commencing work. Do not scale this drawing. Any required dimensions not shown shall be referred to the Landscape Architect for confirmation.

Issue	Revision Description	Drawn	Check	Date
N	Minor Amendments	JW	NM	15.12.2017
M	Revised For Comments	JW	NM	05.12.2017
L	Revised For Comments	JW	NM	22.09.2017
K	Architectural Coordination	JW	NM	06.09.2017
J	Buffer Planting Amendments	JW	NM	30.05.2017
I	Entry Embankment Amendments	JW	NM	17.11.2016
H	Issued for Construction	JW	NM	19.10.2016
G	Civil Coordination	JW	NM	11.10.2016
F	Landscape Amendments	JW	NM	22.09.2016
E	Lighting Coordination	JW	NM	02.08.2016
D	Entry Amendments	JW	NM	29.07.2016
C	Planting Amendments	JW	NM	21.07.2016
B	Tree Coordination	JW	NM	20.06.2016
A	Revised for Comments	JW	NM	16.06.2016

LEGEND	
	Scope of Works
	Proposed Trees
	Ballast
	Proposed Grasses and Groundcovers
	Turf Type 1 - (Buffalo, Refer Spec.)
	Turf Type 2 - (Couch, Refer Spec.)
	Couch Spray Seeding
	Basin Treatment: Tubestock Basin Planting
	Paving Type 1: (Refer Landscape Specification)



**SITE IMAGE**  
Landscape Architects  
Level 1, 3-5 Baptist Street  
Redfern NSW 2016  
Australia  
Tel: (61 2) 8332 5600  
Fac: (61 2) 9696 2677  
www.siteimage.com.au

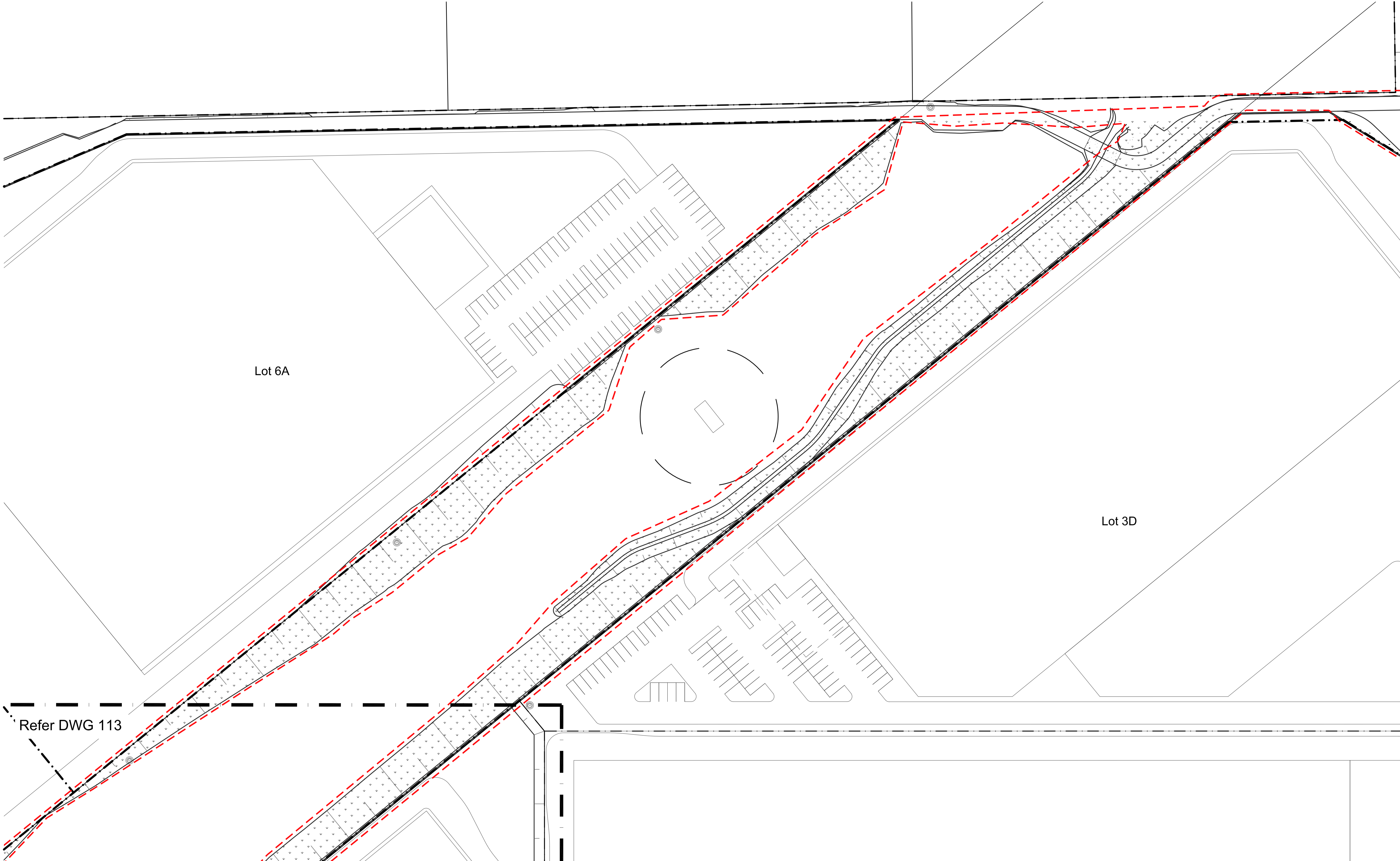
Client:  
**Goodman**

Project:  
**Estate Open Space Plan**  
**Oakdale South**  
**Horsley Park**

Drawing Name:  
**Landscape Plan**

**FOR CONSTRUCTION**

Scale: 1:500 @ A1  
Job Number: SS15-3057  
Drawing Number: ELW-111  
Issue: N



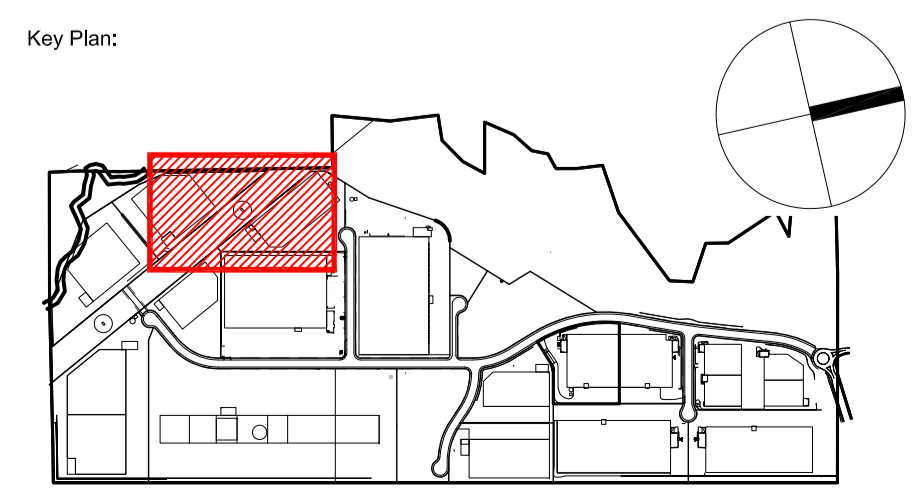
© 2015 Site Image (NSW) Pty Ltd ABN 44 801 262 380 as agent for Site Image NSW Partnership. All rights reserved. This drawing is copyright and shall not be reproduced or copied in any form or by any means (graphic, electronic or mechanical including photocopy) without the written permission of Site Image (NSW) Pty Ltd. Any license, expressed or implied, to use this document for any purpose whatsoever is restricted to the terms of the written agreement between Site Image (NSW) Pty Ltd and the instructing party.

The contractor shall check and verify all work on site (including work by others) before commencing the landscape installation. Any discrepancies are to be reported to the Project Manager or Landscape Architect prior to commencing work. Do not scale this drawing. Any required dimensions not shown shall be referred to the Landscape Architect for confirmation.

Issue	Revision Description	Drawn	Check	Date
M	Minor Amendments	JW	NM	15.12.2017
L	Revised For Comments	JW	NM	05.12.2017
K	Revised For Comments	JW	NM	22.09.2017
J	Architectural Coordination	JW	NM	06.09.2017
I	Buffer Planting Amendments	JW	NM	30.05.2017
H	Issued for Construction	JW	NM	19.10.2016
G	Civil Coordination	JW	NM	11.10.2016
F	Landscape Amendments	JW	NM	22.09.2016
E	Lighting Coordination	JW	NM	02.08.2016
D	Entry Amendments	JW	NM	29.07.2016
C	Planting Amendments	JW	NM	21.07.2016
B	Tree Coordination	JW	NM	20.06.2016
A	Revised For Comments	JW	NM	16.06.2016

**LEGEND**

	Scope of Works		Turf Type 1 - (Buffalo, Refer Spec.)		Basin Treatment: Tubestock Basin Planting
	Proposed Trees		Turf Type 2 - (Couch, Refer Spec.)		Paving Type 1: (Refer Landscape Specification)
	Ballast		Couch Spray Seeding		
	Proposed Grasses and Groundcovers				



**SITE IMAGE**

Landscape Architects  
Level 1, 3-5 Baptist Street  
Redfern NSW 2016  
Australia  
Tel: (61 2) 8332 5600  
Fac: (61 2) 9698 2877  
www.siteimage.com.au

Client:  
**Goodman**

Project:  
**Estate Open Space Plan**  
**Oakdale South**  
**Horsley Park**

Drawing Name:  
**Landscape Plan**

**FOR CONSTRUCTION**

Scale: 1:500 @ A1

Job Number: **SS15-3057**

Drawing Number: **ELW-112** Issue: **M**

Refer DWG 112

Lot 6B

Lot 3C

Lot 5A

Estate Road/Road 1

6 Cm

6 Cm

6 Cm

6 Cm

- 1 Ea
- 38 CE
- 1 Ea
- 12 GM
- 1 Et
- 1 Et
- 19 CE
- 1 Ea
- 5 GM
- 1 Ea
- 1 Et
- 12 GM
- 1 Et
- 38 CE
- 1 Ea
- 19 CE
- 1 Ea
- 38 CE
- 5 GM
- 1 Et
- 1 Et
- 12 GM
- 1 Ea
- 1 Et
- 1 Et
- 5 GM
- 1 Et
- 1 Ea
- 19 CE
- 1 Ea
- 12 GM
- 1 Et
- 38 CE
- 1 Et
- 5 GM
- 19 CE
- 1 Ea
- 1 Ca
- 38 CE
- 1 Et
- 12 GM
- 1 Et
- 1 Ea
- 1 Ea
- 1838 CE
- 1838 Ri

© 2015 Site Image (NSW) Pty Ltd ABN 44 801 262 380 as agent for Site Image NSW Partnerships. All rights reserved. This drawing is copyright and shall not be reproduced or copied in any form or by any means (graphic electronic or mechanical including photocopy) without the written permission of Site Image (NSW) Pty Ltd. Any license, expressed or implied, to use this document for any purpose whatsoever is restricted to the terms of the written agreement between Site Image (NSW) Pty Ltd and the instructing party.

The contractor shall check and verify all work on site (including work by others) before commencing the landscape installation. Any discrepancies are to be reported to the Project Manager or Landscape Architect prior to commencing work. Do not scale this drawing. Any required dimensions not shown shall be referred to the Landscape Architect for confirmation.

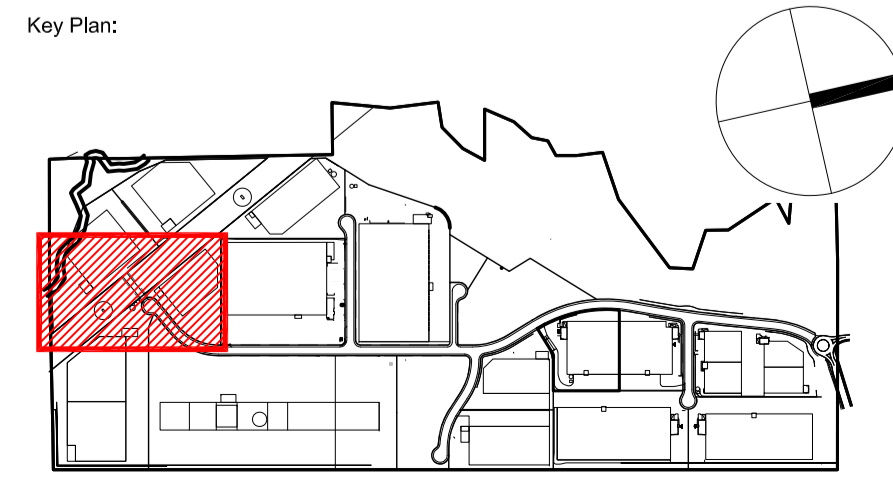
Issue	Revision Description
O	Minor Amendments
N	Revised for Comments
M	Street Tree Coordination
L	Revised For Comments
K	Architectural Coordination
J	Buffer Planting Amendments
I	Issued for Construction
H	Boundary Amendments
G	Civil Coordination
F	Landscape Amendments
E	Lighting Coordination
D	Entry Amendments
C	Planting Amendments
B	Tree Coordination
A	Revised for Comments

Drawn	Check	Date
JW	NM	15.12.2017
JW	NM	06.12.2017
JW	NM	25.10.2017
JW	NM	22.09.2017
JW	NM	06.09.2017
JW	NM	30.05.2017
JW	NM	19.10.2016
JW	NM	12.10.2016
JW	NM	11.10.2016
JW	NM	22.09.2016
JW	NM	02.08.2016
JW	NM	29.07.2016
JW	NM	21.07.2016
JW	NM	20.06.2016
JW	NM	16.06.2016

LEGEND	
	Scope of Works
	Proposed Trees
	Ballast
	Proposed Grasses and Groundcovers

	Turf Type 1 - (Buffalo, Refer Spec.)
	Turf Type 2 - (Couch, Refer Spec.)
	Couch Spray Seeding

	Basin Treatment: Tubestock Basin Planting
	Paving Type 1: (Refer Landscape Specification)



**SITE IMAGE**  
 Landscape Architects  
 Level 1, 3-5 Baptist Street  
 Redfern NSW 2016  
 Australia  
 Tel: (61 2) 8332 5600  
 Fax: (61 2) 9698 2877  
 www.siteimage.com.au

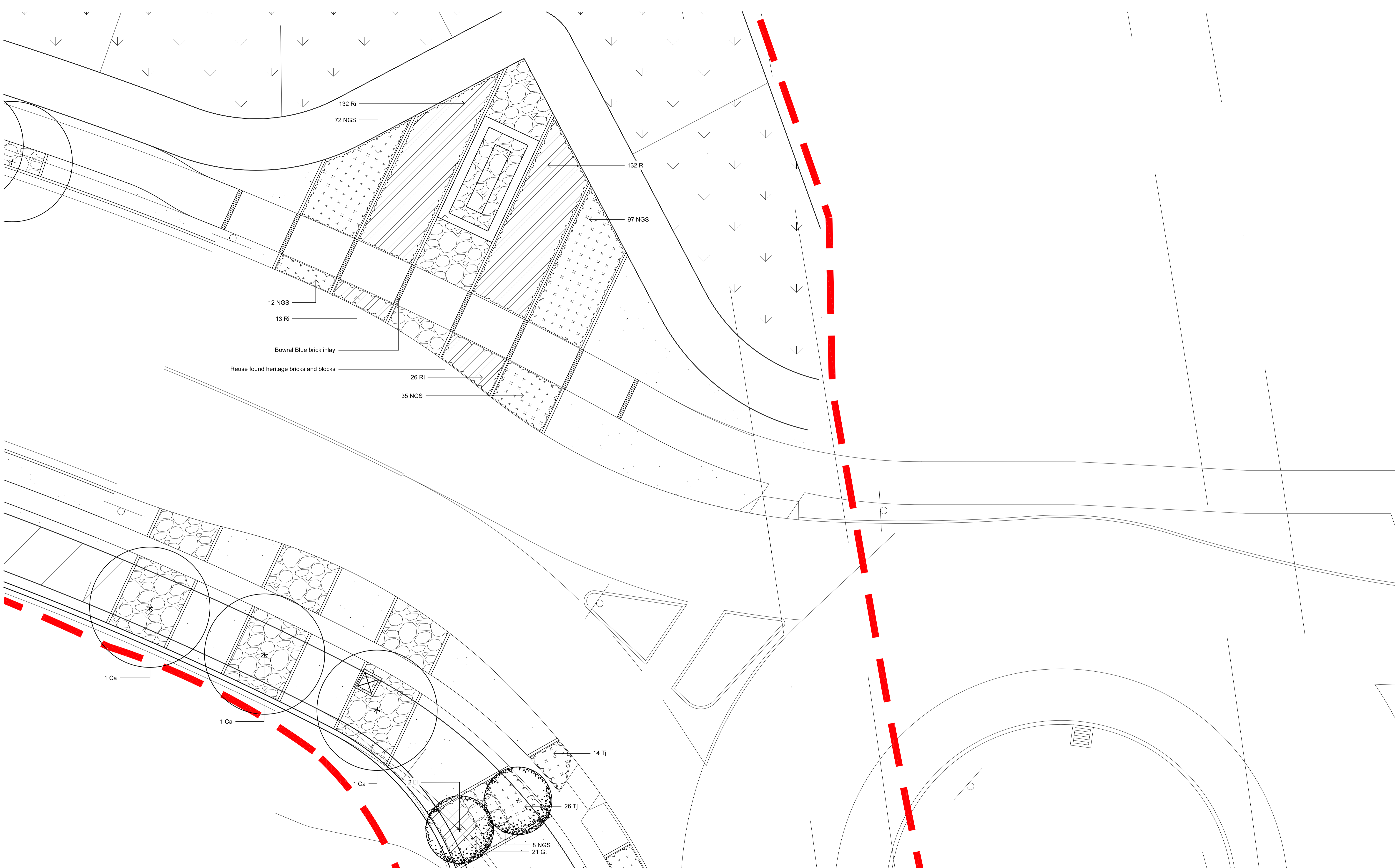
Client:  
**Goodman**

Project:  
**Estate Open Space Plan**  
**Oakdale South**  
**Horsley Park**

Drawing Name:  
**Landscape Plan**

**FOR CONSTRUCTION**

Scale: 1:500 @ A1  
 Job Number: SS15-3057  
 Drawing Number: ELW-113  
 Issue: O

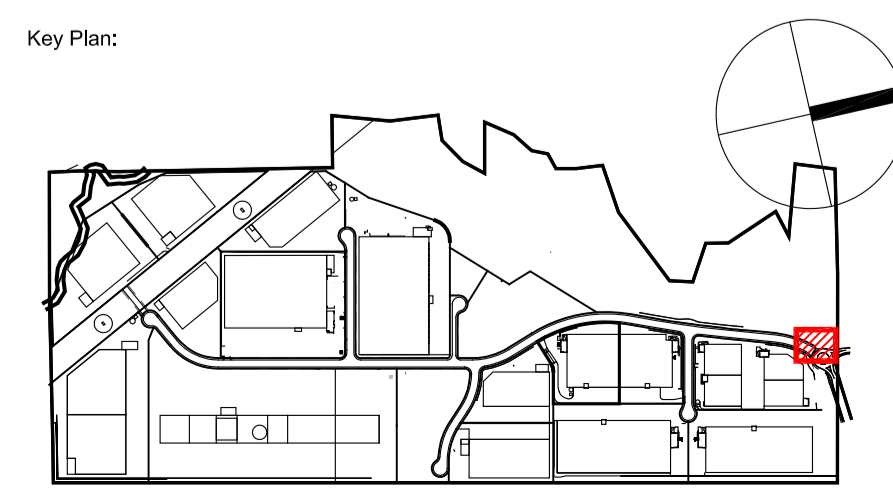


© 2015 Site Image (NSW) Pty Ltd ABN 44 801 262 380 as agent for Site Image NSW Partnerships. All rights reserved. This drawing is copyright and shall not be reproduced or copied in any form or by any means (graphic, electronic or mechanical including photocopy) without the written permission of Site Image (NSW) Pty Ltd. Any license, expressed or implied, to use this document for any purpose what so ever is restricted to the terms of the written agreement between Site Image (NSW) Pty Ltd and the instructing party.

The contractor shall check and verify all work on site (including work by others) before commencing the landscape installation. Any discrepancies are to be reported to the Project Manager or Landscape Architect prior to commencing work. Do not scale this drawing. Any required dimensions not shown shall be referred to the Landscape Architect for confirmation.

Issue	Revision Description	Drawn	Check	Date
C	Revised for Comments	JW	NM	05.12.2017
B	Revised For Comments	JW	NM	22.09.2017
A	Architectural Coordination	JW	NM	06.09.2017

LEGEND	
	Scope of Works
	Proposed Trees
	Concrete Edge
	Ballast
	Turf Type 1 Buffalo, Refer Spec.
	Turf Type 2 Couch, Refer Spec.
	Deco Granite Paving
	Proposed Grasses and Groundcovers
	Balustrade Type 1: (Refer Landscape Spec.)
	Paving Type 1: (Refer Landscape Spec.)
	BS1: Bench seat
	BS2: Bench seat with back + armrest
	W1: Brick Wall



**SITE IMAGE**  
Landscape Architects  
Level 1, 3-5 Baptist Street  
Redfern NSW 2016  
Australia  
Tel: (61 2) 8332 5600  
Fax: (61 2) 9698 2677  
www.siteimage.com.au

Client:  
**Goodman**

Project:  
**Estate Open Space Plan**  
**Oakdale South**  
**Horsley Park**

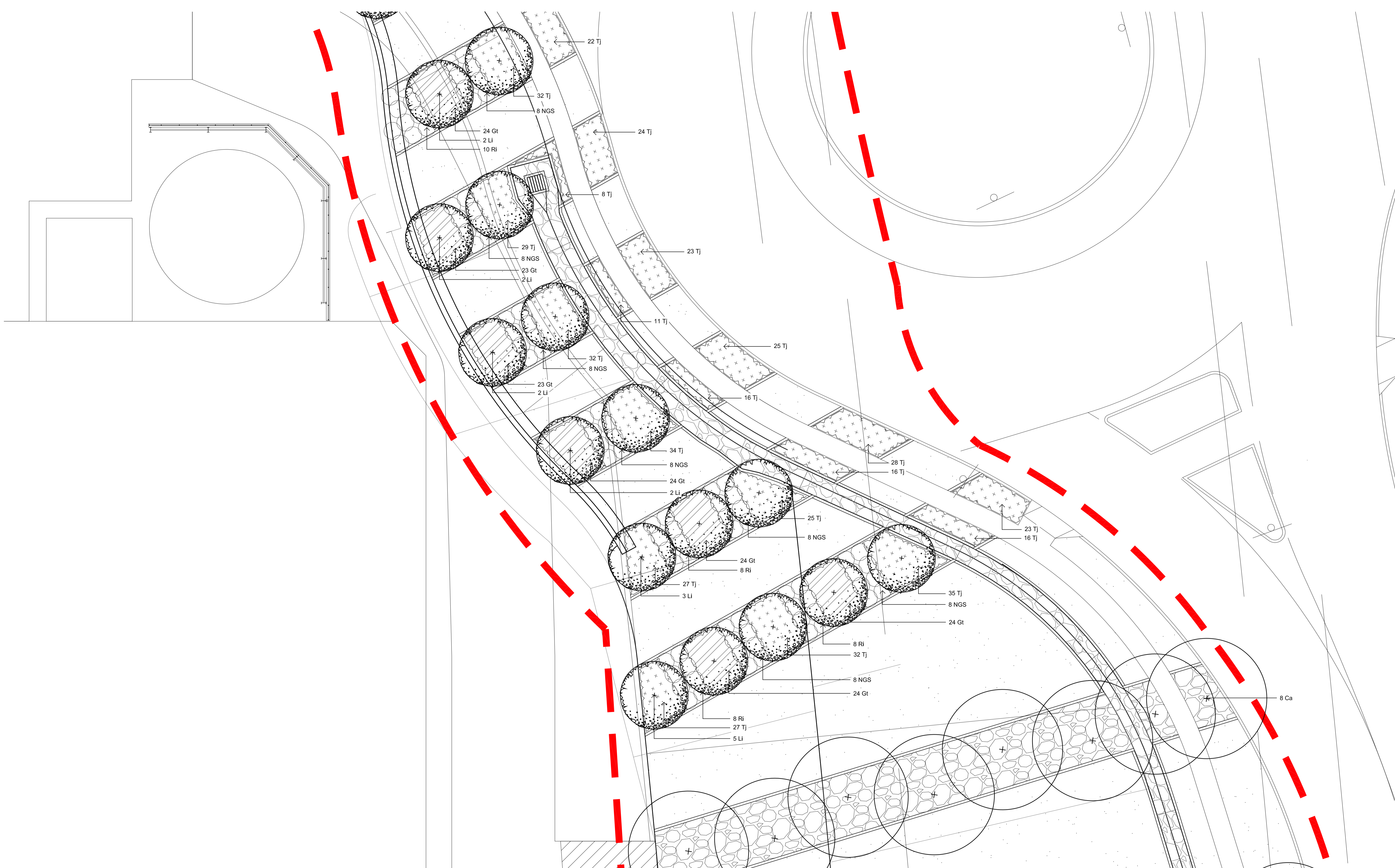
Drawing Name:  
**Landscape Plan**

**FOR CONSTRUCTION**

Scale: 1:100 @ A1

Job Number: **SS15-3057**

Drawing Number: **ELW-114** Issue: **C**



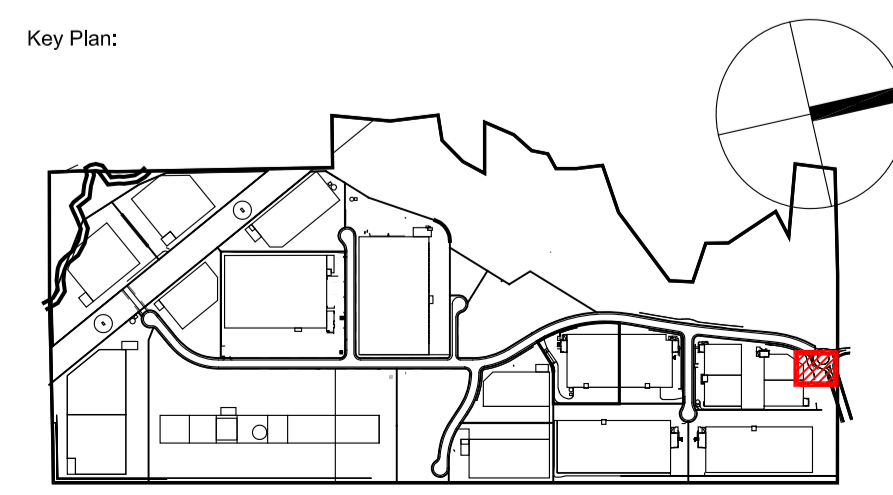
© 2015 Site Image (NSW) Pty Ltd ABN 44 801 262 380 as agent for Site Image NSW Partnership. All rights reserved. This drawing is copyright and shall not be reproduced or copied in any form or by any means (graphic, electronic or mechanical including photocopy) without the written permission of Site Image (NSW) Pty Ltd. Any license, expressed or implied, to use this document for any purpose what so ever is restricted to the terms of the written agreement between Site Image (NSW) Pty Ltd and the instructing party.

