OAKDALE WEST INDUSTRIAL ESTATE

Construction Environmental Management Plan
SSD 7348

Prepared for:

Goodman Property Services (Aust) Pty Ltd
Level 17
60 Castlereagh Street
Sydney NSW 2000

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BASIS OF REPORT

This report has been prepared by SLR Consulting Australia Pty Ltd (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Goodman Property Services (Aust) Pty Ltd (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 the Client. 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

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CONTENTS

1 INTRODUCTION 1
1.1 Development Overview 1
1.2 Construction Environmental Management Plan 4
1.2.1 Scope 4
1.2.2 Objectives 6
1.2.3 Consultation 6
2 DEVELOPMENT DESCRIPTION 9
2.1 Location 9
2.2 Construction Staging and Activities 9
2.2.1 Erosion and Sediment Control Staging 10
2.3 Construction Hours 12
2.4 Construction Site Access 12
2.5 Construction Contact Details 15
3 ENVIRONMENTAL MANAGEMENT FRAMEWORK 16
3.1 Burton's Environmental Management Policy 16
3.2 Roles and Responsibilities 16
3.3 Statutory Requirements 18
3.4 Inductions and Environmental Training 18
3.5 Incident and Non-Compliance Response and Handling Procedure 20
3.5.1 Performance Objective 20
3.5.2 Responsibility 20
3.5.3 Notification Requirements 20
3.5.3.1 Incidents 20
3.5.3.2 Non-Compliances 22
3.5.4 Incidents and Non-Compliance Handling Procedure 23
3.5.5 Incidents and Non-Compliance Register 24
3.5.6 Minor Environmental Incidents 25
3.6 Complaints Response and Handling Procedure 25
3.6.1 Performance Objective 25
3.6.2 Responsibility 25
3.6.3 Complaints Handling Procedure 25
3.6.4 Complaints Register 27
3.7 Dispute Resolution 27
4 ENVIRONMENTAL MANAGEMENT COMMITMENTS 28
4.1 General 28

CONTENTS

4.2 Noise 30
4.3 Vibration 35
4.4 Air Quality 38
4.5 Traffic 42
4.6 Water and Soil Management 47
4.7 Waste 54
4.7.1 Demolition Waste 54
4.7.2 Earthworks Waste 55
4.7.3 Construction Waste 55
4.7.4 Advice on Waste Management Measures 60
4.8 Biodiversity 63
4.9 Landscaping and Visual Amenity 66
4.10 Heritage 68
4.11 Hazardous Goods and Contamination 70
4.12 Fire Safety and Emergency 73
4.13 Community 75
5 MONITORING AND REPORTING 77
5.1 Environmental Monitoring and Inspections 77
5.2 Reporting 82
5.3 Audits 86
5.4 Contingency Management Plan 86
6 REVIEW AND IMPROVEMENT OF THE CEMP 102
7 REFERENCES 103

CONTENTS

DOCUMENT REFERENCES

TABLES

Table 1 CEMP Context 4
Table 2 Consultation 7
Table 3 Site Access 13
Table 4 Construction Contact List 15
Table 5 Personnel Responsible for Environmental Management 16
Table 6 Regulatory Authority Contact List 22
Table 7 General Construction Environmental Management Controls 28
Table 8 Project Specific Construction Noise Management Levels 30
Table 9 Environmental Management Controls for Noise 31
Table 10 Acceptable Vibration Dose Values for Intermittent Vibration 35
Table 11 Recommended Safe Working Distances for Vibration Intensive Plant 35
Table 12 Environmental Management Controls for Vibration 36
Table 13 Environmental Management Controls for Air Quality 38
Table 14 Summary of the Parameters to Assess the Effectiveness of Control Measures 41
Table 15 Daily Construction Vehicle Movements 42
Table 16 Environmental Management Controls for Traffic 43
Table 17 Environmental Management Controls for Water and Soil 48
Table 18 Demolition Waste Generation Rates (tonnes per 1,000 m^2) 54
Table 19 Estimated Quantities of Waste from Demolition (tonnes) 54
Table 20 Additional Waste Streams – Construction Activities 55
Table 21 Construction Waste Generation Rates 58
Table 22 Estimated Quantities of Waste from Construction (tonnes) 58
Table 23 Environmental Management Controls for Waste 59
Table 24 Environmental Management Controls for Biodiversity 63
Table 25 Environmental Management Controls for Landscaping and Visual Amenity 66
Table 26 Environmental Management Controls for Heritage 68
Table 27 Environmental Management Controls for Dangerous Goods 70
Table 28 Environmental Management Controls for Fire 73
Table 29 Environmental Management Controls for the Community 75
Table 30 Monitoring and Inspection Requirements 77
Table 31 Reporting Requirements 82
Table 32 Audit Requirements 86
Table 33 Contingency Plan 87

FIGURES

Figure 1 Regional Locality (SLR 2019) 3
Figure 2 Site Access 14

CONTENTS

APPENDICES

Appendix A Development Consent SSD 7348
Appendix B Erosion and Sediment Control Plans (Burton)
Appendix C Flora and Fauna Management Plan (Ecologique)
Appendix D Landscape Management Plan (Scape Design)
Appendix E Construction Traffic Management Plan (Ason)
Appendix F Environmental Management Policy
Appendix G SSD 7348 Relevant Consent Conditions
Appendix H Event Notification Report
Appendix I Community Communication Strategy (SLR)
Appendix J Community Correspondence Register
Appendix K Construction Noise and Vibration Management Plan (SLR)
Appendix L Construction Air Quality Management Plan (SLR)
Appendix M Salinity Management Plan (Pells Sullivan Meynink)
Appendix N Fill Importation Protocol (AECOM)
Appendix O Waste Management Plan (SLR)
Appendix P Unexpected Finds Protocol – Archaeological Items (Artefact)
Appendix Q Unexpected Contamination Protocol (AECOM)
Appendix R Bushfire Protection Assessment (ABPP)
Appendix S Consultation Schedule for TfNSW (former RMS) and Water NSW
Appendix T Evidence of Consultation for CEMP

1 Introduction

1.1 Development Overview

Oakdale West Industrial Estate (Oakdale West) is a regional warehouse and distribution hub, is located at Kemps Creek within the Penrith local government area (LGA) and forms part of the broader Oakdale Industrial Precinct located within the Western Sydney Employment Area (WSEA) (see **Figure 1**).

Goodman Property Services (Aust) Pty Ltd (Goodman) obtained Development Consent SSD 7348 on 13 September 2019 from the Department of Planning, Industry and Environment (DPIE) for the Oakdale West 'Concept Proposal' and 'Stage 1 Development'. The Concept Proposal essentially comprises a 'Master Plan' to guide the staged development of Oakdale West and core development controls that will form the basis for design and assessment of future development applications for the site. It includes:

- Establishing primary site access, road layouts (including internal road network and connections to the external road network), developable and non-developable lands, biodiversity offsets, indicative development stages and development controls for the future development of the site;
- Stage 1 Development of the Estate including:
  - Estate Works, including site preparation, bulk earthworks and retaining walls, catchment level stormwater infrastructure, trunk services connections and utility infrastructure, roads and access infrastructure associated with Stage 1 and subdivision in Stage 1 development works;
  - Precinct Development, including construction, fit out and use of warehouse buildings within Precinct 1, detailed earthworks, on lot stormwater, services and utility infrastructure and construction of industrial/warehouse buildings;
  - Construction of a new regional road known as the Western North South Link Road (WNSLR) connecting to Lenore Drive to provide the primary access to the site; and
  - Western boundary landscaping.

Development Consent SSD 7348 has been modified on four occasions, including:

- MOD 1 – approved on 26 March 2020 to modify the concept plan and Stage 1 development, including changes to building pad level of Precinct 2, bio-retention basins and biodiversity offset strategy;
- MOD 2 – approved on 21 April 2020 to modify the concept layout and Stage 1 development to accommodate the design of warehouse Building 1A;
- MOD 3 – approved on 3 April 2020 to modify the Concept Proposal and Stage 1 DA; and
- MOD 4 – approved on 24 March 2020 for additional works associated with the WNSLR.

A copy of Development Consent SSD 7348 (as modified) is attached as **Appendix A**.

This Construction Environmental Management Plan (CEMP) has been prepared to cover the earthworks and civil construction undertaken by Burton Civil Engineering Contractors (Burton) across Oakdale West (excluding the WNSLR and Construction Access Road). No building or warehouse construction will be undertaken as part of this CEMP. A separate CEMP has been prepared to cover the construction of the WNSLR and Construction Access Road which will be undertaken by Robson Civil Projects (Robson). AT&L Associates (AT&L) will act as the Project Manager and Contract Superintendent overseeing both the construction of Oakdale West, and the WNSLR and Construction Access Road.

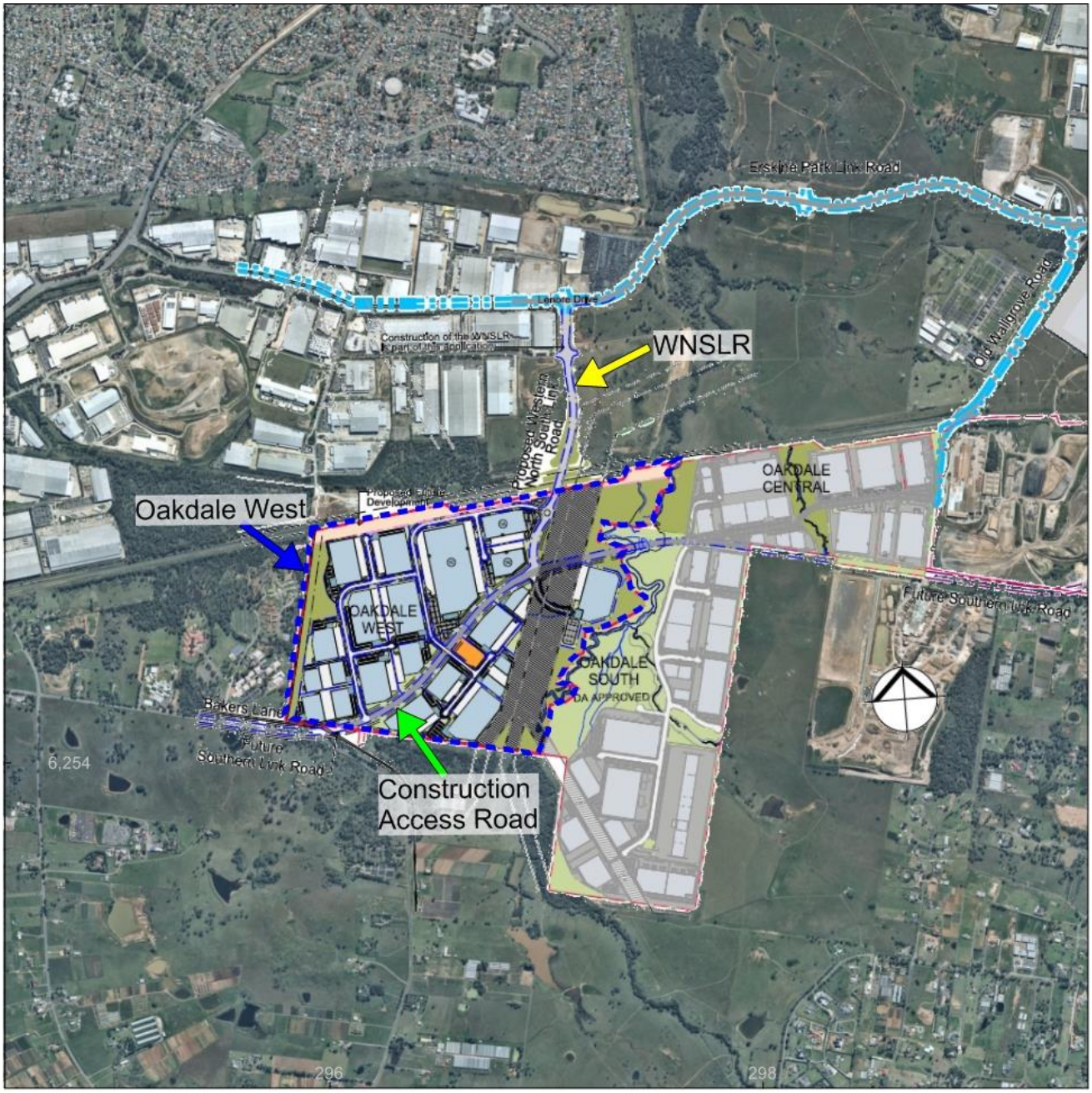
Note: Where Goodman is nominated as having responsibility as the Applicant, this may be delegated to their specialist consultants.

For the purposes of this document, the development is described in:

- *Environmental Impact Statement, Oakdale West Estate – State Significant Development Application* (EIS) prepared by Urbis (2017), including all specialist assessments and other appendices;
- *Oakdale West Industrial Estate (SSD 7348) Modification 1* prepared by Urbis (2019), including all specialist assessments and other appendices;
- *Oakdale West Estate SSD 7348 S4.55(2), Modification No.2 – Environmental Assessment Report* prepared by Urbis (2019), including all specialist assessments and other appendices;
- *Oakdale West Industrial Estate Concept Plan and Stage 1 Modification (MOD 3 SSD 7348) and Stage 2 Development Application (SSD 10397) – Environmental Impact Statement* prepared by GHD (2020), including all specialist assessments and other appendices; and
- *MOD 4, SSD 7348 – S4.55(1A) Application to Modify the consent to Include Works on Lot 9 DP 1157476* prepared by Goodman (2020).

The CEMP has been prepared in consideration of the *Guideline for the Preparation of Environmental Management Plans* (Department of Infrastructure, Planning and Natural Resources 2004).

Figure 1 Regional Locality (SLR 2019)



1.2 Construction Environmental Management Plan

The CEMP has been prepared to address the specific requirements of SSD 7348 and in consideration of the *Guideline for the Preparation of Environmental Management Plans* (Department of Infrastructure, Planning and Natural Resources 2004) and SSD 7348. As required by SSD 7348, the following specialist management plans have been prepared to support this CEMP:

- Erosion and Sediment Control Plans (Burton);
- Flora and Fauna Management Plan (FFMP) (Ecologique);
- Landscape Management Plan (LMP) (Scape Design);
- Construction Traffic Management Plan (CTMP) (Ason);
- Community Communication Strategy (SLR);
- Community Consultation and Complaints Handling Procedure (SLR);
- Construction Noise and Vibration Management Plan (CNVMP) (SLR);
- Construction Air Quality Management Plan (CAQMP) (SLR);
- Salinity Management Plan (Pells Sullivan Meynink);
- Fill Importation Protocol (AECOM);
- Waste Management Plan (WMP) (SLR);
- Unexpected Finds Protocol – Archaeological Items (Artefact);
- Unexpected Contamination Protocol (AECOM); and
- Bushfire Protection Assessment (ABPP).

1.2.1 Scope

This CEMP has been prepared to satisfy Conditions D118 – D122 of SSD 7348. The specific requirements of these consent conditions, along with where these requirements have been addressed within this CEMP, are listed in **Table 1**. A separate CEMP has been prepared for the WNSLR.

Table 1 CEMP Context

SSD 7348 Consent Condition	CEMP Section
D118. Management plans required under this consent must be prepared in accordance with relevant guidelines, and include:	
a) details of: (i) the relevant statutory requirements (including any relevant approval, licence or lease conditions); (ii) any relevant limits or performance measures and criteria; and (iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, Stage 1 or any management measures;	(i) Section 3.3 (ii) Section 4 (iii) Refer to specialist management plans
b) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	Section 4

SSD 7348 Consent Condition	CEMP Section
c) a program to monitor and report on the: (i) impacts and environmental performance of Stage 1; and (ii) effectiveness of the management measures set out pursuant to paragraph (b) above;	Section 5
d) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	Section 5.4
e) a program to investigate and implement ways to improve the environmental performance of Stage 1 over time;	Section 6
f) a protocol for managing and reporting any: (i) incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria); (ii) complaint; (iii) failure to comply with statutory requirements; and	(i) Section 3.5 and 5.2 (ii) Section 3.6 and 5.2 (iii) Section 5.2
g) a protocol for periodic review of the plan. ***Note:*** *The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans*	Section 6
D119. The Applicant must prepare a Construction Environmental Management Plan (CEMP) for Stage 1, including the WNSLR, in accordance with the requirements of Condition D118 and to the satisfaction of the Planning Secretary. The Applicant may prepare separate CEMPs for the Stage 1 works and the WNSLR, addressing all relevant requirements of this consent.	This Plan
D120. Prior to finalising the CEMP, the Applicant must consult with TfNSW (including the former RMS), Council and Water NSW. The Applicant must also attend a site visit with Water NSW personnel to mark the exact works area for the WNSLR bridge crossing.	This was undertaken as part of the CEMP prepared for the WNSLR
D121. As part of the CEMP required under Condition D119 of this consent, the Applicant must include:	
a) detailed procedures for managing bulk earthworks to avoid adverse water quality impacts on Ropes Creek, including, but not limited to: (i) any staging of earthworks to minimise disturbed areas; (ii) limits on the areal extent of earthworks; (iii) progressive grassing of exposed areas, as soon as reasonably practicable, focusing on areas where building construction will occur at a later stage;	Section 2.2.1
b) Landscape Management Plan (LMP) (see Condition D35);	Section 4.9
c) Construction Traffic Management Plan (CTMP) (see Condition D65);	Section 4.5
d) Consultation Schedule for TfNSW and Water NSW (see Conditions D57 and D58);	This was undertaken as part of the CEMP prepared for the WNSLR
e) Construction Noise and Vibration Management Plan (CNVMP) (see Condition D73);	Sections 4.2 and 4.3
f) Fill Importation Protocol (see Condition D79) and Erosion and Sediment Control Plan (see Condition D80);	Section 4.6
g) Flora and Fauna Management Plan (FFMP) (see Condition D88);	Section 4.8
h) Snake Management Measures (see Condition D96);	Section 4.8

SSD 7348 Consent Condition	CEMP Section
i) Construction Air Quality Management Plan (CAQMP) (see Condition D100);	Section 4.4
j) Unexpected Finds Protocol (see Conditions D106nd D108);	Section 4.10
k) Unexpected Contamination Protocol (see Condition D116); and	Section 4.11
l) a Community Consultation and Complaints Handling Procedure.	Section 4.13
D114. The Applicant must: a) not commence construction of Stage 1 until the CEMP is approved by the Planning Secretary; and b) carry out the construction of Stage 1 in accordance with the CEMP approved by the Planning Secretary	Noted

1.2.2 Objectives

The objectives of this CEMP are to:

- Establish the framework for managing and mitigating the potential for adverse environmental impacts as a result of the construction of Oakdale West;
- Clearly and concisely document the commitments made in the EIS (Urbis 2017) and Response to Submissions (RTS), including relevant management plans, that are required to be implemented with during construction;
- Demonstrate to DPIE how the applicant proposes to meet all of its regulatory obligations including those outlined in the Conditions of consent;
- Outline the controls to be implemented by the contractor in order to meet those obligations;
- Clearly and concisely document the conditions imposed by SSD 7348 that are required to be implemented and/or complied with during the construction phase; and
- Assist to establish Oakdale West in a manner that avoids (where possible) or minimises impact to the surrounding environment and populace.

1.2.3 Consultation

In accordance with SSD 7348, consultation has been undertaken with the applicable stakeholders which is summarised in **Table 2**. A Consultation Schedule for Transport for New South Wales (TfNSW) (former RMS) and Water NSW (SSD Conditions D57 and D58), and evidence of consultation for the CEMP (TfNSW (former RMS), Council and Water NSW) are attached as **Appendix S** and **Appendix T**, respectively. In addition, consultation has been ongoing with Endeavour Energy for approval of electrical reticulation for the WNSLR and the OWE works, with evidence included in **Appendix C**.

Table 2 Consultation

Condition	Comment
D10. Where conditions of this consent require consultation with an identified party, the Applicant must: a) consult with the relevant party prior to submitting the subject document to the Planning Secretary for approval; and b) provide details of the consultation undertaken including: (i) the outcome of that consultation, matters resolved and unresolved; and (ii) details of any disagreement remaining between the party consulted and the Applicant and how the Applicant has addressed the matters not resolved.	Evidence of consultation will be provided separately to the DPIE.
WATER NSW D31. The Applicant must: d) consult with Water NSW during preparation of the CEMP, in accordance with Condition D119, and attend a site visit with Water NSW personnel, prior to finalising the CEMP, to mark the exact works area for the WNSLR bridge crossing.	The Consultation Schedule is attached as **Appendix S**. Consultation was undertaken with Water NSW and is attached as **Appendix T**.
Landscape Management Plan D35. Prior to the commencement of construction of Stage 1, the Applicant must prepare a Landscape Management Plan (LMP), to the satisfaction of the Planning Secretary. The plan must form part of the CEMP in accordance with Condition D119 and the OEMP in accordance with Condition D130 and must: a) be prepared in consultation with Council;	This was undertaken as part of the Landscape Management Plan (see **Appendix D**).
D43A. Prior to construction of any signage for Stage 1, the Applicant must consult with Council on the final signage strategy and obtain approval of the final signage strategy from the Planning Secretary.	This will be addressed in the CEMPs to be prepared for Stage 1.
D57. The Applicant must develop a schedule for consultation with and approval by TfNSW for the construction of the bridge foundations over the future WSFL, including geotechnical and structural certification as required by TfNSW. The schedule must form part of the CEMP required by Condition D119.	A Consultation Schedule for TfNSW and Water NSW is attached as **Appendix S**.
D58. The Applicant must develop a schedule for consultation with and approval by Water NSW for the construction of the bridge over the water pipelines corridor. This schedule must form part of the CEMP required by Condition D119.	A Consultation Schedule for TfNSW and Water NSW is attached as **Appendix S**.
Construction Traffic Management Plan D65. Prior to the commencement of construction of Stage 1, the Applicant must prepare a Construction Traffic Management Plan to the satisfaction of the Planning Secretary. The plan must form part of the CEMP required by Condition D119 and must: b) be prepared in consultation with Council, Mamre Anglican School, Emmaus Catholic College, Emmaus Catholic Care Village and Trinity Catholic Primary School;	This was undertaken as part of the Construction Traffic Management Plan (see **Appendix E**).
Construction Noise and Vibration Management Plan D73. The Applicant must prepare a Construction Noise and Vibration Management Plan (CNVMP) for Stage 1, to the satisfaction of the Planning Secretary. The CNVMP must form part of a CEMP in accordance with Condition D119 and must: f) describe the community consultation undertaken to develop the strategies in Condition D73(e);	This was undertaken as part of the Construction Nose and Vibration Management Plan (see **Appendix K**).

Condition	Comment
Community Engagement D117. The Applicant must consult with the community regularly throughout Stage 1, including consultation with the nearby sensitive receivers identified in Appendix 5, relevant regulatory authorities, Registered Aboriginal Parties and other interested stakeholders. Community engagement shall be undertaken in accordance with the Community Communication Strategy approved in accordance with Condition C19.	**Appendix I**
D120. Prior to finalising the CEMP, the Applicant must consult with TfNSW, Council, RMS and Water NSW. The Applicant must also attend a site visit with Water NSW personnel to mark the exact works area for the WNSLR bridge crossing.	Consultation is attached as **Appendix T**. A site inspection was undertaken on 10 July 2019.
D121. As part of the CEMP required under Condition D119of this consent, the Applicant must include: d) Consultation Schedule for TfNSW and Water NSW (see Conditions D57 and D58);	A Consultation Schedule for TfNSW and Water NSW is attached as **Appendix S**.

2 Development Description

2.1 Location

Oakdale West is legally described as Lot 11 DP 1178389 at the far south-western extent of the WSEA within the Penrith LGA.

The site is bound to the north by the Water NSW Pipeline and to the east by the Ropes Creek riparian corridor. Land along the eastern boundary of the site is also affected by a transmission easement associated with Transgrid infrastructure. To the east of the site is Goodman's Oakdale South estate. Emmaus Catholic College and Emmaus Retirement Village is located to the west of the site. Other boundaries interface with adjoining rural lands used for a mix of rural-residential, agricultural.

2.2 Construction Staging and Activities

Stage 1 development of the Oakdale West Concept Proposal includes the site preparation and infrastructure works required to facilitate further development of the estate in line with the Concept Proposal, along with the development of Precinct 1 for warehousing and distribution.

The remainder of the Oakdale West is expected to be developed over four further stages with Stage 2 being the development of Precinct 2, Stage 3 being Precinct 3, Stage 4 being Precinct 4 and Stage 5 being Precinct 5.

Construction is scheduled to commence at the same time, or within a few weeks of the WNSLR. This is estimated to occur during October 2019 and will take approximately 120 weeks.

The works that will be constructed by Burtons (preferred contractor for the construction of the site preparation and infrastructure works for Oakdale West Stage 1), and covered under this CEMP, include:

- Bulk earthworks across the entire site (with the exception to the WNSLR works area which covers the Construction Access Road and Basin 1);
- Construction of the retaining and noise walls across the site;
- Construction of the western bund;
- Construction of lead in services infrastructure, including potable water, sewer, telecommunications and electrical;
- Construction of Roads 1, 2, 6 and part of Road 7;
- Construction of Basins 2, 3, 4, and 5; and
- Landscaping across the site.

No on-lot warehouse construction will be undertaken by Burtons. Burton's work shall be completed concurrently, however the Western Bund works, which includes the installation of a new snake barrier fence along the Western Boundary, will be prioritised to occur as part of the first works activities.

The earthworks require the importation of approximately 600,000 – 700,000m^3 of material. Due the limitations to the import of general fill by Bakers Lane, the importation process cannot commence until the WNSLR is available for use.

All works will be undertaken in accordance with the approved Staging Plan as required by Condition B15 of SSD 7348.

2.2.1 Erosion and Sediment Control Staging

As required by Condition D80 and D121(a), the methodology of the works detailed below explains the key controls to be implemented to avoid adverse water quality impacts on Ropes Creek.

Staging of the Works

In accordance with the construction program and scope of works the project is divided into five main precincts. The scope of the works is for Precinct 1 to be handover initially, followed by a progression in numeric order of the remaining Precincts. An Approved Staging Plan is required, with these requirements outlined in Condition B15.

Initial Works – Implementation of Erosion and Sediment Control Plans (ESCP)

The ESCPs contained in **Appendix B** have been developed for each stage of the works and document all the control measures to be implemented to control the surface runoff prior to any interaction with Ropes Creek.

Clearing and Grubbing

As per the Flora and Fauna Management Plan (FFMP) (see **Appendix C**), clearing of the site will be undertaken to allow the progression of the earthworks. The installation snake barrier fence along the boundary to the adjacent Emmaus Catholic College and Emmaus Retirement Village will occur prior to any clearing works commence in accordance with Condition D37.

Compound Establishment

The earthworks to Lot 2H and 2J will be undertaken initially to deliver a level pad to establish the site compound facilities including office, parking and associated amenities. A site specific ESCP will be implemented for this stage.

In addition, the Western Landscape Bund at the boundary to the Emmaus Catholic College will be undertaken in the initial stages to assist with the screening of the works to the adjacent property. These works will take priority and a commitment has been made to complete the landscape bund within six months of commencing the on lot works.

Dewatering of Existing Dams

The FFMP provides the methodology for decommissioning of existing dams and the framework for relocation of any fauna. Water from these existing dams will be used onsite for dust control and compaction of earthworks purposes. If it becomes necessary that water is to be discharged offsite it will be in accordance with the dewatering protocols as per the FFMP and Blue Book (Landcom 2004). Once operational, dewatering will be managed in accordance with the ESCP.

Topsoil Stripping and Topsoil Blending

A substantial quantity of existing topsoil and vegetation exists on the site and will be stripped progressively as per the key precincts below:

- Precinct 1 – The existing topsoil and vegetation will be stripped and placed in stockpile to be then blended into the earthworks Precinct 2 and 3;
- Precinct 2 and 3 – As provided for in the methodology outlined by Pells Sullivan Meynink (2015a), including:
  - In the instance fill zones are greater than 2 m in height, the existing grass and topsoil will be retained with the first layer of fill placed over the top;
  - In areas of fill less than 2 m, grass will be slashed and stripped across other fill zones and the topsoil retained or blended into the earthworks; and
- Precinct 4 and 5 – For all the fill areas in Precinct 4 and 5, the grass and vegetation will be maintained until the importation of fill can occur (not expected until at least week 45 of the program).

Overall Earthworks Staging

The mass-haul plan for control of earthworks volumes at each Precinct Separable Portion has been further sectioned and a detailed cut to fill framework designed which aims to minimise the haulage and movement of plant and machinery onsite.

The bulk earthworks operation requires the movement of approximately 2,500,000 cubic meters (m^3) of fill, of which:

- 1,750,000 m^3 will be from onsite cut to fill;
- 200,000 m^3 from the access road stockpile and topsoil blending; and
- 560,000 m^3 to be imported fill from external sources.

Cut to Fill – Precincts 1, 2 and 3

The majority of cut to fill will occur at Precinct 1, 2 and 3 and will be undertaken concurrently. The cut to fill plan and the placement of fill locations to minimise the haulage distances is detailed on the plan below.

Precincts 4 and 5 – Fill Importation

Staging of Precinct 4 and 5 is dependent on the importation of fill from external sources. While the compound location can be established, the remainder of the site will remain undisturbed until such time as the fill works are due to commence, Construction Certificate is issued, and the WNSLR Bridge and road works are completed.

Landscaping and Infrastructure Works

As the bulk earthworks are progressively completed, the landscaping and infrastructure works will commence as per the Landscape Management Plan (see **Appendix D**). For the future building pads, once trimmed these will be temporarily stabilised and handed over for the future building works to commence.

2.3 Construction Hours

Construction hours will be in accordance with Conditions D70 and D71 of Development Consent SSD 7348, which are reproduced below:

D70. The Applicant must comply with the hours detailed in Table 5, unless otherwise agreed in writing by the Planning Secretary.

***Table 5**: Hours of Work*

Activity	Day	Time
Construction	Monday – Friday Saturday	7 am to 6 pm 8 am to 1 pm

D71. Works outside of the hours identified in Condition D70 may be undertaken in the following circumstances:

a) works that are inaudible at the nearest sensitive receivers;

b) works agreed to in writing by the Planning Secretary;

c) for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or

d) where it is required in an emergency to avoid the loss of lives, property or to prevent environmental harm.

The construction hours will be provided to all staff and contractors in the induction. The movements of staff and contractors will be recorded for this project.

Noisy works to be undertaken out of hours is discussed in the Construction Noise and Vibration Management Plan (CNVMP) attached as **Appendix K**.

2.4 Construction Site Access

Access to Oakdale West will initially be via Bakers Lane and Aldington Lane. Upon completion of the WNSLR, such that access to the work area from the north becomes available, all vehicular access will be restricted to the northern access routes, via Lenore Drive and WNSLR.

Bakers Lane is the initial primary access point for these works with vehicles arriving to site from Mamre Road to the west. All construction vehicles are to use the primary access from Bakers Lane. A secondary access route is proposed from Aldington Road (to the south-west of the access gate), however the proposed alternative route will be restricted for use only when Bakers Lane is unavailable.

Every effort will be made to plan deliveries outside of school zone hours along Bakers Lane. The traffic monitoring strategies outlined in the CTMP (Ason 2020) will ensure that deliveries are scheduled outside of the school zone hours in order to avoid any additional conflicts between construction vehicles and the school. During school zones, Aldington Road will be used for deliveries to and from the Site.

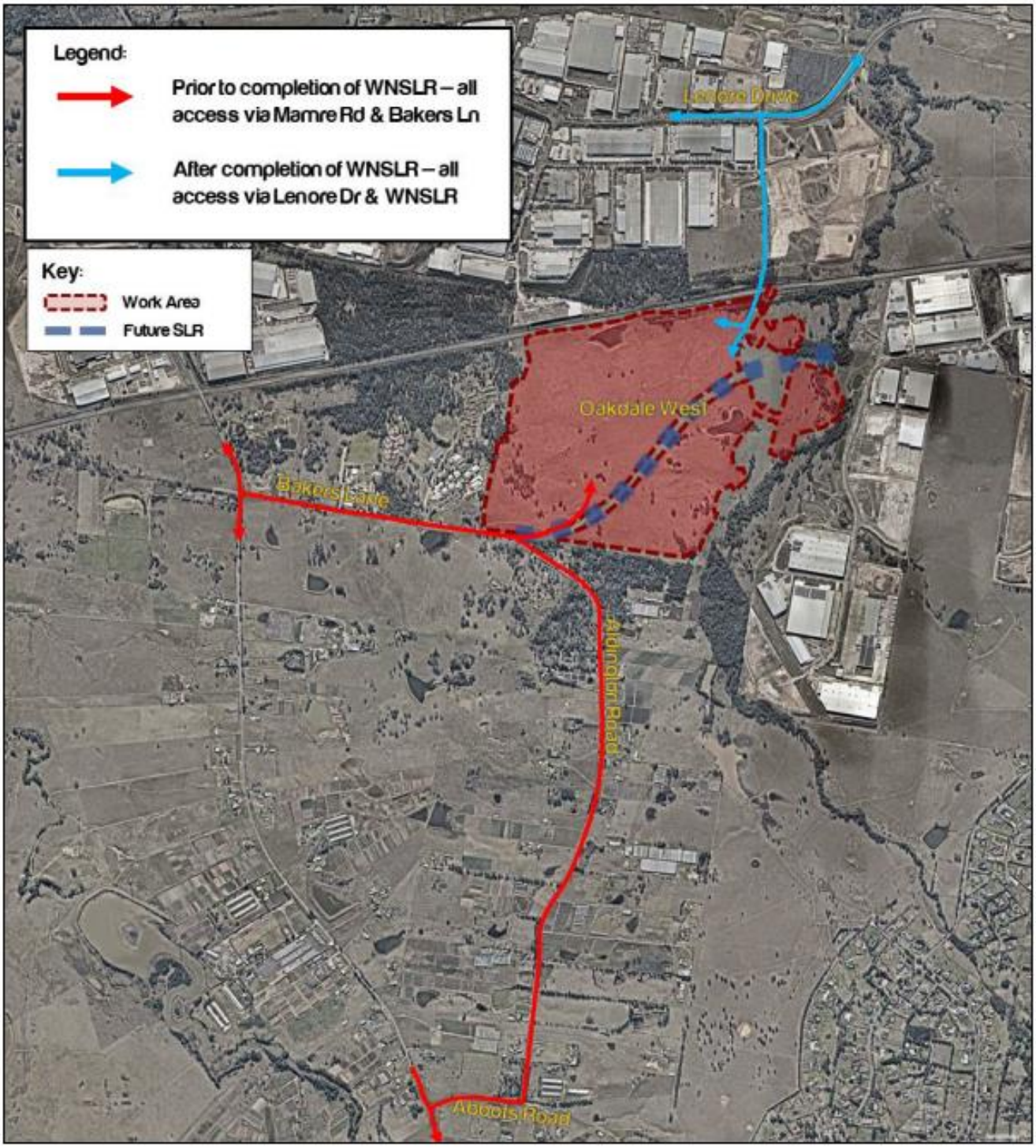
Furthermore, any construction traffic crossing the WNSLR Construction Access Road will do so via designated crossing points which will be determined in consultation between Burton and Robson.