The contractor shall check and verify all work on site (including work by others) before commencing the landscape installation. Any discrepancies are to be reported to the Project Manager or Landscape Architect prior to commencing work. Do not scale this drawing. Any required dimensions not shown shall be referred to the Landscape Architect for confirmation.

Issue	Revision Description	Drawn	Check	Date
C	Revised for Comments	JW	NM	05.12.2017
B	Revised For Comments	JW	NM	22.09.2017
A	Architectural Coordination	JW	NM	06.09.2017

LEGEND	
	Scope of Works
	Proposed Trees
	Concrete Edge
	Ballast
	Turf Type 1 Buffalo, Refer Spec.
	Turf Type 2 Couch, Refer Spec.
	Deco Granite Paving
	Proposed Grasses and Groundcovers

	Balustrade Type 1: (Refer Landscape Spec.)
	Paving Type 1: (Refer Landscape Spec.)
	BS1: Bench seat
	BS2: Bench seat with back + armrest
	W1: Brick Wall



**SITE IMAGE**  
 Landscape Architects  
 Level 1, 3-5 Baptist Street  
 Redfern NSW 2016  
 Australia  
 Tel: (61 2) 8332 5600  
 Fax: (61 2) 9698 2677  
 www.siteimage.com.au

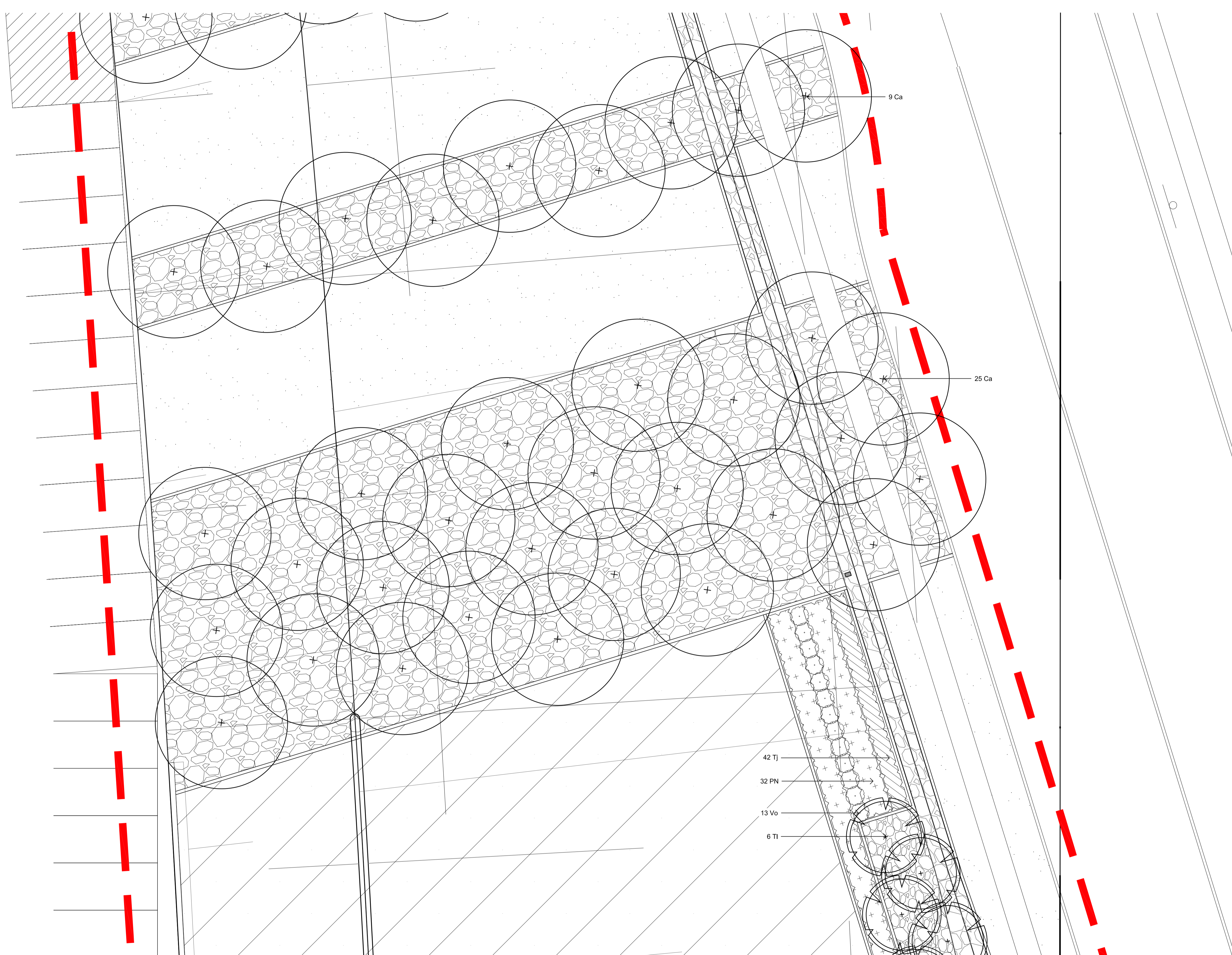
Client:  
**Goodman**

Project:  
**Estate Open Space Plan  
 Oakdale South  
 Horsley Park**

Drawing Name:  
**Landscape Plan**

**FOR CONSTRUCTION**

Scale: 1:100 @ A1  
 Job Number: SS15-3057  
 Drawing Number: ELW-115  
 Issue: C



© 2015 Site Image (NSW) Pty Ltd ABN 44 801 262 380 as agent for Site Image NSW Partnership. All rights reserved. This drawing is copyright and shall not be reproduced or copied in any form or by any means (graphic, electronic or mechanical including photocopy) without the written permission of Site Image (NSW) Pty Ltd. Any license, expressed or implied, to use this document for any purpose what so ever is restricted to the terms of the written agreement between Site Image (NSW) Pty Ltd and the instructing party.

The contractor shall check and verify all work on site (including work by others) before commencing the landscape installation. Any discrepancies are to be reported to the Project Manager or Landscape Architect prior to commencing work. Do not scale this drawing. Any required dimensions not shown shall be referred to the Landscape Architect for confirmation.

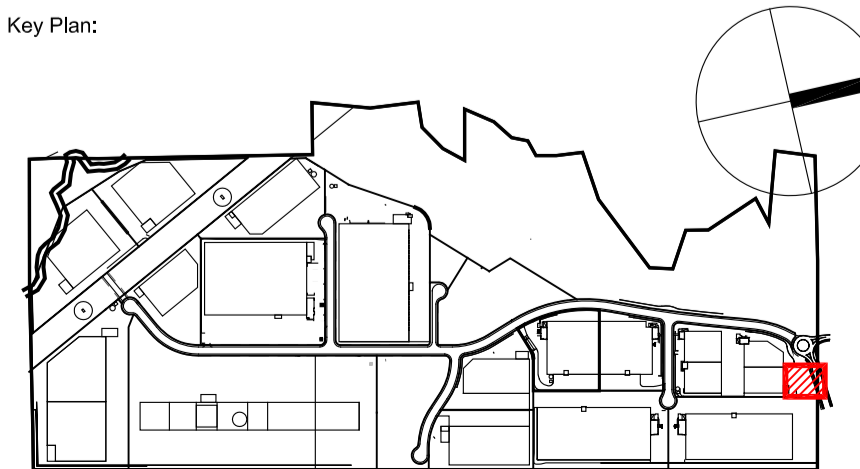
Issue	Revision Description	Drawn	Check	Date
C	Revised for Comments	JW	NM	05.12.2017
B	Revised For Comments	JW	NM	22.09.2017
A	Architectural Coordination	JW	NM	06.09.2017

**LEGEND**

- Scope of Works
- Proposed Trees
- Concrete Edge
- Ballast
- Turf Type 1 Buffalo, Refer Spec.
- Turf Type 2 Couch, Refer Spec.
- Deco Granite Paving
- Proposed Grasses and Groundcovers

- Balustrade Type 1: (Refer Landscape Spec.)
- Paving Type 1: (Refer Landscape Spec.)
- BS1: Bench seat
- BS2: Bench seat with back + armrest
- W1: Brick Wall

Key Plan:



**SITE IMAGE**



Client:

Goodman

Project:

Estate Open Space Plan  
Oakdale South  
Horsley Park

Drawing Name:

Landscape Plan

**FOR CONSTRUCTION**

Scale: 1:100 @ A1

Job Number:

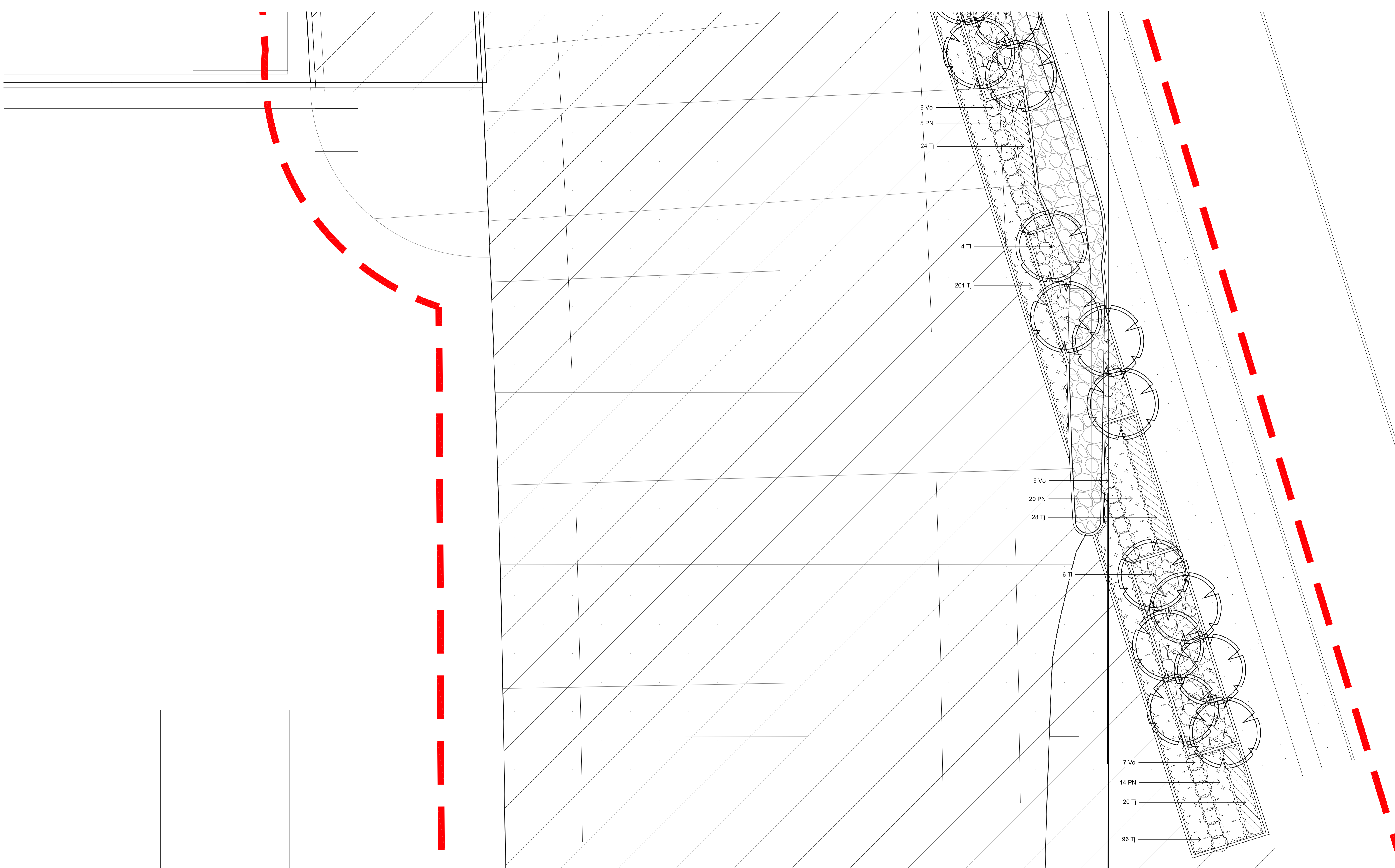
SS15-3057

0 1 2 3 4 5m

Drawing Number:

ELW-116 C



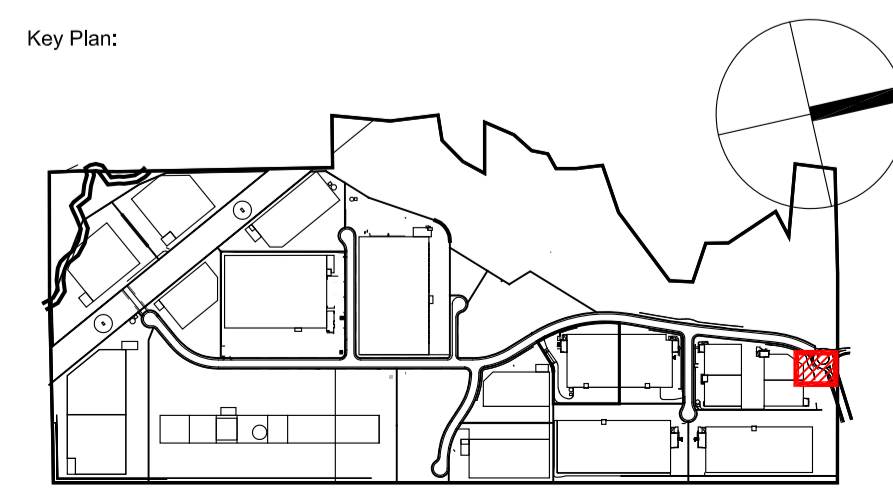


© 2015 Site Image (NSW) Pty Ltd ABN 44 801 262 380 as agent for Site Image NSW Partnership. All rights reserved. This drawing is copyright and shall not be reproduced or copied in any form or by any means (graphic, electronic or mechanical including photocopy) without the written permission of Site Image (NSW) Pty Ltd. Any license, expressed or implied, to use this document for any purpose what so ever is restricted to the terms of the written agreement between Site Image (NSW) Pty Ltd and the instructing party.

The contractor shall check and verify all work on site (including work by others) before commencing the landscape installation. Any discrepancies are to be reported to the Project Manager or Landscape Architect prior to commencing work. Do not scale this drawing. Any required dimensions not shown shall be referred to the Landscape Architect for confirmation.

Issue	Revision Description	Drawn	Check	Date
C	Revised for Comments	JW	NM	05.12.2017
B	Revised For Comments	JW	NM	22.09.2017
A	Architectural Coordination	JW	NM	06.09.2017

LEGEND	
	Scope of Works
	Proposed Trees
	Concrete Edge
	Ballast
	Turf Type 1 Buffalo, Refer Spec.
	Turf Type 2 Couch, Refer Spec.
	Deco Granite Paving
	Proposed Grasses and Groundcovers
	Balustrade Type 1: (Refer Landscape Spec.)
	Paving Type 1: (Refer Landscape Spec.)
	BS1: Bench seat
	BS2: Bench seat with back + armrest
	W1: Brick Wall



**SITE IMAGE**  
Landscape Architects  
Level 1, 3-5 Baptist Street  
Redfern NSW 2016  
Australia  
Tel: (61 2) 8332 5600  
Fax: (61 2) 9698 2877  
www.siteimage.com.au

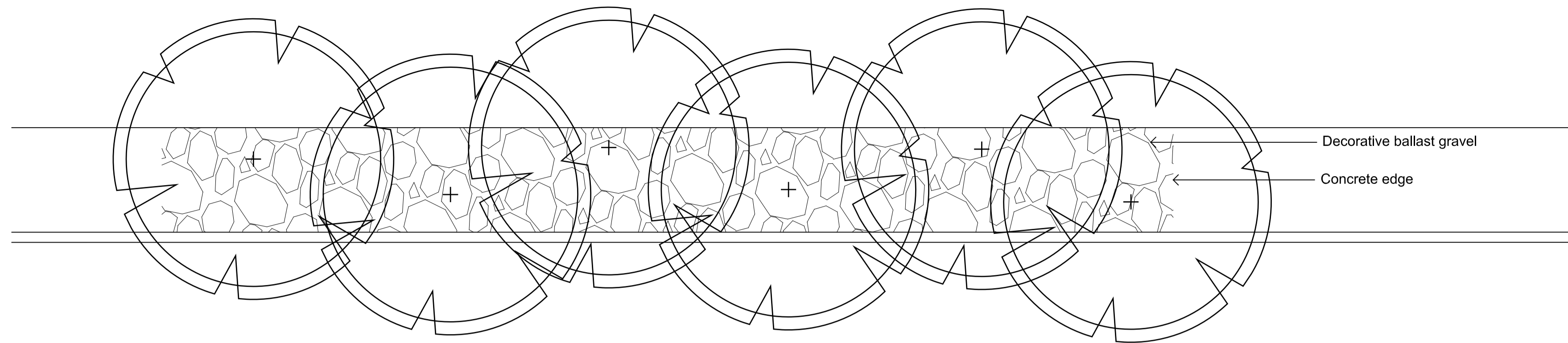
Client:  
**Goodman**

Project:  
**Estate Open Space Plan  
Oakdale South  
Horsley Park**

Drawing Name:  
**Landscape Plan**

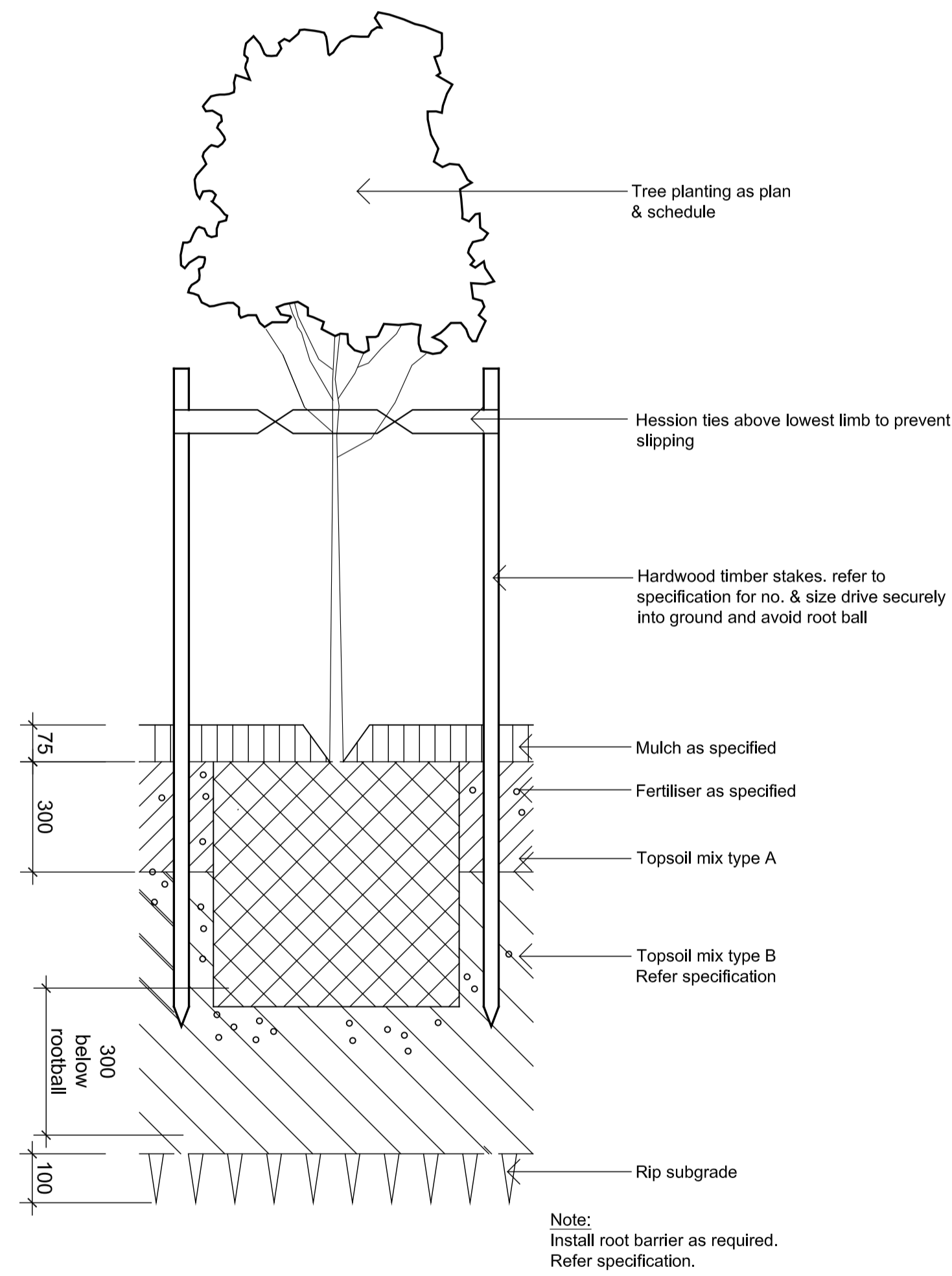
**FOR CONSTRUCTION**

Scale: 1:100 @ A1  
Job Number: SS15-3057  
Drawing Number: ELW-117 C  
Issue:



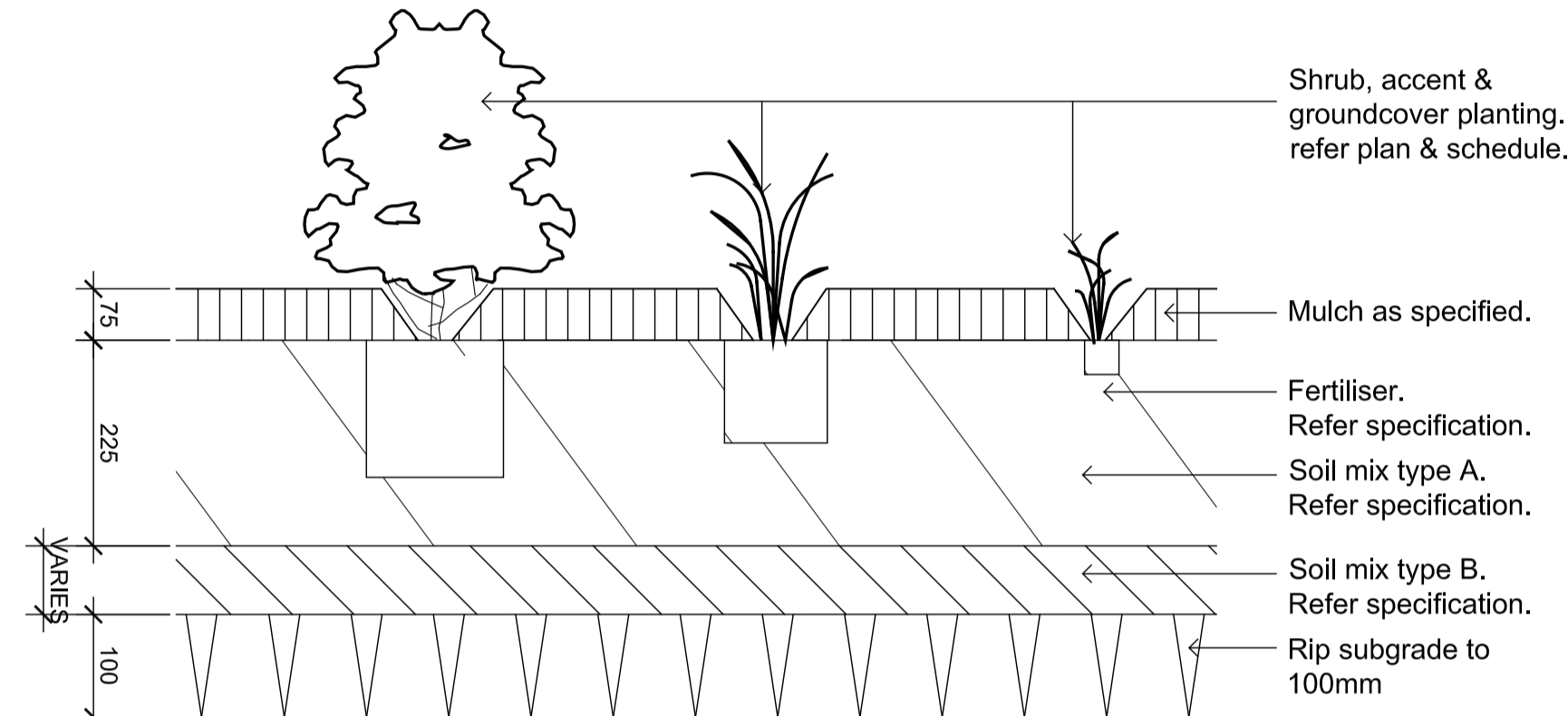
**01 Street Tree Planting Detail**

ELW-501



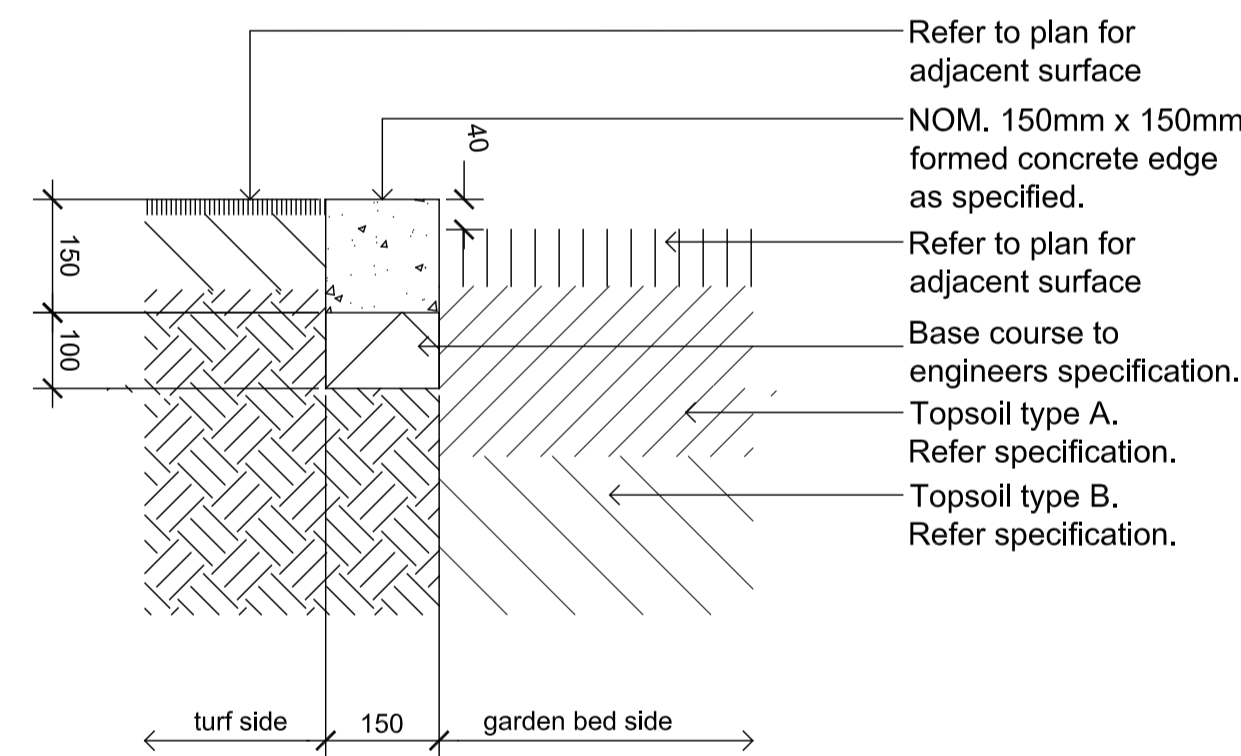
**02 DETAIL - 75-200L TREE PLANTING ON GRADE**  
1:10

ELW-501



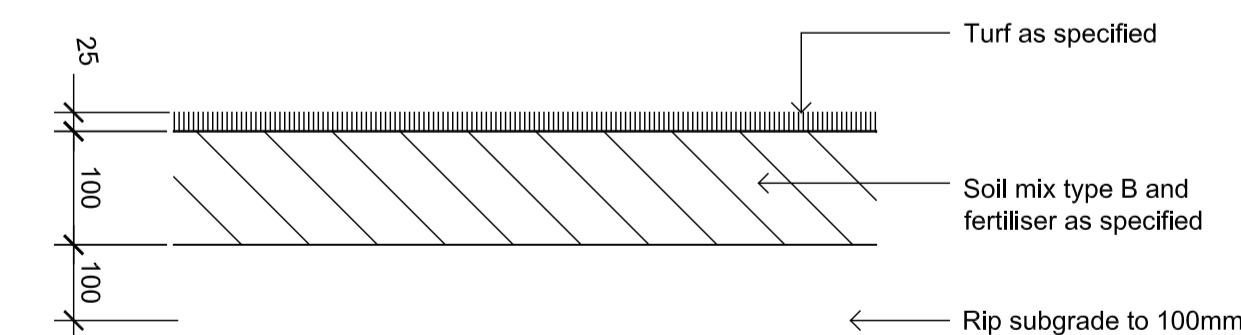
**03 SHRUB, ACCENT & GROUNDCOVER PLANTING ON GRADE**  
SCALE 1:10

ELW-501



**04 TYPICAL CONCRETE EDGE**  
SCALE 1:10

ELW-501

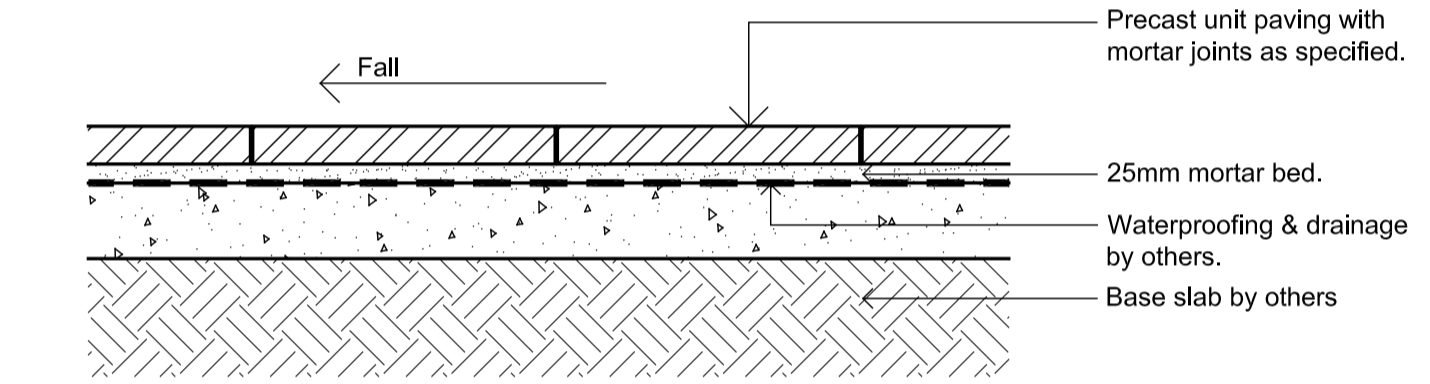


**05 DETAIL - TURF ON EVEN GRADE**  
1:10

ELW-501

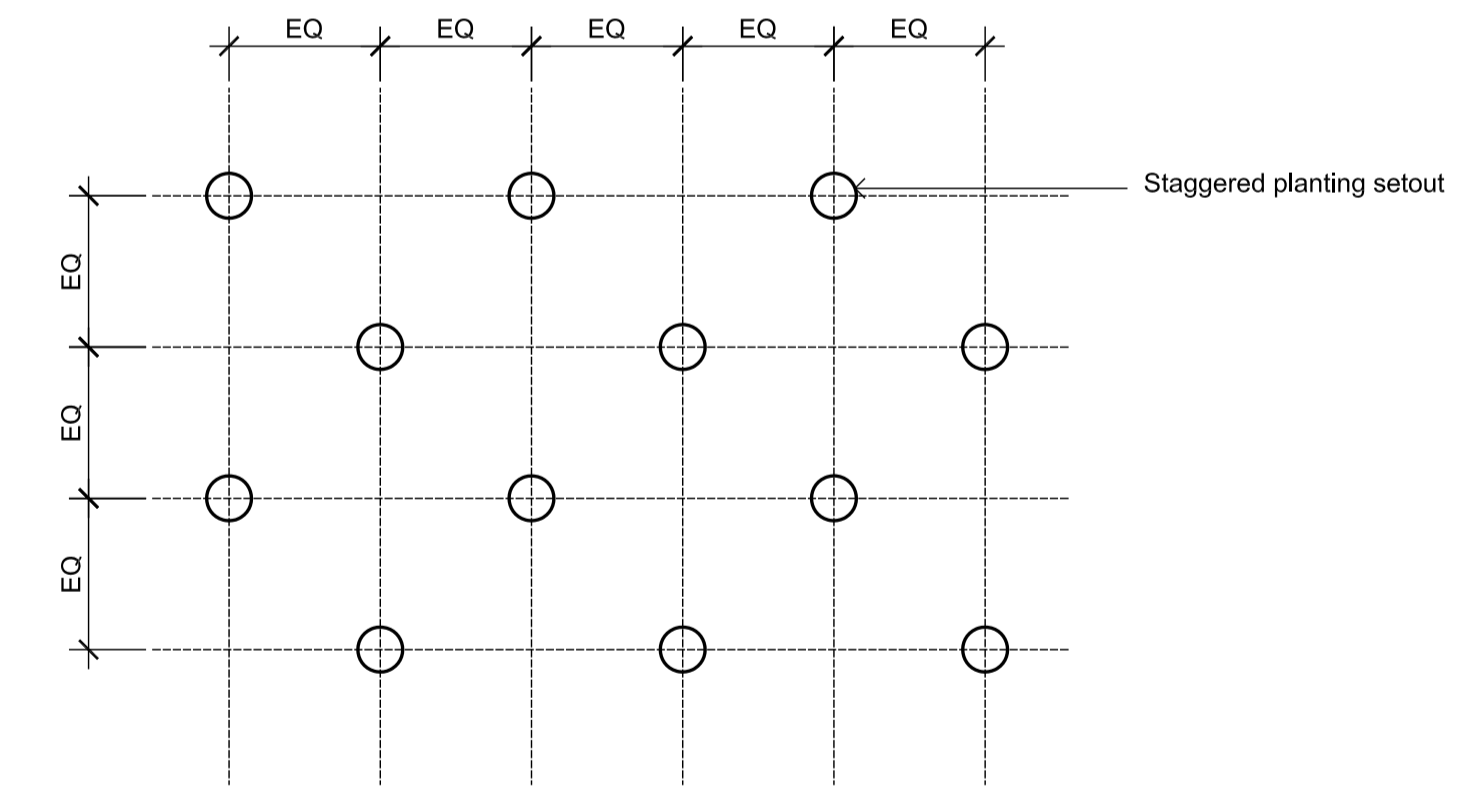
Code	Botanical Name	Common Name	Mature Height (m.)	Mature Spread (m.)	Spacings	Pot Size	CPW	Quantity
<b>Trees</b>								
As	<i>Angophora subvelutina</i>	Broad-leaved Apple	25	15	As Shown	75L	+	42
Ca	<i>Cupaniopsis anacardioides</i>	Tuckeroo	8	8	As Shown	200L		68
Cm	<i>Corymbia maculata</i>	Spotted Gum	15	7	As Shown	75L	+	270
Ea	<i>Eucalyptus amplifolia</i>	Cabbage Gum	30	8	As Shown	75L	*	143
Ec	<i>Eucalyptus crebra</i>	Narrow Leaved Ironbark	15	6	As Shown	75L	*	24
Em	<i>Eucalyptus moluccana</i>	Grey Box	20	8	As Shown	75L	*	82
Et	<i>Eucalyptus tereticornis</i>	Forest Red Gum	30	8	As Shown	75L	*	148
Li	<i>Lagerstroemia indica 'Natchez'</i>	Crepe Myrtle	8	6	As Shown	75L		18
<b>Shrubs</b>								
AsM	<i>Acmena smithii var. minor</i>	Dwarf Lillypilly	3	2	As Shown	300mm		717
CE	<i>Callistemon 'Endeavour'</i>	Bottlebrush	2.5	2.5	As Shown	300mm		878
CLJ	<i>Callistemon viminalis 'Little John'</i>	Little John Bottlebrush	0.8	0.8	As Shown	300mm		42
GM	<i>Grevillea Moonlight</i>	Moonlight Grevillea	4	3	As Shown	300mm		250
NGS	<i>Nandina 'Gulf Stream'</i>	Nandina	0.75	0.5	As Shown	300mm		578
Ri	<i>Rhaphiolepis indica</i>	Indian Hawthorn	2.5	2.5	As Shown	300mm		510
<b>Groundcovers and Grasses</b>								
PN	<i>Pennisetum 'Nafray'</i>	Nafray Pennisetum	0.6	0.6	2/m2	150mm		1041
TT	<i>Trachelospermum jasminoides 'Tricolour'</i>	Tricolour	0.5	2	4/m2	150mm		174
Tj	<i>Trachelospermum jasminoides</i>	Star Jasmine	0.5	2	4/m2	150mm		1382
Gt	<i>Gazania tomentosa</i>	Silver Leaf Gazania	0.15	1	3/m2	150mm		187
<b>Basin Matrix Planting</b>								
Ca	<i>Carex appressa</i>	Tussock Sedge	0.5	0.5	4/m2	75mm Tube		30465
<b>Shrub Matrix Planting</b>								
CE	<i>Callistemon 'Endeavour'</i>	Bottlebrush	2.5	2.5	As Shown	300mm		6192
Ri	<i>Rhaphiolepis indica</i>	Indian Hawthorn	2.5	2.5	As Shown	300mm		6192

Plant quantities and arrangement subject to design development



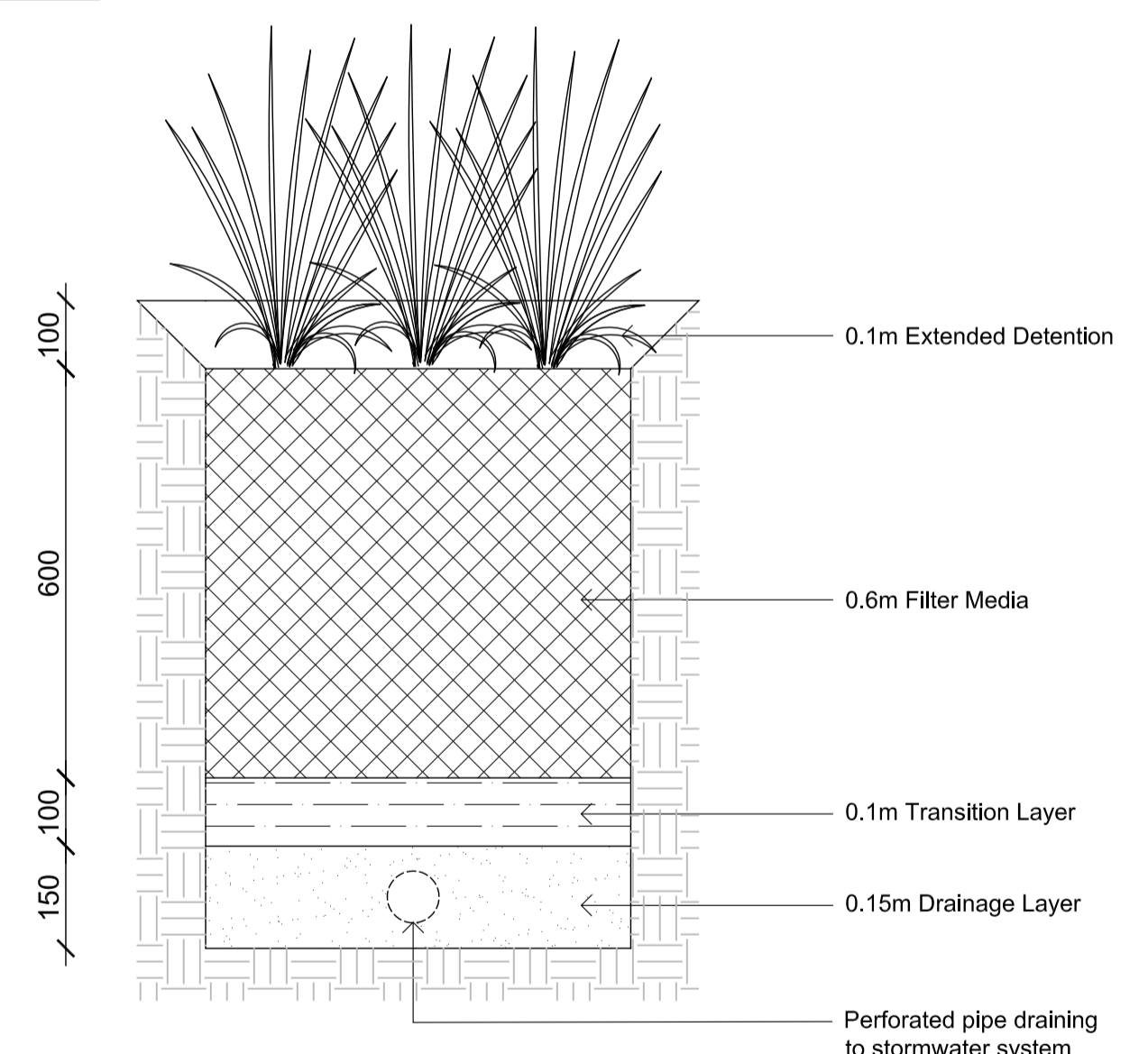
**06 PRECAST UNIT PAVERS ON SUSPENDED SLAB**  
SCALE 1:10

ELW-501



**07 PLAN - MATRIX PLANTING**  
SCALE N/A

ELW-501



**08 SECTION - BIORETENTION**  
SCALE 1:10

ELW-501

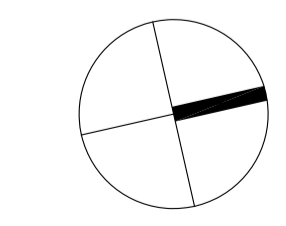
© 2015 Site Image (NSW) Pty Ltd. All rights reserved. This drawing is copyright and shall not be reproduced or copied in any form or by any means (graphic, electronic or mechanical including photocopy) without the written permission of Site Image (NSW) Pty Ltd. Any license, expressed or implied, to use this document for any purpose what so ever is restricted to the terms of the written agreement between Site Image (NSW) Pty Ltd and the instructing party.

The contractor shall check and verify all work on site (including work by others) before commencing the landscape installation. Any discrepancies are to be reported to the Project Manager or Landscape Architect prior to commencing work. Do not scale this drawing. Any required dimensions not shown shall be referred to the Landscape Architect for confirmation.

Issue	Revision Description	Drawn	Check	Date
Q	Revised for Comments	JW	NM	05.12.2017
P	Landscape Amendments	JW	NM	08.10.2017
O	Revised For Comments	JW	NM	22.09.2017
N	Architectural Coordination	JW	NM	08.09.2017
M	Buffer Planting Amendments	JW	NM	30.05.2017
L	Entry Embankment Amendments	JW	NM	17.11.2016
K	Issued for Construction	JW	NM	19.10.2016
J	Civil Coordination	JW	NM	11.10.2016
I	Landscape Amendments	JW	NM	22.09.2016
H	Lighting Coordination	JW	NM	02.08.2016
G	Entry Amendments	JW	NM	29.07.2016
F	Planting Amendments	JW	NM	21.07.2016
E	Tree Coordination	JW	NM	20.06.2016
D	Revised for Comments	JW	NM	16.06.2016
C	Tender Clarifications	JW	NM	31.05.2016

**LEGEND**

Key Plan:



**SITE IMAGE**

Landscape Architects

Level 1, 3-5 Baptist Street  
Redfern NSW 2016  
Australia

Tel: (61 2) 8332 5600  
Fax: (61 2) 9698 2877  
www.siteimage.com.au

Client:  
**Goodman**

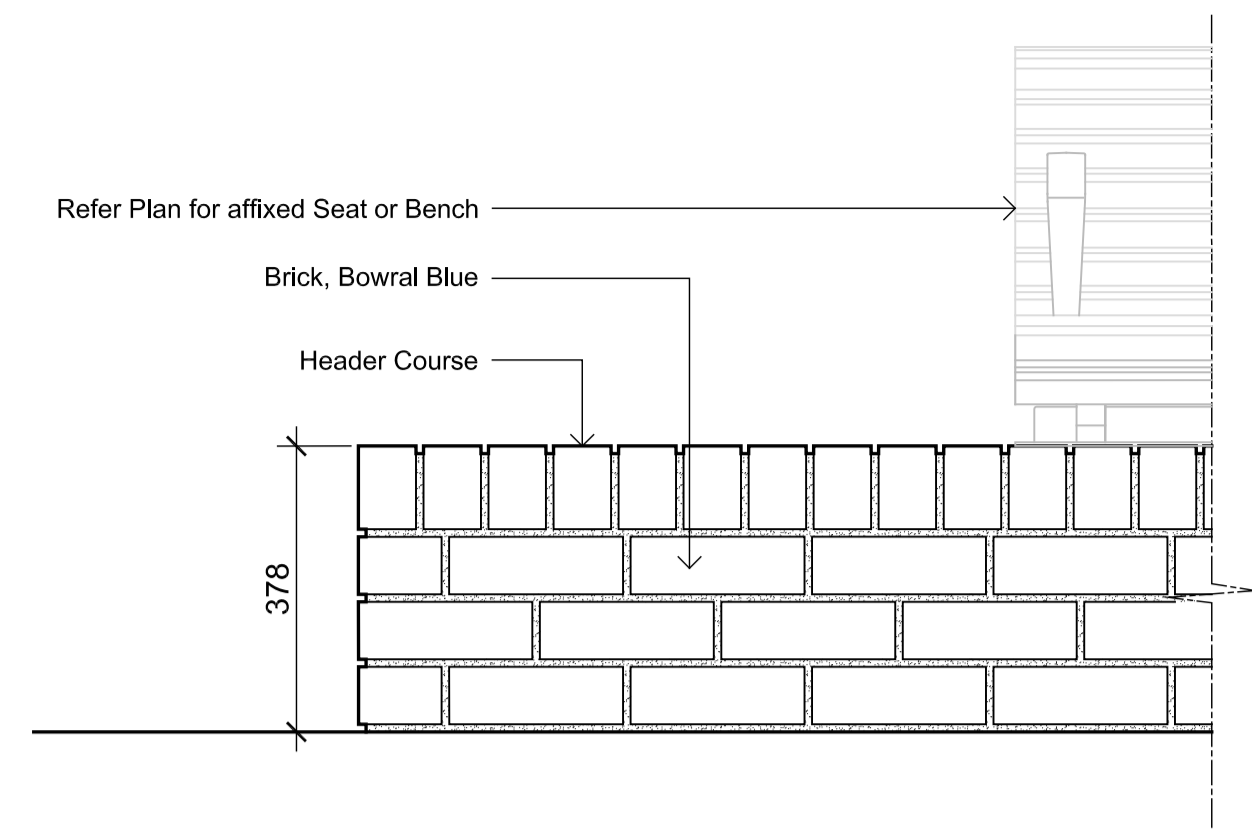
Project:  
**Estate Open Space Plan**  
**Oakdale South**  
**Horsley Park**