In accordance with the CTMP (Ason 2020) (see **Appendix E**), **Table 3** and **Figure 2** detail the site access arrangements for the construction of Oakdale West.

Table 3 Site Access

Work Zones	Access Arrangement
Prior to the completion of the WNSLR	All vehicles shall access via Baker Lane outside of school peak periods. Access during school periods will be limited to vehicles up to 9.6m via Aldington Road – therefore no heavy vehicles will arrive to site during school peak periods.
Post completion of the WNSLR	All vehicles will access via the WNSLR.

Figure 2 Site Access



2.5 Construction Contact Details

Table 4 lists the key contacts during the construction of Oakdale West.

Table 4 Construction Contact List

Role	Name	Company	Contact Details
Project Principal	Kym Dracopoulos	Goodman	0411 511 431 kym.dracopoulos@goodman.com
Principal's Superintendent	Dane Segail	AT&L	0405 715 306 dane.s@atl.net.au
Contract Superintendent	AT&L	AT&L	02 9437 1777 info@atl.net.au
Project Manager	Alex Lohrisch	AT&L	0415 398 014 alexl@atl.net.au
Contractors Project Manager	David Claxton	Burton	0418 286 093 david.claxton@burtoncontractors.com.au
Contractors Environmental Site Representative	Luke Slechta	Burton	0429 771 070 luke.slechta@burtoncontractors.com.au
Work Health and Safety (WHS) Coordinator	Andre Van Gelder	Burton	0412 173 573 Andre.VanGelder@burtoncontractors.com.au
Environmental Representative	Carl Vincent	ERSED	0424 203 046 carl.vincent@ersed.com.au
Communications and Community Liaison Representative	Dan Thompson	SLR	0428 060 995 dthompson@slrconsulting.com

3 Environmental Management Framework

3.1 Burton's Environmental Management Policy

Burton have developed and implemented an integrated management system covering WHS, Environment and Quality Management. All management plans are developed on a works specific basis guided by this CEMP and provide information and direction in line with the integrated management approach, supported by supplementary plans and appendices as required for the works.

The Burton Management System is certified to AS/NZS 4801, ISO 9001 and ISO 14001. A copy of the Environmental Management Policy is attached as **Appendix F**.

3.2 Roles and Responsibilities

The key personnel responsible for environmental management during construction of Oakdale West are listed in **Table 5.**

Table 5 Personnel Responsible for Environmental Management

Role	Responsibilities
Project Principal	Environmental reporting responsibility associated with the development.
Contract Superintendent	Environmental reporting responsibility associated with the development.
Project Manager	Environmental reporting responsibility associated with the development.
Contractor's Project Manager	• Overall responsibility for environmental management and compliance with SSD 7348 and relevant legislation; • Liaise with Goodman to keep them informed of the project's progress; • Record, notify, investigate and respond to any environmental incidents and, where necessary, develop and implement corrective actions; • Consult and engage with Robson (preferred contractor for the construction of the WNSLR) regarding the environmental management of the Site; • Attend the Environmental Review Group (ERG) meetings; and • Provide adequate environmental inductions/training to employees and contractors regarding their requirements under this CEMP.
Contractors Environmental Site Representative	• Coordinate environmental inspections and reporting and authority liaisons; • Attend the Environmental Review Group (ERG) meetings; • Oversee the implementation of this CEMP and request adequate resources to enable implementation of this CEMP and provision of resources to the Contractor's Project Manager; • Report on the performance of the CEMP to the Project Manager for review and as a basis for system improvement; and • Direct reasonable steps be taken to avoid or minimise any unintended or adverse environmental impacts, and, failing the effectiveness of such steps, direct that the relevant actions cease immediately should an adverse impact on the environment be likely to occur.

Role	Responsibilities
WHS Coordinator	• Ensure the legislative and corporate safety, health and environment management measures and controls are implemented and maintained; • Participate in risk and hazard identification and control; • Participate in incident investigations and management; and • Participate in health and safety inspections.
Communications and Community Liaison Representative	• Lead and manage the community involvement activities, including liaison with property owners and key stakeholders; • Attend the ERG meetings; • Be the primary daily contact to the public handling of enquiries / complaints management / interface issues; • Be available for contact by local residents and the community at all reasonable times to answer any questions; • Liaise with property owners to co-ordinate access and to deal with specific property related issues arising from the upgrade works; • Lead the delivery of communication and community engagement strategies and plans; • Facilitate meetings, forums and arranging interviews to address concerns from community; • Provide advice and participate with the project teams to improve and enhance the delivery of communication services to the community; • Build, maintain collaborative and consultative working relationships with internal and external stakeholders; and • Be available for contact by local residents, key stakeholders and community representatives to answer queries and provide more information or feedback.
All employees, contractors and subcontractors	• Ensure familiarity, implementation and compliance with this CEMP and appended management plans; • Support Burton's, AT&L's and Goodman's commitment to sustainability, environmental management and compliance; • Work in a manner that will not harm the environment or impact on surrounding receptors; • Report all environmental incidents and complaints to the Project Manager without delay; and • Report any inappropriate construction practices and/or environmental management practices to the Project Manager without delay.

3.3 Statutory Requirements

The Development will be constructed in accordance with SSD 7348 (as modified) and also in accordance with the documents referenced under Condition B5 of the Consent:

- The EIS (Urbis 2017) and RTS;
- The development layout plans and drawings attached to the Development Consent as Appendix 1, which have been sourced from the EIS (Urbis 2017);
- MOD 1 EIS (Urbis 2019);
- MOD 2 EIS (Urbis 2019)
- MOD 3 EIS (GHD 2020);
- MOD 4 SEE (Goodman 2020); (and
- The management plans and mitigation measures (attached to the Development Consent as Appendix 7).

If there is any inconsistency between the plans and documentation referred to in Condition B5, the most recent document shall prevail to the extent of the inconsistency. However, the conditions of SSD 7348 prevail to the extent of any inconsistency. The Project Manager will be notified if any inconsistencies are identified.

SSD 7348 imposes a number of environmental performance and management requirements applicable to the construction of Oakdale West. The consent conditions applicable to Oakdale West are listed in **Appendix G** (N.B**.** The administrative conditions and conditions relating to the operational phase have not been included in **Appendix G**, only those conditions specific to site construction have been included).

3.4 Inductions and Environmental Training

The Contractor's Project Manager will ensure that all employees and contractors involved in the construction of Oakdale West are appropriately inducted and trained prior to commencing work on site. Training in relation to environmental responsibilities and implementation of this CEMP will take place initially through the site induction training and then on an ongoing basis through 'toolbox talks' (or similar).

The environmental induction training will cover all elements of the CEMP and will include, as a minimum, the following:

- Purpose and objectives of the CEMP;
- Requirements of due diligence and duty of care;
- Conditions of any environmental licences, permits and approvals;
- Potential environmental emergencies on site and the emergency response procedures (including the Emergency Spill Response Plan), locations and training in the use of emergency spill kits for spills on water and on land;
- Reporting, notification and management requirements for pollution, contamination and other environmental incidents, and for damage and maintenance to environmental controls;

- High-risk activities and associated environmental safeguards i.e. earthworks, vegetation clearing, night works, operation and maintenance of concrete washouts, and washing, refuelling and maintenance of plant and equipment;
- Working in or near environmentally sensitive areas; and
- Site-specific issues including:
  - Erosion and sediment controls, water quality controls and sediment basin management (see **Section 4.6**);
  - Responsibilities under the *National Parks and Wildlife Act 1974*, including the need to cease work immediately and report any object of potential Aboriginal heritage unearthed during clearing, grubbing and earthworks operations (see **Section 4.9**);
  - Responsibilities under the *Heritage Act 1977* if an object of potential non-Aboriginal heritage is uncovered during construction;
  - Access into the Water NSW pipeline corridor is prohibited unless written access consent has been obtained from Water NSW;
  - Noise, vibration and air quality management controls (see **Sections 4.2, 4.3** and **4.4**);
  - Requirement to maintain surrounding property access for residences and businesses and to minimise disruptions to these properties for the duration of construction;
  - Location of reuse bins, washing, refuelling and maintenance of vehicles, plant and equipment;
  - Waste minimisation principles (see **Section 4.7**);
  - Boundaries for vegetation clearing, fauna and fauna habitat management, including awareness of threatened fauna species and fauna rescue (see **Section 4.8**);
  - Identification, reporting and management of contaminated land (see **Section 4.11**); and
  - Incident management processes (see **Section 3.5**).

Toolbox talks will be held to identify environmental issues and controls when works commence in a new area of the site or a new activity, as well as when environmental issues arise on site. The toolbox talk will include but not be limited to:

- A description of the activity and the area;
- Identification of the environmental issues and risks for the area (including fauna or flora); and
- Outline the mitigations measures for the works and the area (see **Section 4**).

All employees conducting environmental training and site staff assigning work activities will demonstrate that they are competent and appropriately trained to train and manage construction site specific environmental issues.

A register of all environmental training carried out, including dates, names of persons trained and trainer name and qualification details will be established and maintained for the duration of works.

3.5 Incident and Non-Compliance Response and Handling Procedure

For the purposes of this CEMP, SSD 7348 describes an 'incident' as an occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance. SSD 7348 describes a 'non-compliance' as an occurrence, set of circumstances or development that is a breach of the consent.

3.5.1 Performance Objective

To ensure that any incident and/or non-compliance caused by or relating to the construction of the Oakdale West is effectively responded to, and any resulting adverse environment and/or human health impact is promptly prevented or effectively managed.

3.5.2 Responsibility

The Contractor's Project Manager is responsible for ensuring that the appropriate management response and handling procedures are instigated and carried through in the event of an incident and/or non-compliance. All employees, contractors and subcontractors are to:

- Notify the Contractor's Project Manager who will notify the Environmental Representative (ER) of any hazard or potential hazard that may result in an incident and/or non-compliance, regardless of the nature or scale; 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 and/or non-compliance.

The induction and toolbox talks outlined in **Section 3.4** will be used to ensure all site employees, contractors and subcontractors are aware of and understand their obligations for incident and/or non-compliance response.

3.5.3 Notification Requirements

3.5.3.1 Incidents

Section 147 of the *Protection of the Environment Operations Act 1997* (POEO Act) defines material harm as:

> *(a) harm to the environment is material if:*
>
> *(i) it involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial, or*
>
> *(ii) it results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding $10,000 (or such other amount as is prescribed by the regulations), and*
>
> *(b) loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment.*

Notification responsibilities for incidents that have caused or threatened to cause material harm to the environment are detailed in Section 148 of the 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 with regard to Oakdale West will, immediately after becoming aware of any potential incident (even if outside of normal business hours), notify the Contractor's Project Manager who will notify the ER of the incident and all relevant information about it. The Contractor's Project 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:

The employer or occupier of the premises (in this case, the ER) on which the incident occurred, who is notified (or otherwise becomes aware of) of the incident, will 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 – the Environment Protection Authority (EPA);
- If the EPA is not the appropriate regulatory authority – the local authority for the area in which the pollution incident occurs (i.e. Council);
- NSW Public Health Unit;
- SafeWork NSW; and
- Fire and Rescue NSW.

Table 6 lists the contact details for these authorities. The person reporting the pollution incident will 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 6 Regulatory Authority Contact List

Regulatory Authority / Stakeholder	Key Contact	Contact Details	
Department of Planning, Industry and Environment (DPIE)	Compliance Unit	1300 305 695 or 02 9228 6111 compliance@planning.nsw.gov.au	
Environment Protection Authority (EPA)	Environment Line	131 555 info@environment.nsw.gov.au	
	Head office (Sydney)	02 9995 5000	
Penrith City Council	Main switchboard	02 4732 777 council@penrith.city	
Water NSW	Main switchboard	1300 662 077 Customer.Helpdesk@waternsw.com.au	
	Incident Notification Number – 24 hours	1800 061 069	
NSW Public Health Unit	Sydney Local Health District	Business hours: 1300 066 055 After hours: 02 9515 6111	
SafeWork NSW	Incident Notification Hotline	131 050 Select Option 3 to report a "Serious Incident or Fatality" – this will result in the incident being recorded and the appropriate person being contacted.	
Emergency Services	NSW Police NSW Fire and Rescue NSW Ambulance Service	131 444 1300 729 579 -	In case of emergency – 000

In accordance with Condition D135 of Development Consent SSD 7348, once Goodman becomes aware of an incident Goodman is required to immediately (within 24 hours) provide a written incident notification via email to the DPIE and other relevant agencies of an incident, or potential incident, that causes (or may cause) harm to the environment. A detailed incident report is then to be provided to the DPIE within 30 days of the incident.

3.5.3.2 Non-Compliances

In accordance with Condition D136 of SSD 7348, the DPIE will be notified in writing to compliance@planning.nsw.gov.au within seven days of becoming aware of any non-compliance.

D137 and D138 of SSD 7348 states a non-compliance notification will identify the development and the application number for it, set out the condition of consent that the development is non-compliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.

A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.

3.5.4 Incidents and Non-Compliance Handling Procedure

Upon becoming aware of an incident and/or non-compliance, the procedure outlined below will be followed.

1. Preventative Action

Where possible and safe to do so, immediate action will be taken to prevent, stop, contain and/or minimise the environmental impact of the incident and/or non-compliance.

In the unlikely event that an incident and/or non-compliance requires the evacuation of the site, actions will be completed in accordance with 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 and/or non-compliance 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 3.5.3**.

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 3.5.3**.

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 will be strictly adhered to.

Condition D135 and Appendix 8 of Development Consent SSD 7348 requires that the DPIE and other relevant authorities be provided with a written incident notification via email within 24 hours after the incident.

A written notification will:

- Identify the development and application number;
- Provide details of the incident (date, time, location, a brief description of what occurred and why it is classified as an incident);
- Identify how the incident was detected;
- Identify when the Applicant became aware of the incident;
- Identify any actual or potential non-compliance with conditions of consent;
- Describe what immediate steps were taken in relation to the incident;
- Identify further action(s) that will be taken in relation to the incident; and
- Identify a project contact for further communication regarding the incident.

Non-compliances will be notified in accordance with **Section 3.5.3.2**.

4. Investigate

Undertake immediate investigative work to determine the cause of the incident and/or non-compliance.

5. Remedial Action

Undertake appropriate remedial action to address the cause of the incident and/or non-compliance 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 incident is to be recorded in an Event Notification Report (**Appendix H**). A copy of the completed report will be maintained for at least five years by Burton.

Condition D135 and Appendix 8 of Development Consent SSD 7348 requires that a detailed incident report be provided to the DPIE within 30 days of the incident occurring.

The Event Notification Report will include:

- A summary of the incident;
- Outcomes of an incident investigation, including identification of the cause of the incident;
- Details of the corrective and preventative actions that have been, or will be, implemented to address the incident and prevent recurrence; and
- Details of any communication with other stakeholders regarding the incident.

All non-compliances are recorded in accordance with Condition D137 of SSD 7348.

7. Preventative Action

Once the incident and/or non-compliance has been suitably handled, appropriate measures will be identified and implemented to reduce the possibility of re-occurrence.

3.5.5 Incidents and Non-Compliance Register

An Incidents and Non-Compliance Register will be maintained during construction and will contain the following:

- A copy of the environmental incident and non-compliance notification requirements and handling procedure contained above in **Section 3.5.3** and **3.5.4**;
- Site evacuation procedures;
- A separate reference sheet containing the contact details for the contacts listed in **Table 4** and the contact details for the regulatory authorities listed in **Table 6**;
- Blank hard copies of the Event Notification Report; and
- Copies of all completed Event Notification Report, which are to be maintained for at least five years after the event to which they relate.

3.5.6 Minor Environmental Incidents

There is the possibility of minor environmental incidents occurring as part of this project. SLR have defined a 'Minor Environmental Incident' as an incident where there has been no potential or actual material harm to the environment (see 'material harm' definition outlined in **Section 3.5.3**). Examples may include excessive dust impacts sighted by the project team or a small contained hydrocarbon spill that does not leave a site boundary and are cleaned up without residual on-site environmental harm (RMS 2018).

Minor environmental incidents will still be handled under the process outlined in **Section 3.5.4** except there will be no requirement for government notification. All minor or major incidents will be recorded in the Incidents Register, with details of the events also included in the Environmental Representative Monthly Report. A minor incident does not constitute a non-compliance with the Development Consent.

3.6 Complaints Response and Handling Procedure

All complaints will be handled in accordance with the sections below and the *Community Communication Strategy* (CCS) (SLR 2020a) (see **Appendix I**).

3.6.1 Performance Objective

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

3.6.2 Responsibility

The Communications and Community Liaison Representative is 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 3.4** will be used to ensure all site employees are aware of and understand their obligations for complaints response.

All employees who take receipt of a complaint, either verbal or written, are to immediately notify the Contractor's Project Manager, who will then contact the Communications and Community Liaison Representative.

3.6.3 Complaints Handling Procedure

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

1. Record and Acknowledge

Any employee who take receipt of a complaint, either verbal or written, are to immediately notify the Contractor's Project Manager who will then contact the Communications and Community Liaison Representative. The Contractor's Project Manager will be available 24 hours a day, seven days a week and have the authority to stop or direct works. All relevant contact details are available in **Table 4**.

In the normal course of events, the first contact for complaints will usually be made in person or by telephone.

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

2. Assess and Prioritise

The Communications and Community Liaison Representative will prioritise all complaints by considering the seriousness of the complaint including risk to health and safety and will attempt to provide an immediate response via phone or email. This will be undertaken in accordance with the CCS (SLR 2020a).

3. Investigate

A field investigation will be initiated in an attempt to confirm details relevant to the complaint and the cause of the problem. Any monitoring information and/or records at and around the time of the complaint will 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 3.5.3** and **3.5.4** respectively will be followed.

4. Action or Rectify

Once the cause of the complaint has been established, every possible effort will be made to undertake appropriate action to rectify the cause of the complaint and mitigate any further impact. The Communications and Community Liaison Representative will assess whether the complaint is founded or unfounded and delegate the remediation of the issue to the Contractor's Project Manager for action, as required.

5. Respond to Complainant

The Communications and Community Liaison Representative will oversee the rectification of the issue and respond to the complainant once the issue has been resolved. The complainant will be provided with a follow up verbal response on what action is proposed within two hours during night-time works (between the hours of 6:00 pm and 10:00 pm) and 24 hours at other times. Where a complaint cannot be resolved by the initial or follow-up verbal response, a written response will be provided to the complainant within ten days.

6. Record

It is imperative that an 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 Community Correspondence Register (**Appendix J**). A copy of the completed form will be maintained for at least five years. The complaint will also be recorded in the Complaints Register, as per **Section 3.6.4**.

7. Preventative Action

Once the complaint has been suitably handled, appropriate measures will be identified and implemented to negate the possibility of re-occurrence. The Community Correspondence Register is not finalised until the preventative actions are completed and recorded on the form.

3.6.4 Complaints Register

A Complaints Register will be maintained during construction and will contain the following:

- A copy of the environmental complaint handling procedure contained in **Section 3.6.3**;
- A separate reference sheet containing the contact details listed in **Table 4**;
- Blank hard copies of the Community Correspondence Register (see **Appendix J**); and
- Copies of all completed Community Correspondence Register, which are to be maintained for at least five years after the event to which they relate.

3.7 Dispute Resolution

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

In the case of a dispute between Goodman and a community member/complainant, either party may refer the matter to the DPIE and/or relevant regulatory authority for consideration, advice and/or negotiation. If the matter escalates, a third party mediator may be required. It should be noted that Condition D127g states ‘as may be requested by the Planning Secretary, assist the Department in the resolution of community complaints’.

Additional information can be located in the CCS (SLR 2020a) attached as **Appendix I**.

4 Environmental Management Commitments

Environmental aspects with the potential to be impacted through the construction of Oakdale West are addressed in the following sub-sections. These issues have specific regulatory requirements imposed by SSD 7348 and/or are considered to have the highest potential to result in a non-compliance with a legislative requirement or generate community complaints. The tables in this section are a compliance management tool outlining how controls are to be implemented.

4.1 General

Table 7 lists the general environmental controls that will be implemented throughout the construction of the Oakdale West to minimise the potential for adverse impacts on the local environmental and surrounding receptors.

Table 7 General Construction Environmental Management Controls

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Safe and unobstructed access will be provided for TransGrid plant and personnel to access the transmission towers, lines and easement on the Site, 24 hours a day, 7 days a week.	Burton	Ongoing	SSD 7348 Condition B21 and D30
All staff will comply with the requirements of TransGrid for any works in the TransGrid easement.			
TransGrid will be advised of any proposed amended or modified encroachment into the easement.	Goodman / Burton		
The requirements of Endeavour Energy for the provision of land for a new zone substation (as shown on the plans in the RTS) will be complied with	Burton		SSD 7348 Condition B22
Safe and unobstructed access will be provided for Water NSW plant and personnel to access the water pipelines corridor adjacent the site, 24 hours a day, 7 days a week.			SSD 7348 Condition B23
All staff will comply with the requirements of Water NSW for any works adjacent to or over, the water pipelines corridor.			
Water NSW will be advised of any proposed amended or modified encroachment into the water pipelines corridor.	Goodman / Burton		
All reasonable and feasible measures will be implemented to prevent and minimise, any material harm to the environment.	Burton		SSD 7348 Condition D1
All demolition will be carried out in accordance *with Australian Standard AS 2601-2001 The Demolition of Structures* (Standards Australia 2001).		If required	SSD 7348 Condition D17
All plant and equipment will be maintained and operated in a proper and efficient manner.		Ongoing	SSD 7348 Condition D21

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
All signage and fencing will be erected in accordance with the plans in the RTS.	Burton	Prior to commencing construction and ongoing	SSD 7348 Condition D43
All fencing along building frontages will be located behind the landscape setbacks and not along the front boundary. The fencing will be a maximum height of 2.1 metre and be an open style.			SSD 7348 Condition D44
The Oakdale West will be constructed within the hours outlined in **Section 2.3.**			SSD 7348 Condition D70
All works on or adjacent to waterfront land will be carried out in accordance with the Department of Industry (2012) *Guidelines for Controlled Activities on Waterfront Lands*.			SSD 7348 Condition D87
Environmental Work Method Statements (EWMS) will be prepared and implemented.		Prior to commencing construction and ongoing	Best practice
All monitoring records will be maintained to demonstrate compliance with the CEMP, including: • Site environmental inspection reports • Environmental monitoring data and • Internal and external audit reports • Reports of environmental incidents, environmental, associated actions taken, and follow-up actions • Minutes of management review meetings • Induction and training records		For 5 years after completion date	
The incidents and complaints management strategies contained within **Sections 3.5 and 3.6** will be implemented to ensure that any incidents and/or complaints relating to the construction activities are promptly and effectively addressed.		Ongoing	CEMP Sections 3.5 and 3.6
Construction employees and contractors will be suitably inducted and trained prior to commencing any work on site.		Prior to commencing construction and ongoing	CEMP Section 3.4

4.2 Noise

Construction noise at Oakdale West will be managed in accordance with the CNVMP (SLR 2020c) prepared to fulfil Condition D73 and D74of SSD 7348, attached as **Appendix K**.

Table 8 outlines the project specific Noise Management Levels (NMLs) to be adhered to during the construction of Oakdale West as outlined in the CNVMP (SLR 2020c).

Table 8 Project Specific Construction Noise Management Levels

Location	Receiver Type	Rating Background Level (RBL)[1]			Construction Noise Management Levels (NML) $L_{Aeq(15minute)}$ (dBA)				
		Day	Evening	Night	Standard Construction Hours[2]	Day Out of Hours[2]	Evening Out of Hours[2]	Night Out of Hours[2]	Highly Noise Affected
Erskine Park Residential[3]	Residential	37	40	39	47	42	42[5]	42[5]	75
Emmaus Village Residential	Residential	39	38	36	49	44	43	41	
Kemps Creek Residential	Residential	34	35	32	44	39	39[5]	37	
Any	Industrial	n/a			External 75 when in use				n/a
Any	Commercial	n/a			External 70 when in use				
Any	School[4]	n/a			External 55 when in use				

Note 1: RBL Periods – Day: 7:00 am to 6:00 pm Monday to Saturday, 8:00 am to 6:00 pm Sunday; Evening: 6:00 pm to 10:00 pm; Night: 10:00 pm to 7:00 am Monday to Saturday, 10:00 pm to 8:00 am Sunday.

Note 2: Standard construction hours: 7:00 am to 6:00 pm Monday to Friday, 8:00 am to 1:00 pm Saturday (see **Section 2.3**).
Day out of hours: 1:00 pm to 6:00 pm Saturday, 8:00 am to 7:00 pm Sunday and Public Holidays.
Evening out of hours: 6:00 pm to 10:00 pm Monday to Sunday.
Night out of hours: 10:00 pm to 7:00 am Monday to Saturday, 10:00 pm to 8:00 am Sunday and Public Holidays.

Note 3: RBL for Erskine Park Residential taken from *Western North-South Link Road DA Noise Impact Assessment* prepared by SLR in September 2016.

Note 4: External criteria equivalent to internal criteria plus 10 dB.

Note 5: RBL reduced to be equal to Daytime RBL in accordance with the ICNG and NPfI.

The noise criteria outlined in Condition B18 is applicable to the operation of Oakdale West and will form part of the Operation Environmental Management Plan (OEMP).

The environmental management controls in **Table 9** will be implemented to minimise the potential for adverse noise emissions from the construction of Oakdale West.

Note: **Table 9** and **Table 12** are replicated as Table 13 in the CNVMP.

Table 9 Environmental Management Controls for Noise

Measure	Person Responsible	Timing / Frequency	Reference / Notes
Project Planning			
Less noise and vibration intensive construction techniques for rock breaking and concrete sawing will be used.	Burton	Ongoing	Best practice and CNVMP Section 6
Works will be completed during standard daytime construction hours outlined in **Section 2.3**.			
Truck routes to site will be in accordance with the approved Construction Traffic Management Plan.			
Scheduling			
Respite offers will be considered where high-noise works are predicted to exceed 75 dBA for residential receivers. For schools and retirement villages (Emmaus Village) a lower level of 65 dBA will be used to account for the sensitive daytime uses of these receivers. Respite offers will be considered for high-vibration works where the works are undertaken within the human comfort minimum working distances for all receiver types. Consultation with these receivers will be undertaken to determine appropriate respite periods, such as exams periods for schools.	Communications and Community Liaison Representative	Ongoing	SSD 7348 Condition D73
High-noise or vibration generating works will be carried out in continuous blocks no longer than three hours in length, with a minimum respite period of one hour between each block. 'Continuous' includes any period during which there is less than a one hour respite between ceasing and recommencing these works. High-noise or vibration generating works conducted outside standard construction hours (where approved) will be limited to no more than two consecutive nights except where there is a Duration Respite (see below). For night-works these periods will be separated by no less than one week, and limited to six nights per month. Where possible, high-noise and vibration generating works will be completed before 11:00 pm.			
Duration Respite will be considered where it may be beneficial to the sensitive receivers to increase the duration of blocks of work or number of consecutive periods in order to complete the works more quickly. The project team will engage with the community where Duration Respite is considered in accordance with the CCS.			

Measure	Person Responsible	Timing / Frequency	Reference / Notes
Notification detailing work activities, dates and hours, impacts and mitigation measures, indication of work schedule over the night time period, any operational noise benefits from the works (where applicable) and contact telephone numbers will be undertaken in accordance with the CCS.	Communications and Community Liaison Representative	Ongoing	Best practice and CNVMP Section 6
Site Layout			
Compounds and worksites will be designed to promote one-way traffic and minimise the need for vehicle reversing.	Burton	Ongoing	Best practice and CNVMP Section 6
Where practicable, work compounds, parking areas, and equipment and material stockpiles will be positioned away from noise-sensitive locations and take advantage of existing screening from local topography.			
Equipment that is noisy will be started away from sensitive receivers			
Training			
Training will be provided to all personnel on noise and vibration requirements for the project. Inductions and toolbox talks to be used to inform personnel of the location and sensitivity of surrounding receivers.	Burton	Ongoing	Best practice and CNVMP Section 6
Plant and Equipment Source Mitigation			
All construction plant and equipment used on Site will be, in addition to other requirements: a) regularly inspected and maintained in an efficient condition; b) operated in a proper and efficient manner.	Burton	Ongoing	SSD 7348 Condition D21
Where practicable, tonal reversing alarms (beepers) will be replaced with non-tonal alarms (squawkers) on all equipment in use (subject to occupational health and safety requirements).			Best practice and CNVMP Section 6
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 achieve the maximum attenuation of noise.			
Noise generating equipment will be regularly checked and effectively maintained, including checking of hatches/enclosures regularly to ensure that seals are in good condition and doors close properly against seals.			
Dropping materials from a height will be avoided.			
Loading and unloading will be carried out away from noise sensitive areas, where practicable.			

Measure	Person Responsible	Timing / Frequency	Reference / Notes
Trucks will not queue outside residential properties. Truck drivers will avoid compression braking as far as practicable.	Burton	Ongoing	Best practice and CNVMP Section 6
Truck movements will be kept to a minimum i.e. trucks are fully loaded on each trip.			
Screening			
Purpose-built acoustic screening or enclosures will be installed around long-term fixed plant such as generators in site compounds.	Burton	Ongoing	Best practice and CNVMP Section 6
The MOD 3 noise barriers will be constructed to the satisfaction of the Planning Secretary.		By 31 October 2020	SSD 7348 Condition D75(a)
Community Consultation			
Notifications will be provided to the affected community where high impacts are anticipated or where out of hours works are required. Notification will be a minimum of seven working days. Refer to the CCS.	Communications and Community Liaison Representative	Ongoing	Best practice and CNVMP Section 6
Where complaints are received, work practices will be reviewed and feasible and reasonable practices implemented to minimise any further impacts. See **Section 3.6**.			
Monitoring			
Noise and/or vibration monitoring will be conducted (as appropriate) when noise/vibration intensive works are being undertaken in close proximity to sensitive receivers.	Burton	Ongoing	Best practice and CNVMP Section 6
Noise and/or vibration monitoring will be conducted (as appropriate) in response to any complaints received to verify that levels are not substantially above the predicted levels.			
Refer to Section 8 of CNVMP for full details of monitoring requirements.			
EIS Measures			
Construction hours will be limited to 7:00 am - 6:00 pm Monday to Friday and 8:00 am - 1:00 pm Saturdays..	Burton	Ongoing	EIS mitigation commitment
Where construction noise levels are predicted to be above the NMLs, all feasible and reasonable work practices will be investigated to minimise noise emissions as detailed in the CNVMP.			
Construction works will be conducted during Standard Construction Hours, with out of hours work minimised as far as feasible and reasonable, and undertaken in accordance with Condition D71.			

Measure	Person Responsible	Timing / Frequency	Reference / Notes
Locations for vibration intensive equipment will be reviewed during the planning of construction works adjacent to the most affected receivers.	Burton	Ongoing	EIS mitigation commitment

4.3 Vibration

Vibration during the construction of the Oakdale West will be managed in accordance with the CNVMP (SLR 2020c) prepared to fulfil Condition D73 and D74 of SSD 7348, and attached as **Appendix K**. The key vibration criteria is listed in Condition D 76: *Vibration caused by construction works on the site, as measured at any residence or structure outside the site, must be limited to:*

a) for structural damage, the latest version of DIN 4150-3 (1992-02) Structural vibration - Effects of vibration on structures (German Institute for Standardisation, 1999); and

b) for human exposure, the acceptable vibration values set out in the Environmental Noise Management Assessing Vibration: a technical guideline (DEC, 2006) (as may be updated or replaced from time to time).

The vibration dose values (VDVs) recommended in the EPA's *Assessing Vibration: a technical guideline* (2006) for vibration of an intermittent nature are listed in **Table 10**.

Table 10 Acceptable Vibration Dose Values for Intermittent Vibration

Location	Daytime[1]		Night-time[1]	
	Preferred Value	Maximum Value	Preferred Value	Maximum Value
Residences	0.20	0.40	0.13	0.26
Offices, schools, educational institutions and places of worship	0.40	0.80	0.40	0.80
Workshops	0.80	1.60	0.80	1.60

Note 1: Daytime is 7:00 am to 10:00 pm and night-time is 10:00 pm to 7:00 am.

The recommended safe working distances for vibration intensive construction plant are listed in **Table 11**. These recommendations are for the practical management of potential vibration to minimise the likelihood of cosmetic damage to buildings and disturbance or annoyance in humans.