Drawing Name:  
**Landscape Plan**

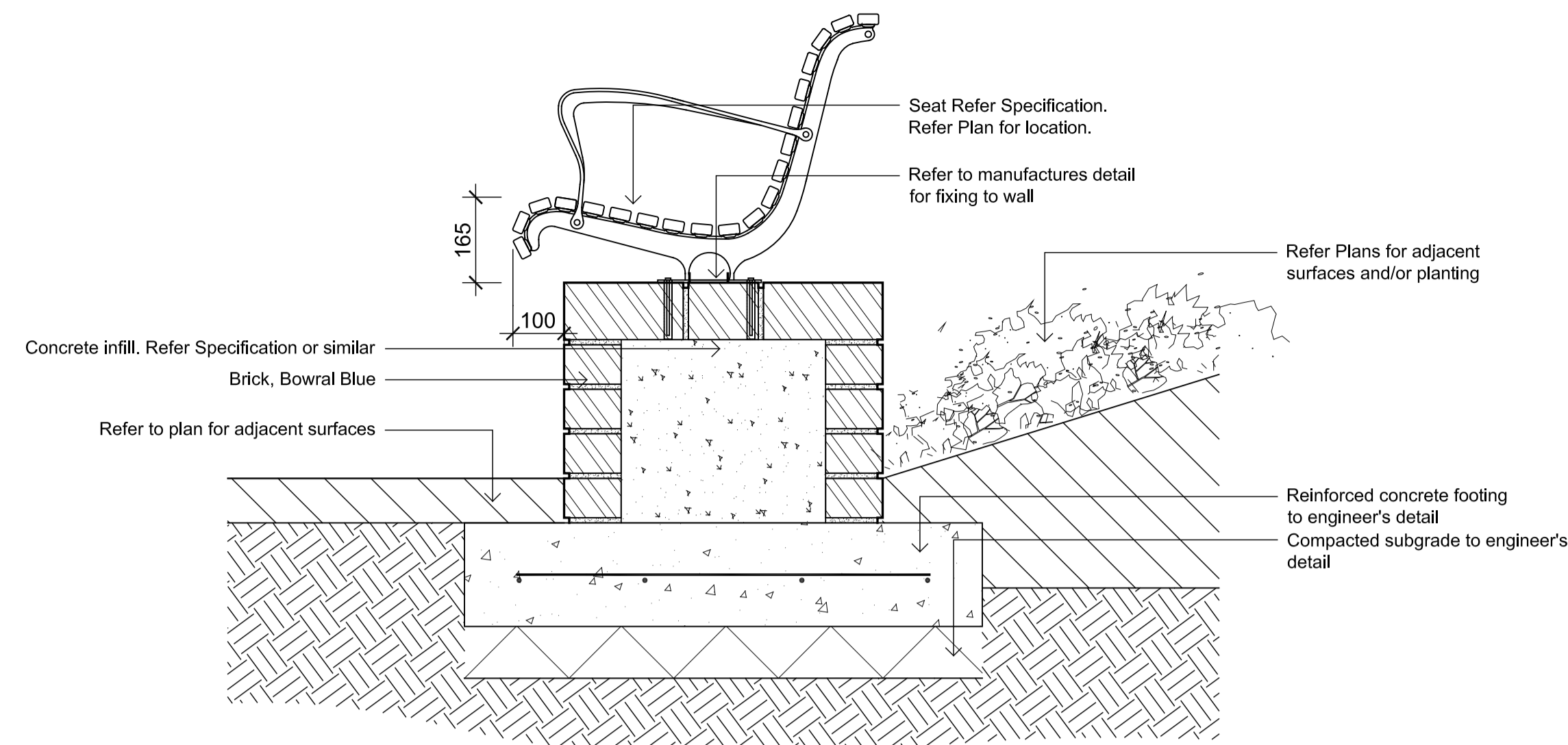
Scale:  
Job Number:  
**SS15-3057**

**FOR CONSTRUCTION**

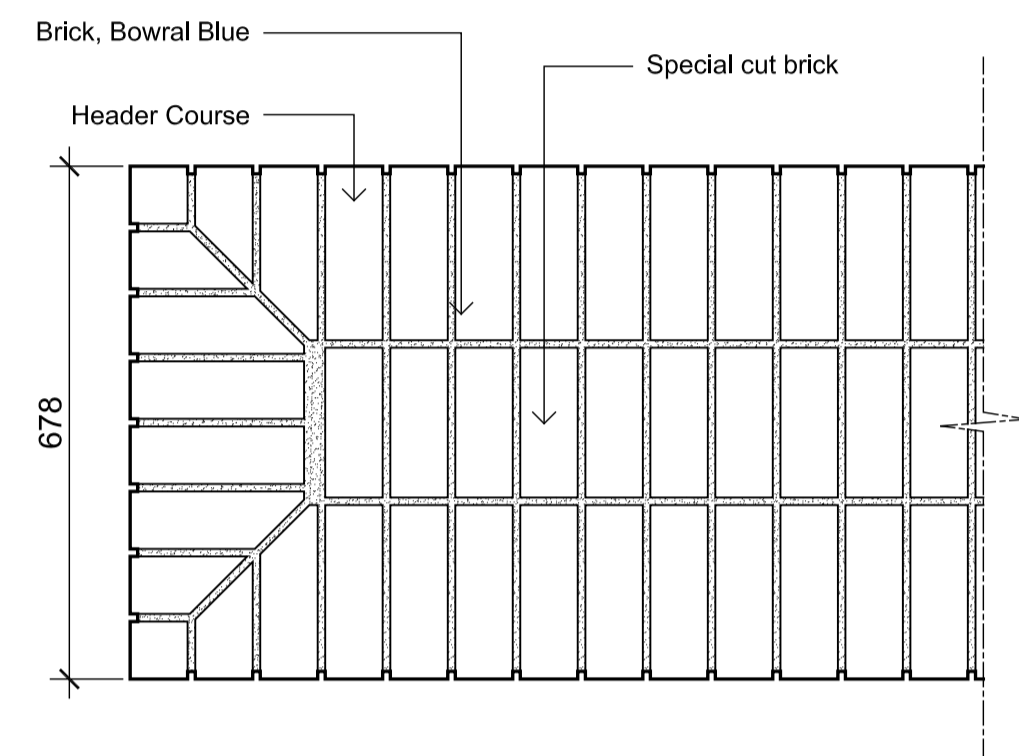
Drawing Number:  
**ELW-501**



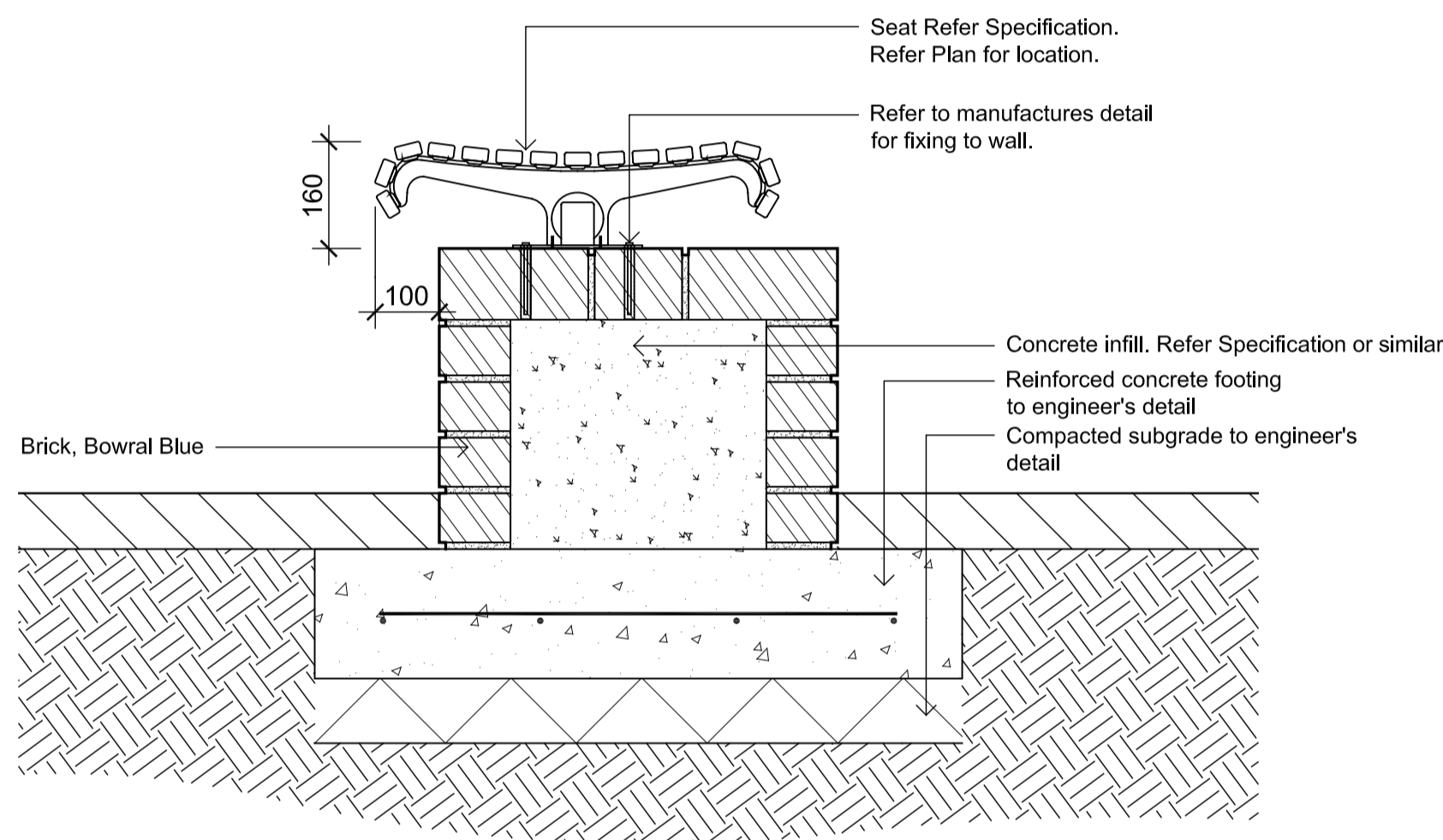
01 TYPICAL BRICK SEATING WALL ELEVATION  
ELW-502 SCALE 1:10



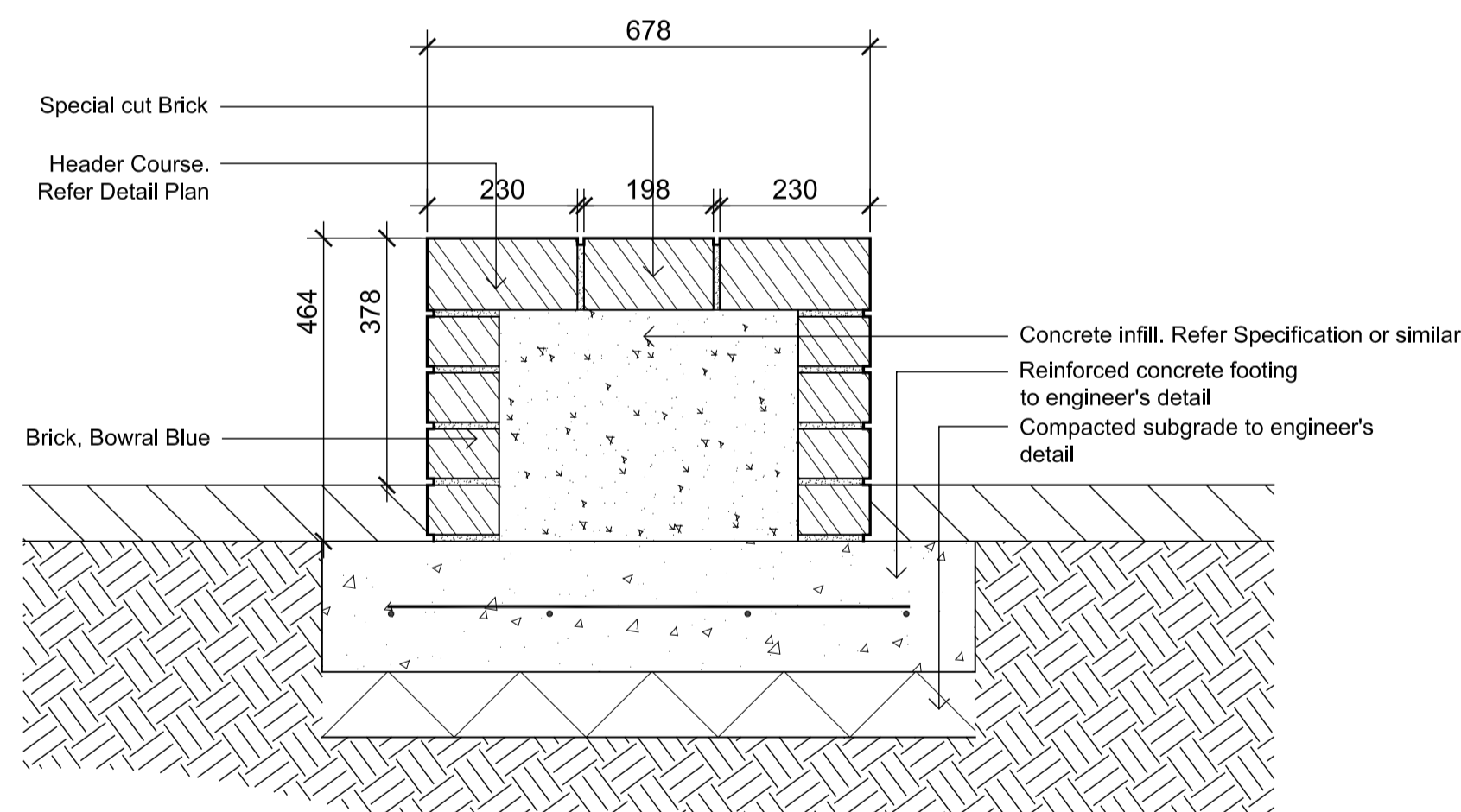
05 BRICK SEATING WALL WITH SEAT  
ELW-502 SCALE 1:10



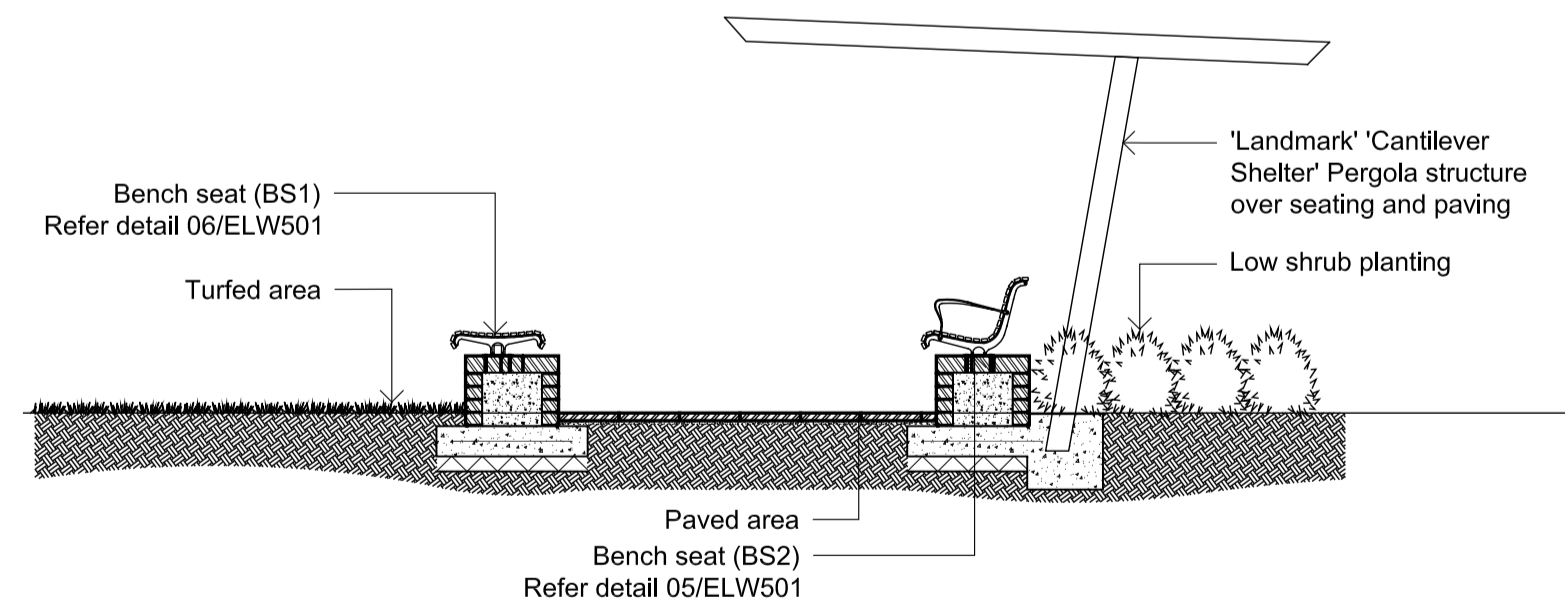
02 TYPICAL BRICK SEATING WALL PLAN  
ELW-502 SCALE 1:10



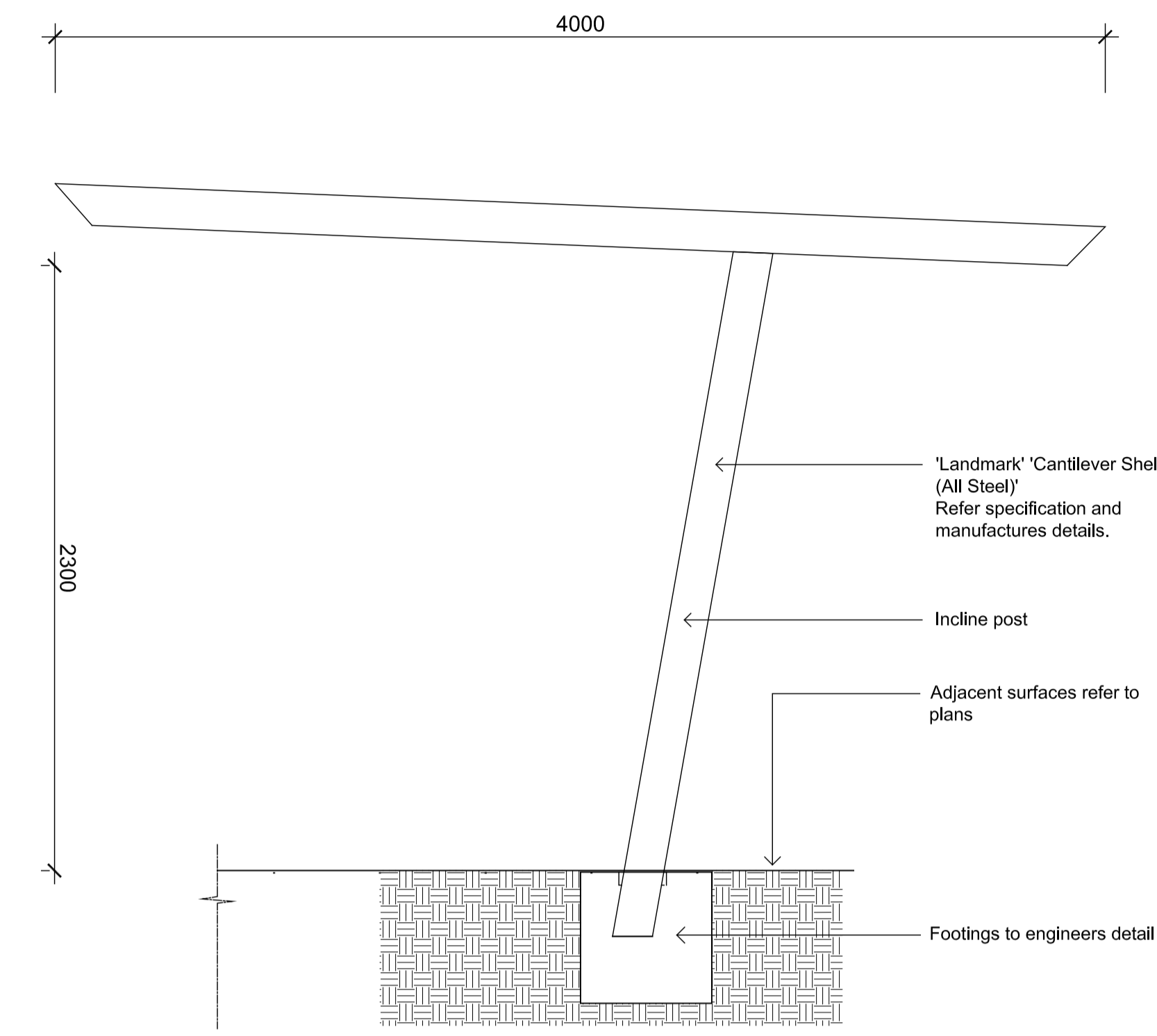
06 BRICK SEATING WALL WITH BENCH  
ELW-502 SCALE 1:10



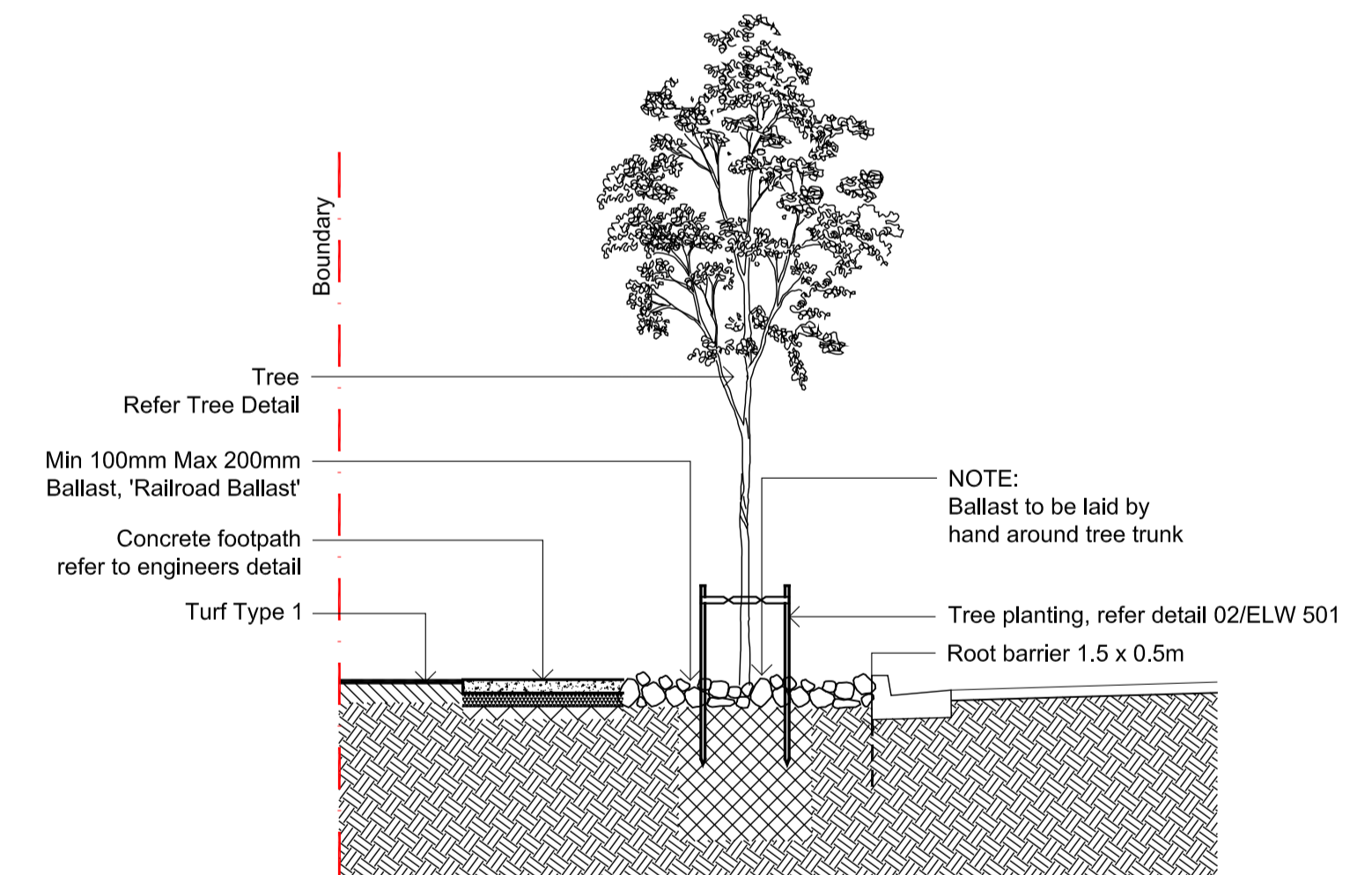
03 TYPICAL BRICK SEATING WALL  
ELW-502 SCALE 1:10



08 Node Landscaping Section  
ELW-502 1:50



04 PERGOLA  
ELW 502 SCALE 1:20



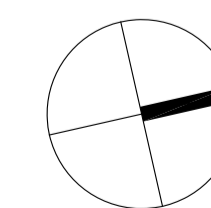
07 Street Tree Planting Detail  
ELW-502 1:50

© 2015 Site Image (NSW) Pty Ltd ABN 44 801 262 380 as agent for Site Image NSW Partnerships. All rights reserved. This drawing is copyright and shall not be reproduced or copied in any form or by any means (graphic, electronic or mechanical including photocopy) without the written permission of Site Image (NSW) Pty Ltd. Any license, expressed or implied, to use this document for any purpose what so ever is restricted to the terms of the written agreement between Site Image (NSW) Pty Ltd and the instructing party.

The contractor shall check and verify all work on site (including work by others) before commencing the landscape installation. Any discrepancies are to be reported to the Project Manager or Landscape Architect prior to commencing work. Do not scale this drawing. Any required dimensions not shown shall be referred to the Landscape Architect for confirmation.

Issue	Revision Description	Drawn	Check	Date
M	Revised for Comments	JW	NM	05.12.2017
L	Architectural Coordination	JW	NM	06.09.2017
K	Issued for Construction	JW	NM	18.10.2016
J	Civil Coordination	JW	NM	11.10.2016
I	Landscape Amendments	JW	NM	22.09.2016
H	Lighting Coordination	JW	NM	02.08.2016
G	Entry Amendments	JW	NM	29.07.2016
F	Planting Amendments	JW	NM	21.07.2016
E	Tree Coordination	JW	NM	20.06.2016
D	Revised for Comments	JW	NM	18.06.2016
C	Tender Clarifications	JW	NM	31.05.2016
B	For Costing	JW	NM	26.05.2016
A	For Costing	JW	NM	25.05.2016

Key Plan:



**SITE IMAGE**  
Landscape Architects  
Level 1, 3-5 Baptist Street  
Redfern NSW 2016  
Australia  
Tel: (61 2) 8332 5600  
Fax: (61 2) 9698 2877  
www.siteimage.com.au

Client:  
**Goodman**  
Project:  
**Estate Open Space Plan**  
**Oakdale South**  
**Horsley Park**

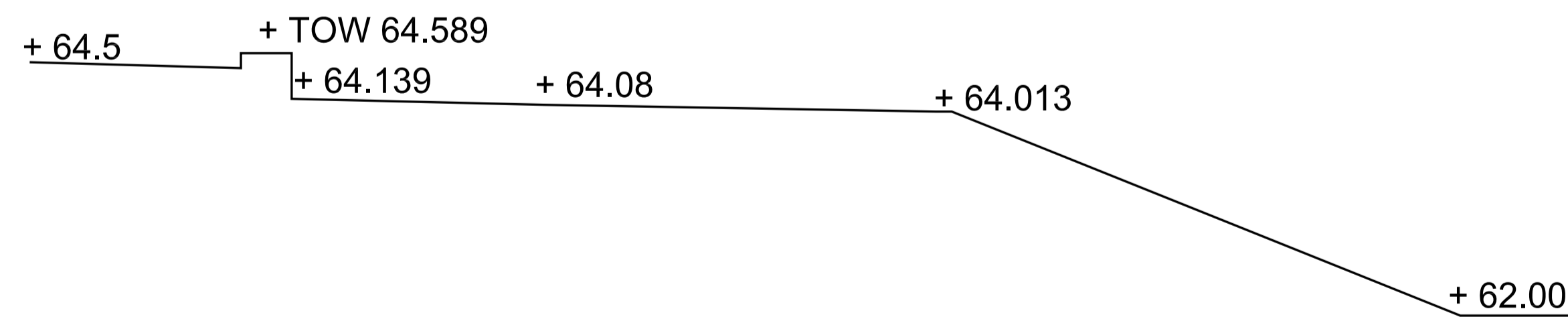
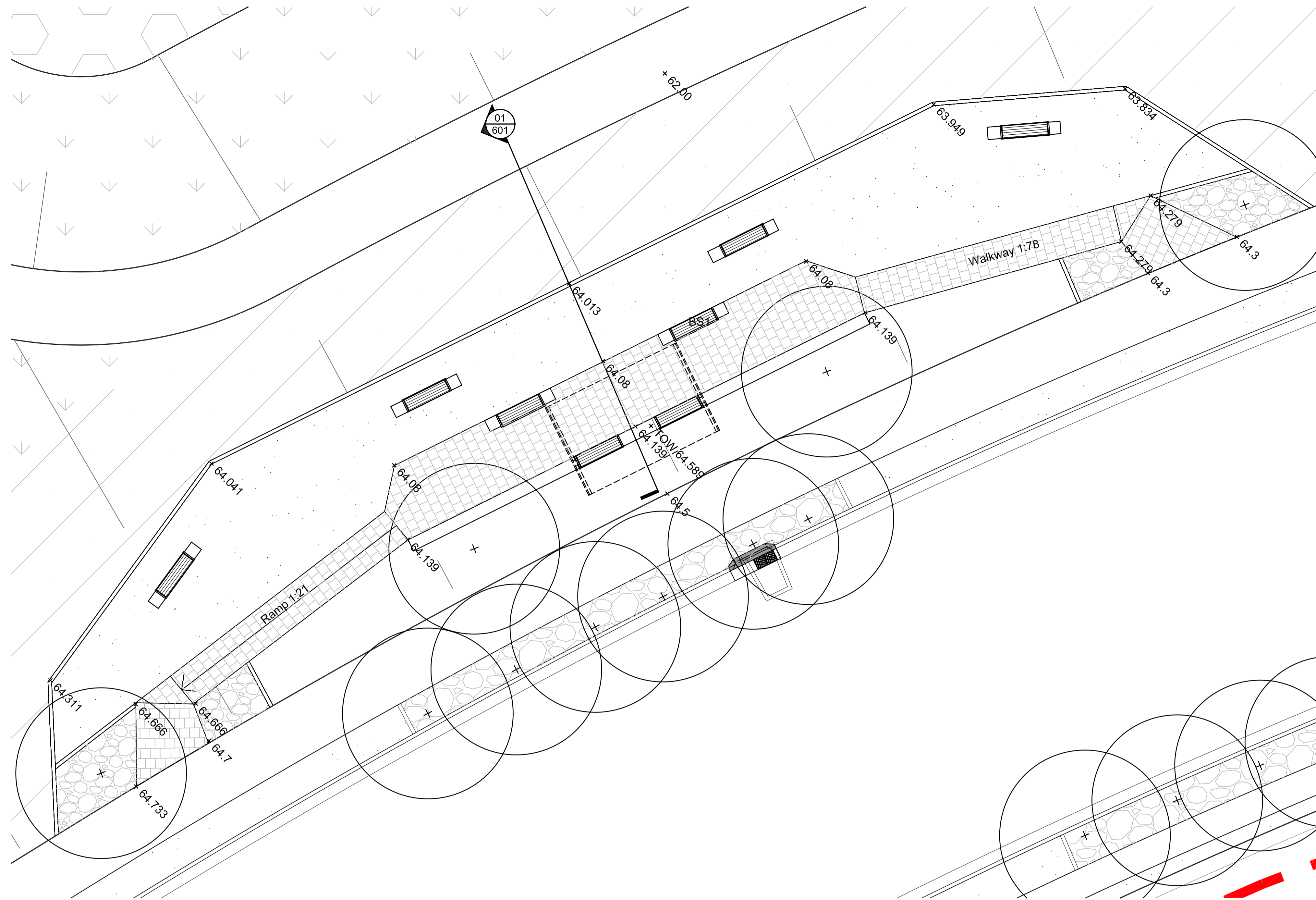
Drawing Name:  
**Landscape Plan**

**FOR CONSTRUCTION**

Scale:  
Job Number:  
Drawing Number:  
Issue:

SS15-3057

ELW-502 M



01 Node Landscaping Section  
ELW-601 1:50

© 2015 Site Image (NSW) Pty Ltd. All rights reserved. This drawing is copyright and shall not be reproduced or copied in any form or by any means (graphic, electronic or mechanical including photocopy) without the written permission of Site Image (NSW) Pty Ltd. Any license, expressed or implied, to use this document for any purpose whatsoever is restricted to the terms of the written agreement between Site Image (NSW) Pty Ltd and the instructing party.