Table 11 Recommended Safe Working Distances for Vibration Intensive Plant

Plant Item	Rating / Description	Minimum Distance		
		Cosmetic Damage		Human Response (NSW EPA Guideline)[1]
		Residential and Light Commercial (BS 7385)[1]	Heritage Items (DIN 4150 Group 3)[2]	
Vibratory Roller	< 50 kN (Typically 1-2t)	5 m	11 m	15 m to 20 m
	< 100 kN (Typically 2-4t)	6 m	13 m	20 m
	< 200 kN (Typically 4-6t)	12 m	15 m	40 m
	< 300 kN (Typically 7-13t)	15 m	31 m	100 m
	> 300 kN (Typically 13-18t)	20 m	40 m	100 m
	> 300 kN (Typically > 18t)	25 m	50 m	100 m
Small Hydraulic Hammer	300 kg – 5 to 12t excavator	2 m	5 m	7 m

Plant Item	Rating / Description	Minimum Distance		
		Cosmetic Damage		Human Response (NSW EPA Guideline)[1]
		Residential and Light Commercial (BS 7385)[1]	Heritage Items (DIN 4150 Group 3)[2]	
Medium Hydraulic Hammer	900 kg – 12 to 18t excavator	7 m	15 m	23 m
Large Hydraulic Hammer	1600 kg – 18 to 34t excavator	22 m	44 m	73 m
Vibratory Pile Driver	Sheet piles	2 m to 20 m	5 m to 40 m	20 m
Pile Boring	≤ 800 mm	2 m (nominal)	5 m	4 m
Jackhammer	Hand held	1 m (nominal)	3 m	2 m

Note 1: Criteria reference from RMS (2016) Construction Noise and Vibration Guideline (CNVG).

Note 2: Criteria reference from German Institute for Standardisation (Deutsches Institut für Normung) (1999) DIN 4150 – Structural vibration - Effects of vibration on structures.

The environmental management controls in **Table 12** will be implemented to minimise the potential for adverse vibration impacts from the construction of the Oakdale West.

Note: **Table 9** and **Table 12** are replicated as Table 13 in the CNVMP.

Table 12 Environmental Management Controls for Vibration

Measure	Person Responsible	Timing / Frequency	Reference / Notes
Vibration			
Where works are required within the minimum working distances, vibration monitoring will be undertaken to confirm that vibration is within acceptable levels.	Burton	Ongoing	Best practice and CNVMP Section 6
Where works are required within the cosmetic damage minimum working distances, building condition surveys will be completed before and after the works to ensure no cosmetic damage has occurred.			
Vibratory compactors will not be used closer than 30 m from residential and educational buildings unless vibration monitoring confirms compliance with the vibration criteria.			SSD 7348 Condition D77
A vibration limit of 15 mm/s PPV will be applied to the Water NSW pipelines located adjacent to the northern site boundary.			PSM Vibration Assessment PSM1541-381L (and/or requested by Water NSW)

Measure	Person Responsible	Timing / Frequency	Reference / Notes
Dilapidation surveys of the Water NSW pipelines will be carried out prior to the commencement and after completion of any vibration intensive work within 50 m of the pipelines, at a minimum. This will include as a minimum, collecting photos of the conditions of the site and existing pipeline and foundations, and mapping/identifying any existing issues or cracks, etc., prior to, during, and after the works.	Burton	Ongoing	PSM Vibration Assessment PSM1541-381L (and/or requested by Water NSW)
During vibration intensive construction works within 50 m of the Water NSW pipelines, vibration will be monitored in accordance with the procedures outlined in Section 8.2.2 of CNVMP.			
Water NSW will be immediately notified in the event of any impact to the pipeline so that they can inspect the pipes prior to confirming whether any remedial work is required.			
Where there is a risk that vibration activities may cause damage to nearby structures and buildings or if these are located within the minimum working distance from the construction activity, a building condition inspection will be undertaken at least three weeks before the construction activity commences.		Before and after any vibration activities within minimum distances	Best practice and CNVMP Section 6
The Building Condition Inspection Reports will contain photographs of the inspected properties and include details of the inspectors' qualification and expertise, together with a list of any identified defects, where relevant. The reports will be submitted to the owner of each property and to AT&L and Goodman before the commencement of any vibration intensive activities.			
A copy of the Building Condition Inspection Reports and CNVMP will be submitted to AT&L and Goodman at least 10 working days prior to commencement of piling, excavation by hammering or ripping, compaction, demolition operations, or any activity which may cause damage through vibration.			

4.4 Air Quality

In accordance with Condition D100 of SSD 7348, a Construction Air Quality Management Plan (CAQMP) has been prepared by SLR (2020b) and is attached as **Appendix L**.

The CAQMP will be implemented during the construction of the Oakdale West to ensure that acceptable levels of amenity are maintained for surrounding residents and the relevant ambient air quality criteria are complied with for particulate matter at surrounding receptor locations.

The environmental controls in **Table 13** will be implemented to minimise the potential for adverse dust emissions and impacts during the construction.

Note: **Table 13** is replicated as Table 8 in the CAQMP.

Table 13 Environmental Management Controls for Air Quality

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Communications			
The Community Communications Strategy will be implemented.	Communications and Community Liaison Representative	Prior to commencing construction and ongoing	Best practice
The name and contact details of person(s) accountable for air quality and dust issues will be displayed on the site boundary. This may be the Contractor's Project Manager.	Burton		
The head or regional office contact information will be displayed on site signage.			
Site Management			
All dust and air quality incidents will be undertaken as per Section 3.5 of the CEMP.	Burton	Ongoing	CEMP Section 3.5
All dust and air quality complaints will be undertaken as per Section 3.6 of the CEMP.			CEMP Section 3.6
Where excessive dust events occur (i.e. prolonged visual dust in a particular area), additional watering of dust producing activities will be undertaken or activities temporarily halted until such times that the dust source is under control.		During excessive dust events	Best practice
Horsley Park Bureau of Meteorology station weather forecast will be reviewed daily (i.e. wind, rain) to inform site dust management procedures for the day.		Daily	
Preparing and Maintaining the Site			
All reasonable steps to minimise dust generated will be undertaken during construction.	Burton	Ongoing	SSD 7348 Condition D98
Exposed surfaces and stockpile will be suppressed by regular watering or use of approved dust suppressants.			SSD 7348 Condition D99a

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Land stabilisation works will be carried out in such a way on site to minimise exposed surfaces.	Burton	Ongoing	SSD 7348 Condition D99e
Construction of Oakdale West will not cause or permit the emission of any offensive odour, as defined in the POEO Act.			SSD 7348 Condition D102
Dust generating activities in areas close to receptors will be closely monitored and additional mitigation applied as required to best manage potential dust emissions			Best practice
Stockpiles that will be in place for more than 20 days and are not actively used as well as any stockpiles that are susceptible to wind or water erosion will be suitably protected from erosion within 10 days of the establishment of each stockpile. Temporary stabilisation of disturbed surfaces will be undertaken within two weeks of the stockpile being established.			
Site fencing and barriers will be kept clean using wet methods.			
Operating Vehicle/Machinery and Sustainable Travel			
Trucks associated with Stage 1 will not track dirt off site and onto Bakers Lane	Burton	Ongoing	SSD 7348 Condition D99c
Project access roads used by delivery trucks will be kept clean.			SSD 7348 Condition D99d
All on-road vehicles will comply with relevant vehicle emission standards (prescribed by the NSW RMS), where applicable, and will be maintained in good condition, in accordance with manufacturer's specifications and POEO Act.			Best practice
Delivery trucks will switch off engines whilst undertaking a delivery on-site, if idling time is likely to exceed 5 minutes.			
Vehicle speed limit restrictions are implemented on site, including: • General - 20km/h • High risk area - 10km/h • Haul routes – 50 km/h			
Truck queuing and unnecessary trips will be minimised through logistical planning and by the identification and use of specific park up/hold areas away from the Project and Bakers Lane			
Operations			
Only cutting, grinding or sawing equipment fitted with suitable dust suppression systems, such as water sprays will be used.	Burton	Ongoing	Best practice

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Adequate water supply will be available on the site for effective dust/particulate matter suppression/ mitigation using a combination of potable and non-potable water sources.	Burton	Ongoing	Best practice
Water carts will be used on all denuded or exposed surfaces and unsealed roads to minimise dust emissions.			
Equipment, inclusive of, but not limited to Environmental spill kits will be readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.			
Works will be assessed during strong winds or in weather conditions where high levels of airborne particulates may potentially impact the sensitive receivers. Continual monitoring of wind speed and direction will be undertaken to guide this decision and ensure that adequate mitigation measures are undertaken		Continuously and during high winds	
Waste Management			
All trucks entering or leaving the Site will have their loads covered.	Burton	Ongoing	SSD 7348 Condition D99b
No waste materials, timbers or any other combustible materials will be burnt on site.			Best practice
Earthworks			
Scopes of work will be planned in such a way to assist in minimising the duration that surfaces are left denuded	Burton	Ongoing	Best practice
Rehabilitation of disturbed surfaces will be undertaken within 20 days of final construction levels.		Within 20 days of final construction levels	
If unanticipated strong odours or significant visual dust emissions are noted or observed on site, an investigation will be undertaken by the Burton Project Manager to identify the scope of work or source of the emission prior to undertaking and applying any additional mitigation measures.		Ongoing	
Construction			
Sand and other aggregates will not be allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.	Burton	Ongoing	Best practice
Trackout			
Water-assisted road sweeper(s) will be used on an as required basis on Bakers Lane should any material be tracked out of the site.	Burton	Ongoing	Best practice

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Record all regular inspections and maintenance undertaken of site haul routes and project related access roads (Bakers Lane) in a site log book.	Burton	Ongoing	Best practice
A wheel washing system and/or cattle grid system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site) will be implemented.			
Demolition			
Ensure effective water suppression of dust is used during demolition operations.	Burton	Ongoing	Best practice
Bag and remove any biological debris or damp down such material before demolition.			

As required by condition D100(e), **Table 14** summarises the parameters identified to assess the effectiveness of the control measures shown in **Table 13**.

Table 14 Summary of the Parameters to Assess the Effectiveness of Control Measures

Parameter	Visible Dust	Dust Deposition	Complaints	PM_{10}
Key performance indicator	No visible dust leaving the site boundary	<4 g/m^2/month	No complaints related to nuisance dust	<50 $\mu g/m^3$ as a 24-hour average
Monitoring method	Visual inspection / observations	Dust deposition gauges	-	See note
Location, frequency and duration of monitoring	Daily onsite inspection	Section 5	-	See note
Record keeping	Section 3.6	Section 3.6	Section 3.6	See note
Response procedures	Section 5.4	Section 5.4	Section 3.6	See note
Compliance monitoring	-	Section 5	-	See note

Note: Real-time suspended particulate monitors are installed at the site to assist with dust management. The monitoring system used however, does not meet the requirements of a compliance instrument. Should compliance-level monitoring be required as per Table 10 of the **CAQMP**, then this table will be updated to reflect the expanded monitoring programme.

4.5 Traffic

Construction traffic will be managed in accordance with the Construction Traffic Management Plan (CTMP) (Ason 2020) prepared to fulfil Condition D65 of SSD 7348 and is attached as **Appendix E**.

The CTMP seeks to minimise traffic impacts on the surrounding road network, ensure safety and efficiency for workers, pedestrians and other road users, and provide information regarding the construction vehicle access routes and any changed road conditions.

Construction-related traffic will be made up of both heavy and light vehicle movements. Projected traffic movements will be undertaken during the following periods:

- Pre-School Zone (7:00 – 8:00 am);
- Morning School Zone (8:00 – 9:30 am);
- Between School Zone (9:30 pm – 2:30 pm);
- Afternoon School Zone (2:30 – 4:00 pm); and
- Post-School Zone (4:00 – 6:00 pm).

Table 15 provides a summary of the estimated daily construction vehicle movements, as listed in the CTMP (Ason 2020).

Table 15 Daily Construction Vehicle Movements

Vehicle Type	Pre-School Zone	Morning School Zone	Between School Zones	Afternoon School Zone	Post-School Zone	Daily
Phase 1 – Prior to the Completion of the WNSLR						
Light Vehicles	130	23	60	22	130	365
Heavy Vehicles	107	1	225	1	108	442
Total	**237**	**24**	**285**	**23**	**238**	**807**
Phase 2 – Post Completion of the WNSLR						
Light Vehicles	120	17	48	17	120	322
Heavy Vehicles	208	180	430	168	214	1,200
Total	**328**	**197**	**478**	**185**	**334**	**1,522**

Notes: Figures in brackets represents hourly flows, averaged across each period.

The environmental management controls in **Table 16** will be implemented to ensure road safety and network efficiency during construction.

Table 16 Environmental Management Controls for Traffic

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
The internal estate roads and intersections will be constructed to accommodate the turning path of a B-Double, to the satisfaction of the Relevant Roads Authority.	Burton	Ongoing	SSD 7348 Condition D67
Construction will not result in any vehicles queuing on the public road network.			SSD 7348 Condition D69
Heavy vehicles will not be parked on local roads or footpaths in the vicinity of the Site.			
All vehicles will be wholly contained on site before being required to stop.			
All loading and unloading of materials will be carried out on Site.			
All trucks entering or leaving the Site will have their loads covered and will not track dirt onto the public road network.			
All endeavours will be undertaken to limit vehicular movements with the easement areas, wherever practicable.			CTMP Section 3.1.3
No vehicle circulation will be undertaken within 5 m of any transmission structure or guy-wires.			
During School Zone periods, all suppliers/haulage contractors will have Vehicle Movement Plans issued at supply agreement stage.		During the supply agreement stage	CTMP Section 3.1.4
During School Zone periods, when placing all orders, dispatch will be instructed to minimise deliveries during school peak periods and include the notification on the delivery docket provided to the driver.		Ongoing	
During School Zone periods, additional signage will be provided on Bakers Lane prior to the schools, notifying delivery drivers of increased school activity interactions ahead and to use extra caution. Signage will include long term fixed signage and Variable Message Signage (VMS) boards.		Prior to commencing construction and ongoing	
During School Zone periods, additional signage will be installed along Aldington Road – particularly near crests in the road – outlining an increase in construction vehicles, and the prominence in crests which limits sight visibility to oncoming vehicles ahead.			
Loads will be tracked in/out of each site, which also includes communicating and monitoring access/egress routes accordingly.		Ongoing	

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Any vehicles found to be in breach will undergo a driver induction on the spot and their manager/dispatch advised. Repeat offenders will be prevented from returning to site.	Burton	As required	CTMP Section 3.1.4
Line marking will be installed along the full length of Aldington Road with centre-line and edge-line marking, whilst also including raised reflective pavement markers (RRPM's).		Prior to commencing construction and ongoing	
All drivers will adhere to the Driver Code of Conduct outlined in Section 4.2 of the CTMP.		Ongoing	CTMP Section 3.2.1
All deliveries and materials handling will occur on site at all times.			CTMP Section 3.2.2
An application to Council will be submitted in the event that any special or discreet work activities require the use of kerbside parking for the purposes of a Works Zone.		As required	CTMP Section 3.2.3
Man-proof fencing will be provided along all site frontages accessible by the public to prevent unwanted pedestrian access.		Prior to commencing construction and ongoing	CTMP Section 3.2.4
Man-proof fencing will be provided along all site frontages accessible by the public to prevent unwanted cyclist access.			CTMP Section 3.2.5
Any Traffic Control Plans (TCPs) will be prepared by an accredited person, in accordance with the *Traffic Control at Work Sites Manual* (RMS 2018e) and AS 1742.3.		As required	CTMP Section 3.2.7
Burton will nominate the parking zones without obstructing any vehicle manoeuvre routes.			CTMP Section 3.5
Drivers will be responsible and accountable for their actions when operating a company vehicle or driving for the purposes of work.	Drivers	Ongoing	CTMP Section 4.3
The highest level of professional conduct will be displayed when driving a vehicle at work.			
All drivers will have a current driver licence for the class of vehicle they are driving, and this licence is to be carried at all times.	Drivers / Burton		
Management will be immediately notified if their drivers licence has been suspended, cancelled, or has had limitations applied.	Drivers		
All traffic and road legislation will be complied with when driving.			
Hazards will be assessed while driving.			
The oil, tyre pressures, radiator and battery levels of all company vehicles will be checked.	Drivers / Burton		
All drivers will drive within the legal speed limits, including driving to the conditions.	Drivers		

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
All drivers will not drive outside of the approved Heavy Vehicle routes. Heavy Vehicles will adhere to the routes outlined in Section 3 of the CTMP.	Drivers / Burton	Ongoing	CTMP Section 4.3
All drivers will obey the weight, length and height restrictions imposed by the National Vehicle Regulator, and other Government agencies.			
Drivers will be cognisant of the noise and emissions requirements imposed within the EIS, and in a broader sense, the NSW/ Australian Road Rules.	Drivers		
Drivers will not queue on roads unless a prior approval has been sought.			
No tracked vehicles will be driven on a paved road.			
Drivers will not drive under the influence of alcohol or drugs, including prescription and over the counter medication if they cause drowsiness – to do so will merit disciplinary measures.	Drivers / Burton		
A safety seat belt will be worn at all times when in any vehicle.	Drivers		
All drivers will avoid distractions when driving i.e. the driver will adjust car stereos/mirrors etc. before setting off, or pull over safely to do so.			
All near-hits, crashes and scrapes will be reported to management.	Drivers / Burton		
All infringements will be reported to management at the earliest opportunity.			
Vehicle defects will be reported to management.		Prior to the next vehicle use	
The authorised site access and egress route will be followed.		Ongoing	
The speed limits within the construction site will be adhered to.	Burton	Ongoing	
Pre-commencement checks will be undertaken for all new traffic related plant arriving on site.		Prior to first use	CTMP Section 4.4
Prestart inspections will be completed for all traffic related plant and equipment currently on-site.	Drivers / Burton	Daily	
All construction plant will be fitted with a flashing light, fire extinguisher and reverse alarms.	Burton	Prior to first use	
All operators onsite will have a current verification of competency (VOC) for their current driver's licence of the appropriate class.		Ongoing	
All maintenance requirements will be completed.			

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Appropriate driver training or re-training will be arranged (where required), including: • Operator assessment as part of all inductions; • Regular Toolbox talks on safety features, managing fatigue, approved heavy routes, driver responsibility and drink-driving (see **Section 3.4**).	Burton	Ongoing	CTMP Section 4.4
Management will not cover or reimburse staff speeding or other infringement notices.			
Only legal use of mobile phones in vehicles while driving will be undertaken.			
Improved fuel efficiency will be encouraged by: • Use of other transport modes or remote conferencing, whenever practical; • Providing training on, and circulating information about, travel planning and efficient driving habits.			
If a vehicle crash occurs, the vehicle will be stopped as close as possible to the scene without hindering traffic.	Drivers / Burton	Following a vehicle crash	CTMP Section 4.5
If a vehicle crash occurs, the list of information listed in Section 4.5 of the CTMP should be recorded.			
The CTMP will be reviewed in accordance with Section 6.1 of the CTMP.	Burton	As required	CTMP Section 6.1

4.6 Water and Soil Management

The following documents have been prepared to ensure appropriate soil and water management during the construction of the Oakdale West:

- Erosion and Sediment Control Plan (ESCP) – prepared to address Conditions D80 and D81 of SSD 7348 and is attached as **Appendix B**. The ESCP aims to reduce the potential for risk of environmental impacts caused by erosion and sedimentation associated with project activities.
- Salinity Management Plan (Pells Sullivan Meynink 2015b) – prepared in accordance with WSROC's *Salinity Code of Practice* (2004) to provide controls for the potential impacts of salinity during construction. A copy of the Salinity Management Plan is attached as **Appendix M**.
- Fill Importation Protocol (FIP) (AECOM 2019a) – prepared to address Condition D79 of SSD 7348 and attached as **Appendix N**. The FIP aims to ensure that materials imported to the site are suitable for commercial / industrial land use.
- Dewatering and Management Procedure (ErSed 2019) – prepared to address the dewatering requirements for the basins located at Oakdale South Industrial Estate. The dewatering criteria outlined in the Procedure will be complied with during discharge events at Oakdale West.

The following will be implemented for maintaining erosion and sediment controls in efficient working order for the duration of construction.

ESCP Maintenance

Erosion and sediment controls are to be maintained until the Project catchments area is stabilised to achieve soil surface protection factors as per the 'Bluebook' and SWMP requirements. An inspection by the project soil conservationist will be undertaken to verify the stabilisation of the project catchment area prior to removal of controls.

Site Inspections and Monitoring

The Project Team / Environmental Representative must conduct a walk around the site at the minimum of each week or as required due to site conditions and record via the Burton Site Environmental Checklist or Site Inspection as a record document.

The walk around consists of:

- Any disturbed ground which will generate dust in dry windy conditions;
- Any disturbed ground which is exposed to erosion;
- Construction waste and litter removal; and
- Sediment traps, sumps and filters are to be maintained in effective working order including desilting of sediment controls, stabilisation of drains and diversion structures and appropriate management of basins.

Post Rainfall Inspections

Site inspections will also be undertaken after all significant rainfall events (greater than 10mm). These inspections will be documented using the Post Rainfall Inspection Checklist TP-082. Any repairs including any desilting identified shall be rectified as soon as practicable.

All controls including basins, sediment fence and temporarily stabilisation will be maintained until final site stabilisation has occurred

While these documents should be referred to for specifics, the environmental management controls are summarised in **Table 17**.

Table 17 Environmental Management Controls for Water and Soil

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
General			
Construction will comply with section 120 of the POEO Act, which prohibits the pollution of waters.	Burton	Ongoing	SSD 7348 Condition D82
All works on or adjacent to waterfront land will be carried out in accordance with the Department of Industry's (2012) *Guidelines for Controlled Activities on Waterfront Lands.*			SSD 7348 Condition D87
Water			
The stormwater system will be constructed in accordance with Condition D83 of SSD 7348.	Burton	Ongoing	SSD 7348 Condition D83
If groundwater is intersected during construction the following will be undertaken: • Obtain the necessary water licences or approvals from Natural Resource Access Regulator (NRAR) • Develop a Groundwater Management Plan (GMP) for the testing, dewatering, storage, movement and treatment of groundwater, to the satisfaction of NRAR	Goodman / Burton	If required	SSD 7348 Condition D86
Irrigation and toilet flushing will be plumbed to rainwater tanks.	Burton	Ongoing	SSD 7348 Appendix 7
Consideration will be given to other possible rainwater reuse opportunities such as for truck washing.			
Gross Pollutant Trap (GPT) will be installed within each development site on the final downstream stormwater pit prior to discharge.			
Clean and dirty water runoff will be adequately separated to avoid mixing where possible through the use of diversions, clean water drains, and the early installation of permanent drainage infrastructure.			Best practice
Disturbance of natural drainage patterns will be avoided. Where these are disturbed or altered, appropriate artificial drainage will be installed.		As required	Salinity Management Plan Section 5.5
Stormwater and surface water will be managed to restrict infiltration.		Ongoing	

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Temporary water retaining structures used during construction will be managed to restrict infiltration.	Burton	Ongoing	Salinity Management Plan Section 5.5
Stormwater and surface water infrastructure will be constructed to minimise the likelihood of leakage.			
Surface water runoff will be directed around all exposed surfaces, temporary stockpiles and landscaped areas.			
Erosion and Sediment Control			
The ESCP will be implemented to ensure stormwater flows do not increase in any downstream areas.	Burton	Prior to commencing construction and ongoing	SSD 7348 Condition D81
EWMS will be prepared and implemented to manage soil and water impacts.			Best practice
The locations of site compounds, access tracks, stockpile sites and temporary work areas will be placed to minimise erosion.			
Construction will be programmed to minimise the duration and extent of soil that is left exposed.		Ongoing	
Control measures will be implemented at construction access points to minimise dirt and mud tracking. Any material transported onto road surfaces to be removed.		Daily and before rainfall	
All temporary erosion and sediment control devices will not be removed until the permanent measures are sufficiently established.		Ongoing	
Prior to forecast storm events, rainfall greater than 10mm or flooding events: • The site will be inspected to ensure that all erosion/sedimentation and stabilisation controls are in place and in effective working order; • All work in the vicinity of flood-prone areas will cease and all loose materials and waste will be collected; • If there is a possibility that work sites could be flooded, action will be taken to prevent any environmental incidents such as potential pollution incidents and protecting disturbed ground from erosion, including relocating all materials that could cause harm onto higher ground and away from flood prone areas.		Prior to forecast storm events, ≥10mm rain or flooding events	
All construction sediment retention basins and sediment traps will be removed before completion, but not before all upstream areas have been vegetated or otherwise stabilised.		At the completion of construction	
Erosion control and sediment capture measures will be installed prior to stockpiling material.		Prior to stockpiling material	

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Stockpiles will be located outside of the tree protection zone of trees or native vegetation identified for retention. The tree protection zone will be delineated in accordance with AS 4970.	Burton	Ongoing	Best practice
Stockpiles will be located in areas of low ecological or heritage significance.			
Stockpiles will be located away from sensitive receivers, at least 5 m from likely areas of concentrated water flows and at least 10 m from waterways that are classified as Class 1 and Class 2 ("*Why do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings*" (DPI Fisheries guideline)).			
Stockpiles and material will not be located within the 1 in 10 year ARI floodplain.			
Height of stockpiles to be limited (where possible and space is available) especially near sensitive receptors. Slopes will be no steeper than 2:1.			
Topsoil that is not contaminated by noxious weeds will be kept in stockpiles for later spreading on fill batters and other areas. Other material may also be stockpiled but kept separated from the topsoil stockpiles.			
Measures to prevent the growth of weeds in topsoil stockpiles will be implemented.			
If any stockpile site is to be located on private land, an approved notice under s.143 of the POEO Act will be obtained from the landholder prior to commencement of stockpiling.		Prior to stockpiling	
The staging of activities will minimise exposure of disturbed surfaces at any one time and will implement permanent and temporary soil stabilisation measures (i.e. final landscape and vegetation areas), in minimising the duration of soil disturbance.		Ongoing	ESCP Note 3
Staging of construction will be coordinated to reduce exposed areas and allow for implementation of erosion and sediment controls prior to significant disturbance activity.			ESCP Note 6
Temporary controls in addition to those in the ESCP may be required where extreme weather events are predicted or for extended site shut down periods (e.g. Christmas).		As required	ESCP Note 9

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Erosion and sediment controls are to be constructed in accordance with `Blue Book' specifications and standard drawings as identified in the approved ESCP. Relevant guidelines include: • Managing Urban Stormwater: Soils and Construction, 4th Edition, Landcom, 2004; • Managing Urban Stormwater: Soils and Construction – Vol 2A Installation of Services, 2008; • Managing Urban Stormwater: Soils and Construction – Vol 2D Main Road Construction, 2008.	Burton	Ongoing	ESCP Note 10
Site personnel responsible for implementing erosion and sediment controls will be appropriately trained in implementation and maintenance of control measures.		Prior to commencing construction	ESCP Note 11
Vegetation removal will be limited to isolated trees and shrubs. This will be managed on an individual basis with the tree/shrub removed and the root base backfilled and compacted as required.		Ongoing	ESCP Note 13
Vegetation in proximity to the riparian zone or Ropes Creek will be cut at the base with the root structure to remain in place until earthworks stage.		As required	ESCP Note 14
Topsoil will be stripped and stockpiled in accordance with Bluebook standard drawing SD 4-1. Topsoil may be used as direct placement wherever possible and viable.		Ongoing	ESCP Note 17
Soils will be segregated on site (i.e. topsoil, subsoil, contaminated material) to prevent cross contamination and to preserve soil structure and viability of topsoil for site use and management.			ESCP Note 18
Stockpiling activities will be undertaken in designated areas away from concentrated flows and drainage lines. Adequate controls (i.e. upslope diversions and downslope sediment controls) will be implemented for all stockpile sites. Stockpiles will be stabilised in accordance with the requirements of the Bluebook and covered in times of high winds.			ESCP Note 19
Sediment fence will be installed in accordance with standard drawing SD6-8.			ESCP Note 20
Site controls will include the diversion of 'clean' (off site water) away from work areas and minimise external water entering the project area.			ESCP Note 21
Where possible, final drainage infrastructure (i.e. stormwater pipes and culverts) will be constructed as early as practical to allow for clean water passage through the Project site.			

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Any water accumulating on site, either in depressions, basins or other controls, will be considered dirty water and will be discharged in accordance with the criteria set out in **Section 5.1**.	Burton	Ongoing	ESCP Note 22
Where possible, site water will be reused on site for activities such as dust suppression and soil compaction.			ESCP Note 23
Site water discharged from the Site will be compliant with discharge criteria (see **Section 5.1**) and will be undertaken at approved locations by appropriately trained site personnel. Water discharge is to be undertaken at non-erosive velocities with adequate diffusers, level spreaders, etc. and will ensure localised flooding does not occur.			ESCP Note 24
Water will not be discharged except in accordance with the Dewatering and Management Procedure (ErSed 2019).	Burton / ER		
On site water flows paths will be managed to reduce flow length (less than 80m) and minimise velocities likely to result in scour and erosion impacts.	Burton		ESCP Note 25
Long slope lengths will be divided with check dams, diversions, drop structures and batter chutes at regular intervals to manage high velocity flows.			
Diversion drains and inlets will be stabilised with erosion control products such as jute mesh, rock material, bitumen emulsion or soil binders for improved stabilisation.			ESCP Note 26
Project basins will be oversized to allow for retention of water to be used in construction activities and for dust suppression.			ESCP Note 27
Stabilisation of areas will occur progressively in conjunction with the completion of earthworks.			ESCP Note 28
Sediment traps, sumps and filters will be maintained in effective working order including desilting of sediment controls, stabilisation of drains and diversion structures and appropriate management of basins.			ESCP Note 30
ESCs for each additional area will be provided 4 weeks prior to the proposed commencement of works and no earthworks will commence until the plan has been reviewed and accepted.		Provided 4 weeks prior to the commencement of works	Burton response to DPIE comments
Salinity			
Vegetation cover will be established and maintained on permanent batters to control erosion.	Burton	As soon as practical upon completion	Salinity Management Plan Section 5.2
The final surface of all areas of the development will be graded to prevent the ponding of surface water.		Ongoing	

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Subsoil drainage will be considered for areas where the designer considers accumulation of groundwater may occur. We do not consider that any significant such areas are likely at this site.	Burton	As required	Salinity Management Plan Section 5.2
Roads, footpath and hardstand surfaces will be graded to prevent ponding of surface water at locations where this can result in infiltration into the underlying soils (e.g. pavement joints).		Ongoing	Salinity Management Plan Section 5.4
Connections between the roads, footpath and hardstand surfaces and the surface water and stormwater drainage infrastructure will be constructed to restrict infiltration into underlying soils.			
Services that are to be located below the roads, footpath and hardstand surfaces will be installed at the time of construction of the road, where possible.		During construction	
Where ponds are intended to be permanently full i.e. recreational / aesthetic ponds / fountains, it is recommended that the base of the ponds / fountains be lined with an impermeable liner or other suitable methods i.e. clay liners.		As required	Salinity Management Plan Section 5.6
Fill Importation			
Only Virgin Excavated Natural Material (VENM), Excavated Natural Material (ENM) or other material approved in writing by EPA will be brought onto the site.	Burton	Ongoing	SSD 7348 Condition D79
Accurate records of the volume and type of fill used on site will be maintained and made available to the DPIE if requested.			
Materials imported to Site will be either Excavated Natural Material (ENM) or Virgin Excavated Natural Material (VENM). Assessment requirements in Section 2 of the FIP (**Appendix N**) will be adhered to.		Prior to importation of fill	FIP Section 2
Inspections of vehicles importing fill to site will be undertaken. Where suspicious loads and/or evasive answers are apparent, permission to unload will not be granted.			
Where contaminants or suspected contaminants are observed in imported material during tipping, the truck will be reloaded and be sent back to the source site. Cartage from the source site shall cease and will only recommence when the Contractor is satisfied that the issue has been addressed.			
A Materials Tracking Register will be implemented to ensure that only "approved" ENM or VENM is imported to the Site. The Materials Tracking Register will include the requirements listed in Section 3 of the FIP (**Appendix N**).		Weekly	FIP Section 3

4.7 Waste

Construction waste will be managed in accordance with the Waste Management Plan (SLR 2020d) (WMP) prepared to fulfil Condition D112 of Development Consent SSD 7348. The WMP developed for the MOD 3 EIS has been used in this CEMP.

4.7.1 Demolition Waste

The Penrith Development Control Plan 2014 does not provide a technique for the estimation of demolition waste generation. In the absence of Council specific waste generation rates, SLR will adopt the waste generation rates provided by Appendix A of The Hills Development Control Plan 2012. Published demolition waste generation rates on concrete structures alone are unavailable. To account for this, SLR has applied its 'Carpark' demolition rates based on the 'Office' rates in The Hills Development Control Plan 2012 by:

- Removing timber, gyprock and bricks as these materials are unlikely to be present in significant quantities in a modern carpark structure; and
- Increasing the rates for concrete, metal and 'other', in proportion, to maintain the total assumed tonnage per 1,000 m^2 of construction.

The 'Office' rates will not be used in the demolition quantities calculation. The waste generation rates applicable to Oakdale West are provided in **Table 18**.

Table 18 Demolition Waste Generation Rates (tonnes per 1,000 m^2)

Waste Generation Rate Type	Sandstone	Concrete	Bricks	Timber / Gyprock	Steel	Roof Tiles	Other
3 Bedroom Brick House (The Hills)	90	4	123	13	0.7	9	0
Carpark (SLR)	0	8,980	0	0	35	0	188

Using the waste generation rates provided in **Table 18**, SLR has estimated the quantities of demolition waste displayed in **Table 19**. The '3 Bedroom Brick House' waste generation rates have been applied to the residential house and the 'Carpark' waste generation rates have been applied to the concrete structure. The surface areas for both structures have been determined from aerial estimations using SIX Maps.

Table 19 Estimated Quantities of Waste from Demolition (tonnes)

Structure	Area (m^2)	Sandstone	Concrete	Bricks	Timber / Gyprock	Steel	Roof Tiles	Other
Residential house	163	15	4	25	5	5	5	0
Concrete structure	46	0	415	0	0	5	0	10
Total	**209**	**15**	**419**	**25**	**5**	**10**	**5**	**10**

Note: Tonnages rounded up to the nearest 5 tonnes.

4.7.2 Earthworks Waste

The earthworks for Oakdale West have been addressed in a separate study – Fill Importation Protocol, completed by AECOM (2019a). All earthworks and filling works are to be undertaken in accordance with this protocol.

4.7.3 Construction Waste

The site preparation and construction of the Project is likely to generate the following broad waste streams:

- Site clearance wastes;
- Construction wastes;
- Plant maintenance waste;
- Packaging wastes; and
- Work compound waste from on-site employees.