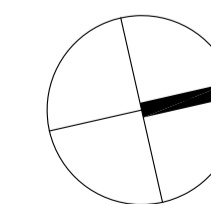
The contractor shall check and verify all work on site (including work by others) before commencing the landscape installation. Any discrepancies are to be reported to the Project Manager or Landscape Architect prior to commencing work. Do not scale this drawing. Any required dimensions not shown shall be referred to the Landscape Architect for confirmation.

Issue	Revision Description	JW	NM	Date
D	Revised for Comments	JW	NM	05.12.2017
C	Landscape Amendments	JW	NM	09.10.2017
B	Revised For Comments	JW	NM	22.09.2017
A	For Comment	JW	NM	11.11.2016

**LEGEND**

	Scope of Works		Turf Type 1 Buffalo, Refer Spec.		Balustrade Type 1: (Refer Landscape Spec.)
	Proposed Trees		Turf Type 2 Couch, Refer Spec.		Paving Type 1: (Refer Landscape Spec.)
	Concrete Edge		Deco Granite Paving		Bench Seating
	Ballast		Subsoil Drainage Line		W1: Brick Wall

Key Plan:



**SITE IMAGE**



Landscape Architects  
Level 1, 3-5 Baptist Street  
Redfern NSW 2016  
Australia

Tel: (61 2) 8332 5600  
Fax: (61 2) 9698 2877  
www.siteimage.com.au

Client:  
**Goodman**

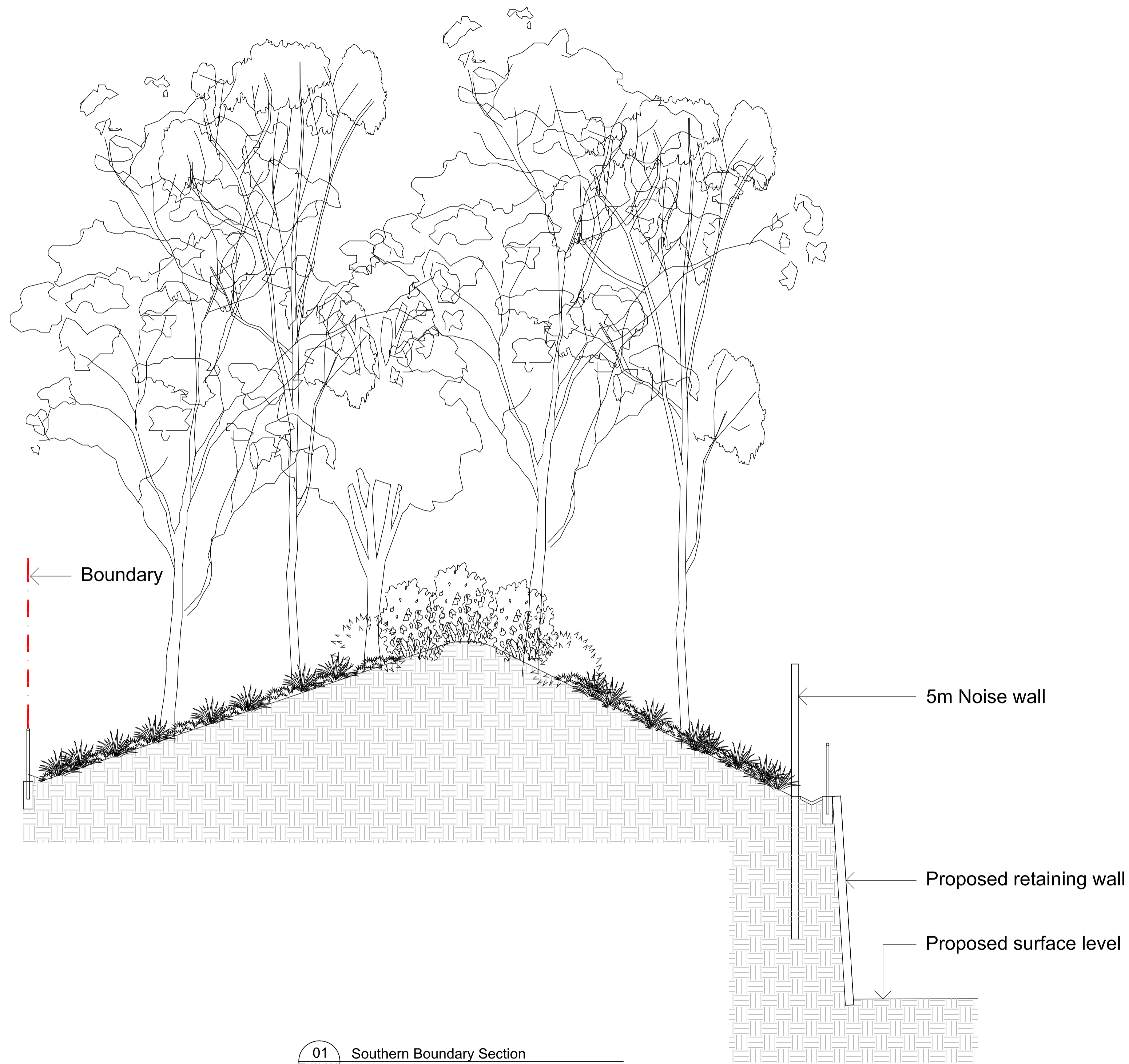
Project:  
**Estate Open Space Plan**  
**Oakdale South**  
**Horsley Park**

Drawing Name:  
**Landscape Node 2**

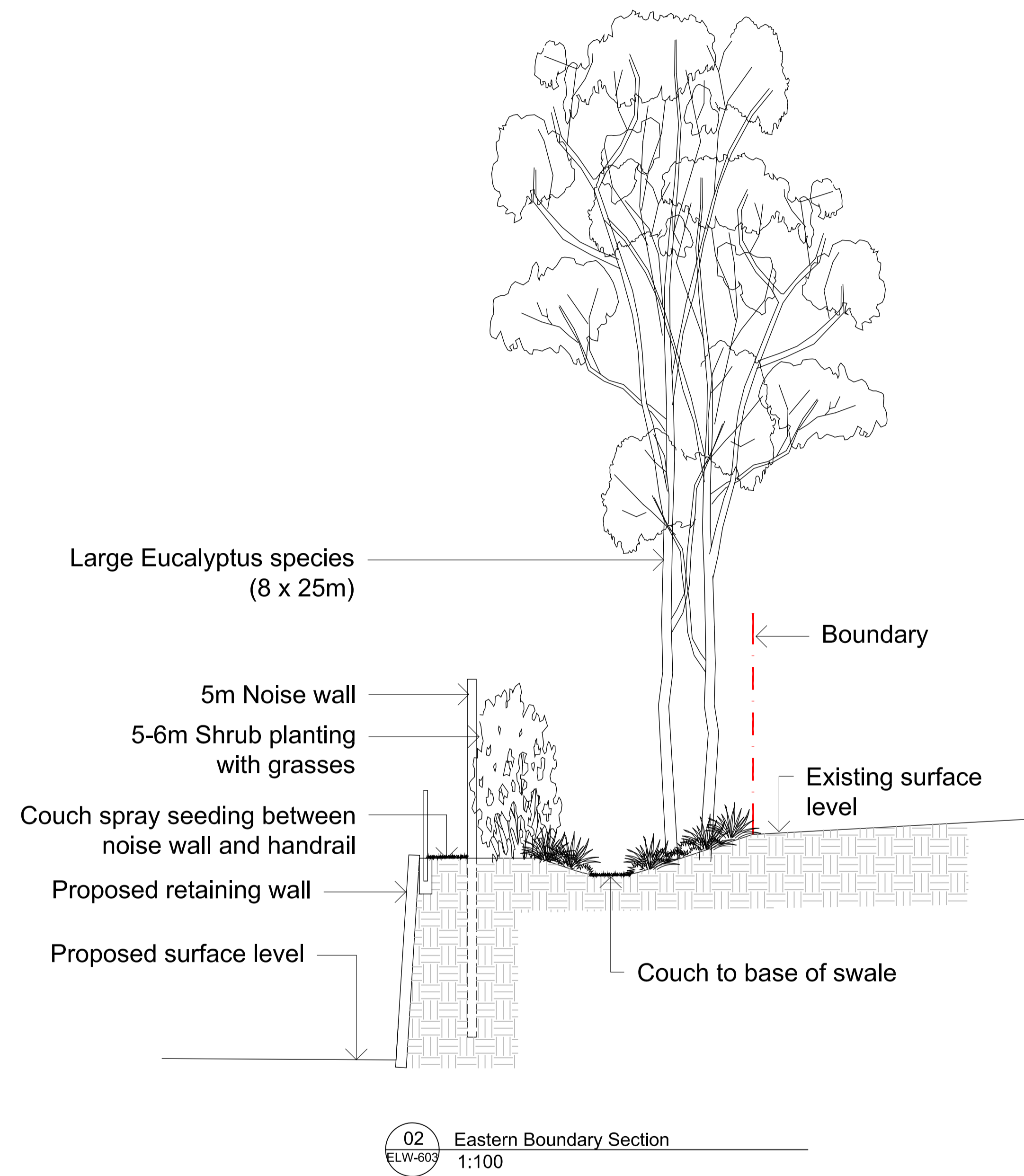
**FOR CONSTRUCTION**

Scale:  
Job Number: **SS15-3057**  
Drawing Number: **ELW-601**  
Issue: **D**





01 Southern Boundary Section  
ELW-603 1:100



02 Eastern Boundary Section  
ELW-603 1:100

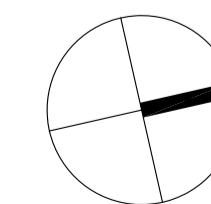
© 2015 Site Image (NSW) Pty Ltd. All rights reserved. This drawing is copyright and shall not be reproduced or copied in any form or by any means (graphic, electronic or mechanical including photocopy) without the written permission of Site Image (NSW) Pty Ltd. Any license, expressed or implied, to use this document for any purpose what so ever is restricted to the terms of the written agreement between Site Image (NSW) Pty Ltd and the instructing party.

LEGEND

The contractor shall check and verify all work on site (including work by others) before commencing the landscape installation. Any discrepancies are to be reported to the Project Manager or Landscape Architect prior to commencing work. Do not scale this drawing. Any required dimensions not shown shall be referred to the Landscape Architect for confirmation.

Issue	Revision Description	Drawn	Check	Date
C	Minor Amendments	JW	NM	15.12.2017
B	Landscape Amendments	JW	NM	09.10.2017
A	Revised For Comments	JW	NM	22.09.2017

Key Plan:



SITE IMAGE



Landscape Architects  
Level 1, 3-5 Baptist Street  
Redfern NSW 2016  
Australia  
Tel: (61 2) 8332 5600  
Fax: (61 2) 9698 2877  
www.siteimage.com.au

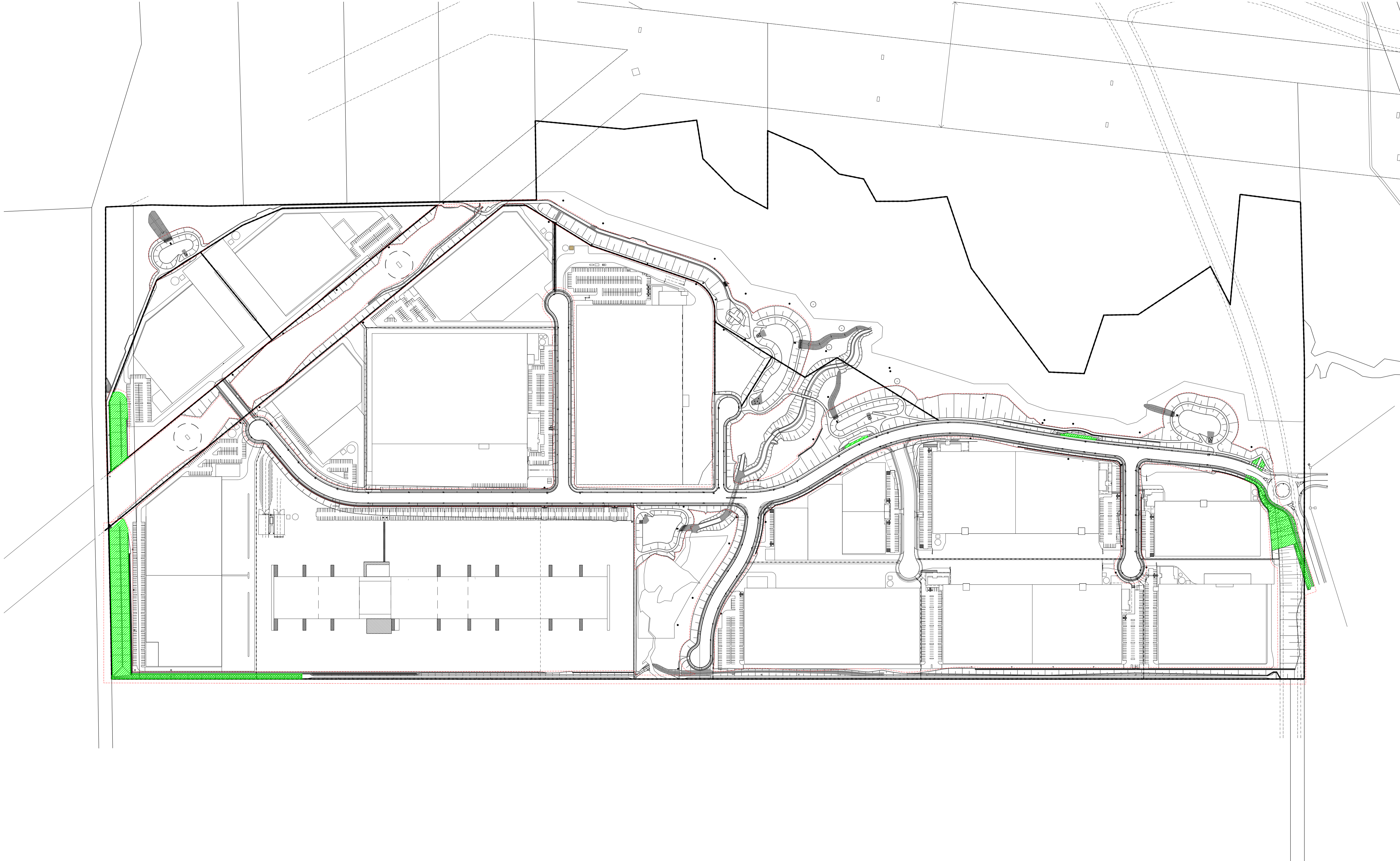
Client:  
Goodman

Project:  
Estate Open Space Plan  
Oakdale South  
Horsley Park

Drawing Name:  
Landscape Boundary Section

Scale:  
Job Number: SS15-3057  
Drawing Number: ELW-603  
Issue: C

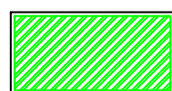
FOR CONSTRUCTION



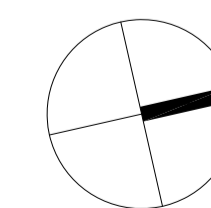
© 2015 Site Image (NSW) Pty Ltd ABN 44 801 262 380 as agent for Site Image NSW Partnership. All rights reserved. This drawing is copyright and shall not be reproduced or copied in any form or by any means (graphic, electronic or mechanical including photocopy) without the written permission of Site Image (NSW) Pty Ltd. Any license, expressed or implied, to use this document for any purpose what so ever is restricted to the terms of the written agreement between Site Image (NSW) Pty Ltd and the instructing party.

The contractor shall check and verify all work on site (including work by others) before commencing the landscape installation. Any discrepancies are to be reported to the Project Manager or Landscape Architect prior to commencing work. Do not scale this drawing. Any required dimensions not shown shall be referred to the Landscape Architect for confirmation.

Issue	Revision Description	Drawn	Check	Date
D	Minor Amendments	JW	NM	15.12.2017
C	Revised for Comments	JW	NM	05.12.2017
B	Landscape Amendments	JW	NM	09.10.2017
A	Architectural Coordination	JW	NM	06.09.2017

**LEGEND**  
 Area to be Irrigated

Key Plan:



**SITE IMAGE**  
 Landscape Architects  
 Level 1, 3-5 Baptist Street  
 Redfern NSW 2016  
 Australia  
 Tel: (61 2) 8332 5600  
 Fax: (61 2) 9698 2877  
 www.siteimage.com.au

Client:  
**Goodman**

Project:  
**Estate Open Space Plan  
 Oakdale South  
 Horsley Park**

Drawing Name:  
**Irrigation Plan**

**FOR CONSTRUCTION**  
 Scale:  
 Job Number: **SS15-3057**  
 Drawing Number: **ELW-701** Issue: **D**



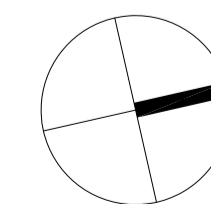
© 2015 Site Image (NSW) Pty Ltd ABN 44 801 262 380 as agent for Site Image NSW Partnership. All rights reserved. This drawing is copyright and shall not be reproduced or copied in any form or by any means (graphic, electronic or mechanical including photocopy) without the written permission of Site Image (NSW) Pty Ltd. Any license, expressed or implied, to use this document for any purpose whatsoever is restricted to the terms of the written agreement between Site Image (NSW) Pty Ltd and the instructing party.

The contractor shall check and verify all work on site (including work by others) before commencing the landscape installation. Any discrepancies are to be reported to the Project Manager or Landscape Architect prior to commencing work. Do not scale this drawing. Any required dimensions not shown shall be referred to the Landscape Architect for confirmation.

Issue	Revision Description	Drawn	Check	Date
D	Minor Amendments	JW	NM	15.12.2017
C	Revised for Comments	JW	NM	05.12.2017
B	LMP Revisions	JW	NM	10.11.2017
A	LMP Revisions	JW	NM	06.11.2017

**LEGEND**  
 LMP Applicable Areas

Key Plan:



**SITE IMAGE**



Landscape Architects  
 Level 1, 3-5 Baptist Street  
 Redfern NSW 2016  
 Australia  
 Tel: (61 2) 8332 5600  
 Fax: (61 2) 9698 2877  
 www.siteimage.com.au

Client:  
**Goodman**

Project:  
**Estate Open Space Plan**  
**Oakdale South**  
**Horsley Park**

Drawing Name:  
**LMP Plan**

Scale:  
 Job Number:  
**SS15-3057**

Drawing Number:  
 Issue:  
**ELW-801 D**



# Appendix I

---

## Example Inspection and Maintenance Checklist

## Bio-retention Inspection / Maintenance Report

Site Visit Date::	Basin Ref:
Site Visit By:	Location:
Weather Conditions	Description:

Purpose of Site Visit	Tick Box	Tick Box
Routine Inspection	<input type="checkbox"/>	Extreme Event Inspection
Routine Maintenance	<input type="checkbox"/>	Extreme Event Maintenance

### Inspection - Basin

General details Bio-retention Basin condition


Sketch

--

Is filter surface flat, do flows appear to be evenly distributed?	YES / NO
Details on the areas that may require regrading, areas where ponding is evident and signs of short circuiting that may be preventing full utilization of the total Bio-retention Basin surface area.	
Evidence of poor filtration (i.e. accumulated sediment, compaction of media, other factors causing blockage or preventing Bio-retention Basin drainage?)	YES / NO
Details and note if an infiltration test is required.	
Any litter or oils in the Bio-retention Basin?	YES / NO
Details on type and abundance, possible sources, any catchment investigations etc	
Evidence of scour or erosion within the Bioretention Basin?	YES / NO
Details on any erosion or scour, Note any remediation measures including provision of flow control, surface reinforcement and/or additional planting.	






**Maintenance - General**

General details of the works undertaken as part of this maintenance

**Maintenance - Basin**

Works undertaken to improve flow distribution over the Bioretention Basin?	YES / NO
Details.	
Works undertaken to improve or determine infiltration? (i.e. infiltration test, tilling of Basin surface, resetting of filter media)?	YES / NO
Details.	
Litter/Debris removed?	YES / NO
Details on distribution, volume and composition	
Works undertaken to address erosion or scour?	YES / NO

Details on location, severity and method of remediation.	

**Maintenance - Vegetation**

Replanting undertaken?	YES / NO
------------------------	----------

If yes provide details on number and species used as well as planting location.	

Weed removal?	YES / NO
---------------	----------

Provide detail on species and extent?	

**Maintenance - Structures**

Pits or pipes cleaned or repaired?	YES / NO
------------------------------------	----------

Details.	

Gross pollutants or sediment collected?	YES / NO
---	----------

Details on distribution, abundance and composition	





# APPENDIX J

**OAKDALE SOUTH ESTATE**

**Biodiversity Offset Strategy**

For:

**Goodman Property Services (Aust) Pty Ltd**

August 2016

**Final**



**PO Box 2474  
Carlingford Court 2118**

**Report No. 14039RP7**

---

---

The preparation of this report has been in accordance with the brief provided by the Client and has relied upon the data and results collected at or under the times and conditions specified in the report. All findings, conclusions or recommendations contained within the report are based only on the aforementioned circumstances. The report has been prepared for use by the Client and no responsibility for its use by other parties is accepted by Cumberland Ecology.

---

---

Version	Date Issued	Amended by	Details
1	15/06/2016	MFh/GK	Draft
2	18/07/2016	GK	Final Draft
3	18/08/2016	GK	Final

---

---

---

---

---

---

---

---

Approved by: David Robertson

Position: Director

Signed:

A handwritten signature in cursive script that reads "David Robertson".

Date:

18 August, 2016

---

---

# Table of Contents

---

## EXECUTIVE SUMMARY

### 1 INTRODUCTION

1.1	Purpose	1.1
1.2	Objectives of the Biodiversity Offset Strategy	1.2
1.3	Overview of the Project	1.2

### 2 SUMMARY OF IMPACTS OF THE PROJECT

2.1	Impacts of the Project	2.1
2.1.1	Impacts to Plant Communities	2.1
2.1.2	Impacts to Threatened Species	2.2
2.1.3	Impacts that Require Further Consideration	2.3
2.2	Impacts of the Project that Require Offsetting	2.3
2.2.1	Native Vegetation	2.3

### 3 POLICY FRAMEWORK OF THE OFFSET STRATEGY

3.1	Principles of Biodiversity Offsets for Major Projects	3.1
-----	---	-----

### 4 OFFSET SITE IDENTIFICATION

4.1	Proposed Offset Measures	4.1
4.2	Onsite Offset Site Details	4.1
4.2.1	Location	4.1
4.2.2	General Description of Offset Site	4.1
4.2.3	Management Actions Proposed for the Offset Site to Improve Biodiversity Values	4.4
4.3	Improvement in Biodiversity Values at the Onsite Offset Site	4.6
4.3.1	Ecosystem Credits Created at the Offset site	4.7
4.3.2	Justification for any Variation to the Offset Rules	4.9
4.3.3	Averted Loss at the Onsite Offset Site	4.10
4.4	Securing the Onsite Offset Site	4.10
4.5	Credit Balance	4.10

---

## Table of Contents *(Cont'd)*

---

---

### 5 CONCLUSION

### REFERENCES

---

---

## List of Appendices

---

---

### A. BIOBANKING CREDIT CALCULATOR REPORT

---

---

#### List of Tables

---

2.1	Summary of Impacts to PCTs of the Project	2.1
2.2	Credit requirement of the Project	2.4
4.1	PCTs at the Proposed Offset Site	4.3
4.2	Summary of Additional Management Actions at the Onsite Offset Site	4.5
4.3	Summary of PCTs and Ecosystem Credits generated at the BioBank site	4.7
4.4	Credit Balance for Ecosystem Credits	4.11

#### List of Figures

---

4.1	Location of the Onsite Offset Site.	4.12
4.2	PCTs at the Onsite Offset Site	4.13
4.3	Management Zones at the Onsite Offset Site	4.14

## Glossary of Terms

---

BAR	Biodiversity Assessment Report
BBAM	BioBanking Assessment Methodology
BBCC	BioBanking Credit Calculator v4.0
BOS	Biodiversity Offset Strategy
CEEC	Critically Endangered Ecological Community
DP&E	NSW Department of Planning and Environment
EEC	Endangered Ecological Community
EIS	Environmental Impact Statement
EP&A Act	NSW <i>Environmental Planning and Assessment Act 1979</i>
FBA	NSW Framework For Biodiversity Assessment
IBRA	Interim Biogeographic Regionalisation for Australia
IBRA region	A bioregion identified under the Interim Biogeographic Regionalisation for Australia (IBRA) system, which divides Australia into bioregions on the basis of their dominant landscape-scale attributes.
IBRA sub-region	a subregion of a bioregion identified under the IBRA system and based on major catchment areas
LGA	Local Government Area
NSW	New South Wales
OEH	NSW Office of Environment and Heritage of the Department of Premier and Cabinet
PCT	Plant Community Type
the Project	The staged development of a warehouse and distribution complex within the Oakdale South precinct of the broader Oakdale Estate which is located within the Western Sydney Employment Area
SEARs	Secretary's Environmental Assessment Requirements
SSD	State Significant Development
TEC	Threatened Ecological Community
TSC Act	NSW <i>Threatened Species Conservation Act 1995</i>
WSEA SEPP	NSW <i>State Environmental Planning Policy (Western Sydney Employment Area) 2009</i>

# Executive Summary

---

## S1 Introduction

Cumberland Ecology was commissioned by Goodman Property Services (Aust) Pty Ltd (Goodman) to prepare a Biodiversity Offset Strategy (BOS) for Stage 1 of the Oakdale South Estate (the 'Project'). The Project involves the staged development of a warehouse and distribution complex. The Environmental Impact Statement (EIS) for the Project was submitted in November 2015. However subsequent amendments to the Masterplan for the Project require the submission of a Section 96 (S.96) application to amend the Project.

This BOS, in conjunction with the Biodiversity Assessment Report (Cumberland Ecology 2016) will form part of the S.96 amendment being prepared for Goodman to support an application for State Significant Development Consent under Division 4.1 of Part 4 of the New South Wales (NSW) *Environmental Planning and Assessment Act 1979* (EP&A Act).

The purpose of this BOS is to establish a commitment to offsetting the impacts of the Project on threatened species, populations and communities. The BOS has been prepared to address the NSW Department of Planning and Environment (DP&E) issued Secretary's Environmental Assessment Requirements (SEARs) for the Project which state that the impacts of the Project must be assessed in accordance with the *NSW Office of Environment and Heritage Framework for Biodiversity Assessment under the NSW Biodiversity Offsets Policy for Major Projects*.