A summary of likely waste types generated from site preparation and construction activities, along with their waste classifications and proposed management methods, is provided in **Table 20**.

For further information on how to classify a waste type refer to the NSW EPA (2014) *Waste Classification Guidelines*[1]. Further information on managing site preparation and construction wastes is available from the NSW EPA website[2].

Table 20 Additional Waste Streams – Construction Activities

Waste Types	NSW EPA Waste Classification	Proposed Management Method
Site Clearance		
Green waste including timber, pine and particle board	General solid waste (non-putrescible)	Separated, some chipped and stored on-site for landscaping, remainder to landscape supplies or off-site recycling. Stumps and large trees to landfill.
Clean fill	General solid waste (non-putrescible)	On-site re-use
Contaminated fill	To be classified subject to the results of testing	Off-site treatment or disposal to landfill
Excavated natural material (ENM) or virgin excavated natural material (VENM)	General solid waste (non-putrescible)	On-site re-use of topsoil for landscaping of the site, off-site beneficial re-use or send to landfill site.
Construction		
Sediment fencing, geotextile materials	General solid waste (non-putrescible)	Reuse at other sites where possible or disposal to landfill
Concrete	General solid waste (non-putrescible)	Off-site recycling for filling, levelling or road base

[1] Available online from https://www.epa.nsw.gov.au/your-environment/waste/classifying-waste/waste-classification-guidelines
[2] http://www.epa.nsw.gov.au/your-environment/waste/industrial-waste/construction-demolition

Waste Types	NSW EPA Waste Classification	Proposed Management Method
Bricks and pavers	General solid waste (non-putrescible)	Cleaned for reuse as footings, broken bricks for internal walls, crushed for landscaping or driveway use, off-site recycling
Gyprock or plasterboard	General solid waste (non-putrescible)	Off-site recycling or returned to supplier
Sand or soil	General solid waste (non-putrescible)	Off-site recycling
Metals such as fittings, appliances and bulk electrical cabling, including copper and aluminium	General solid waste (non-putrescible)	Off-site recycling at metal recycling compounds and remainder to landfill
Conduits and pipes	General solid waste (non-putrescible)	Off-site recycling
Timber	General solid waste (non-putrescible)	Off-site recycling, Chip for landscaping, Sell for firewood *Treated*: reused for formwork, bridging, blocking, propping or second-hand supplier *Untreated*: reused for floorboards, fencing, furniture, mulched second hand supplier Remainder to landscape supplies.
Doors, Windows, Fittings	General solid waste (non-putrescible)	Off-site recycling at second hand building supplier
Insulation material	General solid waste (non-putrescible)	Off-site disposal
Glass	General solid waste (non-putrescible)	Off-site recycling, glazing or aggregate for concrete production
Asbestos	Hazardous waste	Off-site disposal at a licenced landfill facility.
Fluorescent light fittings and bulbs	Hazardous waste	Off-site recycling or disposal; contact *FluoroCycle* for more information[3]
Paint	Hazardous waste	Off-site recycling, Paintback collection[4] or disposal
Synthetic Rubber or carpet underlay	General solid waste (non-putrescible)	Off-site recycling; reprocessed and used in safety devices and speed humps
Ceramics including tiles	General solid waste (non-putrescible)	Off-site recycling at a crushing and recycling company
Carpet	General solid waste (non-putrescible)	Off-site recycling or disposal; reused for landscaping, insulation or equestrian uses

[3] Available online from http://www.fluorocycle.org.au/ or http://www.environment.gov.au/settlements/waste/lamp-mercury.html
[4] Available online from https://www.paintback.com.au/

Waste Types	NSW EPA Waste Classification	Proposed Management Method
Plant Maintenance		
Empty oil and other drums or containers, such as fuel, chemicals, paints, spill clean ups	Hazardous waste: Containers were previously used to store Dangerous Goods (Class 1, 3, 4, 5 or 8) and residues have not been removed by washing or vacuuming. General solid waste (non-putrescible): 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 local Council
Air filters and rags	General solid waste (non-putrescible)	Off-site disposal
Oil filters	Hazardous waste	Off-site recycling
Batteries	Hazardous waste	Off-site recycling, Contact the Australian Battery Recycling Initiative[5] for more information
Packaging		
Packaging materials, including wood, plastic, including stretch wrap or LLPE, cardboard and metals	General solid waste (non-putrescible)	Off-site recycling
Wooden or plastic crates and pallets	General solid waste (non-putrescible)	Reused for similar projects, returned to suppliers, or off-site recycling. Contact *Business Recycling* for more information[6]
Work Compound and Associated Offices		
Food Waste	General solid (putrescible) waste	Dispose to landfill with general garbage

In the absence of readily available construction waste generation rates from Council, SLR has adopted the waste generation rates from Appendix A of The Hills DCP 2012 for estimating the type and quantities of waste generated from construction of the Project. The waste generation rates listed in the Hills DCP include '2 Bedroom', '3 Bedroom', 'Block of Flats', 'Factory' and 'Office'. SLR has adopted the 'Factory' and 'Office' rates to measure waste expected from the Project, as the construction of a factory and office is the most relevant in representing the construction of the industrial warehouse and office precinct.

In the absence of readily available published information for 'Carpark' construction waste generation rates, SLR has developed 'Carpark' construction rates based on the 'Office' rates by:

- Removing timber, bricks and gyprock as these materials are unlikely to be present in significant quantities in a modern carpark structure; and
- Increasing the rates for concrete, sand or soil, metal and 'other', in proportion, to maintain the total assumed tonnage per 1000 m^2 of construction.

The waste generation rates are shown in **Table 21**.

[5] http://www.batteryrecycling.org.au/home
[6] Available online from http://businessrecycling.com.au/search/

Table 21 Construction Waste Generation Rates

Rate Type	Floor Area (m^2)	Waste types and quantities (m^3)						
		Timber	Concrete	Bricks	Gyprock	Sand or Soil	Metal	Other
Factory	1,000	0.25	2.10	1.65	0.45	4.80	0.60	0.50
Office	1,000	5.1	18.8	8.5	8.6	8.8	2.75	5
Carpark	1,000	--	30.6	--	--	14.3	4.5	8.1

Using the waste generation rates provided in **Table 21**, SLR has estimated the quantities of construction waste displayed in **Table 22**.

Table 22 Estimated Quantities of Waste from Construction (tonnes)

Project Component		Area (m^2)	Waste types and quantities (m^3)						
			Timber	Concrete	Brick	Gyprock	Sand and Soil	Metal	Other
Precinct 1	Office	3,903	20	75	35	35	35	15	20
	Warehouse	81,773	25	175	135	50	400	60	50
	Mezzanine	32,402	10	70	55	15	160	20	20
	Outbuildings	4,004	5	10	10	5	20	5	5
	Hardstand	96,050	0	2,940	0	0	1,375	435	780
	Light Duty	17,050	0	525	0	0	245	80	140
Precinct 2	Office	8,992	50	170	80	80	80	25	45
	Warehouse	250,894	65	530	415	115	1,205	155	130
	Mezzanine	6,300	5	15	15	5	35	5	5
	Hardstand	116,969	-	3,580	-	-	1,675	530	950
Precinct 3	Office	3,120	20	60	30	30	30	10	20
	Warehouse	54,700	15	115	95	25	265	35	30
	Hardstand	38,774	-	1,190	-	-	555	175	315
Precinct 4	Office	5,414	30	105	50	50	50	15	30
	Warehouse	108,279	30	230	180	50	520	65	55
	Hardstand	68,628	-	2,105	-	-	985	310	560
Precinct 5	Office	1,697	10	35	15	15	15	5	10
	Warehouse	33,943	10	75	60	20	165	25	20
	Hardstand	18,308	-	565	-	-	265	85	150
Totals		**951,200**	**235**	**8,775**	**940**	**390**	**5,845**	**1,440**	**2,320**

Waste estimates have been rounded up to the nearest 5 m^3.

Table 23 lists the environmental controls that will be implemented to minimise the potential for adverse impacts as a result of waste generated during the construction of the Oakdale West.

Table 23 Environmental Management Controls for Waste

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
All existing rural fencing along the water pipelines corridor adjacent the site will be removed and dispose to an appropriate waste facility licensed to accept the waste.	Burton	As required	SSD 7348 Condition D44
Waste will be secured and maintained within designated waste storage areas at all times and will not leave the site onto neighbouring public or private properties.		Ongoing	SSD 7348 Condition D111
The WMP will be implemented for the duration of construction.			SSD 7348 Condition D112
All liquid and non-liquid wastes to be taken off site will be assessed and classified in accordance with the latest version of the *Waste Classification Guidelines Part 1: Classifying Waste* (EPA 2014) and dispose of all wastes to a facility that may lawfully accept the waste.			SSD 7348 Condition D113
Waste generated outside the site will not be received for storage, treatment, processing, reprocessing, or disposal.			SSD 7348 Condition D114
The *Protection of the Environment Operations (Waste) Regulation 2005* (as amended) will be complied with for monitoring and reporting the disposal of any hazardous, industrial and/or Group A (liquid waste).			Best practice
A Waste Management Register will be maintained, and will include: • Type of waste and its classification (according to the POEO Act and Waste Classification Guidelines); • Quantities of waste, measured in tonnes; • How and where the waste was reused, recycled, stockpiled or disposed of; • Date when the waste was reused, recycled, stockpiled or disposed of; and • Name and waste transport licence (if applicable) of the transporter used.		Ongoing during construction	Best practice
No waste will be buried on site.			
Opportunities for waste avoidance will be identified in accordance with Section 5.5 of the WMP.		Prior to commencing construction and ongoing	WMP Section 5.5
Waste audits will be undertaken and compared against projected waste generation numbers.		Quarterly	
The re-use, recycling and disposal procedures listed in Section 5.6 of the WMP will be implemented.		Ongoing	WMP Section 5.6
Waste storage areas will be accessible and allow sufficient space for storage and servicing requirements.			WMP Section 5.7.2

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Skips/bins will be checked by the Contractors Project Manager or delegated site personnel to ensure that no overflow occurs. If skips/bins are reaching capacity, removal and replacement will be organised as soon as possible.	Burton	Daily	WMP Section 5.7.3
All skips/bins leaving the site will be covered to ensure that the spillage of wastes from the skips whilst in transit is eliminated.		Ongoing	
Waste containers will be kept clean and in a good state of repair.			WMP Section 5.7.2
In the event that any contaminated or hazardous materials are unexpectedly uncovered during demolition or excavation works, the Contractors Project Manager or delegated site personnel is to stop work immediately and contact the relevant hazardous waste contractor prior to further works being undertaken in the area.		If required	WMP Section 5.7.4
Standard signage will be posted in all storage/waste collection areas and all skips/drums/bins will be labelled correctly and clearly to identify materials stored within.		Ongoing	WMP Section 5.9
Where applicable, general and co-mingled recycling bins placed nearby staff tearoom/break areas will be colour coded with clear labels.			
All staff will be appropriately inducted to the provisions of the WMP.		Prior to commencing works	WMP Section 5.8
Visual inspections of waste storage areas will be undertaken.		Daily	WMP Section 5.10

4.7.4 Advice on Waste Management Measures

To manage wastes produced by the earthworks, demolition and construction phases of site development, SLR recommends the following measures are employed on site.

Reduce, Reuse and Recycling Strategies

The building contractor, or equivalent role, will consider:

- Ensure the management of the site includes minimising waste generation, requiring the appropriate storage and timely collection of waste materials, and maximising re-use or recycling of materials;
- Store wastes on site appropriately to prevent cross-contamination and guarantee the highest possible re-use value;
- Consider the potential of any new materials to be re-used and recycled at the end of the Project's life;
- Determine opportunities for the use of prefabricated components and recycled materials;

- Strip topsoil from areas designated for excavation and store it on site for reuse;
- Reuse of excavated material on-site, where possible;
- Re-use formwork, where appropriate;
- Retain roofing material cut-offs for re-use or recycling;
- Retain used crates for storage purposes unless damaged;
- Recycle cardboard, glass and metal wastes;
- Recycle or dispose of solid waste timber, brick, concrete, asphalt and rock, where such waste cannot be re-used on site, to an appropriately licenced construction and demolition waste recycling facility or an appropriately licenced landfill;
- Dispose of all asbestos and/or hazardous wastes in accordance with SafeWork NSW and NSW EPA requirements;
- Deliver batteries and florescent lights to drop off-site recycling facility;
- Return excess materials and packaging to the supplier or manufacturer; and
- Dispose of all garbage via a council approved system.

Waste Segregation and Storage

Waste materials produced from site preparation activities are to be segregated and stored separately on site, with clear signage identifying the purpose of different storage areas. See 'Signage' section below for recommended signage. It is anticipated that Oakdale West will have available space provided by the building contractor for separate storage in separate skip bins and/or appropriately managed stockpiles, of the following waste types:

- Bricks, concrete and scrap metal;
- Metal and steel, if any, in a condition suitable for recycling at metal recycling facilities;
- Timber;
- Glass;
- Hardstand rubble;
- Excavation spoil, uncontaminated;
- Contaminated excavation spoil, if present;
- Hazardous waste, if present;
- Paper and cardboard;
- Recyclable general waste; and
- Non-recyclable general waste.

If there is insufficient space onsite for full segregation of waste types, the building contractor is to consult with waste or recycling collection facilities to confirm which waste types may be co-mingled prior to removal from Oakdale West. Areas designated for waste storage will:

- Allow unimpeded access by site personnel and waste disposal contractors;
- Employ adequate environmental management controls, for example, consideration of slope, drainage and proximity relative to waterways, stormwater outlets and vegetation, to prevent off-site migration of waste materials and/or contamination from the waste; and
- Not present hazards to human health or the environment.

Signage

Clear, standard signage will be posted in all waste storage and collection areas. All waste containers will be labelled correctly and clearly to identify stored materials.

4.8 Biodiversity

As required by Condition D88 and D96 of SSD 7348, a Flora and Fauna Management Plan (FFMP) (Ecologique 2020) was prepared for the construction of Oakdale West and is attached as **Appendix C.** The FFMP has been prepared to address relevant legislation, permits and approvals, which apply to the decommissioning of farm dams within Oakdale West, as well as the removal of 3.8 hectares (ha) of remnant native vegetation within the boundaries of Oakdale West. It also outlines snake habitat mitigation measures to be implemented during the construction of Oakdale West.

Table 24 outlines the mitigation measures to be implemented during construction to management the impacts to biodiversity.

Table 24 Environmental Management Controls for Biodiversity

Reporting Requirement	Person Responsible	Timing / Frequency	References / Notes
Suitable measures will be implemented to manage pests, vermin and declared noxious weeds on the Site.	Burton	Ongoing	SSD 7348 Condition D115
The Site will be inspected to ensure that these measures are working effectively, and that pests, vermin or noxious weeds are not present on Site in sufficient numbers to pose an environmental hazard, or cause the loss of amenity in the surrounding area.	Burton / ER	During ER inspections	
All employees and contractors will be inducted to ensure that procedures outlined in the FFMP are met. This will have a focus on no-go zones, clearing limits and compliance with statutory requirements applicable to flora and fauna.	Burton	Prior to commencing construction and ongoing	FFMP Section 4
Vegetation Clearing, Protection and Management			
Pre-clearing surveys will be undertaken by an experienced ecologist. Habitat features that will be cleared are to be appropriately marked and located by GPS.	Burton	Immediately prior to clearing works	FFMP Section 4
Pre-clearance reporting (including GPS measurements and FFMP constraints mapping) will be prepared to inform the following: • Clearing limits, no-go zones, and areas that will be protected; • Habitat features within clearing limits that require two-stage felling; and • Amendments required to the CEMP.		Prior to commencing construction	
Environmentally sensitive areas will be fenced and habitat features to be felled will be appropriately marked.		Prior to commencing construction and ongoing	

Reporting Requirement	Person Responsible	Timing / Frequency	References / Notes
Sediment and Erosion Controls			
Sediment and erosion controls will be installed prior to any earthworks required.	Burton	Prior to commencing construction and ongoing	FFMP Section 4
Temporary sediment sorting bunds/silt fenced areas will be installed.			
Terrestrial Wildlife Protection			
An ecologist will be present for all felling of identified habitat features.	Burton	Ongoing	FFMP Section 4
The fauna rescue and release protocols will be followed to ensure native fauna are not impacted during construction.			
Should unexpected threatened flora or fauna be encountered on site, a stop works procedure will be followed.		As required	
Large Woody Debris and Bush Rocks			
Large woody debris will be salvaged for placement in habitat areas within the proposed Biodiversity Offset Areas located along the western boundary of the site and the area associated with the Ropes Creek riparian corridor.	Burton	Prior to commencing construction and ongoing	FFMP Section 4
Various rock sizes and shapes will be salvaged during earthworks and stockpiled within the site boundary for use in creating snake refuge.		During earthworks	
Rock piles (snake refuge) will be installed within the proposed Biodiversity Offset Areas located along the western boundary of the site area.			
Aquatic Fauna Protection			
Pre-decommissioning aquatic surveys will be undertaken to describe the types and species of aquatic fauna that require capture and release, identify suitable relocation sites, with water quality sampling and analysis undertaken to support the identification of suitable relocation sites.	Burton	Prior to decommissioning the dams	FFMP Section 4
Suitable filters will be installed on pumping equipment to ensure aquatic fauna are not killed or injured during dewatering.		Prior to decommissioning the dams and ongoing during decommissioning	
Where excavation to house a pump sump is required, decommissioning approach procedures will be implemented.			
A qualified ecologist will be present at all times with sufficient support personnel to ensure that the handling, storage and relocation is achieved with minimal stress to aquatic fauna.		Ongoing	
Fauna handling protocols will be followed to ensure native aquatic fauna are not impacted during construction.			

Reporting Requirement	Person Responsible	Timing / Frequency	References / Notes
Weed and Pathogen Management			
General biosecurity duty will be complied with at all times in order to minimise the risk of introduction and/or spread of biosecurity risks.	Burton	Ongoing	FFMP Section 4
Should unexpected biosecurity risks be encountered on site, a stop works procedure will be followed.		As required	
Declared priority weeds will be managed according to requirements of the *Biosecurity Act 2015*. The use of herbicides will be undertaken in accordance with the requirements of the *Pesticides Act 1999*.		Ongoing	
Hygiene procedures will be implemented to avoid the introduction and/or spread of soil borne pathogens.			

4.9 Landscaping and Visual Amenity

As required by Condition D35 of SSD 7348, the Landscape Management Plan (LMP) was prepared by Scape Design (2020) and is attached as **Appendix D.** The LMP seeks to manage potential visual impacts which may affect local and regional visual receptors and ensure that the visual and landscape treatments are consistent with the ecological revegetation works described in the LMP.

Table 25 outlines the mitigation measures to be implemented during construction to management the impacts to landscaping and visual amenity.

Table 25 Environmental Management Controls for Landscaping and Visual Amenity

Reporting Requirement	Person Responsible	Timing / Frequency	References / Notes
Landscaping			
All landscaping implemented as shown on Figure 5 in Appendix 2 of SSD 7348 will be maintained.	Burton	Ongoing	SSD 7348 Condition D38
If the monitoring carried out in accordance with the LMP indicates that any aspect of the landscaping has not been successful, re-planting and rehabilitation works will be undertaken, as soon as reasonably practicable.			
Use of pesticides will be in accordance with the *Pesticides Act 1999* (NSW), other relevant legislation, label directions and any relevant industry codes of practice.			Best practice
All personnel managing and using pesticides will receive appropriate training and hold appropriate licence prior to commencing work.		Prior to using pesticides on site	
Only pesticides registered for use near water will be used near water.		Ongoing	
Avoid applying pesticides: • On hot days when plants are stressed; • After the seed has set; • Within 24 hours of rain or when rain is imminent; and • When winds will cause drift of pesticides into non-target areas.			
Timber logs will be selected from the cleared trees and stocked on site.			
A site walk-over will be undertaken with Goodman to confirm clearing boundaries before the start of work. No clearing will be undertaken outside the agreed clearing boundaries without the prior approval.		Prior to clearing	
All staff will be made aware of the Noxious Weeds present on-site and requirements related to the listing under the *Biodiversity Act 2015*.			
Weeds will be removed and disposed of in accordance with the requirements of Council.		Ongoing	

Reporting Requirement	Person Responsible	Timing / Frequency	References / Notes
Tree clearing and pruning will be undertaken in accordance with AS 4373.	Burton	Ongoing	Best practice
Every precaution will be taken to prevent timber from falling on private property and dispose of any timber so fallen or produce the written consent of the owner to its remaining there.			
Existing trees, grasses and other ground cover will be retained within 15m of rivers, creeks and watercourses and in all drainage lines until immediately before construction commences in the area. All trees in these areas will be felled manually, leaving grasses and small understorey species wherever possible.		As required	
Stockpiles will be located away from drainage lines and watercourses and will be arranged to minimise damage to natural vegetation and trees.		Ongoing	
The management and mitigation measures listed in Section 4 of the LMP will be implemented.			LMP Section 4
The visual and landscape treatments listed in Section 5 of the LMP will be implemented.			LMP Section 5
Visual Amenity			
Lighting will comply with the latest version of AS 4282.	Burton	Prior to commencing construction and ongoing	SSD 7348 Condition D40
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.			
Any security cameras will be directed away from adjacent private properties.	Goodman / Burton		SSD 7348 Condition D41
All signage and fencing will be erected in accordance with the plans in the RTS.	Burton	Prior to commencing construction and ongoing	SSD 7348 Condition D43
Existing rural fencing will be removed along the water pipelines corridor adjacent the site and disposed to an appropriate waste facility licensed to accept the waste.		Ongoing	SSD 7348 Condition D45
Temporary security fencing along the water pipelines corridor adjacent the site will be installed and maintained for the duration of construction, or until a permanent fence is installed.		Prior to commencing construction and ongoing	
Permanent 2.4 m high fencing will be installed and maintained along the water pipelines corridor adjacent the site, including the approaches to the WNSLR bridge over the water pipelines corridor and above retaining walls, unless otherwise agreed with Water NSW.			

4.10 Heritage

As required by Condition D106 of SSD 7348, an Unexpected Finds Protocol – Archaeological Items (UFP – Archaeological Items) has been prepared by Artefact (2019) and is attached as **Appendix P**.

If unanticipated archaeological items are uncovered at any time throughout the construction of Oakdale West the Protocol outlined in the UFP – Archaeological Items will be followed. This Protocol includes:

- Cease all activity in the vicinity of the find;
- Leave the material in place and protect it from harm;
- Erect a 10m exclusion zone (temporary fencing/signage); and
- Take note of the details of the material and its location, and take a photograph of the find in situ.

The Contractor's Project Manager will:

- Notify the Biodiversity Conservation Division (BCD) of DPIE on the Environment Line – 131 555;
- Notify the ER;
- Call the archaeologist to identify whether additional investigation is required in accordance with the conditions of approval and BCD guidelines. The Artefact archaeologist can be contacted on 02 9518 8411 and/or office@artefact.net.au;
- Notify BCD if confirmed as an Aboriginal object or relic; and
- Await further advice before proceeding with work in the area.

In addition to the above, the mitigation measures outlined in **Table 26** will be implemented during the construction of Oakdale West.

Table 26 Environmental Management Controls for Heritage

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Any identified Aboriginal items or objects will be registered on the OEH's Aboriginal Heritage Information Management System (AHIMS) Aboriginal Sites Register.	Goodman	Prior to commencing construction	SSD 7348 Condition D103
An Archaeological Test Excavation will be undertaken in accordance with Condition D104 of SSD 7348.			SSD 7348 Condition D104
Construction of Stage 1 will not commence until the Archaeological Test Excavation has been undertaken and provided to the appropriate regulators.			SSD 7348 Condition D105
If any item or object of Aboriginal heritage significance is identified on Site the unexpected finds protocol will be implemented in accordance with the UFP – Archaeological Items and Condition D106 of SSD 7348.		As required	SSD 7348 Condition D106
Work in the immediate vicinity of the Aboriginal item or object will only recommence in accordance with the provisions of Part 6 of the *National Parks and Wildlife Act 1974* (NSW).			SSD 7348 Condition D107

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
If any archaeological relics are uncovered during construction of Stage 1, then all works in the immediate vicinity of the relic will cease immediately. Unexpected finds will then be evaluated and recorded in accordance the requirements of Department of Premier and Cabinet, Heritage (former NSW OEH Heritage Division).	Burton	As required	SSD 7348 Condition D108

4.11 Hazardous Goods and Contamination

As required by Condition D116 of SSD 7348 an Unexpected Contamination Protocol (UCP) has been prepared by AECOM (2019b) and is attached as **Appendix Q**.

A Destructive Hazardous Materials ('HAZMAT') Assessment was also undertaken by EP Risk (2019) to assess the residential property located at Oakdale West which is to be demolished as part of the works associated with the project. Asbestos was detected at the property however there was no lead detected in the paint of the property.

The environmental controls that will be implemented to minimise the potential for environmental incidents relating to the hazardous goods and contamination are presented in **Table 27.**

Table 27 Environmental Management Controls for Dangerous Goods

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Chemicals, fuels and oils will be stored in bunded areas in accordance with relevant Australian Standards and/or the *Storing and Handling of Liquids: Environmental Protection – Participants Manual* (Department of Environment and Climate Change 2007).	Burton	Ongoing	SSD 7348 Condition D110
An unexpected contamination protocol (UCP) (AECOM 2019b) has been prepared to ensure that potentially contaminated material is appropriately managed.		Prior to commencing construction	SSD 7348 Condition D116
Any material identified as contaminated will be disposed off site, with the disposal location and results of testing submitted to the Planning Secretary, prior to its removal from the site.	Burton / ER	As required	
The Contractor's Project Manager and the ER will be notified of any suspected or potential contamination exposed during construction activities, and cease all work activities within the vicinity of actual or suspected contaminated land.	Burton	Immediately	Best practice
Adequate quantities of suitable material will be kept on site to counteract spillage readily available i.e. Emergency spill kits.		Prior to commencing construction and ongoing	
Emergency spill kits will be kept on site at all points of transfer for fuels and hydrocarbons, and at all other locations deemed necessary.			
Safety Data Sheets (SDS) will be kept in the Site office and/or safety system for any potentially hazardous goods stored and/or used on site.		Ongoing	
The actions specified on the respective SDS will be implemented in the event of a minor chemical or fuel spill.			
Appropriate signage and spill kits will be maintained at key locations according to the construction schedule.			

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
All employees and contractors required to used potentially dangerous goods will be appropriate trained in the proper storage, use and handling.	Burton	Ongoing	Best practice
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.			
Where the contamination is known or an unexpected contamination find has been identified, a Remediation Action Plan (RAP) will be prepared (as required) in accordance with G36 and the UCP (AECOM 2019b).		As required	UCP Section 3.1
In the event that unexpected contamination finds are encountered: • Burton will immediately inform the Project Manager and AECOM. • The Project Manager will inform Goodman. • AECOM will inspect the unexpected find (if required).	Burton / Project Manager / AECOM	As required	UCP Section 3.1
In the event that fragments of Asbestos Containing Materials (ACM) are identified during the earthworks, works will cease and the procedure outlined in Section 3.3 of the UCP will be implemented.			UCP Section 3.3
In the event that burial pits relating to the former grazing activities are exposed, works will cease in that area and the procedure outlined in Section 3.4 of the UCP will be implemented.			UCP Section 3.4
In the event that other contaminated materials are identified during the earthworks, works will cease and the procedure outlined in Section 3.5 of the UCP will be implemented.			UCP Section 3.5
A Materials Tracking Plan (MTP) will be developed and implemented in accordance with Section 4 of the UCP.	Burton	Ongoing	UCP Section 4
AECOM will prepare a Validation Report in accordance with the requirements of the NSW OEH (2011) *Guidelines for Consultants Reporting on Contaminated Sites* and EPA (2017) *Guidelines for the NSW Site Auditor Scheme (3rd Edition)*.	Burton / AECOM	At the completion of the earthworks and if any unexpected finds were encountered that required remediation	UCP Section 5

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Asbestos-containing Materials			
The redundant Henley friable fuses identified within the electrical box on the exterior southern elevation will be removed offsite by an appropriately licensed Class A (friable) asbestos removal contractor under controlled friable asbestos removal conditions prior to refurbishment or demolition works.	Burton / Licensed Class A (friable) asbestos removal contractor	Prior to demolition of the property	*Destructive Hazmat Assessment* Page 8
Eaves, an electrical backing board, fibre cement wall panels and vinyl floor tiles identified as containing or suspected of containing non-friable (bonded) will be labelled as containing asbestos and maintained in their current condition. If demolition/refurbishment is to take place, works will be under controlled non-friable asbestos conditions undertaken by a Class B (non-friable) licensed asbestos removal contractor.	Burton / Licensed Class B (non-friable) asbestos removal contractor	Ongoing during demolition of the property	
If any material not referenced in the *Destructive Hazmat Assessment* (EP Risk 2019) are encountered and suspected of containing asbestos, works will cease and an occupational hygienist will be notified to determine whether the material contain asbestos.	Burrton / Occupational hygienist	As required	
Synthetic Mineral Fibres			
In accordance with The National Code of Practice for the Safe Use of Synthetic Mineral Fibres [NOHSC:2006 (1990)], removal of unbonded SMF materials will be thoroughly wetted prior to removal. Dry removal may be necessary when there are electrical and heat considerations, in which case increased respiratory protection may be necessary when working in enclosed or poorly ventilated spaces or where the SMF insulation has undergone physical damage.	Burton	As required	*Destructive Hazmat Assessment* Page 8
Ozone Depleting Substances			
R22 Hydrochlorofluorocarbon (HCFC), ODS identified within the western patio area will be removed during demolition works and appropriately decanted and disposed of by a licensed contractor in accordance with the *Ozone Protection and Synthetic Greenhouse Gas Management Amendment Regulation 2012*.	Burton	During demolition of the property	*Destructive Hazmat Assessment* Page 9

4.12 Fire Safety and Emergency

As part of the development application for Oakdale West, Australian Bushfire Protection Planners Pty Ltd (ABPP) prepared a Bushfire Protection Assessment (2020) to outline the bushfire protection measures required for the development.

A copy of the Bushfire Protection Assessment (ABPP 2020) is attached as **Appendix R**.

The environmental controls that will be implemented to minimise the potential for environmental incidents relating to fire are presented in **Table 28**.

Table 28 Environmental Management Controls for Fire

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
The construction will comply with the relevant provisions of *Planning for Bushfire Protection* (NSW Rural Fire Service 2006).	Burton	Ongoing	SSD 7348 Condition B20 and D97
Oakdale West will be constructed in accordance with the Bushfire Protection Assessment (ABPP 2016).			
Oakdale West will comply with the requirements of AS 2419.1 -2005 Fire Hydrant Installations for fire-fighting water supply.			
In the event of emergency, the contact details in **Table 6** will be contacted.		In the event of an emergency	Section 3.5.3
Cutting, welding, grinding or other activities likely to generate fires will not be undertaken in the open on days when a total fire ban is proclaimed, unless an exemption is granted by the relevant Fire Service.		Ongoing	Best practice
When there is a risk of fire being caused by work such as welding, thermal or oxygen cutting, heating or other fire producing or spark producing operations or when burning off is proposed, training will be provided to all personnel in fire prevention, fire safety and basic firefighting skills.			
Appropriate firefighting equipment will be provided as required for the safety of persons and property.		Prior to commencing construction and ongoing	
Emergency vehicle access to and from the Site will be available at all times during construction.		Ongoing	
Fire extinguishers will be located at work locations where hot work is being undertaken or flammable gases are stored.			
Construction plant will be fitted with fire extinguishers, as required/appropriate.			
Waste material will not be burnt on site and no fires of any kind will be lit on site.			

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
The Fire Protection Plan shown in Figure 2 of the Bushfire Protection Assessment will be implemented.	Burton	Ongoing	Bushfire Protection Assessment Page 7

4.13 Community

In accordance with Condition C19 of SSD 7348, a CCS has been prepared by SLR (2020a) and is attached as **Appendix I**.

The CCS identifies relevant stakeholders, key issues, communication methods and the details of how Goodman and their contractors will engage with relevant stakeholders and the community. Any CEMP prepared for works that are part of a Future Development Application will be prepared in consultation with the relevant Government agencies, infrastructure and utility provider, including but not limited to, TransGrid, Endeavour Energy, Water NSW and TfNSW, where relevant for each stage in accordance with C18(b) SSD 7348.

The community management controls in **Table 29** will be implemented during the construction of Oakdale West.

Table 29 Environmental Management Controls for the Community

Reporting Requirement	Person Responsible	Timing / Frequency	References / Notes
Sensitive receptors will be consulted prior to actions likely to generate noise, vibration, air quality of traffic impacts.	Communications and Community Liaison Representative	No less than 48 hours prior	CCS Section 3.2
Should any works be likely to generate impacts beyond those identified within the approval's documentation, consultation will be undertaken with the applicable managing agency.		As required	
A Communications and Community Liaison Representative will be appointed as a single point of contact responsible for receiving and disseminating information requests and complaints, along with addressing any interface issues		Prior to commencing construction and ongoing	CCS Section 4
Community consultation meetings will be held to provide a project update and act as an opportunity for the community and stakeholders to discuss recent experiences and upcoming construction activities.	Community Consultation Team	Monthly. Frequency to be revised subject to the level of interest and the construction program	CCS Section 5.3
Community workshops will be held to identify the overarching construction program and communications protocols, with the event advertised via local newspaper and letter box drop.		Prior to commencing construction	
A Consultation Register will be maintained and record community and stakeholder interactions, along with associated remedial actions as required.	Communications and Community Liaison Representative	Ongoing	
ERG Meetings will be held with key environmental stakeholders and will be briefed on upcoming project tasks with key environmental implications, along with complaints and enquiries received.	ER	As required	

Reporting Requirement	Person Responsible	Timing / Frequency	References / Notes
Individual Community Meetings will be held with stakeholders as required to discuss a specific item.	Community Consultation Team	As required	CCS Section 5.3
Newspaper Advertisements will be published in The Western Weekender and Mt Druitt – St Marys Standard identifying the project hotline number and web page address.		Prior to commencing construction and ongoing	
Notification Letterbox Drop will be provided to specific receivers identified as being potentially affected by construction. This could be undertaken in tandem with door knocking.		As required in accordance with Table 7 of the CCS	
Site Signage will display project information details including the hotline and web page, along with relevant project and safety information.		Prior to commencing construction and ongoing	
Online Feedback Forms will be available on the web page, with feedback provided to be incorporated into the consultation register and actioned as required.			
A 24 hour Project Information and Complaints Number will be available for reporting project feedback.	Communications and Community Liaison Representative		
Staff and Visitor Induction and Training will be undertaken in accordance with **Section 3.4**.	Burton		
Text Message and Email Alerts will provide important information at short notice to potentially affected receivers. Text message details to be recorded in the consultation register.	Community Consultation Team	As required	
A dedicated web page will be established to provide project updates, along with real time environmental performance monitoring.		Prior to commencing construction and ongoing	
Notification requirements will be undertaken in accordance with Table 6, 7 and 8 of the CCS.		Ongoing	CCS Sections 5.3.2 and 5.3.3

5 Monitoring and Reporting

5.1 Environmental Monitoring and Inspections

Table 30 summarises the monitoring requirements for the construction of Oakdale West as set out in SSD 7348 and relevant management plans.

Table 30 Monitoring and Inspection Requirements

Monitoring / Inspection Requirement	Person Responsible	Timing / Frequency	References / Notes
General			
Inspection and maintenance of all plant and equipment items to ensure optimal operating condition.	Burton	As specified by the manufacturer / supplier	SSD 7348 Condition D21
The ER will regularly monitor the implementation of the CEMP, and any other documents identified by the Planning Secretary, to ensure implementation is being carried out in accordance with the CEMP and SSD 7348.	ER	Weekly	SSD 7348 Condition D127
Compliance monitoring and reporting will be undertaken in accordance with the Compliance Monitoring and Reporting Program (SLR 2019).		Ongoing	SSD 7348 Condition D139
All monitoring will be undertaken in accordance with Division 9.4 of Part 9 of the EP&A Act.	ER / Burton		SSD 7348 Condition D142
General environmental site inspection to ensure all relevant environmental controls listed in this CEMP are in place and any required maintenance and/or remediation works are identified and undertaken.	Burton	Weekly	Best practice
Noise and Vibration			
Attended and/or real-time noise and/or vibration monitoring will be undertaken at the start of any new noise or vibration intensive works which are close to potentially affected receivers to verify the levels are as predicted and to check the effectiveness of mitigation and management measures used to minimise the impacts. This includes where works are adjacent to the office of the Viridian site in Erskine Business Park and where works are adjacent to the nearest residences in Kemps Creek.	Burton	As required	CNVMP Section 8.1
Monitoring will also be undertaken in response to any complaints regarding noise or vibration.		Following a noise or vibration related complaint	
All items of acoustic instrumentation utilised will be designed to comply with applicable guidelines and carry current calibration certificates.		Ongoing	

Monitoring / Inspection Requirement	Person Responsible	Timing / Frequency	References / Notes
Vibration will be monitored continuously within the minimum working distances (see **Table 11**) where vibration intensive works are proposed to be undertaken within the minimum working distances of sensitive receivers or structures.	Burton	Continuously	CNVMP Section 8.2
Attended vibration measurements will be undertaken at the commencement of vibration intensive works within the minimum working distances to confirm the levels of vibration are below the applicable vibration limits.		Prior to commencing vibration intensive works	
Geophones will be installed by an acoustic consultant at the closest points of the sensitive structure to the vibration intensive works to continuously monitor vibration for the duration of the works. Should the works location change, the geophones will be relocated to remain at the closest point of the structure to the works.		Prior to commencing construction and ongoing	
The monitoring equipment will have visible and audible alarms in accordance with Section 8.2 of the CNVMP.		Ongoing	
Geophones will be installed by an acoustic consultant on top of each pipeline at the centre point between two saddles closest to the works.		Prior to commencing construction and ongoing	
Baseline vibration measurements will be recorded for at least one week to determine background levels of vibration at the site prior to commencement of any works.		For 1 week prior to commencing any works on site	
Air Quality			
Visual inspections will be undertaken to: • Identify if any dust clouds can be seen leaving site etc; • Check for smoky exhausts on vehicles and equipment operating on site; and • Confirm compliance with air quality mitigation measures specified in this CAQMP. Where excessive dust events occur (i.e. prolonged visual dust in a particular area), investigate/identify the scope(s) of work responsible for dust generation and apply additional mitigation measures until such times as the dust is not observed to be leaving the site. Record inspection results and make an inspection log available to the local authority when asked.	Burton	Daily	CAQMP Section 10
Meteorological data recorded at Horsley Park AWS will be monitored and reviewed on a daily basis.			CAQMP Section 10 ESCP Note 4

Monitoring / Inspection Requirement	Person Responsible	Timing / Frequency	References / Notes
Nuisance depositional dust monitoring will be undertaken in accordance with AS/NZS 3580.1.1.	Burton	Monthly	CAQMP Section 10
TSP and PM_{10} concentrations in $\mu g/m^3$ – Real-time monitoring using a light-scattering laser photometer (aerosol monitor). The monitors are to be calibrated every 6 months by co-locating a Low Volume Air Sampler (LVAS) at each monitoring location to derive a site-specific correction factor. LVAS calibration monitoring will be performed in accordance with: AS/NZS 3580.9.9 *Methods for Sampling and Analysis of Ambient Air – Determination of suspended particulate matter – PM_{10} low volume sampler – Gravimetric Method.*		Continuous with 6 monthly calibration	
Traffic			
Deliveries volumes will be monitored against the volumes outlined within report.	Burton	Ongoing	CTMP Section 6.1
A Dilapidation Report will be undertaken to assess the condition of the road, and note whether there has been any reduction in quality of the road as result of construction vehicles.			
Soil and Water			
Any material transported onto road surfaces to be removed.	Burton	Daily and before rainfall	Best practice
Sediment basins will be treated and approved capacity restored for the ongoing management of the site sediment yield. It is noted that some basins may be oversized to retain site water for construction purposes.		Within 5 days of the conclusion of a rainfall event	ESCP Note 16
Water will not be discharged except in accordance with the Dewatering and Management Procedure (ErSed 2019).	Burton / ER	Ongoing	ESCP Note 24
Inspections of erosion and sediment controls will occur (and be documented using the Post Rainfall Inspection Checklist TP-082) with any necessary repairs implemented as soon as possible.	Burton	Weekly and immediately following rainfall events >10mm	ESCP Note 29 and Burton response to DPIE comments
Inspections of vehicles importing fill to site will be undertaken. Where suspicious loads and/or evasive answers are apparent, permission to unload will not be granted.		During importation of fill	FIP Section 2
pH will be tested at any basin to ensure it remains below between 6.5 - 8.5.		Prior to discharge	Dewatering and Management Procedure Section 2.2.3

Monitoring / Inspection Requirement	Person Responsible	Timing / Frequency	References / Notes
Total Suspended Solids (TSS) will be tested at any basin to ensure it remains below 50 ppm. Laboratory testing will be used to confirm appropriate water quality in basins until an acceptable correlation of TSS with NTU is generated. Once sufficient laboratory data has been collected, the Contractor will collate the data and send to the ER with a proposed correlation.	Burton	Prior to discharge and ongoing	Dewatering and Management Procedure Section 2.2.3
Oil and grease will be monitored at any basin using a visual inspection to ensure there is no oil or grease visible.		Prior to discharge	
ESCs will be maintained until the catchment area is stabilised to achieve soil surface protection factors as per the 'Bluebook' and SWMP requirements. An inspection by the A Soil Conservationist (CPESC) will be undertaken to verify the stabilisation of the project catchment area prior to removal of controls.		Ongoing / As required	Burton response to DPIE comments
A walk around site inspection will be undertaken. The walk around consists of: • Any disturbed ground which will generate dust in dry windy conditions; • Any disturbed ground which is exposed to erosion; • Construction waste and litter removal; and • Sediment traps, sumps and filters are to be maintained in effective working order including desilting of sediment controls, stabilisation of drains and diversion structures and appropriate management of basins. The inspection will be recorded via the Burton Site Environmental Checklist or Site Inspection as a record document.		Weekly or as required due to site conditions	Burton response to DPIE comments
Waste			
Skips/bins are to be checked by the Contractors Project Manager or delegated site personnel to ensure that no overflow occurs. If skips/bins are reaching capacity, removal and replacement will be organised for the next 24 hours.	Burton	Daily	WMP Section 5.6.3
Visual inspections of waste storage areas will be undertaken.			WMP Section 5.9
Biodiversity			
The Site will be inspected to ensure that these measures are working effectively, and that pests, vermin or noxious weeds are not present on Site in sufficient numbers to pose an environmental hazard, or cause the loss of amenity in the surrounding area.	Burton / ER	During ER inspections	SSD 7348 Condition D115

Monitoring / Inspection Requirement	Person Responsible	Timing / Frequency	References / Notes
Pre-decommissioning aquatic surveys will be undertaken to describe the types and species of aquatic fauna that require capture and release, identify suitable relocation sites, with water quality sampling and analysis undertaken to support the identification of suitable relocation sites.	Burton	Prior to decommissioning the dams	FFMP Section 4
Pre-clearing surveys will be undertaken by an experienced ecologist. Habitat features that will be cleared are to be appropriately marked and located by GPS.		Immediately prior to clearing works	
Landscaping and Visual Amenity			
The monitoring program outlined in Sections 6.1 - 6.4 of the LMP will be implemented.	Burton	As stated in LMP	LMP Sections 6.1 - 6.4
Community			
The following will be monitored: • Total number of complaints • Number of complaints relating to lack of consultation / misinformation / confusion • Number of enquiries relating to information previously disseminated • Number of complaints / enquiries within defined categories based on theme or subject • Response timeframes	Communications and Community Liaison Representative	Monthly	CCS Section 6.1

5.2 Reporting

Table 31 summarises the reporting requirements for the construction of the Oakdale West as set out in SSD 7348 and relevant management plans.

Table 31 Reporting Requirements

Reporting Requirement	Person Responsible	Timing / Frequency	References / Notes
General Environmental Performance			
The ER will prepare and submit an Environmental Representative Monthly Report.	ER	To be submitted within 7 days following the end of each month	SSD 7348 Condition D127
Compliance monitoring and reporting will be undertaken in accordance with the Compliance Monitoring and Reporting Program (SLR 2019).	Goodman	Ongoing	SSD 7348 Condition D139
Compliance Reports of the Development will be carried out in accordance with the *Compliance Reporting Post Approval Requirements* (DPE 2018).		As set out in the DPE guidelines	SSD 7348 Condition D140
Each Compliance Report will be made publicly available.		No later than 60 days after submitting it to the DPIE and notify the DPIE in writing at least 7 days before this is done.	SSD 7348 Condition D141
Regular reporting on environmental performance will be uploaded on the dedicated website as per the reporting arrangements in any plans or programs approved under the conditions of SSD 7348.		48 hours prior to commencing construction and ongoing	SSD 7348 Condition D143
Burton will report environmental performance during regular management meetings and/or 'toolbox talks'. Items to be discussed include: • Results of any monitoring activities undertaken; • Any environmental incidents that have occurred during the previous period, including the management / corrective actions taken; • Any complaints that have been received during the previous period, including any management / corrective actions taken.	Burton	Weekly	Section 3.4

Reporting Requirement	Person Responsible	Timing / Frequency	References / Notes
A copy of all environmental records will be maintained, including: • Site environmental inspection reports • Environmental monitoring data • Internal and external audit reports • Reports of environmental incidents, environmental, associated actions taken, and follow-up actions • Minutes of management review meetings • Induction and training records	Burton	For at least 5 years after completion	Best practice
Meteorological data including rainfall will be recorded.		Daily	
Incident / Non-Compliance Reporting			
A written incident notification will be emailed to the DPIE at compliance@planning.nsw.gov.au and include the requirements outlined in Appendix 8 of SSD 7348.	Goodman / Burton	Within 7 days after Goodman becomes aware of the incident	SSD 7348 Condition D135 and Appendix 8
A detailed incident report will be provided to the Planning Secretary and include the requirements outlined in Appendix 8 of SSD 7348.		Within 30 days of the incident occurring	
The DPIE will be notified of any non-compliance in writing to compliance@planning.nsw.gov.au.		Within 7 days after Goodman becomes aware of the non-compliance	SSD 7348 Condition D136
A register of all complaints and non-compliances will be kept.		For at least 5 years after completion	Best practice
Noise			
Monitoring reports will be produced following each monitoring survey.	Burton	Following each monitoring survey	CNVMP Section 8.1
Vibration			
Vibration monitoring reports will be prepared at the following stages: • Prior to commencement of works (baseline report) • Monthly during works (at a minimum) • Within one week of an exceedance of the vibration limit alarm level (15 mm/s PPV) • Upon completion of construction	Burton	Monthly at minimum	CNVMP Section 8.2
Soil and Water			
The ER will make a written statement to the Planning Secretary confirming the erosion and sediment controls are implemented and operational.	ER	Prior to commencing bulk earthworks	SSD 7348 Condition D81

Reporting Requirement	Person Responsible	Timing / Frequency	References / Notes
When a basin is identified by the Contractor as requiring dewatering, the Contractor will begin to complete a Dewatering Record in accordance with Section 2.2.2 of the Dewatering and Management Procedure.	Burton	As required	Dewatering and Management Procedure Section 2.2.2
Prepare and submit a Materials Tracking Register in accordance with the FIP.		Weekly	FIP Section 3
Waste			
Waste records are to be provided to Goodman.	Burton	Quarterly	WMP Section 5.9
Biodiversity			
The Planning Ministerial Corporation will be notified to enable the Planning Ministerial Corporation to arrange ongoing maintenance.	Goodman	At least 1month prior to the completion of planting	SSD 7348 Condition D95
Pre-clearance reporting (including GPS measurements and FFMP constraints mapping) will be prepared to inform the following: • Clearing limits, no-go zones, and areas that will be protected; • Habitat features within clearing limits that require two-stage felling; and • Amendments required to the CEMP.	Burton	Prior to commencing construction	FFMP Section 4
The environmental records listed in the FFMPs will be maintained.		Ongoing	FFMPs Section 7.2
Landscaping and Visual Amenity			
A Landscaping Logbook will be maintained.	Goodman / Burton	Monthly / Annually	LMP Sections 5.2.7 and 6.1
Hazardous Goods and Contamination			
Any material identified as contaminated will be disposed off site, with the disposal location and results of testing submitted to the Planning Secretary, prior to its removal from the site.	Burton / ER	As required	SSD 7348 Condition D116
Where the contamination is known or an unexpected contamination find has been identified, a Remediation Action Plan (RAP) will be prepared (as required) in accordance with G36 and the UCP (AECOM 2019b).	Burton		UCP Section 3.1

Reporting Requirement	Person Responsible	Timing / Frequency	References / Notes
AECOM will prepare a Validation Report in accordance with the requirements of the NSW OEH (2011) *Guidelines for Consultants Reporting on Contaminated Sites* and EPA (2017) *Guidelines for the NSW Site Auditor Scheme (3rd Edition)*.	Burton / AECOM	At the completion of the earthworks and if any unexpected finds were encountered that required remediation	UCP Section 5
Community			
The monthly community consultation summary will be made publicly available on the project web page and shall include: • A summary of community consultation activities undertaken within the preceding month • A summary of community consultation activities proposed within the following month • A summary of all enquiries and complaints received within the preceding month, including details of response and/or remediation activities	Communications and Community Liaison Representative	Monthly	CCS Section 6.2

5.3 Audits

Table 32 summarises the Audit requirements for the construction of the Oakdale West as set out in SSD 7348 and relevant management plans.

Table 32 Audit Requirements

Reporting Requirement	Person Responsible	Timing / Frequency	References / Notes
The Planning Secretary may at any time commission an audit of an ER's exercise of its functions under Condition D142.	ER	As required	SSD 7348 Condition D129
All audits will be undertaken in accordance with Division 9.4 of Part 9 of the EP&A Act.	ER / Burton	Ongoing	SSD 7348 Condition D142
A project audit will be undertaken to ensure all aspects of the project are implemented.	ER	Within 6 months of the commencement of construction	ER recommendation

5.4 Contingency Management Plan

Table 33 lists the actions to be implemented if inspections, monitoring and/or auditing indicate that the mitigation measures listed in **Section 4** and the specialist management plans are not effective in managing environmental impacts.

All Condition Amber and Condition Red occurrences will be recorded in the Environmental Representative Monthly Report and discussed during the toolbox talks.

Table 33 Contingency Plan

Key Element	Trigger / Response	Condition Green	Condition Amber	Condition Red
Noise impacts at sensitive receiver locations	Trigger	Noise levels do not exceed applicable NMLs.	Noise levels exceed applicable NMLs.	Noise levels exceed Highly Noise Affected criteria (75 dBA).
	Response	Ongoing best practice management measures to minimise noise emissions.	Undertake all feasible and reasonable mitigation and management measures to minimise noise impacts.	Undertake all feasible and reasonable mitigation and management measures to ensure noise levels are below Highly Noise Affected criteria. If noise levels cannot be kept below applicable limits then a different construction method or equipment will be utilised.
Vibration impacts at sensitive receiver locations	Trigger	Vibration intensive works undertaken outside minimum working distance for the specific equipment in use.	Vibration intensive works undertaken within minimum working distance for the specific equipment in use.	Vibration levels exceed applicable vibration limits.
	Response	Ongoing best practice management measures to minimise vibration emissions.	Undertake vibration monitoring for the duration of the works to confirm vibration levels.	Stop work. Undertake all feasible and reasonable mitigation and management measures to ensure vibration levels are below applicable limits. If vibration levels cannot be kept below applicable limits then a different construction method or equipment will be utilised.

Key Element	Trigger / Response	Condition Green	Condition Amber	Condition Red
Vibration impacts on Water NSW pipelines	Trigger	Monitored vibration levels on pipeline are <10 mm/s PPV.	Monitored vibration levels on pipeline are 10 mm/s to 15 mm/s PPV.	Monitored vibration levels on pipeline exceed 15 mm/s PPV.
	Response	Ongoing best practice management measures to minimise vibration emissions.	Care will be taken to minimise vibration levels and ensure that vibration levels do not exceed 15 mm/s PPV.	Stop work. Undertake all feasible and reasonable mitigation and management measures to ensure vibration levels are below 15 mm/s PPV. If vibration levels cannot be kept below 15 mm/s PPV then a different construction method or equipment will be utilised.
Visible dust leaving the site	Trigger	Daily inspections show that there is no visible dust leaving the site.	Daily inspections show that there is visible dust leaving the site.	Daily inspections show that there is visible dust leaving the site multiple times during a day OR from multiple locations within the site.
	Response	Continue monitoring program as normal.	Review and investigate construction activities and respective control measures, where appropriate. Implement additional remedial measures, such as: • Deployment of additional water sprays, water trucks etc.	Undertake an investigation of the dust generating activities, and if necessary, temporarily halt the dust generating activities.

Key Element	Trigger / Response	Condition Green	Condition Amber	Condition Red
Dust deposition reading of >4g/m^2/month	Trigger	Dust deposition rates are less than 4 g/m^2/month at all the dust gauges.	Dust deposition rate greater than 4 g/m^2/month is recorded by any of the dust gauges.	Dust deposition rates greater than 4 g/m^2/month are recorded by two or more dust gauges for two months in a row.
	Response	Continue monitoring program as normal.	• Analyse data to try to identify the source(s) of dust. • Review operations to reduce dust emissions from the identified key source(s). Implement any additional mitigation measures as required, such as additional watering.	• Review and investigate construction activities and respective control measures for the monitoring period. • If it is concluded that construction activities were directly responsible for the exceedance (i.e. the exceedance event was not caused due to high regional dust levels or local non-project dust source), submit an incident report to government agencies. Note: Real time suspended particulate monitoring is also to be undertaken, to assist in managing dust from onsite activities (see **Section 5.1**).

Key Element	Trigger / Response	Condition Green	Condition Amber	Condition Red
Complaints received regarding nuisance dust	Trigger	There are no complaints received during the construction	An air-quality related complaint is received from a nearby resident	Further complaints are received from the same complainant after the additional mitigation measures have been implemented.
	Response	Continue monitoring program as normal.	• Report the complaint to the regulator, in line with complaints handling procedure. • Review and investigate construction activities and increase dust suppression measures (additional watering, covering stockpiles etc.), where appropriate.	Review real-time monitoring data at the existing continuous monitors to investigate the likelihood of onsite activities contributing.

Key Element	Trigger / Response	Condition Green	Condition Amber	Condition Red
Real-time suspended particulate matter monitoring (TSP and PM_{10})	Trigger	Running 24-hour average PM_{10} concentrations < 40 µg/m^3	Running 24-hour average PM_{10} concentrations > 40 µg/m^3 but < 50 µg/m^3	Running 24-hour average PM_{10} concentrations > 50 µg/m^3
	Response	Continue monitoring program as normal.	Review and investigate construction activities and respective control measures. Where appropriate, implement additional remedial measures, such as: • Deployment of additional water sprays, water trucks etc • Relocation or modification of dust-generating sources • Record findings of investigations and actions taken to reduce dust levels • Continue to closely monitor dust levels to ensure they are decreasing If elevated dust levels are due to regional dust event (fire, dust storm etc) – still take action to minimise dust from the site to minimise cumulative impacts, but also record details of the cause of the elevated background levels.	• Review and investigate construction activities and respective control measures for the monitoring period, in an air pollution incident report. • If it is concluded that construction activities were directly responsible for the exceedance (i.e. the exceedance event was not caused due to high regional dust levels or local non-project dust source), submit an incident report to government agencies.

Key Element	Trigger / Response	Condition Green	Condition Amber	Condition Red
Construction movements	Trigger	Construction traffic volume is in accordance with permissible and programmed volume and time constraints.	Construction traffic volumes exceeds programmed volume but is within permissible volume constraints.	Construction traffic volumes exceeds permissible volume and time constraints.
	Response	No response required. Continue monitoring program.	Review and investigate construction activities, and where appropriate, implement additional remediation measures such as: • Temporary halting of activities and resuming when conditions have improved • Review CTMP and update where necessary • Provide additional training	Review and investigate construction activities. If it is concluded that construction activities were directly responsible for the exceedance, submit an incident report to government agencies. Where appropriate, implement additional remediation measures such as: • Temporary halting of activities and resuming when conditions have improved • Stop all transportation into and out of the site • Review CTMP and update where necessary • Provide additional training

Key Element	Trigger / Response	Condition Green	Condition Amber	Condition Red
Construction movements	Trigger	Construction traffic does not utilise Bakers Lane during School Peaks.	Construction traffic utilises Bakers Lane close to School Peaks.	Construction traffic utilises Bakers Lane during School Peaks.
	Response	No response required. Continue monitoring program.	Review and investigate construction activities, and where appropriate, implement additional remediation measures such as: • Review vehicles arriving to site and remind them of the strict exclusion time periods • Provide additional training (including toolbox talks and further notification of Driver Code of Conduct).	Review and investigate construction activities. If it is concluded that construction activities were directly responsible for the exceedance, submit an incident report to government agencies. Where appropriate, implement additional remediation measures such as: • Stop all transportation into and out of the site • Review CTMP and update where necessary • Provide additional training (including toolbox talks and further notification of Driver Code of Conduct).

Key Element	Trigger / Response	Condition Green	Condition Amber	Condition Red
Queuing	Trigger	No queuing identified.	Queuing identified within site.	Queuing identified on the public road.
	Response	No response required. Continue monitoring program.	Review the delivery schedule prepared by the builder. If drivers are not following the correct schedule, then they should be provided with additional training and an extra copy of the Driver Code of Conduct.	Review and investigate construction activities. If it is concluded that construction activities were directly responsible for the exceedance, submit an incident report to government agencies. Where appropriate, implement additional remediation measures such as: • Temporary halting of activities and resuming when conditions have improved • Stop all transportation into and out of the site • Review CTMP and update where necessary • Provide additional training
Traffic noise	Trigger	Noise levels do not exceed imposed noise constraints	Noise levels in minor excess of imposed noise constraints	Noise levels greatly in excess of imposed noise constraints
	Response	No response required Continue monitoring program.	Undertake all feasible and reasonable mitigation and management measures to minimise noise impacts.	Undertake all feasible and reasonable mitigation and management measures to ensure noise levels are below Highly Noise Affected criteria. If noise levels cannot be kept below applicable limits, then a different construction method or equipment must be utilised.

Key Element	Trigger / Response	Condition Green	Condition Amber	Condition Red
Traffic Control Plans	Trigger	No observable issues	Minor inconsistencies with TCP to onsite operations	Near miss or incident occurring regardless of / as a result of the TCP being implemented
	Response	No response required Continue monitoring TCPs.	Traffic Controller to amend TCP on site and to keep a log of all changes.	Stop work until an investigation has been undertake into the incident. There are to be changes made to the TCP to ensure that the safety of all workers, students and civilians are catered for.
Traffic Air Quality Impacts	Trigger	No observable dust	Minor quantities of dust in the air and tracking on to the road.	Large quantities of dust in the air and tracking on to the road.
	Response	No response required Continue monitoring program	Review and investigate construction activities and respective control measures, where appropriate. Implement additional remedial measures, such as: • Deployment of additional water sprays • Relocation or modification of dust-generating sources • Check condition of vibrating grids to ensure they are functioning correctly • Temporary halting of activities and resuming when conditions have improved	Review and investigate construction activities and respective control measures. If it is concluded that construction activities were directly responsible for the exceedance, submit an incident report to government agencies. Implement relevant responses and undertake immediate review to avoid such occurrence in future.

Key Element	Trigger / Response	Condition Green	Condition Amber	Condition Red
Erosion	Trigger	No evidence of erosion.	Minor gully or tunnel erosions present and/or rilling. Evidence of sediment or sediment laden water leaving the site.	Significant gully or tunnel erosions present and/or rilling. Evidence of sediment or sediment laden water leaving the site.
	Response	Continue CEMP implementation.	A suitably trained person to inspect the site. Review of erosions and sediment structures. Remediate as appropriate.	A suitably trained person to inspect the site. Review of erosion and sediment structures. Remediate as soon as practical.
Water management structures	Trigger	Water management structures have been designed, constructed and managed in accordance with the Blue Book and the ESCPs.	Inspections indicate that water management structures illustrate minor non-compliance with the Blue Book and the ESCPs.	Inspections indicate a failure of the water management structures.
	Response	Continue CEMP implementation.	A suitably trained person to inspect the site. Review of water management structures. Remediate as appropriate.	A suitably trained person to inspect the site. Remediate as soon as practical. Review of engineering design and revise ESCPs.
Water Quality Monitoring	Trigger	Water quality monitoring results are in accordance with **Table 30** and approved by the ER.	Water quality monitoring results exceed the criteria listed in **Table 30** and not approved by the ER.	Follow up water quality monitoring results exceed the criteria listed in **Table 30** and not approved by the ER.
	Response	Continue CEMP implementation.	Follow up water quality monitoring will be undertaken to ensure results are just an anomaly and not a trend.	Appropriate measures are implemented. Follow up water quality monitoring is undertaken to ensure they satisfy the criteria in **Table 30** and are approved by the ER.

Key Element	Trigger / Response	Condition Green	Condition Amber	Condition Red
Waste	Trigger	Weekly ER inspections identified no waste outside of dedicated bins and stockpiles.	Weekly ER inspections identified minimal waste outside of dedicated bins and stockpiles.	Weekly ER inspections identified large quantities of waste outside of dedicated bins and stockpiles. Complaints received regarding waste.
	Response	Continue CEMP implementation.	The Project Manager is notified and the waste is cleaned up immediately.	The Project Manager is notified and the waste is cleaned up immediately. The Communications and Community Liaison Representative is also notified and the complaints handling process outlined in **Section 3.6** and the CCS is implemented.
Native vegetation clearance	Trigger	Clearing limits are clearly marked and disturbance is restricted to the delineated clearance areas. No stockpiling of equipment, soils, or machinery occurs beyond the clearance boundary. No encroachment of vehicles, equipment or works occurs beyond the clearance boundary.	Monitoring verifies that demarcation of clearing limits is not functioning in accordance with their design intent, OR Works activities / vehicle or plant movements have encroached beyond clearing limits.	Monitoring verifies clearing of native vegetation has occurred beyond clearing limits, OR Works activities / vehicle or plant movements that have encroached beyond clearing limits have caused damage to protected areas of vegetation.
	Response	No response required. Continue monitoring program.	Remediate immediately, OR Review work practices of contractors / personnel responsible and provide further site induction to ensure responsibilities are understood.	Reporting to government agencies. Implement relevant responses and undertake immediate review to determine source of issues and implement remediation measures identified as soon as practicable.

Key Element	Trigger / Response	Condition Green	Condition Amber	Condition Red
Fauna protection	Trigger	Clearing of native vegetation and habitat features is completed in accordance with Clearance protocols. All fauna species encountered during construction are handled humanely in accordance with industry standards.	Monitoring/review of reporting procedures verifies that Clearing of habitat features is undertaken in the absence of Clearance protocols, but no fauna species encountered.	Monitoring/review of reporting procedures verifies that clearing of habitat features is undertaken in the absence of Clearance protocols, and results in death or injury of fauna species encountered.
	Response	Continue CEMP implementation.	Review work practices of contractors / personnel responsible. Further clearance of native vegetation is to cease until further site induction undertaken to ensure responsibilities are understood.	Reporting to government agencies. Implement relevant responses and undertake immediate review to determine source of issues and implement remediation measures identified as soon as practicable.
Native vegetation protection	Trigger	Exclusion fencing and protection measures are installed and are functioning in accordance with their design intent.	Monitoring verifies that exclusion fencing and protection measures are not functioning in accordance with their design intent.	Monitoring verifies that works activities / vehicle or plant movements have impacted on areas of native vegetation to be protected.
	Response	Continue CEMP implementation.	Remediate immediately	Reporting to government agencies. Implement relevant responses and undertake immediate review to determine source of issues and implement remediation measures identified as soon as practicable.

Key Element	Trigger / Response	Condition Green	Condition Amber	Condition Red
Plant irrigation	Trigger	Irrigation system operating at optimum frequency.	Irrigation system yet to be installed.	Irrigation system fails.
	Response	No response required. Continue to monitor.	Provide additional hand watering until system is installed.	Provide additional hand watering until system is repaired. The irrigation system will be fully functional at all times to ensure that all plants, trees and lawns receive adequate water at optimal frequency.
Plant failure	Trigger	No significant plant failure is present. Monitoring verifies that there is <5% of plants failing.	Monitoring verifies there is plant failure at a rate between 5% -10%	Monitoring verifies there is plant failure at a rate >10%.
	Response	No response required. Continue to monitor.	If the cause of failure is due to a controllable situation then correct situation prior to replacing plants. All planting areas are to be free of grass and weed. Replace plants with one of similar size and quality and identical species. of variety of the ones failed.	If the cause of failure is due to a controllable situation then correct situation prior to replacing plants. All planting areas are to be free of grass and weed. Replace plants with one of similar size and quality and identical species. of variety of the ones failed.
Revegetation failure	Trigger	Revegetation is growing to desired design surface levels.	Monitoring verifies that weed emergence has occurred.	Monitoring verifies that weed emergence and plant failure has occurred.
	Response	No response required. Continue to monitor.	Refer to LMP for monitoring requirements once problem has been identified. Possible solutions include the removal of weeds as per Section 5.3.7 of the LMP.	Refer to LMP for monitoring requirements once problem has been identified. Possible solutions include removal of weeds and re-seeding of revegetation cover crop as per Section 5.3.7 of the LMP.

Key Element	Trigger / Response	Condition Green	Condition Amber	Condition Red
Slope failure	Trigger	No significant erosion is present that would constitute a safety hazard or compromise the capability of supporting the end land use. Monitoring verifies there are no gully or tunnel erosion features, or rill erosion >200mm deep.	Monitoring verifies there is gully or tunnel erosion features, or rill erosion 200mm deep.	Monitoring verifies there is gully or tunnel erosion features, or rill erosion >200mm deep.
	Response	No response required. Continue to monitor.	A suitably trained person to inspect the site. Investigate opportunities to install water management infrastructure to address erosion. Remediate as appropriate.	Undertake a review of the drainage of the area and provide recommendations to appropriately remediate the erosion. Remediate as soon as practicable.
Heritage	Trigger	No unknown heritage items uncovered.	Potential heritage item uncovered.	Potential heritage item uncovered causing significant delays to project.
	Response	Continue CEMP implementation.	Stop work and implement the unexpected finds protocol.	Stop work and implement the unexpected finds protocol. Heritage item to be salvaged and removed from site by a qualified archaeologist.
Unexpected Contamination	Trigger	No contamination uncovered during earthworks.	Areas of possible contamination uncovered.	Areas of contamination uncovered.
	Response	Continue CEMP implementation.	Stop work immediately and the contamination assessed according to the UCP (AECOM 2019b).	Stop work immediately and a RAP is to be prepared. A validation report is to be prepared following remediation.

Key Element	Trigger / Response	Condition Green	Condition Amber	Condition Red
Bushfire	Trigger	No bushfire or bushfire prone weather.	Bushfire prone weather during summer.	Bushfire in the vicinity of the site.
	Response	Continue CEMP implementation.	Ensure grass is kept short and vegetation is minimal at the site. Weather is to be monitored twice daily for chance of bushfire.	Stop work and contact NSW Fire and Rescue on '000'. Evacuate the site as directed by NSW Fire and Rescue.
Submission	Trigger	General feedback/comment (no complaint or query).	Enquiry made by formal or informal channels.	Complaint made by formal or informal channels.
	Response	Acknowledge receipt and record in consultation register. No further response required.	Acknowledge receipt and record in consultation register. Direct enquiry to relevant person for actioning and response within 5 days.	Acknowledge receipt and record in consultation register. Direct enquiry to relevant person for actioning and response within 48 hours.
Media	Trigger	Positive story in print, online, radio or television.	Neutral or advisory story in print, online, radio or television.	Negative story in print, online, radio or television.
	Response	Record in consultation register and advise Goodman media/marketing team. No further response required.	Record in consultation register and advise Goodman media/marketing team. No further response required.	Record in consultation register and advise Goodman Project Team for further action and response. Contact relevant person for actioning and response within 48 hours.
Unscheduled Event	Trigger	Event occurring outside of plan or schedule without impact or potential impact.	Event occurring outside of plan or schedule with minor impact or potential impact.	Event occurring outside of plan or schedule with major impact or potential impact.
	Response	No response required. Identify opportunities for improvement to manage potential future events.	Contact relevant person for actioning and response within 48 hours. Acknowledge in consultation register. Identify opportunities for improvement to manage potential future events.	Contact relevant person for actioning and response immediately. Acknowledge in consultation register. Identify opportunities for improvement to manage potential future events.