## S2 Summary of Impacts of the Project

The development site is largely located within grassland used for cattle grazing so as to minimise environmental impacts to vegetation. 96.3% of the vegetation within the development area comprises low diversity/exotic grassland with the remaining 3.7% including Critically Endangered and Endangered Ecological Communities (C/EECs). These C/EECs consist of remnant patches of fragmented, degraded and isolated vegetation, as such; it is unlikely that such small areas of C/EECs are viable in the future if left in their current state.

The proposal will unavoidably remove 3.55 ha of native vegetation and 91.81 ha of cleared land. Native vegetation formed three PCTs that are threatened ecological communities listed under the *Threatened Species Conservation Act 1995* (TSC Act):

- HN526 Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin (TSC Act: EEC);
- HN528 Grey Box - Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin (TSC Act CEEC); and

- HN594 Swamp Oak swamp forest fringing estuaries, Sydney Basin Bioregion and South East Corner Bioregion (TSC Act EEC).

Impacts to threatened species were confined to ecosystem credit species, as no species credit species have been identified at the development site. The BioBanking credit calculator (OEH 2014d) generates a list of predicted ecosystem credit species utilising a number of site variables which includes IBRA subregion, associated PCTs, percent native vegetation in outer assessment circle, condition of vegetation, patch size and credit type. Based on these variables at the development site, the following threatened ecosystem species were predicted:

- Little Lorikeet (*Glossopsitta pusilla*);
- Swift Parrot (*Lathamus discolor*);
- Australian Painted Snipe (*Rostratula australis*); and
- Freckled Duck (*Stictonetta naevosa*).

### **S3 Policy Framework of the Offset Strategy**

The *NSW Biodiversity Offsets Policy for Major Projects* was adopted in September 2014 and applies to State Significant Developments and State Significant Infrastructure designated under the EP&A Act. The policy provides a standard method for assessing impacts of major projects on biodiversity and determining offsetting requirements (OEH 2014c). The policy is underpinned by six principles, which must be considered when assessing offsets for major projects.

The Framework for Biodiversity Assessment (FBA) has been developed in conjunction with the policy to provide a method for determining the quantum of impacts. The FBA provides rules and software for calculating the number and type of credits that a development site will require in order to offset its impacts and thus improve or maintain biodiversity values. "Credits" are the currency used within FBA and they are not specifically area measurements. Rather, they are a measure of the current quality of habitat. Where a proponent is proposing to establish an offset site as part of the BOS, the BioBanking Assessment Methodology (BBAM) must be used to assess the biodiversity values of the offset site and to identify the number and type of credits that may be created on the offset site (OEH 2014b).

### **S4 Offset Site Identification**

This BOS proposes two measures in accordance with the *NSW Biodiversity Offsets Policy for Major Projects* which are as follows:

- Establish an offset site adjacent to the development site secured under a BioBanking Agreement (the onsite offset site); and
- Secure additional ecosystem credits for all PCTs not fully satisfied by the onsite offset site.



The Onsite Offset Site is located immediately adjacent to the development site. The Onsite Offset Site is situated so as to make use of land that holds the highest biodiversity values within lands immediately adjacent to the development site. The Onsite Offset Site is located immediately to the west of the development site and is comprised of two isolated areas. The majority of the Onsite Offset Site is located in the north west of the lot, and encompasses a significant portion of riparian vegetation about Ropes Creek. There is a smaller portion of the Onsite Offset Site that is located to the south west of the development site, which also fringes Ropes Creek upstream from the development site.

Both portions of the Offset Site are located within the low lying areas of the Ropes Creek floodplain. Landform at the Onsite Offset Site is relatively uniform, primarily consisting of an ephemeral creek line along Ropes Creek, with adjacent areas of undulating rises and alluvial flats. The topography does not have any large variances like mountains or cliff lines, with high elevations within the development site of less than 50 m above the depressions.

Native vegetation has been surveyed at the offset site in accordance with the FBA, and it has been determined that the native vegetation comprises approximately 40% of the vegetated cover of the Onsite Offset Site in the form of two Plant Community Types (PCTs).

The PCTs that have been identified at the Onsite Offset Site are:

- HN526 (moderate – good) - Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion; and
- HN594 (moderate – good) - Swamp Oak swamp forest fringing estuaries, Sydney Basin Bioregion and South East Corner Bioregion.

The remainder of the Onsite Offset Site is currently cleared for agriculture and is dominated by exotic pasture grasses. Within areas of native vegetation, the ground layer is frequently dominated by exotic species, and the shrub layer is almost absent.

The offset site will be managed for biodiversity outcomes under a BioBanking Agreement, which will provide security of funding and mandatory, auditable management requirements for the offset site in perpetuity. The offset site will primarily be managed under the stipulation of a Biodiversity Offset Management Plan to be submitted within a Biodiversity Assessment Report (BAR) for the Onsite Offset Site. Management actions at the offset site will include standard management actions as prescribed by the BBAM (OEH 2014a). Additional management actions proposed at the offset site to improve biodiversity values include fox control, and management of exotic and overabundant herbivores. Details of the management actions will be specified within the BAR for the offset site.

Some riparian corridor areas within the proposed Offset Site will be subject to management actions under a Vegetation Management Plan (VMP) which has been proposed to demonstrate compliance with the requirements of Office of Water Guidelines, even though those guidelines do not strictly apply to the Oakdale South Development given that it is State Significant Development which does not require a controlled activity approval under the *Water Management Act 2000*. As some areas subject to the VMP overlap with areas subject to the Biodiversity Offset Management Plan, a conservative approach has been taken and a

discount has been applied to credits generated in Management Zones subject to actions under the VMP, in accordance with the requirements of Section 12 and Table 10 of the BioBanking Assessment Methodology (BBAM) 2014,

## **S5 Conclusion**

This Biodiversity Offset Strategy has been drafted to propose and establish a commitment to offset the unavoidable impacts to native vegetation resulting from the development of Oakdale South Estate. This BOS has been prepared with the specific aim of satisfying the requirements to offset as specified within *Section 10* and *Section 12* of the FBA (OEH 2014b).

Assessment using the BioBanking Assessment Methodology (OEH 2014a), found that the Onsite Offset Site would fully satisfy the offset requirement for HN526 and HN594, even after the potential application of discounts for overlapping areas subject to the VMP for Office of Water compliance. The onsite offset will be secured in perpetuity by preparing a BAR and BioBanking Agreement Application for the site following approval of the development.

The impacts to PCT HN528 Grey Box - Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin will require further consideration by the NSW Office of Environment and Heritage (OEH). As the Onsite Offset Site is located within the Ropes Creek floodplain, the landform is considered unsuitable for the revegetation of HN528 onsite. Therefore the proponent has proposed to acquire and retire ecosystem credits to fully satisfy the offsetting requirement for HN528 as calculated by the BBCC. These credits will be acquired following approval of the development.

## Introduction

---

Cumberland Ecology was commissioned by Goodman Property Services Ltd (Goodman) to prepare a Biodiversity Offset Strategy (BOS) for Stage 1 of the Oakdale South Project (the 'Project'). The Project involves the staged development of a warehouse and distribution complex. The Environmental Impact Statement (EIS) for the Project was submitted in November 2015. However subsequent amendments to the Masterplan for the Project require the submission of a Section 96 (S.96) application to amend the Project. This BOS, in conjunction with the Biodiversity Assessment Report (Cumberland Ecology 2016) will form part of the S.96 application to the EIS being prepared for Goodman to support an application for State Significant Development Consent under Division 4.1 of Part 4 of the New South Wales (NSW) *Environmental Planning and Assessment Act 1979* (EP&A Act).

### 1.1 Purpose

The purpose of this BOS is to establish a commitment to offsetting the impacts of the Project on threatened species, populations and communities. The BOS has been prepared to address the NSW Department of Planning and Environment (DP&E) issued Secretary's Environmental Assessment Requirements (SEARs) for the Project which state that the impacts of the Project must be assessed in accordance with the NSW Office of Environment and Heritage (OEH) *Framework for Biodiversity Assessment 2014* (FBA) under the *NSW Biodiversity Offsets Policy for Major Projects 2014*. Specifically, the objectives of this document are to:

- Propose an offset strategy to fully compensate for unavoidable impacts of the Project;
- Propose an offset site for the Project;
- Summarise native vegetation extent within the proposed offset site;
- Propose management actions to improve biodiversity values at the proposed offset site;
- Identify ecosystem credits generated at the proposed offset site; and
- Propose offset strategy for ecosystem credits that cannot be generated at the proposed offset site.

## 1.2 Objectives of the Biodiversity Offset Strategy

The objective of the BOS is to provide guidance for the delivery of mitigation for the impacts expected as a result of the Project and to achieve a long-term conservation gain for the threatened species, populations and communities impacted by the Project. The following have been considered in establishing the objectives for the BOS:

- Securing the protection and management areas containing impacted threatened species and vegetation communities in perpetuity;
- Providing an area of offset that is greater than the impacts of the Project;
- Providing habitat and vegetation communities that is of equal to or better condition than that impacted by the Project;

## 1.3 Overview of the Project

The Project is located within the Oakdale South precinct of the broader Oakdale Estate which is located within the Western Sydney Employment Area designated under the NSW *State Environmental Planning Policy (Western Sydney Employment Area) 2009* (WSEA SEPP). The project is located within Penrith Local Government Area (LGA) and the nearest town centres are Erskine Park and Horsley Park which are both approximately 6 km west and east respectively from the Project. The Project is accessed currently via Old Wallgrove Road; which is currently being upgraded as part of a regional development. There are several other developments adjoining the Project within a broader industrial precinct. The development site is 95.36 ha in size and is wholly located within Lot 12 DP1178389 and Lot 87 DP752041.

Cumberland Ecology conducted an initial ecological assessment of the Oakdale Concept Plan in December 2007 (Cumberland Ecology, 2007). Owing to the period of time that had elapsed since the original ecological assessment of the Oakdale Concept Plan (Cumberland Ecology, 2007), it was decided that a new ecological assessment was to be conducted that encapsulated the new design plans.

Cumberland Ecology conducted flora and fauna surveys of the development site during October 2014 and May 2015. The site was formed of both native and exotic vegetation with much of the development site being formed of Low Diversity/Exotic grassland. Native vegetation was formed of three PCTs that are also threatened ecological communities (TECs) listed under the NSW *Threatened Species Conservation Act 1995* (TSC Act):

- Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin;
- Grey Box - Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin; and
- Swamp Oak swamp forest fringing estuaries, Sydney Basin Bioregion and South East Corner Bioregion.

## Summary of Impacts of the Project

---

### 2.1 Impacts of the Project

#### 2.1.1 Impacts to Plant Communities

The development site is largely located within land historically used for cattle grazing so as to minimise environmental impacts to native vegetation. Large areas of native vegetation are left intact to the west of the site. 96.3% of the vegetation within the development area comprises low diversity/exotic grassland. While the remaining 3.7% does include TECs, they consist of remnant patches of fragmented, degraded and isolated vegetation. It is unlikely that such small areas of TECs are viable in the future if left in their current state.

The proposal will unavoidably remove 3.55 ha of native vegetation and 91.81 ha of low diversity/exotic grassland. Native vegetation to be removed includes three vegetation communities; all listed under the TSC Act as either Endangered Ecological Communities (EEC) or Critically Endangered Ecological Communities (CEEC). A summary of the areas directly impacted within the development site is shown in **Table 2.1**.

**Table 2.1 Summary of Impacts to PCTs of the Project**

Vegetation	TSC Act Status*	Area to be Removed (ha)
HN526: Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin	EEC	2.11
HN528: Grey Box - Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin	CEEC	0.29
HN594: Swamp Oak swamp forest fringing estuaries, Sydney Basin Bioregion and South East Corner Bioregion	EEC	1.15
Cleared Land	-	91.81
<b>Total</b>		<b>95.36</b>

\*TSC Act Status: EEC = Endangered Ecological Community; CEEC = Critically Endangered Ecological Community

### **2.1.2 Impacts to Threatened Species**

Although the condition and nature of the habitats within the development site have been greatly altered by existing and historical land uses, it is evident that they still retain some value for the resident and visiting native fauna that were recorded in the development site. The regrowth areas generally lack many habitat features required to support threatened fauna species, but areas of more mature habitat are also present in the development site that do retain valuable habitat features.

The FBA credit calculator generates a list of predicted ecosystem credit species utilising a number of site variables which includes IBRA subregion, associated PCTs, percentage native vegetation in outer assessment circle, condition of vegetation, patch size and credit type. Based on these variables at the development site, the following threatened ecosystem species were predicted:

- Little Lorikeet (*Glossopsitta pusilla*);
- Swift Parrot (*Lathamus discolor*);
- Australian Painted Snipe (*Rostratula australis*); and
- Freckled Duck (*Stictonetta naevosa*).

Targeted surveys for species credit species that were candidate species for the development site were undertaken in 2014. These species included fauna species Regent Honeyeater (*Anthochaera phrygia*) and Golden Bell Frog (*Litoria aurea*) as well as species credit flora species which included:

- *Acacia pubescens*;
- *Cynanchum elegans*;
- *Dillwynia tenuifolia*;
- *Dillwynia tenuifolia* - endangered population Kemps Creek;
- *Eucalyptus benthamii*;
- *Grevillea juniperina subsp. juniperina*;
- *Hypsela sessiliflora*;
- *Marsdenia viridiflora subsp. viridiflora* - endangered population;
- *Persicaria elatior*;
- *Persoonia bargoensis*;
- *Pilularia novae-hollandiae*;

- *Pimelea spicata*;
- *Pomaderris brunnea*; and
- *Wahlenbergia multicaulis* - endangered population.

No threatened flora species were identified within the development site. No species credit fauna species or populations have been assessed as impacted by the Project, therefore under the rules of the FBA, none will require offsetting.

### **2.1.3 Impacts that Require Further Consideration**

Impacts of the Project that fall into the threshold of impacts that require further consideration comprise the removal of 0.29 ha of HN528 which conforms to the TSC Act listed CEEC of Cumberland Plain Woodland in the Sydney Basin Bioregion.

The impacts to HN528 will be assessed by the consent authority through consideration of the information provided in *Section 7.2.2* of the Oakdale South BAR (Cumberland Ecology 2016) However, the required ecosystem credits to offset this PCT have been calculated and are also presented in **Table 2.2**.

## **2.2 Impacts of the Project that Require Offsetting**

### **2.2.1 Native Vegetation**

Impacts of the Project that fall into the threshold of impacts that require offsetting comprise:

- The removal of 2.11 ha of HU526 which conforms to the River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions EEC; and
- The removal of 1.15 ha of HU594 which conforms to Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions EEC.

The offset requirements for HN526 and HN594 were calculated using the BioBanking Credit Calculator (BCCC) Version 4.0 (OEH 2014e). A summary of the vegetation zone impacted, threatened species associated with that vegetation zone, loss landscape value, loss in site value, and the number of ecosystem credits required for the impacts is detailed in the BAR (Cumberland Ecology 2016). A summary of the required ecosystem credits for each vegetation zone of the development site is shown in **Table 2.2**.

**Table 2.2 Credit requirement of the Project**

Zone	PCT	Associated TECs and/or Ecosystem Credit Species	Loss in Landscape Value	Loss in Site Value Score	Required Ecosystem Credits
1	HN526: Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin	River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions Little Lorikeet Swift Parrot	12	61.63	104
2	HN528: Grey Box - Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin	Cumberland Plain Woodland in the Sydney Basin Bioregion Little Lorikeet Swift Parrot	12	50.72	12
3	HN594: Swamp Oak swamp forest fringing estuaries, Sydney Basin Bioregion and South East Corner Bioregion	Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions Little Lorikeet Swift Parrot Australian Painted Snipe Freckled Duck	12	44.93	42



## Policy Framework of the Offset Strategy

---

The *NSW Biodiversity Offsets Policy for Major Projects* was adopted in September 2014 and applies to State Significant Developments (SSD) and State Significant Infrastructure (SSI) designated under the EP&A Act. The Framework for Biodiversity Assessment (FBA) has been developed in conjunction with the policy to provide a method for determining the quantum of impacts. The FBA provides rules and software for calculating the number and type of credits that a development site will require in order to offset its impacts and thus improve or maintain biodiversity values. “Credits” are the currency used within FBA and they are not specifically area measurements. Rather, they are a measure of the current quality of habitat. Where a proponent is proposing to establish an offset site as part of the BOS, the BioBanking Assessment Methodology (BBAM) must be used to assess the biodiversity values of the offset site and to identify the number and type of credits that may be created on the offset site (OEH 2014b).

The FBA requires the preparation of the following documents:

- Biodiversity Assessment Report: to describe the biodiversity values present within the development site and the impact of the project on these values; and
- Biodiversity Offset Strategy: to outline how the proponent intends to offset the impacts of the project.

These reports are required to be submitted as part of the EIS.

### 3.1 Principles of Biodiversity Offsets for Major Projects

The *NSW Biodiversity Offsets Policy for Major Projects* provides a standard method for assessing impacts of major projects on biodiversity and determining offsetting requirements (OEH 2014c). The policy is underpinned by six principles, which must be considered when assessing offsets for major projects. Details of the six principles and how the current application applies are discussed below.

- i. *Principle 1: Before Offsets Are Considered, Impacts Must First Be Avoided And Unavoidable Impacts Minimised Through Mitigation Measures. Only Then Should Offsets Be Considered For the Remaining Impacts*

Impacts of the project have been primarily avoided by locating the development site in areas that have a history of disturbance. 96.7% of the development site is located in exotic

grassland which will have negligible impacts to biodiversity. Unavoidable impacts of the Project will be minimised through on ground mechanisms at the construction phase, such as methods of clearing vegetation and having suitably qualified ecologist's onsite for clearing of fauna habitat. The BAR for the development site (Cumberland Ecology 2016) details the avoidance and mitigation measures proposed for the Project.

*ii. Principle 2: Offset Requirements Should Be Based On a Reliable and Transparent Assessment of Losses and Gains*

The impacts of the Project have been assessed following a transparent assessment methodology, the FBA. The methods used to assess the impacts of the development site and gains at the offset site are clear and repeatable.

*iii. Principle 3: Offsets Must Be Targeted To the Biodiversity Values Being Lost or To Higher Conservation Priorities*

The offsets proposed have a direct relationship to the loss of biodiversity at the development site. All offsets proposed as part of this BOS are like-for-like offsets without any (permissible) deviations from the rules of offsetting outlined in the FBA. All impacts to PCTs at the development site will be offset using identical PCTs at the offset site.

*iv. Principle 4: Offsets Must Be Additional To Other Legal Requirements*

The proponent proposes to offset the impacts of the Project through establishment of a biobank site. Although part of the proposed BioBank site includes land zoned as E2 – Environmental Conservation, the E2 land within the proposed BioBank site has no current management obligations. As the current tenure of the offset site has no existing legal requirements in relation to improvement of biodiversity, the compulsory management actions for the offset (biobank) site will be the primary legal obligation for the offset site.

Some riparian corridor areas within the proposed Offset Site will be subject to management actions under a Vegetation Management Plan (VMP) which has been proposed to demonstrate compliance with the requirements of Office of Water Guidelines, even though those guidelines do not strictly apply to the Oakdale South Development given that it is State Significant Development which does not require a controlled activity approval under the *Water Management Act 2000*. As some areas subject to the VMP overlap with areas subject to the Biodiversity Offset Management Plan, a conservative approach has been taken and a discount has been calculated for credits generated in Management Zones subject to actions under the VMP, in accordance with the requirements of Section 12 and Table 10 of the BioBanking Assessment Methodology (BBAM) 2014.

Management actions proposed at the offset site will improve biodiversity and result in a net gain for the site.

v. *Principle 5: Offsets Must Be Enduring, Enforceable and Auditable*

By entering into a BioBanking Agreement at the offset site, the offset will be secured in perpetuity under a legally binding agreement. The offset site will not be allowed to be developed or impacted in any way, other than to achieve the management objectives as specified in the BioBanking Agreement. The offset site will be audited annually by OEH and will undergo third party assessment every 6 years as recommended by OEH auditors. The offset site will be funded by annual payments from the BioBanking Trust Fund as stipulated in the Part A payment schedule submitted with the BioBanking Agreement Application. The total sum of the Part A payment will be paid by the proponent in full at the commencement date of the biobank site.

Where ecosystem credits cannot be generated at the Onsite Offset Site, the proponent will procure additional ecosystem credits from other biobank sites to ensure all offsets for the Project satisfy Principle 5 of the *NSW Biodiversity Offsets Policy for Major Projects*.

vi. *Principle 6: Supplementary Measures Can Be Used In Lieu Of Offsets*

If appropriate offsets cannot be found, proponents may provide funds for supplementary measures known to improve biodiversity values, such as:

- Actions outlined in threatened species recovery programs; or
- Actions that contribute to threat abatement programs; or
- Biodiversity research and survey programs; or
- Rehabilitating degraded aquatic habitat.

The total value to be contributed to supplementary measures would be commensurate to the costs of acquiring and retiring ecosystem credits, or establishment of a biobank site.

The Onsite Offset Site is expected to satisfy the majority of offsetting requirements of the project as detailed in **Section 4.5**. Any additional offsetting that is not secured at the proposed Offset Site is expected to be available within the BioBanking Credit market. As such it is not proposed to use additional or supplementary measures as part of this BOS.

## Offset Site Identification

---

### 4.1 Proposed Offset Measures

This BOS proposes two measures in accordance with the *NSW Biodiversity Offsets Policy for Major Projects* which are as follows:

- Establish an offset site adjacent to the development site secured under a BioBanking Agreement (the Onsite Offset Site); and
- Secure additional ecosystem credits for all PCTs not fully satisfied by the Onsite Offset Site.

### 4.2 Onsite Offset Site Details

#### 4.2.1 Location

The Onsite Offset Site is located immediately adjacent to the development site as shown in **Figure 4.1**. The Onsite Offset Site and Development Site are both located within Penrith Local Government Area (LGA) and the nearest town centres are Erskine Park and Horsley Park which are both approximately 6 km west and east respectively. The Onsite Offset Site will be accessed through the Development Site. The Onsite Offset Site is divided into two areas with the majority located to the north west of the development site. There is a small lobe of the Onsite Offset Site that is located to the south west of the Development Site, along the riparian buffer of Ropes Creek. The offset site is 21.12 ha in size and is wholly located within Lot 12 DP1178389 and Lot 87 DP752041.

#### 4.2.2 General Description of Offset Site

##### *i. Landform, Geology and Soils*

Both portions of the Offset Site are located within the low lying areas of the Ropes Creek floodplain. Landform at the Onsite Offset Site is relatively uniform, primarily consisting of ephemeral creek lines along Ropes Creek and Ropes Creek Tributary, with adjacent areas of undulating rises and alluvial flats. The topography does not have any large variances like mountains or cliff lines, with high elevations within the development site of less than 50 m above the depressions.

ii. *Native Vegetation*

Native vegetation comprises approximately 40% of the vegetated cover of the Onsite Offset Site. Native vegetation within the Onsite Offset Site is primarily limited to the riparian corridor which fringes Ropes Creek and Ropes Creek Tributary and typically comprises regenerating stands of *Eucalyptus tereticornis* (Forest Red Gum) and *Casuarina glauca* (Swamp Oak). The condition of vegetation within the offset site is degraded due to persistent impacts from grazing. Within areas of native vegetation, the ground layer is frequently dominated by exotic species, and the shrub layer is almost absent.

Field surveys have been undertaken at the Onsite Offset Site in areas of native vegetation in accordance with the methodology prescribed in the FBA (OEH 2014b). A total of five full floristic plots and transects were undertaken across the Onsite Offset Site, to determine the PCTs present. PCTs were identified by assessing site data with the following criteria:

- IBRA subregion;
- Landscape position;
- Vegetation formation;
- Dominant canopy species (where present); and
- Dominant shrub and ground cover species.

Two Plant Community Types (PCTs) have been identified at the proposed offset site (**Figure 4.2**) and are shown below:

- HN526 (moderate – good) - Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion; and
- HN594 (moderate – good) - Swamp Oak swamp forest fringing estuaries, Sydney Basin Bioregion and South East Corner Bioregion.

The remaining area of the Onsite Offset Site is cleared and improved for agriculture and is dominated by exotic pasture grasses in the form of Low Diversity/Exotic Grassland. As the Onsite Offset Site is located within the Ropes Creek floodplain, the landform is considered unsuitable for the revegetation of HN528 onsite. For the purposes of this BOS, the proponent proposes to rehabilitate the remaining areas of Low Diversity/Exotic Grassland within the Onsite Offset Site back to functional woodland with species typified by the PCT HN526 Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion. In addition to rehabilitation of grassland areas, the proponent intends to restore areas of the Ropes Creek Tributary first order stream realignment within the development site, to be used as part of this BOS.

A summary of the areas of each PCT at the proposed offset site are shown in **Table 4.1**.

**Table 4.1 PCTs at the Proposed Offset Site**

<b>PCT Number</b>	<b>PCT Name</b>	<b>Area within Offset Site</b>
HN526 – Moderate - Good	Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion	1.19
HN526 – Regeneration of low condition grassland	Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion	12.65
HN594 - Moderate - Good	Swamp Oak swamp forest fringing estuaries, Sydney Basin Bioregion and South East Corner Bioregion	7.28
<b>Total</b>		<b>21.12</b>

*iii. Hydrology*

The Onsite Offset Site occurs within the Hawkesbury-Nepean Catchment. The Onsite Offset Site occurs at the headwaters of the alluvial plain and is bisected by Ropes Creek which converges with first order streams. Ropes Creek is a second order stream, which flows into South/Wianamatta Creek approximately 13 km north of the Onsite Offset Site. The drainage system within the offset site is in relatively poor condition, due to erosion and trampling by cattle.

*iv. Land Uses*

The Onsite Offset Site has previously been utilised for the purpose of cattle grazing. This land use has resulted in 60% of the Onsite Offset Site being extensively cleared of vegetation which has resulted in a significant loss of flora and fauna habitats. Land surrounding the offset site has also historically been utilised for agricultural purposes.

The Onsite Offset Site has been primarily zoned E2 – Environmental Conservation under the WSEA SEPP (DoP (NSW) 2009) within a buffer about Ropes Creek. This buffer encapsulates the majority of the existing woodland vegetation within the offset site. Areas outside the Ropes Creek buffer are zoned as IN1 – General Industrial, as part of the WSEA SEPP. The objective of the IN1 - General Industrial zoning is to facilitate a wide range of employment-generating development including industrial, manufacturing, warehousing, storage and research uses and ancillary office space.