6 Review and Improvement of the CEMP

Review of the CEMP will be undertaken at least quarterly and will include participation by Goodman. The review will comprise, as a minimum, the following:

- Identification of areas of opportunity for improved environmental performance;
- Analysis of the causes of non-compliances, including those identified in environment inspections and audits;
- Verification of the effectiveness of corrective and preventative actions; and
- Highlighting any changes in procedures resulting from process improvement.

Condition D133 of SSD 7348 also states that all strategies, plans and programs required under SSD 7348 will be reviewed within three months of:

- The submission of a Compliance Report under Condition D141;
- The submission of an Environmental Representative Monthly Report under Condition D127;
- The submission of an incident report under Condition D135;
- The approval of any modification of the conditions of this consent; or
- The issue of a direction of the Planning Secretary under Condition D2(b) which requires a review.

This CEMP will also be reviewed and, if necessary, revised in the following circumstances:

- Where there is any change to the scope of the construction activities and/or disturbance footprint;
- Where it is identified that the environmental performance is not meeting the objectives of the CEMP; and/or
- At the request of a relevant regulatory authority.

As per Condition D134 the revised documents will be sent to DPIE within 6 weeks of review. All employees and contractors will be informed of any revisions to the CEMP by the Contractor's Project Manager during toolbox talks.

7 References

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AECOM (2019b) *Unexpected Contamination Protocol – Oakdale West Estate*

Artefact (2019) *Unexpected Finds Protocol – Archaeological Items*

Ason (2020) *Construction Traffic Management Plan – Oakdale West, Kemps Creek*

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Pells Sullivan Meynink (2015b) *Salinity Management Plan*

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Scape Design (2020) *Oakdale West Estate – Landscape Management Plan*

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SLR Consulting (2020a) *Community Communications Strategy*

SLR Consulting (2020b) Construction *Air Quality Management Plan*

SLR Consulting (2020c) *Construction Noise and Vibration Management Plan*

SLR Consulting (2020d) *Oakdale West Estate – Waste Management Plan*

Standards Australia (1997) *AS 4282 – 1997: Control of the obtrusive effects of outdoor lighting*

Standards Australia (2001) *AS 2601 – 2001: The Demolition of Structures*

Standards Australia (2007) *AS 4373 – 2007: Pruning of Amenity Trees*

Standards Australia (2009a) *AS 1742.3 – 2009: Manual of uniform traffic control devices*

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WSROC (2004) *Salinity Code of Practice*

APPENDIX A

Development Consent SSD 7348

Development Consent

Section 4.38 of the Environmental Planning and Assessment Act 1979

As delegate of the Minister for Planning and Public Spaces under delegation executed on 11 October 2017, I determine:

(a) to grant consent to the Stage Development Application referred to in Schedule A subject to the Concept Proposal conditions in Schedule B and C and the Stage 1 Development Application conditions in Schedule D;

(b) that pursuant to section 4.37 of the *Environmental Planning and Assessment Act 1979*, 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.

These conditions are required to:

- prevent, minimise, or offset adverse environmental impacts;
- set standards and performance measures for acceptable environmental performance;
- require regular monitoring and reporting; and
- provide for the ongoing environmental management of the development.

Anthea Sargeant
Executive Director
Compliance, Industry and Key Sites

Sydney 2019 File: 15/15802

SCHEDULE 1

Application Number:	SSD 7348
Applicant:	Goodman Property Services (Aust) Pty Ltd
Consent Authority:	Minister for Planning and Public Spaces
Site:	Lot 1 DP 663937, Lot 2 DP 1215268, Lot 6 DP 229784, Lot 2 DP 84578, Lot 3 DP 85393 and Lot 11 DP 1178389 2 Aldington Road, Kemp Creek NSW 2178 Lot 9 DP 1157476 57-87 Lockwood Road, Erskine Park NSW 2759
Development:	A Concept Proposal including: • concept layout of 22 warehouse buildings inclusive of dock offices and ancillary offices providing 476,000 square metres of gross lettable area, built over five development stages;

- concept layout of development lots, internal roads, drainage, landscaping, noise walls, basins and biodiversity offsets; and
- development controls

A Stage 1 Development including:

- bulk earthworks across all five stages including retaining walls and noise walls;
- lead in services including but not limited to drainage, power, sewer, water and telecommunications;
- service infrastructure to Precinct 1, including drainage, power, sewer, water and telecommunications;
- construction and operation of three warehouse buildings inclusive of dock offices and ancillary offices in Precinct 1 (1A, 1B and 1C) providing 118,000 square metres of gross lettable area;
- Western North-South Link Road and associated subdivision, basins and drainage;
- estate roads 1, 2 and 6 and eastern part of road 7;
- landscaping of Stage 1, the western boundary, Western North-South Link Road, estate roads 1, 2 and 6 and the eastern part of road 7, detention basins and the amenity lot
- subdivision of Stage 1 lots and road infrastructure including the services (substation) lot;
- stormwater drainage infrastructure for Lots 2A and 2B and all basins;
- temporary works to facilitate construction including but not limited to swales, haul road (construction access), landscaping and basins; and
- works including construction of traffic signals at Lenore Drive/Grady Crescent/WNSLR intersection; and
- works within Lot 9 DP1157476 including reconfiguration of car park, relocation of car park access on Lockwood Road, infrastructure, landscaping and all works associated with the WNSLR.

TABLE OF CONTENTS

DEFINITIONS ..... **VI**

SCHEDULE B CONDITIONS FOR THE CONCEPT PROPOSAL **1**

Future Development Applications 1
Statutory Requirements 1
Terms of Consent 1
Limits of Consent 1
Staging Plan 2
Noise Limits 3
Bushfire Protection 3
TransGrid Easement 3
Endeavour Energy 3
Water NSW 3
Amenities Lot 4

SCHEDULE C CONDITIONS FOR FUTURE DEVELOPMENT APPLICATIONS **5**

Development Contributions 5
Interface with Residential Areas 5
Visual Amenity 5
Transport, Access and Parking 6
Noise and Vibration 6
Stormwater Management 6
Bushfire Protection 6
TransGrid Easement 6
Endeavour Energy 6
Water NSW 6
Waste 7
Construction Management 7
Community Communication Strategy 7

SCHEDULE D CONDITIONS FOR STAGE 1 DA **8**

PART 1 – GENERAL CONDITIONS **8**

Obligation to Minimise Harm to the Environment 8
Terms of Consent 8
Limits of Consent 8
Notification of Commencement 8
Evidence of Consultation 9
Staging, Combining and Updating Strategies, Plans or Programs 9
Protection of Public Infrastructure 9
Protection of Water NSW Infrastructure 9
Demolition 9
Structural Adequacy 10
Compliance 10
Developer Contributions 10
Operation of Plant and Equipment 10
Easements 10
External Walls and Cladding 10
Utilities and Services 10
TransGrid Easement 10
Water NSW 11
Works-as-Executed Plans 11
Applicability of Guidelines 11
ADVISORY NOTES 11

PART 2 – ENVIRONMENTAL PERFORMANCE CONDITIONS **12**

Visual Amenity 12
Western North-South Link Road (WNSLR) 13
Transport, Access and Parking 15
Noise 16
Vibration 17
Soils & Water 17
Biodiversity 18
Bushfire Protection 19
Air Quality 19
Aboriginal Heritage 20

Historic Heritage 21
Hazards and Risk 21
Waste Management 21
Contamination 21
Community Engagement 21

PART 3 – ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING 22

Management Plan Requirements 22
Construction Environmental Management Plan 22
Environmental Representative 23
Operational Environmental Management Plan 24
Revision of Strategies, Plans and Programs 24
Reporting and Auditing 25
Access to Information 25

APPENDIX 1 CONCEPT PROPOSAL 27

APPENDIX 2 STAGE 1 DA PLANS 30

APPENDIX 3 WNSLR PLANS 37

APPENDIX 4 PLANNING AGREEMENT 38

APPENDIX 5 NOISE RECEIVER LOCATIONS 94

APPENDIX 6 BIODIVERSITY 95

APPENDIX 7 APPLICANT'S MANAGEMENT AND MITIGATION MEASURES 99

APPENDIX 8 INCIDENT NOTIFICATION AND REPORTING REQUIREMENTS 102

DEFINITIONS

Applicant	Goodman Property Services (Aust) Pty Ltd, or any person carrying out any development to which this consent applies
Biodiversity Covenant	A restriction on the use of land forming part of the Erskine Park Biodiversity Corridor, as shown on **Figure 8** in **Appendix 6**
Bulk earthworks	As described in the EIS and RtS
Certifying Authority	A person who is authorised by or under section 6.17 of the EP&A Act to issue Part 6 certificates
CEMP	Construction Environmental Management Plan
CAQMP	Construction Air Quality Management Plan
Concept Proposal	Concept layout of 22 warehouse buildings and ancillary offices built over five development stages, as described in the EIS and RtS
Conditions of this consent	Conditions contained in Schedules B to D of this document
Consent Authority	The relevant consent authority for development in accordance with the EP&A Act
Construction	The demolition and removal of buildings or works, the carrying out of works for the purpose of the development, including bulk earthworks, and erection of buildings and other infrastructure permitted by this consent
Council	Penrith City Council
CTMP	Construction Traffic Management Plan
Day	The period from 7 am to 6 pm on Monday to Saturday, and 8 am to 6 pm on Sundays and Public Holidays
Demolition	The deconstruction and removal of buildings, sheds and other structures on the site
Department	NSW Department of Planning, Industry and Environment
Development	The development described in the EIS and RtS, including construction and operation of 22 warehouse buildings, offices and associated infrastructure, as modified by the conditions of this consent and shown on the plans in **Appendix 1**, **Appendix 2** and **Appendix 3**
DA	Development Application submitted in accordance with the EP&A Act
EIS	The Environmental Impact Statement titled *Oakdale West Estate*, prepared by Urbis dated November 2017, submitted with the application for consent for the development, including any additional information provided by the Applicant in support of the application
ENM	Excavated Natural Material
Environment	Includes all aspects of the surroundings of humans, whether affecting any human as an individual or in his or her social groupings
Environmental Representative Protocol	The document of the same title published by the Department
EPA	NSW Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW)
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cth)
EPL	Environment Protection Licence under the POEO Act
Erskine Park Biodiversity Corridor	The land described in the *Biodiversity Management Plan Erskine Park Employment Area*, HLA-Envirosciences, 2006 and shown on **Figure 8** in **Appendix 6**
Evening	The period from 6 pm to 10 pm
Feasible	Feasible relates to engineering considerations and what is practical to build
FFMP	Flora and Fauna Management Plan
Fibre ready facility	As defined in Section 372W of the *Telecommunications Act 1997*
GLA	Gross lettable area
GFA	Gross floor area

Heritage	Encompasses both Aboriginal and historic heritage including sites that predate European settlement, and a shared history since European settlement
Heritage item	An item as defined under the *Heritage Act 1977* (NSW), and assessed as being of local, State and/ or National heritage significance, and/or an Aboriginal Object or Aboriginal Place as defined under the *National Parks and Wildlife Act 1974* (NSW), the World Heritage List, or the National Heritage List or Commonwealth Heritage List under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth), or anything identified as a heritage item under the conditions of this consent
Incident	An occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance *Note: "material harm" is defined in this consent*
Land	Has the same meaning as the definition of the term in section 1.4 of the EP&A Act
Landscape Bund	Landscaping along the western boundary of the Site, included as part of Stage 1 works as described in the EIS and RTS and shown on **Figure 5** in **Appendix 2**
LMP	Landscape Management Plan
Material harm	Is harm that: a) involves actual or potential harm to the health or safety of human beings or to the environment that is not trivial, or b) results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding $10,000, (such loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment)
Minister	NSW Minister for Planning and Public Spaces (or delegate)
Mitigation	Activities associated with reducing the impacts of the development prior to or during those impacts occurring
Monitoring	Any monitoring required under this consent must be undertaken in accordance with section 9.40 of the EP&A Act
NCC	National Construction Code
Night	The period from 10 pm to 7 am on Monday to Saturday, and 10 pm to 8 am on Sundays and Public Holidays
Non-compliance	An occurrence, set of circumstances or development that is a breach of this consent
NRAR	NSW Natural Resources Asset Regulator
OEH	(former) NSW Office of Environment and Heritage (now Biodiversity and Conservation of the Department)
OEMP	Operational Environmental Management Plan
Operation	The use of warehouse buildings for storage and distribution of goods upon completion of construction
Penrith DCP	Penrith Development Control Plan 2014
Planning Agreement	Planning Agreement titled *Oakdale West Estate Planning Agreement*, between the Minister for Planning and Public Spaces, Goodman Property Services (Aust) Pty Ltd and BGMG 11 Pty Limited as trustee for the BGMG 1 Oakdale West Trust, executed on 5 August 2019 and included in **Appendix 4**
PCA	Principal Certifying Authority in accordance with the EP&A Act
Planning Secretary	Planning Secretary under the EP&A Act, or nominee
POEO Act	*Protection of the Environment Operations Act 1997* (NSW)
Roads Authority	As defined in Dictionary of the *Roads Act 1993* (NSW)
Reasonable	Means applying judgement in arriving at a decision, taking into account: mitigation benefits, costs of mitigation versus benefits provided, community views, and the nature and extent of potential improvements.
Registered Aboriginal Parties	Means the Aboriginal persons identified in accordance with the document entitled *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW)
Rehabilitation	The restoration of land disturbed by the development to a good condition, to ensure it is safe, stable and non-polluting
Relevant Roads Authority	The authority responsible for ownership and maintenance of the applicable road
RMS	(former) NSW Roads and Maritime Services (now TfNSW)

RtS	The Response to Submissions titled *Oakdale West Estate SSDA 15_7348 Response to Submissions* prepared by Urbis dated 8 May 2018 and document titled *Oakdale West Estate SSDA 15_7348 Response to Matters Raised by the Department of Planning*, prepared by Urbis dated 12 October 2018
Sensitive receivers	A location where people are likely to work, occupy or reside, including a dwelling, school, hospital, office or public recreational area
Site	The land defined in **Appendix 1**
SLR	(proposed) Southern Link Road as shown in the WSEA SEPP and the Broader WSEA SLRN Options Refinement Report prepared by AECOM, 2014
Stage	Each component or Stage of works to deliver the Concept Proposal, as shown on **Figure 2** in **Appendix 1**, or as amended by an approved Staging Plan under this consent
Stage 1	Bulk earthworks across the Site, construction and operation of three warehouse buildings (1A, 1B and 1C), the WNSLR and associated infrastructure and construction of the landscape bund along the western boundary of the Site, as described in the EIS and RTS and shown on the plans in **Appendix 2** and **Appendix 3**
TfNSW	Transport for New South Wales
VENM	Virgin Excavated Natural Material
Vicinity of the site	Bakers Lane, Kemps Creek
WAD	Works Authorisation Deed issued by TfNSW (former RMS)
Waste	Has the same meaning as the definition of the term in the Dictionary to the POEO Act
Water Pipelines	Two Sydney drinking water pipelines located on land owned by Water NSW along the northern boundary of the Site
WMP	Waste Management Plan
WNSLR	Western North-South Link Road as shown in the WSEA SEPP and the plans in **Appendix 3**
WSEA	Western Sydney Employment Area
WSEA SEPP	State Environmental Planning Policy (Western Sydney Employment Area) 2009
WSFL	Western Sydney Freight Line corridor as shown in TfNSW Western Sydney Freight Line Corridor Identification – Consultation, March 2018
Year	A period of 12 consecutive months

SCHEDULE B CONDITIONS FOR THE CONCEPT PROPOSAL

FUTURE DEVELOPMENT APPLICATIONS

B1. In accordance with section 4.22 of the EP&A Act, each stage of the Concept Proposal (excluding Stage 1) is to be subject to future development applications (DAs). Future DAs are to be consistent with this development consent.

B2. To avoid any doubt, this Concept Proposal consent does not permit the construction or operation of any Development, except for the Stage 1 DA covered by **Schedule D**.

B3. This Concept Proposal consent does not approve the building layouts shown on Lots 2E, 2F, 2G, 2H, 2J and 4A on **Figure 1** in **Appendix 1**. The location of the buildings on these lots must be assessed by separate DAs, and must satisfy the interface requirements of Conditions C3 and C4.

STATUTORY REQUIREMENTS

B4. 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 Concept Proposal. 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

B5. The Applicant shall carry out the Concept Proposal in accordance with the:

(a) EIS and RtS;

(b) the plans in **Appendix 1** and **Appendix 2**; and

(c) the Applicant's Management and Mitigation Measures in **Appendix 7**.

B6. 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.

B7. The Applicant shall comply with any reasonable requirement(s) of the Planning 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.

LIMITS OF CONSENT

B8. This consent lapses five (5) years after the date from which it operates, unless any Stage of the Development has physically commenced on the land to which the consent applies before that date.

B9. The following limits apply to the Concept Proposal:

(a) the maximum GLA for the land uses in the Development shall not exceed the limits in **Table 1**;

(b) a minimum 60 metre (m) wide corridor along the northern Site boundary shall not be developed and shall be maintained and preserved for the future WSFL corridor, in accordance with the requirements of TfNSW; and

(c) the building layouts and footprints shown on Lot 2E, 2F, 2G, 2H, 2J and 4A on **Figure 1** in **Appendix 1**, are not approved. The position, layouts and footprints of the buildings on these lots must be assessed by separate DAs, and must satisfy the interface requirements of Conditions C3 and C4.

Table 1: *GLA Maximum for Concept Proposal*

Land Use	Maximum GLA square metres (m^2)
Total Warehousing	453,000
Total Office	23,000
Total GLA	**476,000**

B10. The Applicant shall ensure the Concept Proposal is consistent with the development controls in **Table 2**:

Table 2: *Development Controls*

Development Aspect	Control
Minimum building setbacks from:	
• Southern Link Road	20 m
• Western North-South Link Road	20 m
• Local estate Roads	7.5 m
• Western site boundary	40 m
• Southern site boundary	20 m (excluding parking areas)
Rear boundary setbacks within the estate	5 m
Side boundary setbacks within the estate	0 m, subject to compliance with fire rating requirements
Height	15 m
Minimum lot size	5,000 m^2
Minimum frontage	40 m (excluding cul-de-sacs) 35 m minimum lot width at the building line
Site coverage	Maximum of 65 per cent (excluding awnings)

B11. Notwithstanding the controls listed in **Table 2** in Condition B10, no warehouse building in the Concept Proposal shall exceed a ridgeline height of 13.7 m, excluding roof mounted mechanical plant and solar panels.

B12. The Applicant shall lodge the proposed revisions to the *Penrith Development Control Plan 2014* (Penrith DCP), in accordance with **Table 2** in Condition B10, with Council within 6 months of the date of this consent.

B13. The Applicant shall ensure the Concept Proposal provides car parking in accordance with the following rates:

(a) 1 space per 300 m^2 of warehouse GFA;

(d) 1 space per 40 m^2 of office GFA; and

(e) 2 spaces for disability parking for every 100 car parking spaces.

B14. 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 and the Roads and Traffic Authority).

STAGING PLAN

B15. Prior to the commencement of construction of any stage of the Concept Proposal, the Applicant shall prepare a Staging Plan for the Development, to the satisfaction of the Planning Secretary. The plan shall:

(a) be prepared in consultation with Council, utility and service providers and other relevant stakeholders;

(b) describe how the implementation of the Concept Proposal, would be staged to ensure it is carried out in an orderly and economic way and minimises construction impacts on adjacent sensitive receivers;

(c) show the likely sequence of DAs that will be lodged to develop the Site, with the estimated timing for each Stage and identification of any overlapping construction and operational activities;

(d) include concept design for the staged delivery of landscaping, focusing on early implementation of screen planting to minimise the visual impact of subsequent development stages; and

(e) include conceptual design for the provision of services, utilities and infrastructure to the Site.

B16. The Applicant must:

(a) not commence construction of any stage of the Development until the Staging Plan required by Condition B15 is approved by the Planning Secretary; and

(b) implement the most recent version of the Staging Plan approved by the Planning Secretary.

B17. The Planning Secretary may require the Applicant to address certain matters identified in the Staging Plan. The Applicant must comply with any such requirements of the Planning Secretary given as part of the Staging Plan approval.

***Notes**:*

- *The Applicant may amend the Staging Plan as desired, with the approval of the Planning Secretary.*
- *The Staging Plan is intended to broadly describe the development sequence for the Site and the delivery of infrastructure for all stages. It is not required to provide detailed design for latter Stages.*

NOISE LIMITS

B18. The Applicant shall ensure the Development does not exceed the noise limits in **Table 3** at the receiver locations N1, N2, N3, N4 and N5 shown on the plan in **Appendix 5**.

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

Location	Day	Evening	Night	
	$L_{Aeq\ (15\ minute)}$	$L_{Aeq\ (15\ minute)}$	$L_{Aeq\ (15\ minute)}$	$L_{A1\ (1\ minute)}$
N1 Emmaus Village Residential	44	43	41	51
N3 Kemps Creek – nearest residential property	39	39	37	47
N4 & N5 Kemps Creek – other residences	39	39	37	47
N2 Emmaus Catholic College (school)	**When in use:** 35 (internal)			

***Note**: Noise generated by the Development is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the Noise Policy for Industry (EPA 2017).*

B19. The noise limits in **Table 3** do not apply to receiver N3 if the Applicant has a Noise Agreement with the relevant landowner to exceed the noise limits, and the Applicant has provided written evidence to the Planning Secretary that an agreement is in place.

BUSHFIRE PROTECTION

B20. The Applicant shall ensure the Development complies with:

(a) the relevant provisions of *Planning for Bushfire Protection 2006;*

(b) the construction standards and asset protection zone requirements recommended in the Oakdale Industrial Estate - West Bushfire Protection Assessment, prepared by Australian Bushfire Protection Planners Pty Ltd, dated September 2016; and

(c) *AS2419.1 – 2005 Fire Hydrant Installations* for firefighting water supply.

TRANSGRID EASEMENT

B21. The Applicant must:

(a) provide safe and unobstructed access for TransGrid plant and personnel to access the transmission towers, lines and easement on the Site, 24 hours a day, 7 days a week;

(b) comply with the requirements of TransGrid for any works in the TransGrid easement; and

(c) advise TransGrid of any proposed amended or modified encroachment into the easement.

ENDEAVOUR ENERGY

B22. The Applicant must comply with the requirements of Endeavour Energy for the provision of land for a new zone substation as shown on the plans in the RtS.

WATER NSW

B23. The Applicant must:

(a) provide safe and unobstructed access for Water NSW plant and personnel to access the water pipelines corridor adjacent the Site, 24 hours a day, 7 days a week;

(b) comply with the requirements of Water NSW for any works adjacent to or over, the water pipelines corridor; and

(c) advise Water NSW of any proposed amended or modified encroachment into the water pipelines corridor.

AMENITIES LOT

B24. The amenities lot located north of Estate Road 1, as shown on the plans in **Appendix 1**, must only provide for small-scale local services such as commercial, retail, community facilities and landscaping that service or support the needs of local employment-generating uses.

SCHEDULE C CONDITIONS FOR FUTURE DEVELOPMENT APPLICATIONS

DEVELOPMENT CONTRIBUTIONS

C1. Future DAs shall identify whether any Development Contributions Plan made by Council (under Section 7.11 of the EP&A Act) applies to that stage of the Concept Proposal (excluding Stage 1).

C2. Prior to the issue of a Construction Certificate for any stage of the Development, the Applicant shall pay contributions to Council in accordance with the relevant Development Contributions Plan identified in accordance with Condition C1.

INTERFACE WITH RESIDENTIAL AREAS

C3. Future DAs for warehouses on lots 2E, 2F, 2G, 2H, 2J and 4A shall be accompanied by an Urban Design Assessment. The assessment must:

(a) be prepared by an independent urban design consultant;

(b) be prepared in consultation with Council and the Emmaus Catholic College;

(c) detail the key objectives for the interface with the sensitive receivers on the western and southern Site boundaries, including consideration of optimal uses and operational hours;

(d) determine the optimal building location and setbacks on the western and southern boundaries, noting the design controls in Condition B10 are the minimum setback requirements;

(e) present the optimal design for the building layouts along the western and southern site boundaries with detailed justification for the preferred option;

(f) identify appropriate orientations and architectural treatments for the facades facing sensitive receivers; and

(g) incorporate noise mitigation into the layout and design of buildings, internal roads, loading docks and parking areas to ensure the Development can meet the noise limits in Condition B18.

C4. Prior to the commencement of construction of warehouses or office buildings on lots 2E, 2F, 2G, 2H, 2J and 4A, the Applicant must obtain approval from the Consent Authority for the preferred design option, including uses, building and loading dock layouts, setbacks, façade treatments and colours.

VISUAL AMENITY

Landscaping

C5. Future DAs shall be accompanied by a Landscape Assessment. The assessment must:

(a) be prepared by a qualified landscape design consultant;

(b) be prepared in consultation with Council;

(c) describe how the landscaping for the relevant Stage of the Development is consistent with the Staging Plan approved in accordance with Condition B15;

(d) describes the landscaping works to be completed as part of the relevant Stage of the Development and details a program for monitoring the success of landscaping works over time;

(e) assesses the condition of and adequacy of landscaping completed as part of earlier Stages of the Development, in providing visual screening for adjacent sensitive receivers; and

(f) details any additional landscaping or rehabilitation works required to ensure the visual impacts of the Development are minimised for the adjacent sensitive receivers.

Outdoor Lighting

C6. Future DAs must ensure compliance with *AS/NZS 1158.3.1:2005 Pedestrian Area (Category P) Lighting* and *AS/NZS 4282:2019 Control of Obtrusive Effects of Outdoor Lighting*.

Signage

C7. Future DAs must ensure illuminated signage is oriented away from the sensitive receivers on the western and southern Site boundaries.

Reflectivity

C8. The visible light reflectivity from materials used on the façades and roofs of the warehouses and office buildings shall be designed to minimise glare. A report demonstrating compliance with these requirements must be submitted to the satisfaction of the Certifying Authority for each future warehouse and office building prior to the issue of the relevant Construction Certificate.

TRANSPORT, ACCESS AND PARKING

C9. Future DAs shall be accompanied by a transport, access and parking assessment. The assessment must:

(a) assess the impacts on the safety and capacity of the surrounding road network and access points during construction and operation of the relevant Stage;

(b) demonstrate internal roads and car parking complies with relevant Australian Standards and the car parking rates in Condition B13;

(c) detail the scope and timing of any required road upgrades to service the relevant Stage; and

(d) detail measures to promote non-car travel modes, including a Sustainable Travel Plan identifying pedestrian and cyclist facilities to service the relevant Stage of the Development.

NOISE AND VIBRATION

C10. Future DAs shall be accompanied by a noise and vibration impact assessment. The assessment must:

(a) identify the noise and vibration impacts during construction and operation;

(b) demonstrate compliance with the noise limits in Condition B18;

(c) provide an analysis of all external plant and equipment, including but not limited to, forklifts, air conditioners and refrigeration systems;

(d) incorporate noise mitigation measures, such as increased building setbacks, building insulation, noise barriers, layout of truck loading areas or source controls, to demonstrate the noise limits in Condition B18 can be achieved;

(e) detail the timing to construct the noise walls shown in **Appendix 5**, to ensure noise from operation of the Development does not exceed the noise limits in Condition B18; and

(f) recommend mitigation and management measures to be implemented to minimise noise during construction.

STORMWATER MANAGEMENT

C11. Future DAs shall demonstrate the design of the warehouses, offices and hardstand areas are consistent with (or the latest revision of) the:

(a) *Civil, Stormwater and Infrastructure Services Report*, prepared by At&L, dated October 2018; and

(b) *Flood Impact Assessment: Oakdale West Estate*, prepared by Cardno, dated 27 March 2017.

BUSHFIRE PROTECTION

C12. The Applicant shall ensure future DAs comply with:

(a) the relevant provisions of *Planning for Bushfire Protection 2006*;

(b) the construction standards and asset protection zone requirements recommended in the Oakdale Industrial Estate - West Bushfire Protection Assessment, prepared by Australian Bushfire Protection Planners Pty Ltd, dated September 2016; and

(c) *AS2419.1 – 2005 Fire Hydrant Installations* for firefighting water supply.

TRANSGRID EASEMENT

C13. The Applicant must consult with TransGrid, prior to lodging DAs for Stages 4 and 5 of the Development as shown on **Figure 2** in **Appendix 1**, and any other Stage or road infrastructure that may affect the TransGrid easement. The Applicant must design, construct and operate each Stage of the development in accordance with the reasonable requirements of TransGrid relating to their use of the TransGrid easement.

C14. The Applicant must consult with TransGrid, prior to lodging DAs for buildings in Stage 5 adjacent to Ropes Creek, to identify and implement any required flood management measures within the transmission line easement.

ENDEAVOUR ENERGY

C15. The Applicant must obtain relevant approvals from Endeavour Energy, prior to the construction of any utility works to service each Stage of the Development.

WATER NSW

C16. The Applicant must consult with Water NSW, prior to lodging DAs for works on Lot 2A and 2B adjoining the water pipelines corridor, to identify and implement any requirements of Water NSW for protection of the water pipelines corridor.

WASTE

C17. Future DAs shall include a Waste Management Plan prepared in accordance with the *NSW Waste Classification Guidelines* (DECCW, 2009).

CONSTRUCTION MANAGEMENT

C18. A Construction Environmental Management Plan (CEMP) shall be submitted to the Consent Authority for each stage of the Concept Proposal prior to the commencement of construction of the relevant stage. The CEMP must:

(a) be prepared by a suitably qualified and experienced environmental consultant, or the Environmental Representative appointed for Stage 1 of the Development;

(b) be prepared in consultation with relevant Government agencies, infrastructure and utility providers, including but not limited to, TransGrid, Endeavour Energy, Water NSW and TfNSW, where relevant for each stage;

(c) detail the construction activities to be undertaken in the relevant Stage of the Development;

(d) include detailed procedures for managing the environmental impacts of construction, including stormwater, erosion and sediment controls, dust, noise and traffic management; and

(e) detail the roles and responsibilities for environmental management on the Site.

COMMUNITY COMMUNICATION STRATEGY

C19. No later than one month before the commencement of construction of any stage of the Development, a Community Communication Strategy (CCS) must be prepared and submitted to the Planning Secretary for approval.

The CCS is to provide mechanisms to facilitate communication between the Applicant, Council and the community (including adjoining affected landowners, schools, businesses, and others directly impacted by Stage 1), during design, construction and operation. The CCS must:

(a) assign a central contact person to keep the nearby sensitive receivers regularly informed throughout the Development;

(b) detail the mechanisms for regularly consulting with the local community throughout the Development, such as holding regular meetings to inform the community of the progress of the development and report on environmental monitoring results;

(c) detail a procedure for consulting with nearby sensitive receivers to schedule high noise generating works, vibration intensive activities or manage traffic disruptions;

(d) include contact details for key community groups, relevant regulatory authorities, Registered Aboriginal Parties and other interested stakeholders; and

(e) include a complaints procedure for recording, responding to and managing complaints, including:

(i) email, contact telephone number and postal addresses for receiving complaints;

(ii) advertising the contact details for complaints before and during operation, via the local newspaper and through onsite signage;

(iii) a complaints register to record the date, time and nature of the complaint, details of the complainant and any actions taken to address the complaint; and

(iv) procedures for the resolution of any disputes that may arise during the course of the Development.

C20. The Applicant must:

(a) not commence construction of the relevant stage of the Concept Proposal until the CCS required under Condition C19 has been approved by the Planning Secretary; and

(b) implement the CCS for each stage of the Concept Proposal and following the completion of operation of the Development.

SCHEDULE D CONDITIONS FOR STAGE 1 DA

PART 1 – GENERAL CONDITIONS

OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT

D1. In addition to meeting the specific performance measures and criteria in this consent, all reasonable and feasible measures must be implemented to prevent, and if prevention is not reasonable and feasible, minimise, any material harm to the environment that may result from the construction and operation of Stage 1 development, and any rehabilitation required under this consent.

TERMS OF CONSENT

D2. Stage 1 of the Development may only be carried out:

(a) in compliance with the conditions of this consent;

(b) in accordance with all written directions of the Planning Secretary;

(c) in accordance with the EIS and RTS;

(d) in accordance with the plans in **Appendix 2** and **Appendix 3**; and

(e) in accordance with the Applicant's Management and Mitigation Measures in **Appendix 7**.

D3. Consistent with the requirements in this consent, the Planning Secretary may make written directions to the Applicant in relation to:

(a) the content of any strategy, study, system, plan, program, review, audit, notification, report or correspondence submitted under or otherwise made in relation to this consent, including those that are required to be, and have been, approved by the Planning Secretary; and

(b) the implementation of any actions or measures contained in any such document referred to in Condition D3(a).

D4. The conditions of this consent and directions of the Planning Secretary prevail to the extent of any inconsistency, ambiguity or conflict between them and a document listed in Condition D2(c). In the event of an inconsistency, ambiguity or conflict between any of the documents listed in Condition D2(c), the most recent document prevails to the extent of the inconsistency, ambiguity or conflict.

LIMITS OF CONSENT

D5. This consent lapses five (5) years after the date from which it operates, unless Stage 1 has physically commenced on the land to which the consent applies before that date.

D6. The following limits apply to Stage 1:

(a) the maximum GLA for the land uses shall not exceed the limits in **Table 4**; and

(b) a minimum 60 m wide corridor along the northern Site boundary shall not be developed and shall be maintained and preserved for the future WSFL corridor, in accordance with the requirements of TfNSW.

Table 4: *GLA Maximum for Stage 1*

Land Use	Maximum GLA (m^2)
Total Warehousing	111,000
Total Office	7,000
Total GLA	**118,000**

D7. The Applicant shall ensure Stage 1 is consistent with the development controls in **Table 2**: **Development Controls** in Condition B10.

NOTIFICATION OF COMMENCEMENT

D8. The date of commencement of each of the following phases of Stage 1 must be notified to the Department in writing, at least one month before that date, or otherwise agreed with the Planning Secretary:

(a) construction; and

(b) operation.

D9. If the construction or operation of Stage 1 is to be delivered in sub-stages, the Department must be notified in writing at least one month before the commencement of each sub-stage, of the date of commencement and the works to be carried out in that sub-stage.

EVIDENCE OF CONSULTATION

D10. Where conditions of this consent require consultation with an identified party, the Applicant must:

(a) consult with the relevant party prior to submitting the subject document to the Planning Secretary for approval; and

(b) provide details of the consultation undertaken including:

i. the outcome of that consultation, matters resolved and unresolved; and

ii. details of any disagreement remaining between the party consulted and the Applicant and how the Applicant has addressed the matters not resolved.

STAGING, COMBINING AND UPDATING STRATEGIES, PLANS OR PROGRAMS

D11. With the approval of the Planning Secretary, the Applicant may:

(a) prepare and submit any strategy, plan or program required by this consent on a staged basis (if a clear description is provided as to the specific stage and scope of the development 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);

(b) combine any strategy, plan or program required by this consent (if a clear relationship is demonstrated between the strategies, plans or programs that are proposed to be combined); and

(c) update any strategy, plan or program required by this consent (to ensure the strategies, plans and programs required under this consent are updated on a regular basis and incorporate additional measures or amendments to improve the environmental performance of the development).

D12. If the Planning Secretary agrees, a strategy, plan or program may be staged or updated without consultation being undertaken with all parties required to be consulted in the relevant condition in this consent.

D13. If approved by the Planning Secretary, updated strategies, plans or programs supersede the previous versions of them and must be implemented in accordance with the condition that requires the strategy, plan or program.

PROTECTION OF PUBLIC INFRASTRUCTURE

D14. Before the commencement of construction of Stage 1, the Applicant must:

(a) consult with the relevant owner and provider of services that are likely to be affected, to make suitable arrangements for access to, diversion, protection and support of the affected infrastructure;

(b) prepare a dilapidation report identifying the condition of all public infrastructure in the vicinity of the Site (including roads, gutters and footpaths); and

(c) submit a copy of the dilapidation report to the Planning Secretary and Council.

D15. Unless the Applicant and the applicable authority agree otherwise, the Applicant must:

(a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by carrying out Stage 1; and

(b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of Stage 1.

PROTECTION OF WATER NSW INFRASTRUCTURE

D16. Before the commencement of construction of Stage 1, the Applicant must:

(a) prepare a dilapidation report identifying the condition of all infrastructure within the water pipelines corridor, in the vicinity of the WNSLR bridge crossing;

(b) implement all practical measures to protect this infrastructure, as required by Water NSW; and

(c) repair, or pay the full costs associated with repairing, any water supply infrastructure that is damaged by carrying out Stage 1.

DEMOLITION

D17. All demolition must be carried out in accordance with *Australian Standard AS 2601-2001 The Demolition of Structures* (Standards Australia, 2001).

STRUCTURAL ADEQUACY

D18. All new buildings and structures, and any alterations or additions to existing buildings and structures, that are part of the development, must be constructed in accordance with the relevant requirements of the National Construction Code (NCC).

Notes:

- *Under Part 6 of the EP&A Act, the Applicant is required to obtain construction and occupation certificates for the proposed building works.*
- *Part 8 of the EP&A Regulation sets out the requirements for the certification of the development.*

COMPLIANCE

D19. The Applicant must ensure that all of its employees, contractors (and their sub-contractors) are made aware of, and are instructed to comply with, the conditions of this consent relevant to activities they carry out in respect of Stage 1.

DEVELOPER CONTRIBUTIONS

Planning Agreement

D20. The Applicant shall provide all monetary contributions and/or works-in-kind contributions under Subdivision 2 of Division 7.1 of Part 7 of the EP&A Act, in accordance with the Planning Agreement entered into between the Minister for Planning, Goodman Property Services (Aust) Pty Ltd (the developer) and BGMG 11 Pty Limited as trustee for the BGMG 1 Oakdale West Trust (the landowner) executed on 5 August 2019 and as attached in **Appendix 4**.

OPERATION OF PLANT AND EQUIPMENT

D21. All plant and equipment used on site, or to monitor the performance of Stage 1 must be:

(a) maintained in a proper and efficient condition; and

(b) operated in a proper and efficient manner.

EASEMENTS

D22. Within 12 months of commencing operation of Stage 1, or a timing otherwise agreed with Council, an easement under section 88A and/or restriction or public positive covenant under section 88E of the *Conveyancing Act 1919* (NSW) naming the Council as the prescribed authority, which can only be revoked, varied or modified with the consent of the Council, and provides for a drainage outlet swale from bio-retention basin 1, must be registered on title of Lot 19 DP 1250578.

EXTERNAL WALLS AND CLADDING

D23. The external walls of all buildings including additions to existing buildings must comply with the relevant requirements of the NCC.

D24. Before the issue of a Construction Certificate and an Occupation Certificate, the Applicant must provide the Certifying Authority with documented evidence 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 requirements of the NCC.

D25. The Applicant must provide a copy of the documentation given to the Certifying Authority to the Planning Secretary within seven days after the Certifying Authority accepts it.

UTILITIES AND SERVICES

D26. Before the construction of any utility works associated with Stage 1, the Applicant must obtain relevant approvals from service providers.

D27. Before the commencement of operation of Stage 1, the Applicant must obtain a Compliance Certificate for water and sewerage infrastructure servicing Stage 1, under section 73 of the *Sydney Water Act 1994* (NSW).

D28. Before the issue of a Subdivision or Construction Certificate for Stage 1, the Applicant (whether or not a constitutional corporation) is to provide evidence, satisfactory to the Certifying Authority, that arrangements have been made for the provision of communication facilities to Stage 1.

D29. The Applicant must demonstrate that the carrier has confirmed in writing they are satisfied that the fibre ready facilities are fit for purpose.

TRANSGRID EASEMENT

D30. The Applicant must:

(a) provide safe and unobstructed access for TransGrid plant and personnel to access the transmission towers, lines and easement on the Site, 24 hours a day, 7 days a week;

(b) comply with the requirements of TransGrid for any works in the TransGrid easement on the Site; and

(c) advise TransGrid of any proposed amended or modified encroachment into the easement.

WATER NSW

D31. The Applicant must:

(a) comply with the requirements of Water NSW for any works adjacent to, or over, the water pipelines corridor;

(b) consult with Water NSW during detailed design of Stage 1 works near the corridor including:

(i) design of drainage upgrade works within the corridor;

(ii) batters and access tracks;

(iii) final bridge design for the WNSLR;

(c) obtain from Water NSW, an access consent and construction licence to work within the water pipelines corridor, prior to the commencement of construction;

(d) consult with Water NSW during preparation of the CEMP, in accordance with Condition D119, and attend a site visit with Water NSW personnel, prior to finalising the CEMP, to mark the exact works area for the WNSLR bridge crossing; and

(e) notify any incidents that affect or could affect the water pipelines corridor to Water NSW on the 24-hour Incident Notification Number **1800 061 069**, as a matter of urgency.

WORKS-AS-EXECUTED PLANS

D32. Before the issue of the final Occupation Certificate for Stage 1, works-as-executed drawings signed by a registered surveyor demonstrating that the stormwater drainage and finished ground levels have been constructed as approved, must be submitted to the PCA.

APPLICABILITY OF GUIDELINES

D33. References in the conditions of this consent to any guideline, protocol, Australian Standard or policy are to such guidelines, protocols, Standards or policies in the form they are in as at the date of this consent.

D34. However, consistent with the conditions of this consent and without altering any limits or criteria in this consent, the Planning Secretary may, when issuing directions under this consent in respect of ongoing monitoring and management obligations, require compliance with an updated or revised version of such a guideline, protocol, Standard or policy, or a replacement of them.

ADVISORY NOTES

AN1**.** All licences, permits, approvals and consents as required by law must be obtained and maintained as required for Stage 1. No condition of this consent removes any obligation to obtain, renew or comply with such licences, permits, approvals and consents.

PART 2 – ENVIRONMENTAL PERFORMANCE CONDITIONS

VISUAL AMENITY

Landscape Management Plan

D35. Prior to the commencement of construction of Stage 1, the Applicant must prepare a Landscape Management Plan (LMP), to the satisfaction of the Planning Secretary. The plan must form part of the CEMP in accordance with Condition D119 and the OEMP in accordance with Condition D130 and must:

(a) be prepared in consultation with Council;

(b) detail procedures for the retention of existing native vegetation in the north-western corner of the Site and protection of this vegetation from construction impacts;

(c) include visual impact mitigation measures for construction including but not limited to:

(i) the location of site sheds, compounds and machinery parking areas, avoiding the western and southern site boundaries, or other locations highly visible from adjacent residential properties;

(ii) procedures for progressive grassing of exposed soil, as soon as reasonably practicable after disturbance, focusing on areas where building construction will occur at a later stage;

(d) detail the works required to construct the landscape bund along the western boundary of the Site, as shown on **Figure 5** in **Appendix 2**, including provision for the landscaping to incorporate mature trees (no less than 75 litre pot size);

(e) include a schedule of works which prioritises the construction of the landscape bund along the western boundary of the Site, as shown on **Figure 5** in **Appendix 2**.

(f) include a program for implementing the landscape bund as soon as reasonably practicable, and no later than prior to operation of Stage 1;

(g) describe the integration of landscaping with fixed elements, including retaining walls and noise walls; and

(h) describe the monitoring and maintenance procedures to ensure the success of the landscaping works over the life of the Development.

D36. The Applicant must:

(a) not commence construction of Stage 1 until the LMP is approved by the Planning Secretary.

(b) must implement the most recent version of the LMP approved by the Planning Secretary; and

(c) include the monitoring and maintenance procedures contained in the LMP within the OEMP required in accordance with Condition D130.

Landscaping

D37. The Applicant must complete the landscape bund along the western boundary of the Site as shown on **Figure 5** in **Appendix 2** within six months of commencing any construction including bulk earthworks.

D38. The Applicant must maintain all landscaping implemented as part of Stage 1, as shown on **Figure 5** in **Appendix 2**, for the duration of the Development. If the monitoring carried out as part of Condition D35 indicates that any aspect of the landscaping has not been successful, the Applicant must undertake re-planting and rehabilitation works, as soon as reasonably practicable.

Setbacks

D39. The Applicant must ensure building services including tanks are integrated into the building design and landscaped areas to reduce visibility from public areas, unless otherwise required by an authority or Australian Standard, to be located within the front boundary setback.

Lighting and Security Cameras

D40. The Applicant must ensure the lighting associated with Stage 1:

(a) complies with the latest version of AS 4282-1997 - *Control of the obtrusive effects of outdoor lighting* (Standards Australia, 1997); 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.

D41. The Applicant must ensure any security cameras installed as part of Stage 1 are directed away from adjacent private properties.

Reflectivity

D42. The visible light reflectivity from building materials used in the facades and roofs of the warehouses and offices must be designed 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.

Signage and Fencing

D43. All signage and fencing must be erected in accordance with the plans in the RtS.

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

D44. All fencing along building frontages must be located behind the landscape setbacks and not along the front boundary. The fencing must be a maximum height of 2.1 metre and be an open style.

D45. The Applicant must:

(a) remove existing rural fencing along the water pipelines corridor adjacent the site and dispose to an appropriate waste facility licensed to accept the waste;

(b) install and maintain temporary security fencing along the water pipelines corridor adjacent the site, for the duration of construction, or until a permanent fence is installed;

(c) install permanent 2.4-metre-high fencing along the water pipelines corridor adjacent the site, including the approaches to the WNSLR bridge over the water pipelines corridor and above retaining walls, unless otherwise agreed with Water NSW;

(d) install concrete barriers or barrier guard rails (including barriers leading up to bridge structure) to the WNSLR where there is potential for large vehicles to drive over retaining walls and into the water pipelines corridor. Barriers must be rated to withstand impact from B-Double size vehicles; and

(e) install cranked throw screens on both sides of the WNSLR bridge crossing the Water NSW water pipeline corridor.

WESTERN NORTH-SOUTH LINK ROAD (WNSLR)

General Requirements

D46. The Applicant must design and construct the WNSLR in accordance with the requirements of:

(a) Council, the PCA and any approval issued under section 138 of the *Roads Act 1993* including the Works Authorisation Deed (WAD);

(b) TfNSW for the bridge crossing of the future WSFL; and

(c) Water NSW for the bridge crossing of the water pipelines corridor.

D47. The Applicant must design and construct the intersections of the WNSLR with Estate Road 1 and Lockwood Road to the satisfaction of the relevant roads authority.

D47(A) Prior to the commencement of construction of car park access for Lot 9, DP1157476 (57-87 Lockwood Road, Erskine Park NSW 2759), the Applicant must submit a Section 138 Application (including payment of fees together with any applicable bonds) to Penrith City Council for obtaining a *Roads Act 1993* approval. The Section 138 Application may include but is not limited to the following works:

- vehicular crossings (including kerb reinstatement of redundant vehicular crossings);
- road opening for utilities and stormwater (including stormwater connection to Council infrastructure); and
- road occupancy or road closures.

All works shall be carried out in accordance with the *Roads Act 1993* approval, the development consent including the stamped approved plans, and Penrith City Council's specifications.

Note: contact Penrith City Council's City Works Department on (02) 4732 7777 for further information regarding the application process.

Works at Lenore Drive/Grady Crescent/WNSLR Intersection

D48. Prior to the commencement of construction of the Lenore Drive/Grady Crescent/WNSLR intersection (the intersection), the Applicant must finalise the detailed design, including a Traffic Signal Plan, for the intersection works. The detailed design must:

(a) cut back the median further with a taper in Grady Crescent to accommodate the dual B-Double swept paths turning from WNSLR onto Lenore Drive; and

(b) include an angled pedestrian crossing on the south-eastern corner of the intersection so that pedestrians are not confused by the pedestrian lantern on the opposite side of the intersection.

D49. The Applicant must enter into a WAD for works at the intersection with TfNSW (former RMS). The WAD must be executed prior to the submission of the detailed design required under condition D48 to TfNSW for approval.

D50. The Applicant must design the proposed traffic control light at the intersection in accordance with Austroads guidelines, RMS Signal Design Manual and Australian Codes of Practice. The traffic control light design must be endorsed by a suitably qualified practitioner whose qualification has been approved by TfNSW (former RMS).

D51. The Applicant must submit the certified copies of the traffic signal design plans to TfNSW (former RMS) for approval prior to the issue of a Construction Certificate.

D52. The Applicant must submit a request to TfNSW (former RMS) Network Operations Team to obtain relevant approvals to remove the signalised pedestrian crossing on the eastern leg of the intersection.

D53. The Applicant must carry out all public utility adjustment/relocation works necessary for the intersection works as required by relevant public utility authorities and/or their agents.

D54. The Applicant must make a ten (10) year maintenance contribution for the intersection to TfNSW (former RMS).

D55. The intersection works must be carried out at no cost to TfNSW (former RMS).

Pre-Construction

D56. Prior to the commencement of construction of the WNSLR, the Applicant must:

(a) obtain the written consent of the Minister for Planning and Public Spaces under the Biodiversity Covenant, to construct the WNSLR over the Erskine Park Biodiversity Corridor; and

(b) provide evidence to the satisfaction of the Planning Secretary, demonstrating the design of the WNSLR and bridge crossings have been agreed with the relevant roads authority, Council, TfNSW and Water NSW.

Consultation

D57. The Applicant must develop a schedule for consultation with and approval by TfNSW for the construction of the bridge foundations over the future WSFL, including geotechnical and structural certification as required by TfNSW. The schedule must form part of the CEMP required by Condition D119.

D58. The Applicant must develop a schedule for consultation with and approval by Water NSW for the construction of the bridge over the water pipelines corridor. This schedule must form part of the CEMP required by Condition D119.

Pre-Operation

D59. Prior to operation of any Stage of the Development, the Applicant must complete construction of the WNSLR to the satisfaction of the relevant roads authority and the PCA.

D60. Prior to the commencement of operation of the WNSLR, the Applicant must provide works-as-executed drawings to Water NSW for the WNSLR bridge. The drawings must clearly show any changes to the bridge design or the works adjacent to the water pipelines corridor.

D61. Prior to the commencement of operation of the WNSLR, the Applicant must design and construct a stormwater management system for the WNSLR. The system must:

(a) be designed by a suitably qualified and experienced person(s);

(b) be generally in accordance with the conceptual design in the RtS;

(c) ensure that the system capacity has been designed in accordance with AUSTROADS guidelines;

(d) achieve the pollutant reduction targets specified in RMS's *Water Sensitive Urban Design (WSUD) Guidelines* (March 2016) and Council's *Water Sensitive Urban Design (WSUD) Policy* (December 2013); and

(e) ensure the outlet structures are designed in accordance with NRAR's *Guidelines for Controlled Activities on Waterfront Land* (May 2018).

Dedication of Infrastructure and Land

D62. Prior to the completion of construction of the WNSLR, the Applicant must consult with Water NSW regarding land subdivision and stratum arrangements for the acquisition and dedication of Water NSW land to Council for the WNSLR bridge.

D63. Following completion of construction of the WNSLR to the satisfaction of the relevant roads authority, the Applicant must dedicate the WNSLR and its associated land owned by Water NSW and BGMG 11 Pty Limited as trustee for the BGMG 1 Oakdale West Trust, to the relevant roads authority in accordance with the requirements of the Planning Agreement.

D64. The Applicant shall retain care, control and ownership of bio-retention basin no. 1 associated with the WNSLR.

TRANSPORT, ACCESS AND PARKING

Construction Traffic Management Plan

D65. Prior to the commencement of construction of Stage 1, the Applicant must prepare a Construction Traffic Management Plan (CTMP) to the satisfaction of the Planning Secretary. The CTMP must form part of the CEMP required by Condition D119 and must:

(a) be prepared by a suitably qualified and experienced person(s);

(b) be prepared in consultation with Council, Mamre Anglican School, Emmaus Catholic College, Emmaus Catholic Care Village and Trinity Catholic Primary School;

(c) detail specific measures to manage construction traffic to avoid school drop off and pick up times (Monday to Friday 8 am – 9.30 am and 2.30 pm – 4 pm) and Higher School Certificate exam periods, including any temporary infrastructure arrangements and traffic safety measures;

(d) detail the measures to be implemented to ensure road safety and network efficiency during construction, including scheduling deliveries of heavy plant and equipment outside of peak periods, or during school holidays where possible;

(e) detail heavy vehicle routes, access and parking arrangements;

(f) include a Driver Code of Conduct to:

i. minimise the impacts of construction on the local and regional road network;

ii. minimise conflicts with other road users including the students, staff, visitors and residents of the neighbouring schools and aged care village;

iii. minimise road traffic noise, both on Bakers Lane and from construction vehicles on Site; and

iv. ensure truck drivers use specified routes and adhere to the speed restrictions on Bakers Lane;

(g) include a program to monitor the effectiveness of these measures; and

(h) detail procedures for early notification to residents and the community (including local schools), of any potential disruptions to routes.

D66. The Applicant must:

(a) not commence construction of Stage 1 until the CTMP required by Condition D65 is approved by the Planning Secretary; and

(b) implement the most recent version of the CTMP approved by the Planning Secretary for the duration of construction.

Estate Roads and Intersections

D67. The Applicant must design and construct the internal estate roads and intersections to accommodate the turning path of a B-Double, to the satisfaction of the Relevant Roads Authority.

D68. Following the issue of a Subdivision Certificate, the estate roads shall be dedicated to the Relevant Roads Authority. Prior to any dedication, the Applicant shall ensure construction of the estate roads has been completed to the satisfaction of the Relevant Roads Authority and measures (such as a performance bond) are in place for any prescribed maintenance period, to the satisfaction of the Relevant Roads Authority.

Operating Conditions

D69. The Applicant must ensure:

(a) internal roads, driveways and parking (including grades, turn paths, sight distance requirements, aisle widths, aisle lengths and parking bay dimensions) are constructed and maintained in accordance with the latest version of *AS 2890.1:2004 Parking facilities Off-street car parking* (Standards Australia, 2004) and *AS 2890.2:2002 Parking facilities Off-street commercial vehicle facilities* (Standards Australia, 2002);

(b) parking for Stage 1 is provided in accordance with the rates in Condition B13;

(c) the swept path of the longest vehicle entering and exiting the site, as well as manoeuvrability through the site, is in accordance with the relevant Austroads guidelines;

(d) Stage 1 does not result in any vehicles queuing on the public road network;

(e) heavy vehicles associated with Stage 1 are not parked on local roads or footpaths in the vicinity of the Site;

(f) all vehicles are wholly contained on site before being required to stop;

(g) all loading and unloading of materials are carried out on Site;

(h) all trucks entering or leaving the Site with loads have their loads covered and do not track dirt onto the public road network; and

(i) the proposed turning areas in the car parks are kept clear of any obstacles, including parked cars, at all times.

NOISE

Hours of Work

D70. The Applicant must comply with the hours detailed in **Table 5**, unless otherwise agreed in writing by the Planning Secretary.

Table 5: *Hours of Work*

Activity	Day	Time
Construction	Monday – Friday Saturday	7 am to 6 pm 8 am to 1 pm
Operation	Monday – Sunday (including public holidays)	24 hours

D71. Works outside of the hours identified in Condition D70 may be undertaken in the following circumstances:

(a) works that are inaudible at the nearest sensitive receivers;

(b) works agreed to in writing by the Planning Secretary;

(c) for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or

(d) where it is required in an emergency to avoid the loss of lives, property or to prevent environmental harm.

Construction Noise Limits

D72. Stage 1 must be constructed with the aim of achieving the construction noise management levels detailed in the *Interim Construction Noise Guideline* (DECC, 2009) (as may be updated or replaced from time to time). All feasible and reasonable noise mitigation measures must be implemented and any activities that could exceed the construction noise management levels must be identified and managed in accordance with the Construction Noise and Vibration Management Plan required by Condition D73.

Construction Noise and Vibration Management Plan

D73. The Applicant must prepare a Construction Noise and Vibration Management Plan (CNVMP) for Stage 1, to the satisfaction of the Planning Secretary. The CNVMP must form part of a CEMP in accordance with Condition D119 and must:

(a) be prepared by a suitably qualified and experienced noise expert;

(b) describe procedures for achieving the noise management levels in EPA's *Interim Construction Noise Guideline* (DECC, 2009) (as may be updated or replaced from time to time);

(c) describe the measures to be implemented to manage high noise generating works such as piling, in close proximity to sensitive receivers;

(d) include strategies to minimise impacts to sensitive receivers, including, where practicable, starting noisy equipment away from sensitive receivers and implementing respite periods;

(e) include strategies that have been developed with the sensitive receivers identified in **Appendix 5** for managing high noise generating works;

(f) describe the community consultation undertaken to develop the strategies in Condition D73(e);

(g) include a monitoring program that:

(i) includes a protocol for determining exceedances of the relevant conditions in this approval;

(ii) evaluates and reports on the effectiveness of the noise and vibration management measures;

(iii) include procedures to relocate, modify, mitigate or stop work to ensure compliance with relevant criteria; and

(h) include a complaints management system that would be implemented for the duration of Stage 1.

D74. The Applicant must:

(a) not commence construction of Stage 1 until the CNVMP required by Condition D73 is approved by the Planning Secretary; and

(b) implement the most recent version of the CNVMP approved by the Planning Secretary for the duration of construction.

Operational Noise Limits

D75. The Applicant shall undertake operation of Stage 1 in a manner that ensures the Development complies with the noise limits for the Concept Proposal in Condition B18 of this consent.

VIBRATION

Vibration Criteria

D76. Vibration caused by construction works on the site, as measured at any residence or structure outside the site, must be limited to:

(a) for structural damage, the latest version of *DIN 4150-3 (1992-02) Structural vibration - Effects of vibration on structures* (German Institute for Standardisation, 1999); and

(b) for human exposure, the acceptable vibration values set out in the *Environmental Noise Management Assessing Vibration: a technical guideline* (DEC, 2006) (as may be updated or replaced from time to time).

D77. Vibratory compactors must not be used closer than 30 metres from residential buildings unless vibration monitoring confirms compliance with the vibration criteria specified in Condition D76.

D78. The limits in Conditions D76 and D77 apply unless otherwise outlined in a CNVMP, approved as part of the CEMP required by Condition D119 of this consent.

SOILS & WATER

Imported Soil

D79. The Applicant must prepare a Fill Importation Protocol for Stage 1. The protocol must form part of the CEMP required by Condition D119 and must detail the measures to:

(a) ensure only VENM, ENM, or other material approved in writing by EPA is brought onto the site;

(b) keep accurate records of the volume and type of fill to be used; and

(c) make these records available to the Department upon request.

Erosion and Sediment Control

D80. The Applicant must prepare an Erosion and Sediment Control Plan for Stage 1, including the WNSLR, to the satisfaction of the Planning Secretary. The Plan must form part of a CEMP in accordance with Condition D119 and must:

(a) be prepared by a suitably qualified and experienced person(s);

(b) be generally consistent with the Erosion and Sediment Control Plans in the RTS and those prepared by the contractor for each sequence of the works, as approved by the PCA;

(c) include detailed erosion and sediment controls developed in accordance with the relevant requirements of *Managing Urban Stormwater: Soils and Construction - Volume 1: Blue Book* (Landcom, 2004) guideline; and

(d) include procedures for maintaining erosion and sediment controls in efficient working order for the duration of construction, to ensure Stage 1 complies with Condition D82.

D81. Prior to the commencement of bulk earthworks as part of Stage 1, the Applicant must implement erosion and sediment controls identified by Condition D80 and maintain those controls throughout bulk earthworks and construction, to ensure stormwater flows do not increase in any downstream areas. The Environmental Representative, appointed in accordance with Condition D123, shall make a written statement to the

Planning Secretary confirming the erosion and sediment controls are operational, prior to the commencement of bulk earthworks and other construction activities required for Stage 1.

Discharge Limits

D82. Stage 1 must comply with section 120 of the POEO Act, which prohibits the pollution of waters.

Stormwater Management System

D83. The Applicant must design, construct and operate a stormwater management system for Stage 1 that:

(a) is designed by a suitably qualified and experienced person(s);

(b) is generally in accordance with the conceptual design in the RtS;

(c) is in accordance with applicable Australian Standards;

(d) ensures the system capacity is designed in accordance with *Australian Rainfall and Runoff* (Engineers Australia, 2016), *Managing Urban Stormwater: Council Handbook* (EPA, 1997) and *Stormwater Drainage Specifications for Building Development* (Penrith Council, May 2018);

(e) ensures peak stormwater flows from the Site do not exceed pre-development flows in any downstream areas for all rainfall events up to and including the 1 in 100-year average recurrence interval (ARI);

(f) ensures peak stormwater flows from the Site do not exceed existing flows in the Water NSW drainage lines and water pipelines corridor; and

(g) achieves the pollutant reduction targets specified in Council's *Water Sensitive Urban Design (WSUD) Policy,* (December 2013).

D84. All stormwater drainage infrastructure on the Site, including bio-retention basins, shall remain under the care, control and ownership of the registered proprietor of the lots.

D85. The Applicant shall create a drainage easement for the outlet swales from the bio-retention basins on the site, in accordance with the requirements of Council and Condition D22.

Groundwater

D86. If groundwater is intersected during construction of Stage 1, the Applicant must:

(a) obtain the necessary water licences or approvals from NRAR; and

(b) develop a Groundwater Management Plan (GMP) for the testing, dewatering, storage, movement and treatment of groundwater, to the satisfaction of NRAR.

Waterfront Land

D87. The Applicant must carry out all works on or adjacent to waterfront land in accordance with the Department of Industry *Guidelines for Controlled Activities on Waterfront Lands 2012*.

BIODIVERSITY

Flora and Fauna Management Plan

D88. The Applicant must prepare a Flora and Fauna Management Plan (FFMP) for Stage 1, to the satisfaction of the Planning Secretary. The Plan must form part of a CEMP in accordance with Condition D119 and must:

(a) be prepared by a suitably qualified and experienced person(s);

(b) describe procedures to manage impacts on biodiversity values during earthworks, clearing and dam decommissioning;

(c) include procedures for clearing marking and protecting the areas of vegetation to be retained on the Site, including the mature vegetation in the north-western corner and the Biodiversity Offset Area, established in accordance with Condition D91 adjacent to Ropes Creek; and

(d) detail the specific erosion and sediment controls to protect the retained vegetation.

D89. The Applicant must:

(a) not commence bulk earthworks until the FFMP required by Condition D88 is approved by the Planning Secretary; and

(b) implement the most recent version of the FFMP approved by the Planning Secretary for the duration of bulk earthworks and construction.

Offsets for Stage 1

D90. Within 12 months of the date of this development consent, or as otherwise agreed with the Planning Secretary, the Applicant must retire 172 ecosystem credits to offset the removal of 4.41 hectares of native vegetation on the Site.

Note: *If the Applicant seeks a variation to the offset rules, the Applicant must demonstrate that reasonable steps have been taken to find like-for-like offsets in accordance with Section 10.5.4.2 of the FBA and Appendix A of the OEH's NSW Biodiversity Offsets Policy for Major Projects 2014.*

In accordance with Principle 3 of the OEH's NSW Biodiversity Offsets Policy for Major Projects 2014, the Policy does not allow variations to the offset rules to be applied to 'threatened species and ecological communities that are considered nationally significant (listed under the Environmental Protection and Biodiversity Conservation Act 1999)'. These must be offset in a like for like manner.

D91. The Applicant shall establish a Biodiversity Offset Area on the Site, consistent with the area described in the RtS, in accordance with a Biodiversity Stewardship Agreement with the Biodiversity Conservation Trust.

Biodiversity Management Action Plan

D92. The Applicant must maintain the Biodiversity Offset Area on the Site in accordance with a Biodiversity Management Action Plan approved by the Biodiversity Conservation Trust.

Offsets for the WNSLR

D93. Within 12 months of the date of this development consent, or as otherwise agreed with the Planning Secretary, the Applicant must:

(a) offset 0.42 ha of vegetation lost in the Erskine Park Biodiversity Corridor as a result of the WNSLR by carrying out planting within the area shown in green edging on **Figure 9** in **Appendix 6**; and

(b) plant the area shown in green edging on **Figure 9** of **Appendix 6** with species similar to those identified for zone 4a, on the south-eastern side of Ropes Creek, in the Biodiversity Management Plan Erskine Park Employment Area (HLA-Envirosciences, 2 May 2006).

D94. The Applicant shall monitor and maintain the planting for a period of six months to ensure a minimum 85% survival rate of the planting.

D95. The Applicant must notify the Planning Ministerial Corporation at least one month before the completion of planting to enable the Planning Ministerial Corporation to arrange ongoing maintenance.

Snake Management Measures

D96. Prior to construction of Stage 1, the Applicant must implement snake management measures to limit, to the extent practicable, movement of snakes from the Site into the adjacent school and retirement village on the western boundary of the Site. The measures shall be detailed in the CEMP required by Condition D119 and shall include, but not be limited to, provision of alternative snake habitat on Site, fencing along the western boundary and installation of snake deterrents.

BUSHFIRE PROTECTION

D97. The Applicant shall ensure Stage 1 complies with:

(a) the relevant provisions of *Planning for Bushfire Protection 2006*;

(b) the construction standards and asset protection zone requirements recommended in the Oakdale Industrial Estate - West Bushfire Protection Assessment, prepared by Australian Bushfire Protection Planners Pty Ltd, dated September 2016; and

(c) *AS2419.1 – 2005 Fire Hydrant Installations* for firefighting water supply.

AIR QUALITY

Dust Minimisation

D98. The Applicant must take all reasonable steps to minimise dust generated during all works authorised by this consent.

D99. During construction of Stage 1, the Applicant must 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 Stage 1 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.

Construction Air Quality Management Plan

D100. Prior to the commencement of construction of Stage 1, the Applicant must prepare a Construction Air Quality Management Plan (CAQMP) to the satisfaction of the Planning Secretary. The CAQMP must form part of the CEMP required by Condition D119 and must:

(a) be prepared by a suitably qualified and experienced person(s);

(b) detail and rank all emissions from all construction activities, including particulate emissions;

(c) describe a program that is capable of evaluating the performance of the construction and determining compliance with key performance indicators;

(d) identify the control measures that will be implemented for each emission source; and

(e) nominate the following for each of the proposed controls:

(i) key performance indicator;

(ii) monitoring method;

(iii) location, frequency and duration of monitoring;

(iv) record keeping;

(v) complaints register;

(vi) response procedures; and

(vii) compliance monitoring.

D101. The Applicant must:

(a) not commence construction of Stage 1 until the CAQMP required by Condition D100 is approved by the Planning Secretary; and

(b) implement the most recent version of the CAQMP approved by the Planning Secretary for the duration of construction.

Odour Management

D102. The Applicant must ensure Stage 1 does not cause or permit the emission of any offensive odour, as defined in the POEO Act.

ABORIGINAL HERITAGE

Statutory Requirements

D103. Prior to the commencement of construction of Stage 1, the Applicant must register identified Aboriginal items or objects on the OEH's Aboriginal Heritage Information Management System (AHIMS) Aboriginal Sites Register.

Archaeological Test Excavation

D104. Prior to the commencement of construction of Stage 1, the Applicant must undertake archaeological test excavation in the identified area of archaeological sensitivity adjacent to Ropes Creek and the ridgeline immediately to the west, that would be impacted by Stage 1. The test excavation must:

(a) be undertaken in accordance with a methodology developed in consultation with registered Aboriginal parties;

(b) be undertaken in accordance with the requirements of the Heritage and Community Engagement, Department of Premier and Cabinet (former NSW OEH Heritage Division); and

(c) include a report detailing any further work, including archaeological salvage and monitoring, conducted in the presence of Aboriginal stakeholders.