The objective of E2 – Environmental Conservation are to protect, manage and restore areas of high ecological, scientific, cultural or aesthetic values; and to prevent development that could destroy, damage or otherwise have an adverse effect on those values. The lands immediately adjacent to the Onsite Offset Site will be used for an industrial development which will include warehouses and associated infrastructure as detailed in the Oakdale

South BAR (Cumberland Ecology 2016). Some adjoining land within the Oakdale Estate has already been development for industrial purposes. Other nearby land uses includes a brick and roofing quarry and residential land.

#### **4.2.3 Management Actions Proposed for the Offset Site to Improve Biodiversity Values**

As part of this BOS, the following standard management actions have been identified for the Onsite Offset Site as prescribed in the BBAM (OEH 2014a) and include the following obligations:

- Management of grazing for conservation;
- Weed control;
- Ecological fire management;
- Management of human disturbance;
- Retention of regrowth and remnant native vegetation;
- Replanting where natural regeneration is not sufficient;
- Retention of dead timber;
- Erosion control; and
- Retention of rocks.

These management actions will be undertaken at all vegetation zones at the Onsite Offset Site. For areas subject to management actions under the Office of Water VMP, a discount, in accordance with Table 10 and Equation 12 of the BBAM, has been applied for the following management actions which will be undertaken under the VMP for a duration of 5 years:

- Weed control;
- Retention of regrowth and remnant native vegetation;
- Replanting where natural regeneration is not sufficient; and
- Erosion control.

In addition to the standard management actions listed above, the BBCC has prescribed additional management actions for each PCT at the Onsite Offset Site as detailed in **Table 4.2**. The location of each management zone is shown in **Figure 4.3**.

**Table 4.2 Summary of Additional Management Actions at the Onsite Offset Site**

<b>Management Zone</b>	<b>PCT Name</b>	<b>Area</b>	<b>Additional Management Actions</b>	<b>Subject to Office of Water VMP</b>
1a	Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion – Moderate/Good Condition	0.03	Exclude commercial apiaries Exclude miscellaneous feral species Feral and/or abundant native herbivore control	No
1b	Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion – Moderate/Good Condition	1.16	Exclude commercial apiaries Exclude miscellaneous feral species Feral and/or abundant native herbivore control	Yes – discount applied
2a	Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion – Low condition grassland	6.55	Exclude commercial apiaries Exclude miscellaneous feral species Feral and/or abundant native herbivore control	No
2b	Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion – Low condition grassland	0.64	Exclude commercial apiaries Exclude miscellaneous feral species Feral and/or abundant native herbivore control	Yes – discount applied
2c	Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion – Low condition grassland	5.46	Exclude commercial apiaries Exclude miscellaneous feral species Feral and/or abundant native herbivore control	Yes – discount applied
3a	Swamp Oak swamp forest fringing estuaries, Sydney Basin Bioregion and South East Corner Bioregion	1.88	Control of feral pigs Exclude commercial apiaries Exclude miscellaneous feral species Feral and/or abundant native herbivore control Fox control Maintain or re-introduce	No



**Table 4.2 Summary of Additional Management Actions at the Onsite Offset Site**

Management Zone	PCT Name	Area	Additional Management Actions	Subject to Office of Water VMP
3a	Swamp Oak swamp forest fringing estuaries, Sydney Basin Bioregion and South East Corner Bioregion	5.40	natural flow regimes Control of feral pigs Exclude commercial apiaries Exclude miscellaneous feral species Feral and/or abundant native herbivore control Fox control Maintain or re-introduce natural flow regimes	Yes – discount applied

All management actions (including standard and additional actions) for the Onsite Offset Site will be described in full in a Biodiversity Assessment Report (BAR) for the offset site which will be produced at a later date. The BAR for the offset site will include a management plan which will stipulate in detail the management actions and reporting criteria for the offset site.

### 4.3 Improvement in Biodiversity Values at the Onsite Offset Site

The BioBanking Assessment Methodology (OEH 2014a) was used to assess the Onsite Offset Site by calculating the gain in site value based on landscape values, site values, and proposed management actions at the Onsite Offset Site.

In line with Principle 4, the E2 zoning of parts of the offset site was considered during the credit calculations for the BioBank site. As the E2 land within the proposed BioBank site has no current management obligations, the management actions associated with the BioBanking Agreement will be the primary applicable legal obligations in relation to improving biodiversity. Therefore, no discount was applied to the BioBanking Credits for the offset site in relation to the E2 zoning.

Although the Oakdale South Development, being a SSD, does not require a controlled activity approval under the *Water Management Act 2000*, a VMP has been proposed to demonstrate compliance with the requirements of Office of Water Guidelines and will apply to some riparian corridor areas within the proposed Offset Site. A conservative approach has been taken and a discount has been calculated for credits generated in Management Zones subject to actions under the VMP, in accordance with the requirements of Section 12 and Table 10 of the BioBanking Assessment Methodology (BBAM) 2014.

### 4.3.1 Ecosystem Credits Created at the Offset site

The change in site value at the Onsite Offset Site was calculated using the BBCC. Table of PCTs at the Onsite Offset Site and the number of ecosystem credits created is shown in **Table 4.3**. The credit calculator also generates a list of predicted ecosystem credit species utilising a number of variables which includes the following:

- IBRA subregion: Cumberland;
- Associated PCTs: HN526, HN528 and HN594;
- Percent native vegetation in outer assessment circle: 9.68%;
- Condition of vegetation: moderate to good (all vegetation zones);
- Patch size: 201.90 ha (all vegetation zones);
- Credit type: Ecosystem.

Based on the information above, the following ecosystem credit species are predicted at the Onsite Offset Site:

- Little Lorikeet (*Glossopsitta pusilla*);
- Swift Parrot (*Lathamus discolor*);
- Australian Painted Snipe (*Rostratula australis*); and
- Freckled Duck (*Stictonetta naevosa*).

**Table 4.3 Summary of PCTs and Ecosystem Credits generated at the BioBank site**

PCT	PCT Name and Associated Ecosystem Credit Species	Zone	Current Site Value Score	Future Site Value Score	Change in Landscape value Score	Ecosystem Credits Created
HN526	Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion – Moderate/Good Condition  Little Lorikeet Swift Parrot	1a	46.88	62.85	15.97	0
HN526	Forest Red Gum - Rough-barked Apple grassy	1b	46.88	62.85	15.97	13

**Table 4.3 Summary of PCTs and Ecosystem Credits generated at the BioBank site**

PCT	PCT Name and Associated Ecosystem Credit Species	Zone	Current Site Value Score	Future Site Value Score	Change in Landscape value Score	Ecosystem Credits Created
	woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion – Moderate/Good Condition Little Lorikeet Swift Parrot					
HN526	Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion – Low condition	2a	12.50	29.25	16.75	67
HN526	Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion – Low condition	2b	12.50	29.25	16.75	7
HN526	Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion – Low condition	2c	12.50	29.25	16.75	56
HN594	Swamp Oak swamp forest fringing estuaries, Sydney Basin Bioregion and South East Corner Bioregion Little Lorikeet Swift Parrot Australian Painted Snipe Freckled Duck	3a	76.09	89.37	13.28	21
HN594	Swamp Oak swamp forest fringing estuaries, Sydney Basin Bioregion and South East Corner Bioregion Little Lorikeet	3b	76.09	89.37	13.28	59

**Table 4.3 Summary of PCTs and Ecosystem Credits generated at the BioBank site**

PCT	PCT Name and Associated Ecosystem Credit Species	Zone	Current Site Value Score	Future Site Value Score	Change in Landscape value Score	Ecosystem Credits Created
	Swift Parrot					
	Australian Painted Snipe					
	Freckled Duck					

**4.3.2 Justification for any Variation to the Offset Rules**

Where suitable ecosystem credits cannot be acquired by the proponent, there are provisions within Section 10.5.4 of the FBA to allow for variations of the offsetting rules. Specifically for ecosystem credits, the consent authority may approve a variation of the offset rules for matching ecosystem credits by allowing ecosystem credits created for a PCT from the same vegetation formation as the required ecosystem credit to be proposed as part of the BOS, where in the consent authority’s opinion the BOS demonstrates that:

- All reasonable steps to secure a matching ecosystem credit have been taken by the proponent;
- The required ecosystem credit is not for a PCT associated with a CEEC listed under the TSC Act or an ecological community listed on the EPBC Act; and
- The PCT from the same vegetation formation has a percent cleared value of the PCT in the major catchment area equal or greater than the percent cleared of the PCT to which the required ecosystem credit relates; or
- Where the retired ecosystem credit is for a PCT that is associated with a CEEC/EEC, the PCT from the same formation is also associated with a CEEC/EEC.

The consent authority may also approve supplementary measures to be proposed as part of the BOS for a PCT impacted at the development site, where in the consent authority’s opinion the BOS demonstrates that:

- All reasonable steps have been taken by the proponent to secure a matching ecosystem credit;
- The PCT to which a required ecosystem credit relates is associated with a CEEC/EEC or for which the impact of development does not require further consideration;
- The supplementary measure applies to that CEEC/EEC; and

- The supplementary measure is carried out in accordance with the rules of Appendix B of the NSW Biodiversity Offsets Policy for Major Projects.

This BOS does not propose to vary the offset rules for any PCT that will be impacted by the development of Oakdale South.

#### **4.3.3 Averted Loss at the Onsite Offset Site**

Averted loss was calculated by assessing the risk of decline should the Onsite Offset Site not be secured under a conservation measure. The BBAM states in *Section 12.3.1.3* that:

*“Native vegetation that has a high risk of decline in site value score is on lands that were or are zoned for residential (but not rural residential), business or industrial uses in a Local Environmental Plan (LEP) prior to the development of a Standard Instrument LEP (in accordance with the Standard Instrument (LEP) Order 2006), or land that is zoned RU1 (Primary production).”*

The vegetation at the offset site is not considered to be at a high risk of decline as the lands have been zoned under the WSEA SEPP (2009) after the Standard Instrument LEP Order (DoP (NSW) 2006).

## **4.4 Securing the Onsite Offset Site**

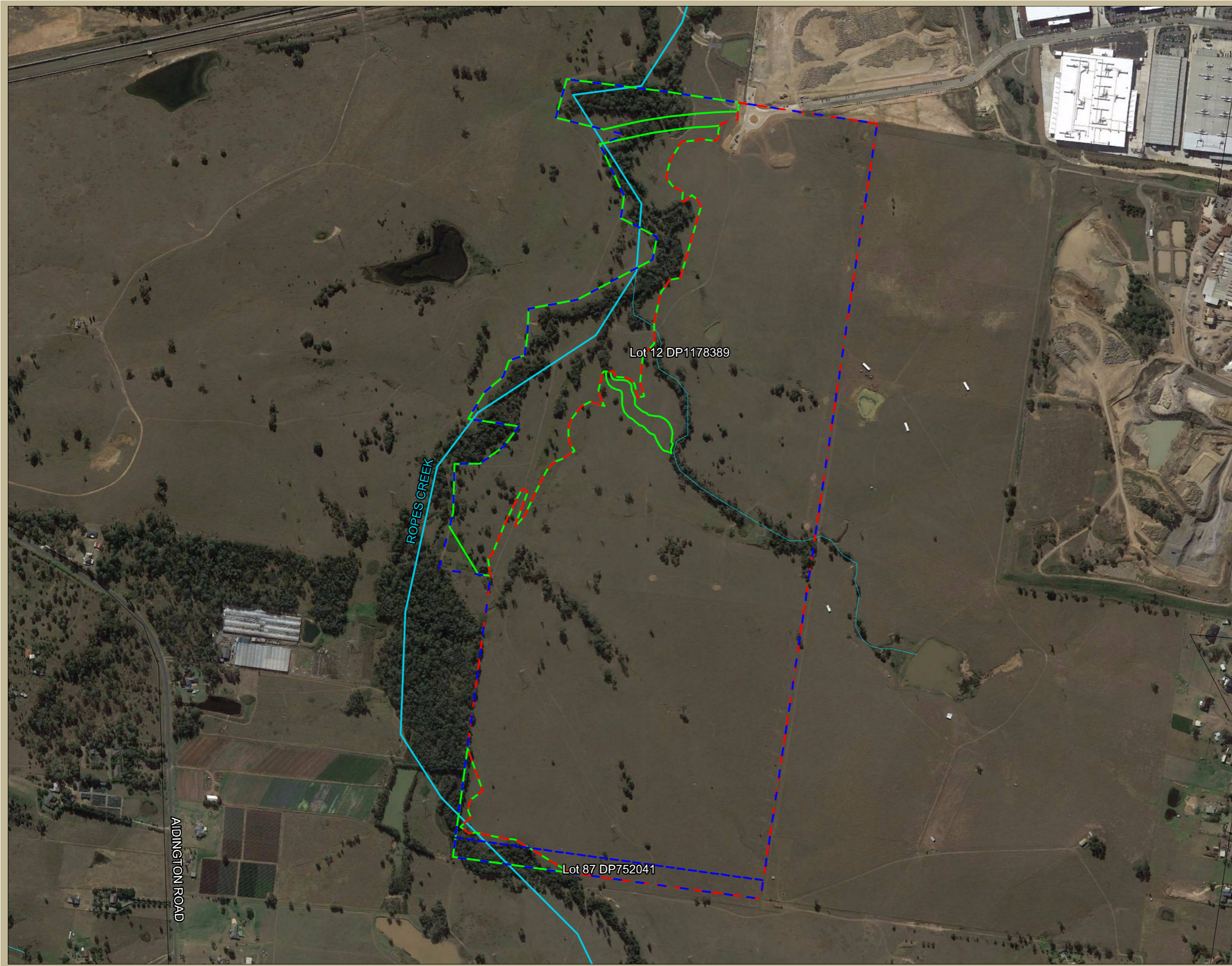
The offset site will be secured in perpetuity as a biobank site under a BioBanking Agreement. The offset site will be secured under the NSW BioBanking and Offset Scheme (the BioBanking Scheme) which establishes permanent objectives for biodiversity improvement on land under Part 7A of the TSC Act. Once established as a biobank site, the title holder of the Onsite Offset Site will be legally compelled to manage the land for biodiversity improvement as specified by the management actions within the BioBanking Agreement Application. The title holder of the biobank site will not be permitted to develop any part of the site, unless it is offset under the rules of offsetting prescribed within the BBAM (OEH 2014a).

## **4.5 Credit Balance**

Credit balance of the project shown in **Table 4.4** below. The Onsite Offset Site will generate a surplus of credits required to offset the impacts to both HN526 and HN594, even after any potential application of discounts for works conducted under the VMP for Office of Water requirements. The offset site will not generate any credits for HN528 and, as such, there is a 12 credit deficit for this PCT. As HN528 is a CEEC under the TSC Act, the proponent will be required to obtain and retire exactly 12 HN528 credits only.

**Table 4.4 Credit Balance for Ecosystem Credits**

PCT Name	Area of Impact	Ecosystem Credits Required	Area within Offset Site (ha)	Ecosystem Credits Created (before discount, if applicable)	Ecosystem Credits Created (after discount, if applicable)	Total Credits generated for PCT (after discount)	Credit Balance
HN526: Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion	2.11	104	0.03	0	0	140	+36
			1.16	13	12		
HN526: Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin – low condition grassland	--	--	6.55	67	67		
			0.64	7	6		
			5.46	56	55		
HN528: Grey Box - Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin	0.29	12	--	--	--		
HN594: Swamp Oak swamp forest fringing estuaries, Sydney Basin Bioregion and South East Corner Bioregion	1.15	42	1.88	21	21	79	+37
			5.40	59	58		



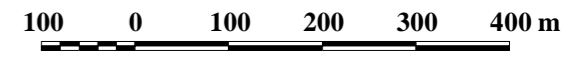
- Legend**
- Onsite Offset Site
  - Development site
  - Lot Boundary
  - Road
- Streams**
- 1st Order Stream
  - 3rd Order Stream

Image Source:  
Google Earth  
(dated 05-05-2016)

Data Source:  
© Copyright Commonwealth of Australia  
(Geoscience Australia) 2006



Figure 4.1. Location of the Onsite Offset Site





**Legend**

- Onsite Offset Site
- Road
- Watercourse
- Flora Plot Location

**PCT**

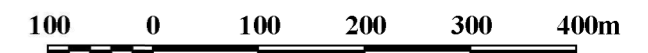
- Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion (Mod/Good)
- Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion (Low)
- Swamp Oak swamp forest fringing estuaries, Sydney Basin Bioregion and South East Corner Bioregion (Mod/Good)

Image Source:  
Google Earth  
(dated 05-05-2016)

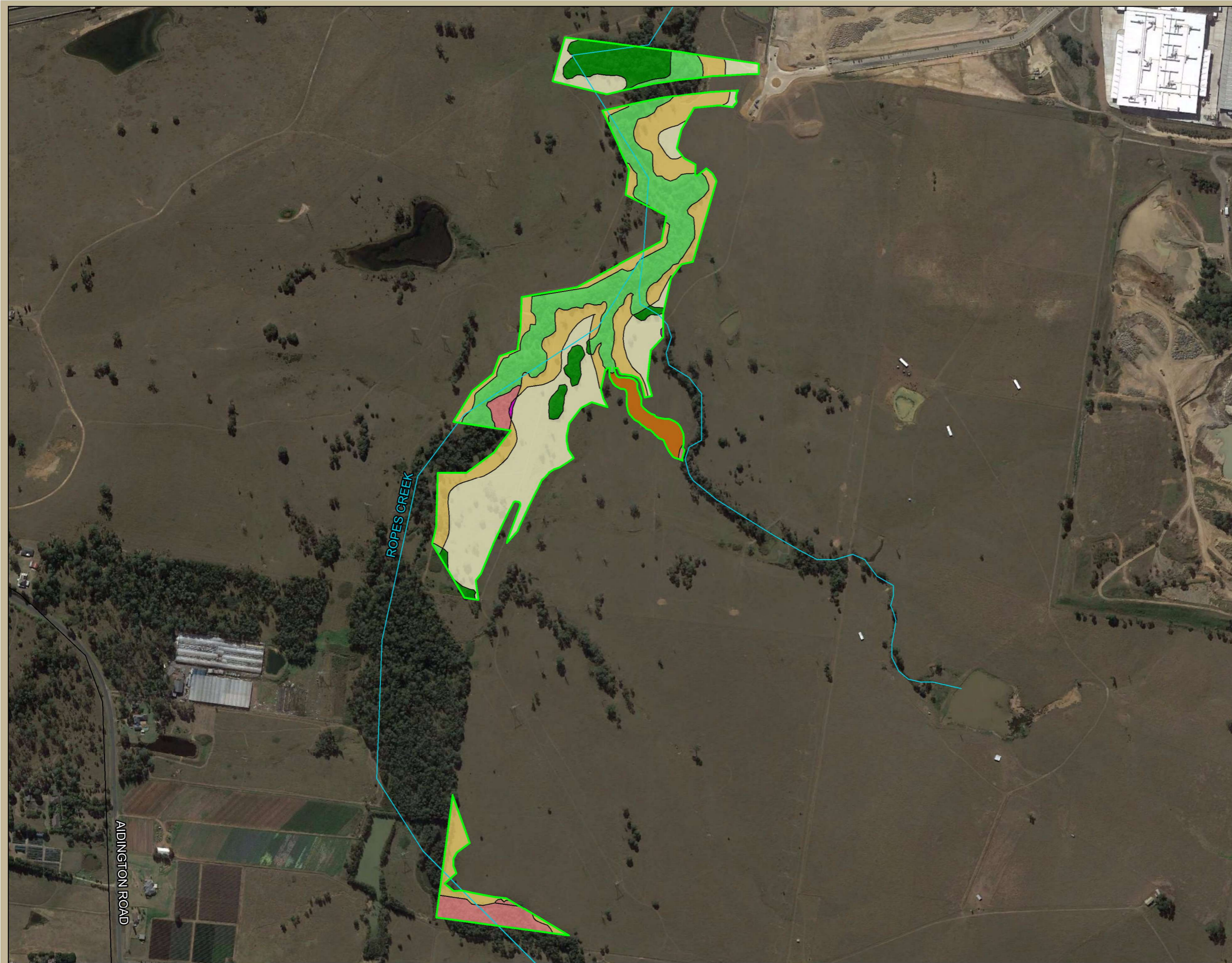
Data Source:  
© Copyright Commonwealth of Australia  
(Geoscience Australia) 2006



Figure 4.2. PCTs at the Onsite Offset Site







**Legend**

- Onsite Offset Site
- Road
- Watercourse

**Management Zone**

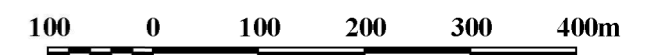
- Zone 1a: HN526
- Zone 1b: HN526
- Zone 2a: HN526
- Zone 2b: HN526
- Zone 2c: HN526
- Zone 3a: HN594
- Zone 3b: HN594

Image Source:  
Google Earth  
(dated 05-05-2016)

Data Source:  
© Copyright Commonwealth of Australia  
(Geoscience Australia) 2006



Figure 4.3. Management Zones at the Onsite Offset Site



## Conclusion

---

This Biodiversity Offset Strategy has been drafted to propose and establish a commitment to offset the unavoidable impacts to native vegetation resulting from the development of Oakdale South. This BOS has been prepared with the specific aim of satisfying the requirements to offset as specified within *Section 10* of the FBA (OEH 2014b).

The objective of this BOS is to propose a Biodiversity Offset Package that will achieve a long term positive outcome for endangered species, populations and communities that will be impacted by the proposed development at Oakdale South. The Project will have direct unavoidable impacts on three native vegetation communities, which are listed as either Critically Endangered or Endangered Ecological Communities under the TSC Act. These vegetation communities include:

- 2.11 ha of HN526: Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin (TSC Act Endangered Ecological Community);
- 0.29 ha of HN528: Grey Box - Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin (TSC Act Critically Endangered Ecological Community); and
- 1.15 ha of HN594: Swamp Oak swamp forest fringing estuaries, Sydney Basin Bioregion and South East Corner Bioregion (TSC Act Endangered Ecological Community)

The BOS is guided by the NSW Biodiversity Offsets Policy for Major Projects (OEH 2014c), and involves two potential offset measures for consideration:

- Establish an offset site adjacent to the development site secured under a BioBanking Agreement (the Onsite Offset Site); and
- Secure additional ecosystem credits for all PCTs not fully satisfied by the Onsite Offset Site.

Assessment using the BioBanking Assessment Methodology (OEH 2014a), found that the Onsite Offset Site would fully satisfy the offset requirement for two of the PCTs impacted by the proposal: HN526 Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin and HN594 Swamp Oak swamp forest fringing estuaries, Sydney Basin Bioregion and South East Corner Bioregion. The Onsite Offset Site

will be secured in perpetuity following approval of the development by preparing an Onsite Offset Site Biodiversity Assessment Report (BAR) and BioBanking Agreement Application for the site. The Onsite Offset Site BAR will stipulate the management actions as well as reporting requirements and completion criteria for each vegetation/management zone at the Onsite Offset Site.

The impacts to PCT HN528 Grey Box - Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin will require further consideration by the NSW Office of Environment and Heritage. As the Onsite Offset Site is located within the Ropes Creek floodplain, the landform is considered unsuitable for the revegetation of HN528 onsite. Therefore the proponent has proposed to acquire and retire 12 ecosystem credits to fully satisfy the offsetting requirement for HN528 as calculated by the BBCC. These credits will be acquired following approval of the development.

## References

---

- Cumberland Ecology. 2016. Oakdale South Estate State Significant Development Application - Biodiversity Assessment Report. Cumberland Ecology Pty Ltd, Epping.
- DoP (NSW). 2006. Standard Instrument (Local Environmental Plans) Order.
- DoP (NSW). 2009. State Environmental Planning Policy (Western Sydney Employment Area). Department of Planning.
- OEH. 2014a. BioBanking Assessment Methodology 2014. Office of Environment and Heritage, Sydney.
- OEH. 2014b. Framework for Biodiversity Assessment. Office of Environment and Heritage for the NSW Government, Sydney.
- OEH. 2014c. NSW Biodiversity Offsets Policy for Major Projects. Office of Environment and Heritage for the NSW Government, Sydney.
- OEH. 2014d. Online BioBanking Credit Calculator Version 2.0. Office of Environment and Heritage, Sydney.
- OEH. 2014e. Online BioBanking Credit Calculator Version 4.0. Office of Environment and Heritage, Sydney.

---

---

*Appendix A*

# BioBanking Credit Calculator Report

---

---

This report identifies the number and type of credits required at a BIOBANK SITE

Date of report: 18/08/2016

Time: 10:12:11AM

Calculator version: v4.0

## Biobank details

**Proposal ID:** 0057/2016/3784B

**Proposal name:** 14039 - Onsite Offset\_CAA (v1=original; v2=updated mstrpln)

**Proposal address:** PO Box 2474 Carlingford Court NSW 2118

**Proponent name:** Cumberland Ecology

**Proponent address:** PO Box 2474 Carlingford Court NSW 2118

**Proponent phone:** 98681933

**Assessor name:** David Robertson

**Assessor address:** PO BOX 2474 Carlingford Court NSW 2118

**Assessor phone:** 02 9868 1933

**Assessor accreditation:** 0057

### Additional information required for approval:

- Use of local benchmark
- Expert report...
- Request for additional gain in site value

## Ecosystem credits summary

Plant Community type	Area (ha)	Credits created
Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion	13.84	143.00
Swamp Oak swamp forest fringing estuaries, Sydney Basin Bioregion and South East Corner Bioregion	7.28	80.00
<b>Total</b>	<b>21.12</b>	<b>223</b>

## Credit profiles

### 1. Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion, (HN526)

Number of ecosystem credits created	13
IBRA sub-region	Cumberland - Hawkesbury/Nepean

### 2. Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion, (HN526)

Number of ecosystem credits created	130
IBRA sub-region	Cumberland - Hawkesbury/Nepean

### 3. Swamp Oak swamp forest fringing estuaries, Sydney Basin Bioregion and South East Corner Bioregion, (HN594)

Number of ecosystem credits created	80
IBRA sub-region	Cumberland - Hawkesbury/Nepean

## Species credits summary

### Additional management actions

Additional management actions are required for:

<b>Vegetation type or threatened species</b>	<b>Management action details</b>
Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion	Exclude commercial apiaries
Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion	Exclude miscellaneous feral species
Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion	Feral and/or over-abundant native herbivore control
Swamp Oak swamp forest fringing estuaries, Sydney Basin Bioregion and South East Corner Bioregion	Control of feral pigs
Swamp Oak swamp forest fringing estuaries, Sydney Basin Bioregion and South East Corner Bioregion	Exclude commercial apiaries
Swamp Oak swamp forest fringing estuaries, Sydney Basin Bioregion and South East Corner Bioregion	Exclude miscellaneous feral species
Swamp Oak swamp forest fringing estuaries, Sydney Basin Bioregion and South East Corner Bioregion	Feral and/or over-abundant native herbivore control
Swamp Oak swamp forest fringing estuaries, Sydney Basin Bioregion and South East Corner Bioregion	Fox control
Swamp Oak swamp forest fringing estuaries, Sydney Basin Bioregion and South East Corner Bioregion	Maintain or re-introduce natural flow regimes



# APPENDIX K

**Bushfire Emergency  
Evacuation Plan**

**OAKDALE SOUTH INDUSTRIAL  
ESTATE  
KEMPS CREEK**

**November 2017**

The Oakdale South Estate consists of a mix of Goodman entity and JV owned properties as well as occupiers, Fund and Trust owners and large corporations.

The estate has a number of key components including Defendable Zones [Bushfire Asset Protection Zones], Bio-retention Basins, landscaped setbacks, Riparian Corridors, public roads and development lots.

Management Plans for all the vegetated areas are included in the OEMP that this document forms part of.

In general, Goodman Property Services (GPS) is responsible for the overall management of these vegetated areas while Penrith City Council is responsible for the road network and the vegetating and streetscape planning in the verges within the road reserves. The owners of the individual lots are responsible for the planting and landscaping within their lot boundaries.

The Defendable Zones, Bio-retention Basins, landscaped setbacks, Riparian Corridors which form GPS controlled vegetated areas are generally unoccupied, except when maintenance activities are being undertaken. These areas are managed by GPS who employ maintenance contractors for each specific area.

On site signage with the estate's Building Manager's details will be provided and an on-site evacuation point adjacent the Amenity Lot has been identified to ensure a safe refuge for all landscape contractors. The emergency services should always be first point of contact.

Should any incident arise then the nominated Building Manager identified on the sign is the second point of contact for emergencies.

The Appendix attached provides a BEEP Template for individual property owners/managers.

# **ATTACHMENT**

## **BEEP TEMPLATE**

## AUTHORISATION OF EVACUATION PLAN

The aim of this plan is to assist the owners/occupants of the land within the Oakdale South Industrial Estate in the ongoing protection of life and property in the event of a bushfire and the subsequent need to enact emergency evacuation procedures. This plan has relevance to the following plans:

Penrith Bushfire Risk Management Plan

Penrith Local Disaster Plan [Displan]

In Accordance with AS 3745-2002, an Emergency Planning Committee (EPC) is to be established for each of the businesses established within the Estate. The individual EPCs will have overall responsibility for the planning, preparation and implementation of the on-site evacuation and emergency procedures for each development site.

Each EPC should consist of the following:

1. Chief Fire Warden;
2. Deputy/Secondary Chief Fire Warden;
3. Area/Zone Wardens;
4. Owner's Representative/Manager/s.

The EPC established by each business does not have a statutory standing. It is to follow any instructions or advice from Emergency Service Personnel related to the preparedness for and response to an evacuation.

The Owner/Manager of each of the businesses within the Estate will ensure that instructions given by the staff identified within the EPC overrule the normal management structure during emergency events/training when operating under this plan.

Persons appointed to EPC should be.

- Physically capable of performing the duties required;
- Have strong leadership qualities;
- Have maturity of judgment, good decision making skills and be capable of remaining calm under pressure;
- Have a comprehensive knowledge of the local area;
- Generally be on site during the fire danger period; and
- Be able to complete the required training.

The Emergency Planning Committee [EPC] for ----- has determined that this plan dated ----- has been approved by the Owner/management of the business and submitted to the NSW Rural Fire Service for 'in principle' approval for the occupation of the premises located at ----- and for the specific purposes of the facility as approved. The plan has been prepared using the NSW Rural Fire Service Guideline for Developing a Bushfire Emergency Evacuation Plan.

# 1 PREMISES DETAILS

This plan should be reviewed by Owner/Manager of the business and the EPC six months from the date of commencement and then every 2 years or when changes to the development design are being contemplated.

The next expected review date is .....

Plan amendments can be made as required but must be approved by the Owner/Manager, EPC and staff.

A copy of this plan should be provided to the Fire & Rescue NSW, the Penrith Bushfire Management Committee [PBMC] and the Penrith Local Emergency Management Committee [PLEMC].

(Signed)

.....

Chairman Emergency Planning Committee

(date).....

Plan Amendments  
(List below)

Date	Amendment	Reason

Additional information for this plan is provided.

Contact Person:.....

Position / Role:.....

Phone Number (BH):..... Phone Number (AH):.....

# 2

# STAFF ROLES & RESPONSIBILITIES

## Chief Fire Warden

The person selected to head the EPC shall have a good knowledge of the layout of the buildings, the area, location of fire protection equipment and the On-Site Safe Refuge and Off-Site Safe Refuge.

The responsibilities of the Chief Warden are:

- Monitoring of the fire weather on a daily basis during the fire danger period (October to March);
- Monitoring through contact with NSW Rural Fire Service the progress and situation of bushfires in the local region;
- Supervision of the EPC;
- Ensuring the EPC achieves its responsibilities;
- Preparation, maintenance and activation of the Bushfire Evacuation Planning and training in conjunction with the EPC;
- Liaising with Emergency Services and maintaining the Emergency Service contact lists;
- Maintain a current list of internal contact telephone numbers;
- Setting up the evacuees registration system to check people into and out from the Evacuation Areas;
- Ensure certification of all fire detection and suppression systems that are installed within the building;
- Provide safety equipment i.e. safety vest, helmets, torches, mobile phones, portable radios, fire fighting equipment, loud hailer as determined by the EPC.

## Deputy Chief Fire Warden

- The Deputy shall be fully trained and prepared to take over the role if the Chief Warden is absent.

## Zone Wardens

Zone Wardens shall be fully trained and responsible for the co-ordination of staff and visitors during emergencies.

## On-Site Safe Refuge/Off-Site Safe Refuge Wardens

On-Site/Off-Site Safe Refuge Wardens shall be fully trained and responsible for the co-ordination of staff and visitors at the On-Site and Off-Site Safe Refuge.

## Staff procedures in the event of a Bushfire Evacuation

- In the event of a bushfire in the local area, the CFW shall have regular contact with the local emergency services;
- Upon being advised of the requirement to evacuate the building/premises, the Chief Fire Warden (CFW) will advise the Zone and Safe Refuge Wardens of the situation;
- CFW will activate fire siren/alarm system;
- Upon hearing the siren/alarm system the Zone Warden/s (ZW) will advise staff of which evacuation point will be used. Once the zone has been evacuated the ZW is to place the 'Checked' door sign on exit points from the building;
- The Deputy Chief Warden will assist the staff to their evacuation point where their names will be marked off by the Zone Warden;
- The On-Site/Off-Site Safe Refuge Wardens shall proceed to their designated zones and mark off all staff/visitors and report to the Chief Warden.
- All staff (who do not have warden roles) upon hearing the siren/alarm are to close all doors and windows behind them [if appropriate] and move to the nearest evacuation point to have their names marked off – offering assistance where required;
- Once all staff and visitors are accounted for the emergency services will advise on future action required to be taken by the CFW/Wardens.



# 3 PREMISES DETAILS

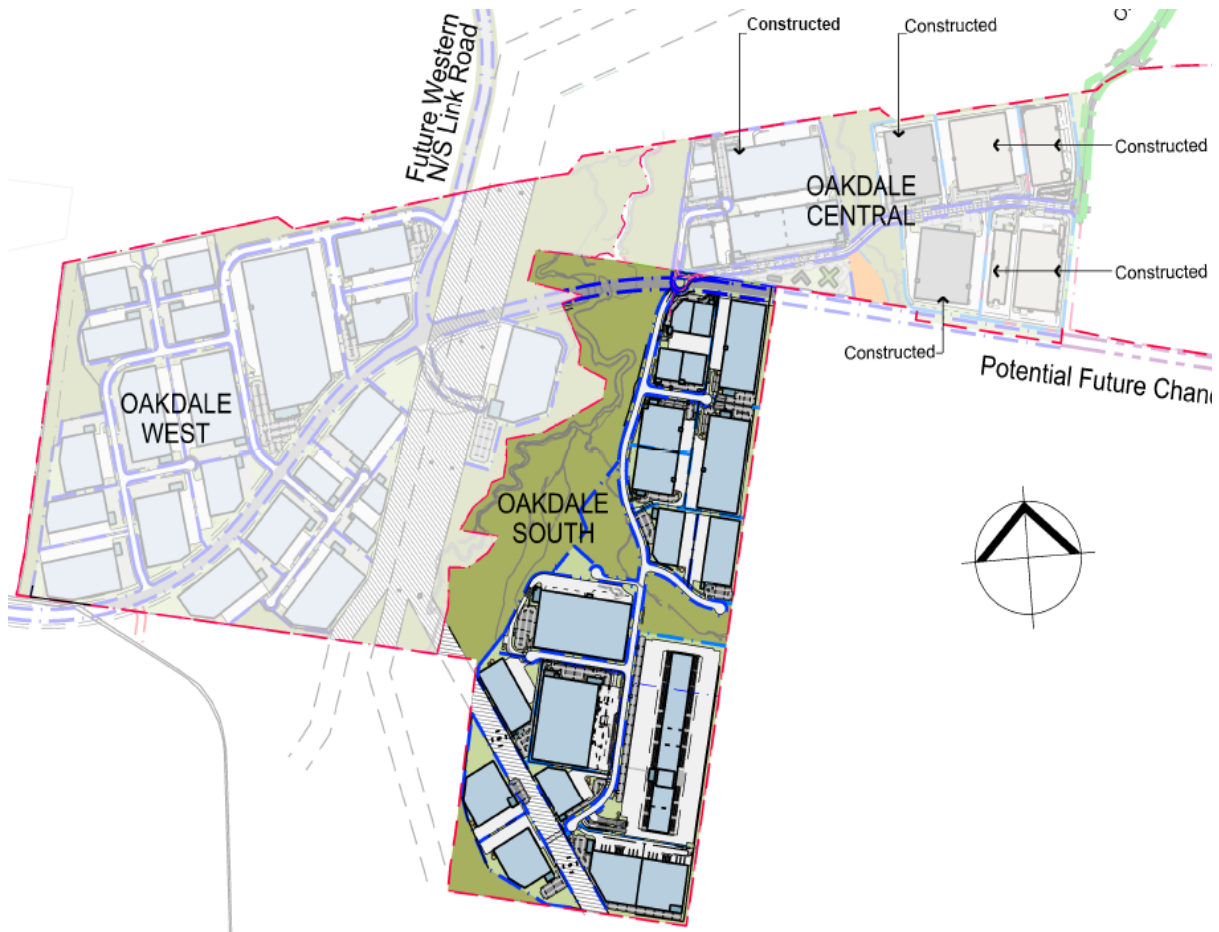
This Evacuation Plan relates to -----

at -----

-----  
– refer to Figure 1.

The NSW Rural Fire Service classifies this type of facility as *‘Industrial Development’* and approval conditions have been identified by the RFS and which reflects the criteria set out within Planning for Bush Fire Protection, 2006.

**Figure 1 – Location Plan – Oakdale South Estate**



**Development Description:**

Insert description of development

The building is a Class ----- category as defined by the Building Code of Australia (BCA).

Number of employees:-----

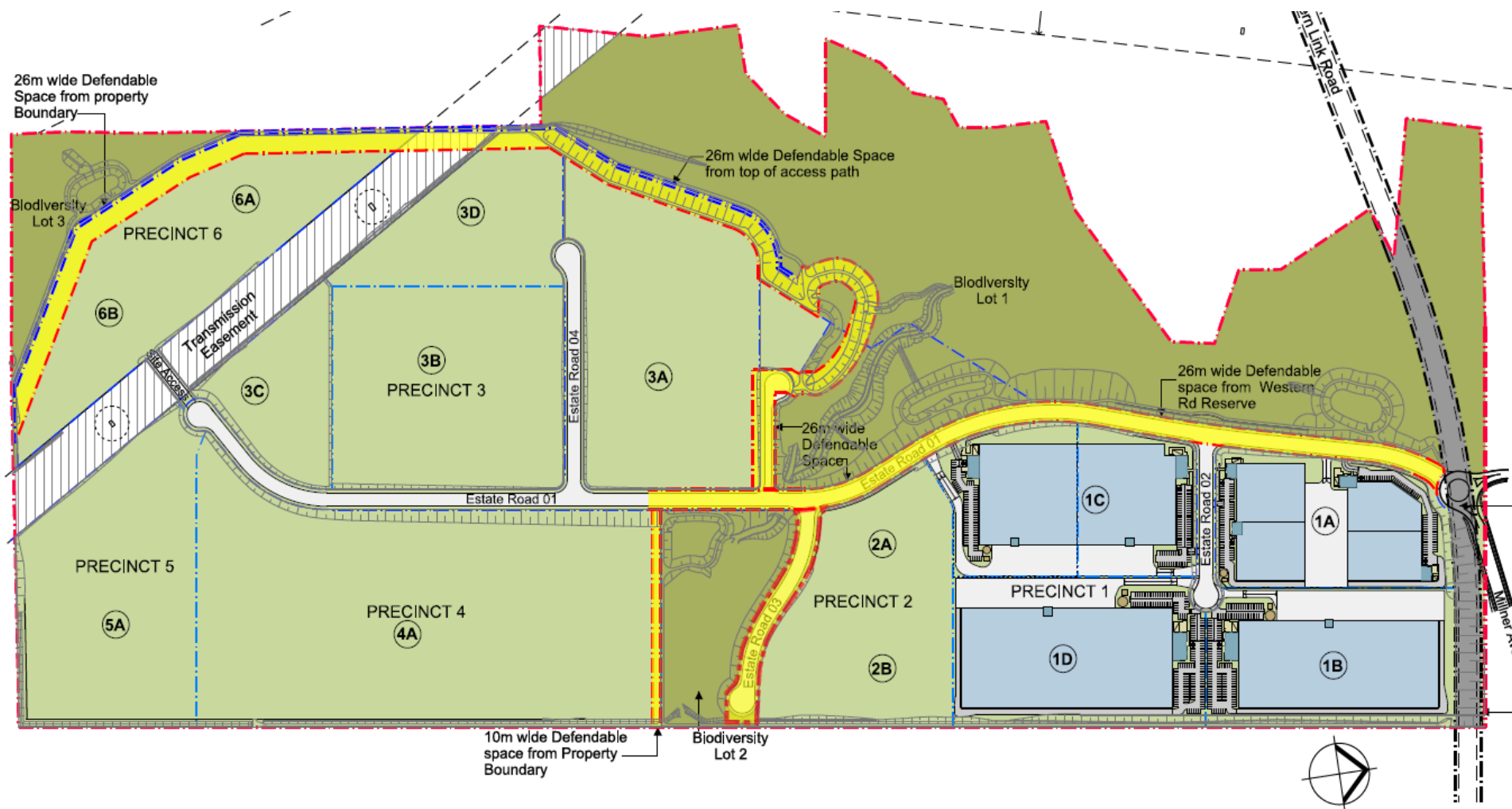
Access: -----

**Asset Protection Zones:**

Complying Asset Protection Zones [Defendable Spaces] are provided to the Oakdale South Estate – refer to Figure 2 on Page 9

**Special Evacuation Management Requirements:**

Figure 2 – Oakdale South Estate Master Plan showing the approved Defendable Spaces.





# 4 EVACUATION STRATEGIES – STAGE 1

## **Evacuation Strategy – if the building is threatened from a bushfire occurrence:**

The evacuation strategies include:

1. All staff and visitors to remain on site, within the building, or if directed by the Chief Warden/Emergency Services, within designated On-Site Safe Refuge Area.
2. All staff and visitors to evacuate off site to the Off-Site Safe Refuge Area [location to be determined by Police]. Internal roads will be managed to maintain safe, effective evacuation from the site.

[In the event of a bushfire evacuation, the police have the final decision in ordering the evacuation and advising on a location to evacuate to].

The primary evacuation strategy is to shelter in place within the building or within the designated On-Site Safe Refuge Area. This is the first option.

This strategy has been determined on the basis of the building and the immediate environment having been designed, constructed and managed to accommodate the potential level of bush fire attack.

Notwithstanding this, it is possible for the Fire & Rescue NSW Incident Controller and/or the NSW Police to order a total evacuation of the complex to the Off-Site Safe Refuge.

This is the second option.

Note: The second option should only be implemented on advice from the Fire & Rescue NSW Incident Controller or his/her nominee [i.e. Police or SES].

### **Bushfire Evacuation Triggers**

In response to the evacuation strategies the following triggers should be considered in order to apply precise evacuation management regimes if a fire occurs in the vicinity of the building – refer to Table 1 below.

**Table 1: Bushfire Evacuation Triggers**

Evacuation Triggers	Is Evacuation Required?	Response	On site co-ordination
Evacuation Ordered by external authorities [Fire & Rescue NSW/NSW Police]	Yes	Evacuate all staff and visitors via nominated exit route.	Chief Warden or support agencies in control (Incident Controller or their nominee) with assistance by Chief Warden.
Uncontrolled fire advancing from the west/southwest threatening the building	Yes	Remain within complex unless advised by Fire & Rescue / Incident Controller or their nominee to undertake evacuation off site to safe refuge area/s	Under control of the Chief Warden or his/her appointee
Significant ember attack within site	No	Initiate State of Readiness	Under control of the Chief Warden or his/her appointee
Fire burning in the vegetation remote to the site	No	Initiate State of Readiness – seek advice from Fire & Rescue NSW/Police on continued occupation of the complex	General awareness by Chief Warden

# 5 EMERGENCY CONTACTS

**Table 2: Contact listing**

Name of Organisation	Name of Contact	Phone Number
Fire & Rescue / NSW Rural Fire Service	-	000
NSW Police	-	000 (131444)
NSW Ambulance	-	000 (131233)
State Emergency Service	-	000 (132500)
Department of Community Services	-	
Penrith City Council	-	4732777 (all hours)
Westmead Hospital	-	88905555 (all hours)



# 6 SHELTER IN-PLACE

Should a bushfire occur in the vegetation to the west of the Estate the primary evacuation strategy is to shelter in place within the building or if directed, shelter in place at the On-Site Safe Refuge Area.

This strategy has been determined on the basis of the building and the immediate environment having been developed and managed to accommodate the expected fire attack.

Should notification be received from the Emergency Services that the complex should be evacuated those measures provided in Section 7 shall be implemented.

Action Statement (Section 7) outlines procedures for the safe movement of staff and visitors to the designated Off-Site Safe Refuge – located on the corner of Old Wallgrove Road and Millner Avenue or otherwise determined by Police.



### **Stage 1 Off-Site Safe Refuge details**

The nominated Off-Site Safe Refuge is the on the corner of Old Wallgrove Road and Millner Avenue, Horsley Park.

The location of the Off-Site Safe Refuge has taken into consideration that it will not be affected by bushfire.

### **Staff/Visitors Evacuation Off-Site Instructions**

When instructed by the Chief Warden / Deputy Warden the staff and visitors are to proceed to the designated Off-Site Safe Refuge Area and await further instructions.

It is estimated that 1/4 an hour would be required to relocate all staff and visitors within the complex, to the Off-Site Safe Refuge.

If time permits, close all windows and doors to the building.

Once at the Off-Site Safe Refuge Area the designated Warden/s shall take control of the situation.

### **Staff Evacuation Off-Site Instructions**

In the event of the Fire & Rescue NSW/Incident Controller declaring an evacuation 'off site' will take place the Chief Warden will assist by undertaking the actions listed as follows:

- (a) Ensure all persons are accounted for (use listing of staff/visitors in Appendix 1).
- (b) Ensure that all persons are informed of the evacuation process;
- (c) Confirm the location of the Off-Site Safe Refuge and hand out printed copies of route plans. See Figure/s.....for route details.

It is normal in fire emergencies to seek assistance from the resources available from the Emergency Incident Controller.

This includes Police, Fire agencies, Ambulance and SES.



## Transport arrangements

The primary method of transportation to the Off-Site Safe Refuge will be by staff car/s.

## Route of egress to Off-Site Safe Refuge

Proceed north from the estate onto Millner Avenue.

## Security arrangements

In the event of an evacuation of the premises, security arrangements may be necessary to safe guard personal assets.

Number of security guards required:	Not required for short duration events i.e. < 24 hrs. If > 24 hours then 2 security guards should be employed.
Name of organisation providing security:	TBC

## After the Bushfire Emergency

- **Injuries**

If injuries are known then transport to hospital should occur without delay or ring 000 to access NSW Ambulance Service assistance.

- **Welfare**

Water, food and appropriate clothing should be sourced and provided.

- **Communication**

Families should be notified of any movement or return of staff and visitors

- **Briefing**

A briefing should occur within 48 hours of the cessation of the evacuation event. Lessons learnt should be applied to the Evacuation Plan as amendments. The briefing should include relevant emergency service agencies if required.

- **Recovery**

Recovery planning is difficult to implement without assistance. Depending on the significance of the fire event 'recovery action' should involve immediate rapid welfare assessment, where required.

The Penrith Disaster Plan provides for recovery in an emergency event. The Emergency Management Structure will commence recovery operations to assist victims and the restoration of local community services.

Whilst Local Government authorities expect to retain significant responsibility for the well being of local communities, and take a major role in recovery operations, they may require significant support, particularly with respect to the overall co-ordination of operations.

It is essential that the need for recovery operations is assessed and planned during the earliest stages of an emergency response operation. The Local Emergency Management Controller can be contacted on (insert name and contact details). He / she is responsible to ensure that this occurs.

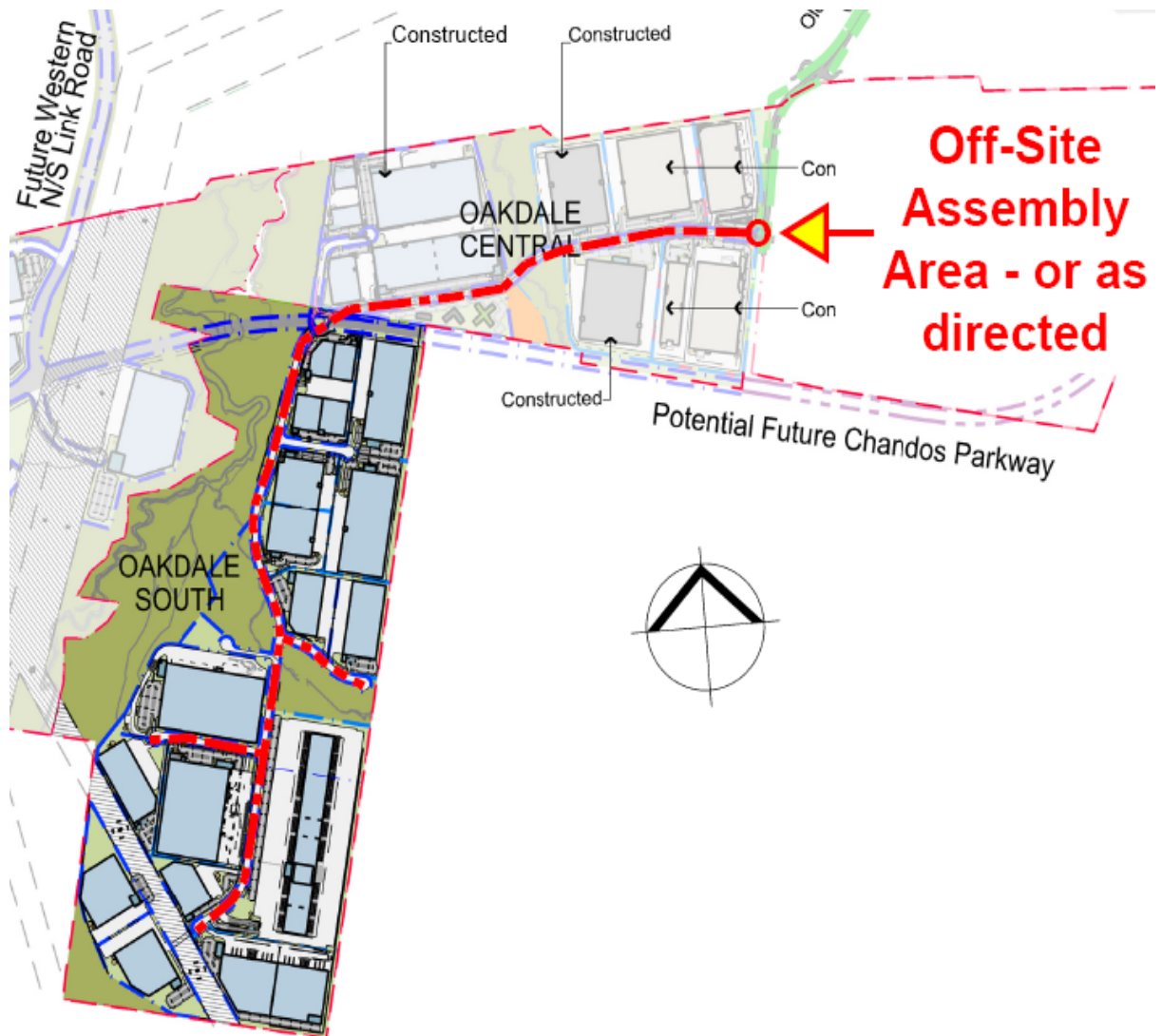
Combat Agency controllers and functional area co-ordinators are to determine the requirements for recovery operations by their service or area, assist the LEOCON in determining overall service or area requirements, and be prepared to take a lead role in operations when circumstances and expertise indicate this to be appropriate.



**Figure 3 – On-Site Safe Refuge Area**

**Insert Figure**

Figure 4 – Primary Evacuation route to Off-Site Safe Refuge





This page intentionally left blank.



This page intentionally left blank.





**Fire Danger Warning**

To: Staff & Visitors

From: Chief Warden, (insert name)

Date: .....

Due to the extreme fire weather conditions a Total Fire Ban [TOBAN] has been declared between:

.....and.....

This notification shall be displayed on the entry gates to the complex on days that have been declared as being a TOTAL FIRE BAN period or when the weather conditions have been predicted to produce an Extreme or Catastrophic Fire Danger or when directed by the NSW Rural Fire Service.

This page intentionally left blank.





**Bushfire Season** – this information shall be provided to all staff.

The statutory Bush Fire Danger Period runs from October 1st to March 31st, however it may vary due to local conditions. This means that a bushfire is more likely to occur as a result of normal summer weather conditions.

A fire danger rating is used to describe the weather for the day. A Total Fire Ban can be declared when conditions are regarded as dangerous.

### **Call '000' in an Emergency**

The triple zero (000) service is the quickest way to get the right help from emergency services and should be used to contact Police, Fire or Ambulance services in life threatening or time critical situations.

Calls to '000' are free and can be made from mobile phones, home or work phones or payphones.

### **Deciding to stay and defend, or leave early**

Research indicates that a well-prepared building is often the best place to shelter from a fire-front. Most people who die in bush fires die as a result of unplanned last-minute relocations or evacuations.

Generally there is no need to relocate or evacuate provided the proper precautions have been taken.

# APPENDIX L