D105. The Applicant must not commence construction of Stage 1 until the Archaeological Test Excavation Report is provided to the Heritage and Community Engagement, Department of Premier and Cabinet (former NSW OEH Heritage Division) and the Planning Secretary.

Unexpected Finds Protocol

D106. If any item or object of Aboriginal heritage significance is identified on Site:

(a) all work in the immediate vicinity of the suspected Aboriginal item or object must cease immediately;

(b) a 10 m wide buffer area around the suspected item or object must be cordoned off; and

(c) the Biodiversity and Conservation Division of the Department must be contacted immediately.

D107. Work in the immediate vicinity of the Aboriginal item or object may only recommence in accordance with the provisions of Part 6 of the *National Parks and Wildlife Act 1974* (NSW).

HISTORIC HERITAGE

Unexpected Finds Protocol

D108. If any archaeological relics are uncovered during construction of Stage 1, then all works in the immediate vicinity of the relic must cease immediately. Unexpected finds must be evaluated and recorded in accordance the requirements of Department of Premier and Cabinet, Heritage (former NSW OEH Heritage Division).

HAZARDS AND RISK

Dangerous Goods

D109. The quantities of dangerous goods stored and handled at the Site must be below the threshold quantities listed in the Department of Planning's *Hazardous and Offensive Development Application Guidelines – Applying SEPP 33* at all times.

Bunding

D110. The Applicant must store all chemicals, fuels and oils used on Site in appropriately bunded areas in accordance with the requirements of all relevant Australian Standards, and/or EPA's *Storing and Handling of Liquids: Environmental Protection – Participants Manual* (Department of Environment and Climate Change, 2007).

WASTE MANAGEMENT

Waste Storage

D111. Waste must be secured and maintained within designated waste storage areas at all times and must not leave the Site onto neighbouring public or private properties.

Waste Management Plan

D112. The Applicant must implement the Waste Management Plan (WMP) in the EIS for the duration of construction and operation of Stage 1.

Statutory Requirements

D113. The Applicant must assess and classify all liquid and non-liquid wastes to be taken off Site in accordance with the latest version of EPA's *Waste Classification Guidelines Part 1: Classifying Waste* (EPA, 2014) and dispose of all wastes to a facility that may lawfully accept the waste.

D114. Waste generated outside the Site must not be received at the Site for storage, treatment, processing, reprocessing, or disposal.

Pests, Vermin and Noxious Weed Management

D115. The Applicant must:

(a) implement suitable measures to manage pests, vermin and declared noxious weeds on the Site; and

(b) inspect the Site on a regular basis to ensure that these measures are working effectively, and that pests, vermin or noxious weeds are not present on Site in sufficient numbers to pose an environmental hazard or cause the loss of amenity in the surrounding area.

Note: *For the purposes of this condition, noxious weeds are those species subject to an order declared under the Biosecurity Act 2015 (NSW).*

CONTAMINATION

D116. Prior to the commencement of construction of Stage 1, the Applicant must prepare an unexpected finds protocol to ensure that potentially contaminated material is appropriately managed. The procedure must form part of the CEMP in accordance with Condition D119 and must ensure any material identified as contaminated is disposed offsite, with the disposal location and results of testing submitted to the Planning Secretary, prior to its removal from the Site.

COMMUNITY ENGAGEMENT

D117. The Applicant must consult with the community regularly throughout Stage 1, including consultation with the nearby sensitive receivers identified in **Appendix 5**, relevant regulatory authorities, Registered Aboriginal Parties and other interested stakeholders. Community engagement shall be undertaken in accordance with the Community Communication Strategy approved in accordance with Condition C19.

PART 3 – ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING

MANAGEMENT PLAN REQUIREMENTS

D118. Management plans required under this consent must be prepared in accordance with relevant guidelines, and include:

(a) details of:

(i) the relevant statutory requirements (including any relevant approval, licence or lease conditions);

(ii) any relevant limits or performance measures and criteria; and

(iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, Stage 1 or any management measures;

(b) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;

(c) a program to monitor and report on the:

(i) impacts and environmental performance of Stage 1; and

(ii) effectiveness of the management measures set out pursuant to paragraph (b) above;

(d) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;

(e) a program to investigate and implement ways to improve the environmental performance of Stage 1 over time;

(f) a protocol for managing and reporting any:

(i) incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria);

(ii) complaint;

(iii) failure to comply with statutory requirements; and

(g) a protocol for periodic review of the plan.

Note: *The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.*

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

D119. The Applicant must prepare a Construction Environmental Management Plan (CEMP) for Stage 1, including the WNSLR, in accordance with the requirements of Condition D118 and to the satisfaction of the Planning Secretary. The Applicant may prepare separate CEMPs for the Stage 1 works and the WNSLR, addressing all relevant requirements of this consent.

D120. Prior to finalising the CEMP, the Applicant must consult with TfNSW (including the former RMS), Council and Water NSW. The Applicant must also attend a site visit with Water NSW personnel to mark the exact works area for the WNSLR bridge crossing.

D121. As part of the CEMP required under Condition D119 of this consent, the Applicant must include:

(a) detailed procedures for managing bulk earthworks to avoid adverse water quality impacts on Ropes Creek, including, but not limited to:

(i) any staging of earthworks to minimise disturbed areas;

(ii) limits on the areal extent of earthworks;

(iii) progressive grassing of exposed areas, as soon as reasonably practicable, focusing on areas where building construction will occur at a later stage;

(b) Landscape Management Plan (LMP) (see Condition D35);

(c) Construction Traffic Management Plan (CTMP) (see Condition D65);

(d) Consultation Schedule for TfNSW and Water NSW (see Conditions D57 and D58);

(e) Construction Noise and Vibration Management Plan (CNVMP) (see Condition D73);

(f) Fill Importation Protocol (see Condition D79) and Erosion and Sediment Control Plan (see Condition D80);

(g) Flora and Fauna Management Plan (FFMP) (see Condition D88);

(h) Snake Management Measures (see Condition D96);

(i) Construction Air Quality Management Plan (CAQMP) (see Condition D100);

(j) Unexpected Finds Protocol (see Conditions D106 and D108);

(k) Unexpected Contamination Protocol (see Condition D116); and

(l) a Community Consultation and Complaints Handling Procedure.

D122. The Applicant must:

(a) not commence construction of Stage 1 until the CEMP is approved by the Planning Secretary; and

(b) carry out the construction of Stage 1 in accordance with the CEMP approved by the Planning Secretary and as revised and approved by the Planning Secretary from time to time.

ENVIRONMENTAL REPRESENTATIVE

D123. The Applicant must engage an Environmental Representative (ER) to oversee construction of Stage 1. Construction of Stage 1 must not commence until an ER has been approved by the Planning Secretary and engaged by the Applicant.

D124. The Planning Secretary's approval of an ER must be sought no later than one month before the commencement of construction of Stage 1, or within another timeframe agreed with the Planning Secretary.

D125. The proposed ER must be a suitably qualified and experienced person who was not involved in the preparation of the EIS or RtS and is independent from the design and construction personnel for Stage 1.

D126. The Applicant may engage more than one ER for Stage 1, in which case the functions to be exercised by an ER under the terms of this approval may be carried out by any ER that is approved by the Planning Secretary for the purposes of Stage 1.

D127. For the duration of construction of Stage 1, or as agreed with the Planning Secretary, the approved ER must:

(a) receive and respond to communication from the Planning Secretary in relation to the environmental performance of Stage 1;

(b) consider and inform the Planning Secretary on matters specified in the terms of this consent;

(c) consider and recommend to the Applicant any improvements that may be made to work practices to avoid or minimise adverse impact to the environment and to the community;

(d) review the CEMP identified in Condition D119 and any other documents that are identified by the Planning Secretary, to ensure they are consistent with requirements in or under this consent, and if so:

(i) make a written statement to this effect before submission of such documents to the Planning Secretary (if those documents are required to be approved by the Planning Secretary); or

(ii) make a written statement to this effect before the implementation of such documents (if those documents are required to be submitted to the Planning Secretary/Department for information or are not required to be submitted to the Planning Secretary/Department);

(e) regularly monitor the implementation of the CEMP, and any other documents identified by the Planning Secretary, to ensure implementation is being carried out in accordance with the document and the terms of this consent;

(f) as may be requested by the Planning Secretary, help plan, attend or undertake audits of Stage 1 commissioned by the Department including scoping audits, programming audits, briefings, and site visits;

(g) as may be requested by the Planning Secretary, assist the Department in the resolution of community complaints;

(h) prepare and submit to the Planning Secretary and other relevant regulatory agencies, for information, an **Environmental Representative Monthly Report** providing the information set out in the Environmental Representative Protocol under the heading "Environmental Representative Monthly Reports." The **Environmental Representative Monthly Report** must be submitted within seven calendar days following the end of each month for the duration of the ER's engagement, or as otherwise agreed with the Planning Secretary.

D128. The Applicant must provide the ER with all documentation requested by the ER in order for the ER to perform their functions specified in Condition D127 (including preparation of the ER monthly report), as well as:

(a) the complaints register; and

(b) a copy of any assessment carried out by the Applicant of whether proposed work is consistent with the consent (which must be provided to the ER before the commencement of the subject work).

D129. The Planning Secretary may at any time commission an audit of an ER's exercise of its functions under Condition D142. The Applicant must:

(a) facilitate and assist the Planning Secretary in any such audit; and

(b) make it a term of their engagement of an ER that the ER facilitate and assist the Planning Secretary in any such audit.

OPERATIONAL ENVIRONMENTAL MANAGEMENT PLAN

D130. The Applicant must prepare an Operational Environmental Management Plan (OEMP) in accordance with the requirements of Condition D118 and to the satisfaction of the Planning Secretary.

D131. As part of the OEMP required under Condition D130 of this consent, the Applicant must include the following:

(a) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of operation of Stage 1;

(b) describe the procedures that would be implemented to:

(i) keep the local community and relevant agencies informed about the operation and environmental performance of Stage 1;

(ii) receive, handle, respond to, and record complaints;

(iii) resolve any disputes that may arise;

(iv) respond to any non-compliance;

(v) respond to emergencies; and

(c) include the following environmental management plans:

(i) Landscape Management Plan (LMP) (see Condition D35);

(ii) Flora and Fauna Management Plan (FFMP) (see Condition D88);

(iii) Waste Management Plan (WMP) (see Condition D112).

D132. The Applicant must:

(a) not commence operation until the OEMP is approved by the Planning Secretary; and

(b) operate Stage 1 in accordance with the OEMP approved by the Planning Secretary (and as revised and approved by the Planning Secretary from time to time).

REVISION OF STRATEGIES, PLANS AND PROGRAMS

D133. Within three months of:

(a) the submission of a Compliance Report under Condition D141;

(b) the submission of an Environmental Representative Monthly Report under Condition D127;

(c) the submission of an incident report under Condition D135;

(d) the approval of any modification of the conditions of this consent; or

(e) the issue of a direction of the Planning Secretary under Condition D2(b) which requires a review,

the strategies, plans and programs required under this consent must be reviewed.

D134. If necessary, to either improve the environmental performance of Stage 1, cater for a modification or comply with a direction, the strategies, plans and programs required under this consent must be revised, to the satisfaction of the Planning Secretary. Where revisions are required, the revised document must be submitted to the Planning Secretary for approval within six weeks of the review.

Note: *This is to ensure strategies, plans and programs are updated on a regular basis and to incorporate any recommended measures to improve the environmental performance of Stage 1.*

REPORTING AND AUDITING

Incident Notification, Reporting and Response

D135. The Department must be notified in writing to compliance@planning.nsw.gov.au immediately after the Applicant becomes aware of an incident. The notification must identify the development (including the development application number and the name of the development if it has one) and set out the location and nature of the incident. Subsequent notification requirements must be given, and reports submitted in accordance with the requirements set out in **Appendix 8**.

Non-Compliance Notification

D136. The Department must be notified in writing to compliance@planning.nsw.gov.au within seven (7) days after the Applicant becomes aware of any non-compliance.

D137. A non-compliance notification must identify the development and the application number for it, set out the condition of consent that the development is non-compliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.

D138. A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.

Compliance Reporting

D139. No later than 6 weeks before the date notified for the commencement of construction, a Compliance Monitoring and Reporting Program prepared in accordance with the Compliance Reporting Post Approval Requirements (Department 2018) must be submitted to the Department.

D140. Compliance Reports of the Development must be carried out in accordance with the Compliance Reporting Post Approval Requirements (Department 2018).

D141. The Applicant must make each Compliance Report publicly available no later than 60 days after submitting it to the Department and notify the Department in writing at least 7 days before this is done.

Monitoring and Environmental Audits

D142. Any condition of this consent that requires the carrying out of monitoring or an environmental audit, whether directly or by way of a plan, strategy or program, is taken to be a condition requiring monitoring or an environmental audit under Division 9.4 of Part 9 of the EP&A Act. This includes conditions in respect of incident notification, reporting and response, non-compliance notification, compliance reporting and independent auditing.

Note: *For the purposes of this condition, as set out in the EP&A Act, "monitoring" is monitoring of the development to provide data on compliance with the consent or on the environmental impact of the development, and an "environmental audit" is a periodic or particular documented evaluation of the development to provide information on compliance with the consent or the environmental management or impact of the development.*

ACCESS TO INFORMATION

D143. At least 48 hours before the commencement of construction until the completion of all works under this consent, the Applicant must:

(a) make the following information and documents (as they are obtained or approved) publicly available on its website:

(i) the documents referred to in Condition D2 of this consent;

(ii) all current statutory approvals for the Development;

(iii) all approved strategies, plans and programs required under the conditions of this consent;

(iv) the proposed staging plans for the Development if the construction, operation or decommissioning of the Development is to be staged;

(v) regular reporting on the environmental performance of the Development in accordance with the reporting requirements in any plans or programs approved under the conditions of this consent;

(vi) a comprehensive summary of the monitoring results of the Development, reported in accordance with the specifications in any conditions of this consent, or any approved plans and programs;

(vii) a summary of the current stage and progress of the Development;

(viii) contact details to enquire about the Development or to make a complaint;

(ix) a complaints register, updated monthly;

(x) the Compliance Report of the Development;

(xi) audit reports prepared as part of any monitoring or environmental audit of the Development and the Applicant's response to the recommendations in any audit report;

(xii) any other matter required by the Planning Secretary; and

(b) keep such information up to date, to the satisfaction of the Planning Secretary.

APPENDIX 1 CONCEPT PROPOSAL

Table 6: Schedule of Approved Plans – Concept Proposal

Architectural Plans prepared by SBA Architects		
Drawing	**Title**	**Date**
OAK MP 02 (AW)	SSDA Estate Masterplan	21 Sept 2018
OAK MP 03 (X)	Western North South Link Road	21 Sept 2018
OAK MP 07 (U)	Indicative Ultimate Lot Layout	21 Sept 2018
OAK MP 13 (S)	Fire Protection Plan	21 Sept 2018
OAK MP 14 (Y)	Biodiversity Management Plan	21 Sept 2018

Landscape Plans prepared by Site Image Architects			
Drawing	**Title**	**Issue**	**Date**
LC-002	Landscape Concept Master Plan	G	11.10.2018
LC-003	Landscape Concept Master Plan	G	11.10.2018
LC-004	Vegetation Typologies	G	11.10.2018
LC-005	Vegetation Typologies	G	11.10.2018
LC-006	Vegetation Typologies – Indicative Species List and Reference Table	G	11.10.2018
LC-008	Street Tree Master Plan	G	11.10.2018
LC-011	Boundary Landscape Treatment Key Plan	G	11.10.2018
LC-012	Western Boundary Treatment Plan	G	11.10.2018

Civil Plans prepared by AT&L			
Drawing	**Title**	**Issue**	**Date**
15-272-C0001	General Arrangement Master Plan	A4	05-10-18
15-272-C0003	Precinct Plan	A3	21-09-18
15-272-C0006	Cut/Fill Plan	A3	21-09-18
15-272-C0008	Stormwater Drainage Catchment Plan (Developed)	A3	21-09-18
15-272-C0009	Erosion and Sediment Control Master Plan	A2	21-09-18
15-272-C0010	Typical Sections Sheet 1	A3	21-09-18
15-272-C0011	Typical Sections Sheet 2	A3	21-09-18
15-272-C0012	Typical Sections Sheet 3	A3	21-09-18
15-272-C0013	Typical Sections Sheet 4	A2	21-09-18

Figure 1: Concept Proposal Layout

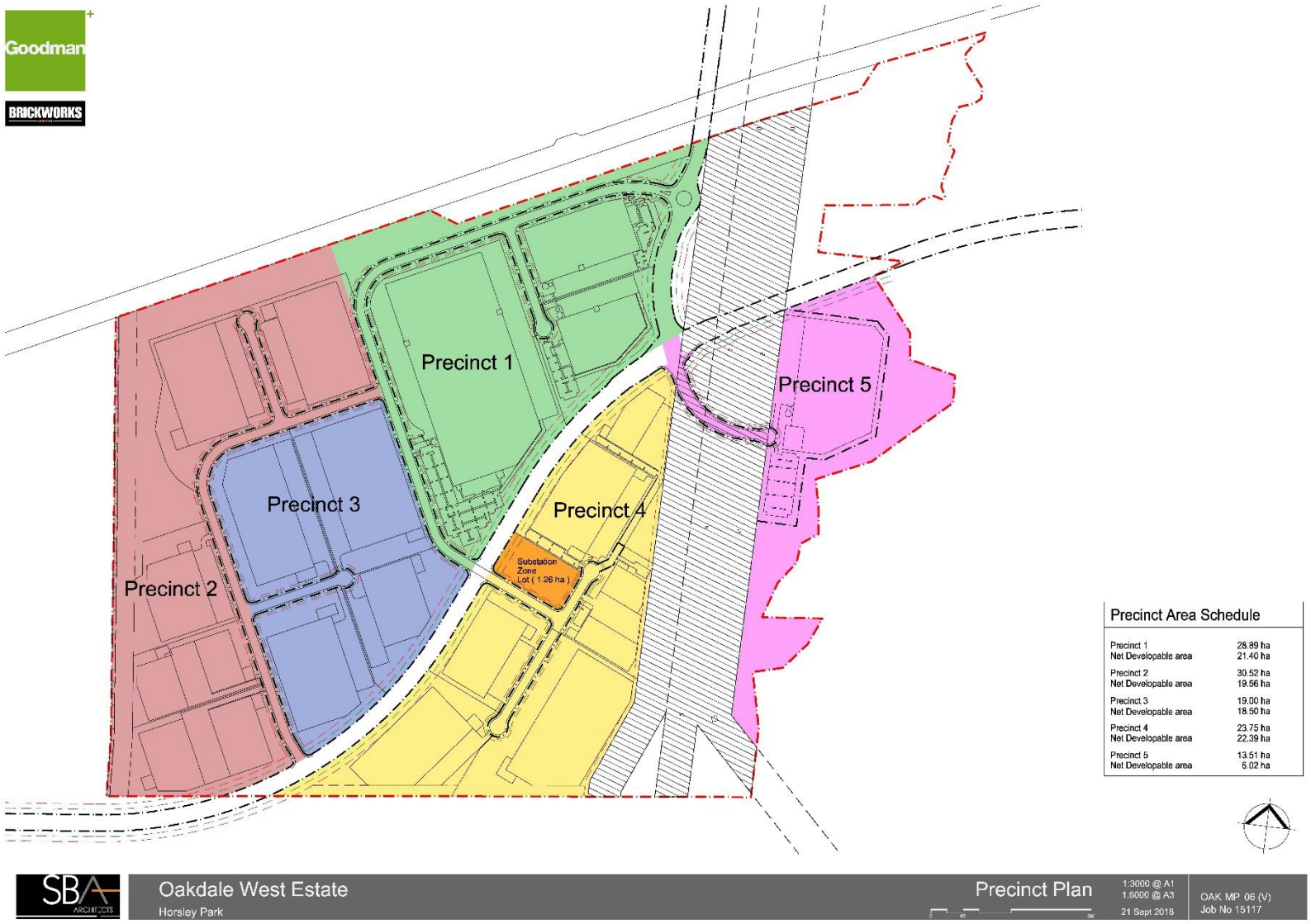


Figure 2: Staging Plan

APPENDIX 2 STAGE 1 DA PLANS

Table 7: Schedule of Approved Plans – Stage 1 DA

Architectural Plans prepared by SBA Architects		
Drawing	**Title**	**Date**
OAK MP 04 (Z)	SSDA Stage 1 Development – Precinct 1	21 Sept 2018
OAK MP 05 (Z)	Precinct 1 Plan	21 Sept 2018
OAK MP 12 (12)	Signage Precinct 1 Plan	21 Sept 2018
Building 1A plans prepared by SBA Architects		
OAK 1A DA 10 (H)	Site Plan/Floor Plan	04 May 2018
OAK 1A DA 11 (C)	Roof Plan	03 April 2017
OAK 1A DA 12 (C)	Office Plan – Ground Floor	06 Sept 2016
OAK 1A DA 13 (c)	Office Plan – First Floor	06 Sept 2016
OAK 1A DA 14 (C)	Elevations Office	06 Sept 2016
OAK 1A DA 15 (C)	Elevations 1A	03 April 2017
OAK 1A DA 16 (D)	Sections	4 May 2018
Building 1B plans prepared by SBA Architects		
OAK 1B DA 20 (F)	Site Plan/Floor Plan	17 April 2018
OAK 1B DA 21 (C)	Roof Plan	06 Sept 2016
OAK 1B DA 22 (B)	Office Plan	06 Sept 2016
OAK 1B DA 24 (B)	Elevations Office	06 Sept 2016
OAK 1B DA 25(B)	Elevations 1B	06 Sept 2016
OAK 1B DA 26 (B)	Sections	06 Sept 2016
Building 1C plans prepared by SBA Architects		
OAK 1C DA 30 (H)	Site Plan/Floor Plan	17 April 2018
OAK 1C DA 31 (C)	Roof Plan	03 April 2017
OAK 1C DA 32 (B)	Office Plan – Ground Floor	06 Sept 2016
OAK 1C DA 33 (B)	Office Plan – First Floor	06 Sept 2016
OAK 1C DA 34 (B)	Elevations Office	06 Sept 2016
OAK 1C DA 35 (C)	Elevations Sheet 1	03 April 2017
OAK 1C DA 36 (C)	Elevations Sheet 2	03 Sept 2017
OAK 1C DA 37 (C)	Sections	03 April 2017

Landscape Plans prepared by Site Image Landscape Architects			
Drawing	**Title**	**Issue**	**Date**
ELW-101	-	G	11.10.2018
ELW-102	-	G	11.10.2018
ELW-103	-	G	11.10.2018
ELW-104	-	G	11.10.2018
ELW-105	-	G	11.10.2018
ELW-106	-	G	11.10.2018
ELW-107	-	G	11.10.2018
ELW-108	-	G	11.10.2018
ELW-109	-	G	11.10.2018
ELW-110	-	G	11.10.2018
ELW-111	-	G	11.10.2018
ELW-112	-	G	11.10.2018
ELW-113	-	G	11.10.2018
ELW-114	-	G	11.10.2018
WNSLR-101	-	G	11.10.2018
WNSLR-102	-	G	11.10.2018
ELW-502	Plant Schedule	G	11.10.2018
OLW-001	Precinct 1 Landscape Plan	G	11.10.2018
OLW-501	Planting Palette	G	11-10-2018

Civil Plans prepared by AT&L			
Drawing	**Title**	**Issue**	**Date**
15-272-C0004	Stage 1 SSD Approval Extents Sheet 1 of 2	A5	11-10-18
15-272-C0005	Stage 1 SSD Approval Extents Sheet 2 of 2	A4	21-09-18
15-272-C0020	Western North-South Link Road General Arrangement Plan	A3	21-09-18
15-272-C0022	Western North-South Link Road Stormwater Drainage Catchment Plan (Developed)	A3	21-09-18

15-272-C1004	Typical Site Sections Sheet 1 of 6	A4	21-09-18
15-272-C1005	Typical Site Sections Sheet 2 of 6	A4	21-09-18
15-272-C1006	Typical Site Sections Sheet 3 of 6	A4	21-09-18
15-272-C1007	Typical Site Sections Sheet 4 of 6	A3	21-09-18
15-272-C1008	Typical Site Sections Sheet 5 of 6	A3	11-10-18
15-272-C1009	Typical Site Sections Sheet 6 of 6	A4	28-09-18
15-272-C1010	Typical Road Sections	A3	21-09-18
15-272-C1015	Earthworks and Stormwater Drainage Plan Sheet 1 of 20	A3	21-09-18
15-272-C1016	Earthworks and Stormwater Drainage Plan Sheet 2 of 20	A3	21-09-18
15-272-C1017	Earthworks and Stormwater Drainage Plan Sheet 3 of 20	A3	21-09-18
15-272-C1018	Earthworks and Stormwater Drainage Plan Sheet 4 of 20	A3	21-09-18
15-272-C1019	Earthworks and Stormwater Drainage Plan Sheet 5 of 20	A3	21-09-18
15-272-C1020	Earthworks and Stormwater Drainage Plan Sheet 6 of 20	A3	21-09-18
15-272-C1021	Earthworks and Stormwater Drainage Plan Sheet 7 of 20	A3	21-09-18
15-272-C1022	Earthworks and Stormwater Drainage Plan Sheet 8 of 20	A3	21-09-18
15-272-C1023	Earthworks and Stormwater Drainage Plan Sheet 9 of 20	A3	21-09-18
15-272-C1024	Earthworks and Stormwater Drainage Plan Sheet 10 of 20	A3	21-09-18
15-272-C1025	Earthworks and Stormwater Drainage Plan Sheet 11 of 20	A3	21-09-18
15-272-C1026	Earthworks and Stormwater Drainage Plan Sheet 12 of 20	A3	21-09-18
15-272-C1027	Earthworks and Stormwater Drainage Plan Sheet 13 of 20	A3	21-09-18
15-272-C1028	Earthworks and Stormwater Drainage Plan Sheet 14 of 20	A3	21-09-18
15-272-C1029	Earthworks and Stormwater Drainage Plan Sheet 15 of 20	A4	04-10-18
15-272-C1030	Earthworks and Stormwater Drainage Plan Sheet 16 of 20	A3	21-09-18
15-272-C1031	Earthworks and Stormwater Drainage Plan Sheet 17 of 20	A3	21-09-18
15-272-C1032	Earthworks and Stormwater Drainage Plan Sheet 18 of 20	A3	21-09-18
15-272-C1033	Earthworks and Stormwater Drainage Plan Sheet 19 of 20	A3	21-09-18
15-272-C1034	Earthworks and Stormwater Drainage Plan Sheet 20 of 20	A3	21-09-18
15-272-C1040	Roadworks and Stormwater Drainage Plan Sheet 1 of 10	A3	21-09-18
15-272-C1041	Roadworks and Stormwater Drainage Plan Sheet 2 of 10	A3	21-09-18
15-272-C1042	Roadworks and Stormwater Drainage Plan Sheet 3 of 10	A3	21-09-18
15-272-C1043	Roadworks and Stormwater Drainage Plan Sheet 4 of 10	A3	21-09-18
15-272-C1044	Roadworks and Stormwater Drainage Plan Sheet 5 of 10	A3	21-09-18
15-272-C1045	Roadworks and Stormwater Drainage Plan Sheet 6 of 10	A3	21-09-18
15-272-C1046	Roadworks and Stormwater Drainage Plan Sheet 7 of 10	A3	21-09-18
15-272-C1047	Roadworks and Stormwater Drainage Plan Sheet 8 of 10	A3	21-09-18
15-272-C1048	Roadworks and Stormwater Drainage Plan Sheet 9 of 10	A2	21-09-18
15-272-C1049	Roadworks and Stormwater Drainage Plan Sheet 10 of 10	A2	21-09-18
15-272-C1050	Road and Longitudinal Sections Sheet 1 of 5	A3	21-09-18
15-272-C1051	Road and Longitudinal Sections Sheet 2 of 5	A3	21-09-18
15-272-C1052	Road and Longitudinal Sections Sheet 3 of 5	A3	21-09-18
15-272-C1053	Road and Longitudinal Sections Sheet 4 of 5	A3	21-09-18
15-272-C1054	Road and Longitudinal Sections Sheet 5 of 5	A3	21-09-18
15-272-C1062	Bio-Retention Basin No. 3 Detail Plan Sheet 1 of 2	A3	21-09-18
15-272-C1063	Bio-Retention Basin No. 3 Detail Plan Sheet 2 of 2	A2	21-09-18
15-272-C1064	Bio-Retention Basin No. 5 Detail Plan Sheet 1 of 2	A1	21-09-18
15-272-C1065	Bio-Retention Basin No. 5 Detail Plan Sheet 2 of 2	A3	21-09-18
15-272-C1066	Bio-Retention Basin No. 6 Detail Plan	A3	21-09-18
15-272-C1070	Retaining Wall General Arrangement Plan	A4	11-10-18
15-272-C1071	Retaining Wall Profiles Sheet 1 of 7	A3	21-09-18
15-272-C1072	Retaining Wall Profiles Sheet 2 of 7	A3	21-09-18
15-272-C1073	Retaining Wall Profiles Sheet 3 of 7	A3	21-09-18
15-272-C1074	Retaining Wall Profiles Sheet 4 of 7	A3	21-09-18
15-272-C1075	Retaining Wall Profiles Sheet 5 of 7	A3	21-09-18
15-272-C1076	Retaining Wall Profiles Sheet 6 of 7	A3	21-09-18
15-272-C1077	Retaining Wall Profiles Sheet 7 of 7	A2	21-09-18
12-272-C1080	Stage 1 Services and Utilities Coordination Plan Sheet 1 of 6	A3	21-09-18
12-272-C1081	Stage 1 Services and Utilities Coordination Plan Sheet 2 of 6	A3	21-09-18
12-272-C1082	Stage 1 Services and Utilities Coordination Plan Sheet 3 of 6	A3	21-09-18
12-272-C1083	Stage 1 Services and Utilities Coordination Plan Sheet 4 of 6	A3	21-09-18
12-272-C1084	Stage 1 Services and Utilities Coordination Plan Sheet 5 of 6	A3	21-09-18
12-272-C1085	Stage 1 Services and Utilities Coordination Plan Sheet 6 of 6	A3	21-09-18
12-272-C1090	Erosion and Sediment Control Plan Sheet 1 of 7	A3	21-09-18
12-272-C1091	Erosion and Sediment Control Plan Sheet 2 of 7	A3	21-09-18
12-272-C1092	Erosion and Sediment Control Plan Sheet 3 of 7	A3	21-09-18

12-272-C1093	Erosion and Sediment Control Plan Sheet 4 of 7	A3	21-09-18
12-272-C1094	Erosion and Sediment Control Plan Sheet 5 of 7	A3	21-09-18
12-272-C1095	Erosion and Sediment Control Plan Sheet 6 of 7	A3	21-09-18
12-272-C1096	Erosion and Sediment Control Plan Sheet 7 of 7	A3	21-09-18
12-272-C1097	Erosion and Sediment Control Details	A1	21-09-18
15-272-C2003	General Arrangement Plan	A3	21-09-18
15-272-C2010	Siteworks and Stormwater Drainage Plan Sheet 1 of 15	A3	21-09-18
15-272-C2011	Siteworks and Stormwater Drainage Plan Sheet 2 of 15	A3	21-09-18
15-272-C2012	Siteworks and Stormwater Drainage Plan Sheet 3 of 15	A3	21-09-18
15-272-C2013	Siteworks and Stormwater Drainage Plan Sheet 4 of 15	A3	21-09-18
15-272-C2014	Siteworks and Stormwater Drainage Plan Sheet 5 of 15	A3	21-09-18
15-272-C2015	Siteworks and Stormwater Drainage Plan Sheet 6 of 15	A3	21-09-18
15-272-C2016	Siteworks and Stormwater Drainage Plan Sheet 7 of 15	A3	21-09-18
15-272-C2017	Siteworks and Stormwater Drainage Plan Sheet 8 of 15	A3	21-09-18
15-272-C2018	Siteworks and Stormwater Drainage Plan Sheet 9 of 15	A3	21-09-18
15-272-C2019	Siteworks and Stormwater Drainage Plan Sheet 10 of 15	A3	21-09-18
15-272-C2020	Siteworks and Stormwater Drainage Plan Sheet 11 of 15	A3	21-09-18
15-272-C2021	Siteworks and Stormwater Drainage Plan Sheet 12 of 15	A3	21-09-18
15-272-C2022	Siteworks and Stormwater Drainage Plan Sheet 13 of 15	A3	21-09-18
15-272-C2023	Siteworks and Stormwater Drainage Plan Sheet 14 of 15	A3	21-09-18
15-272-C2024	Siteworks and Stormwater Drainage Plan Sheet 15 of 15	A3	21-09-18
15-272-C2030	Pavement Plan	A3	21-09-18
15-272-C3003	General Arrangement Plan	A3	21-09-18
15-272-C3010	Typical Road Sections	A3	21-09-18
15-272-C3020	Roadworks Plan and Longitudinal Section Sheet 1 of 5	A3	21-09-18
15-272-C3021	Roadworks Plan and Longitudinal Section Sheet 2 of 5	A3	21-09-18
15-272-C3022	Roadworks Plan and Longitudinal Section Sheet 3 of 5	A3	21-09-18
15-272-C3023	Roadworks Plan and Longitudinal Section Sheet 4 of 5	A3	21-09-18
15-272-C3024	Roadworks Plan and Longitudinal Section Sheet 5 of 5	A3	21-09-18
15-272-C3030	Road Longitudinal Sections	A3	21-09-18
15-272-C3040	Bridge Elevation and Typical Section	A4	04-10-18
15-272-C3050	Stormwater Drainage Plan Sheet 1 of 5	A3	21-09-18
15-272-C3051	Stormwater Drainage Plan Sheet 2 of 5	A3	21-09-18
15-272-C3052	Stormwater Drainage Plan Sheet 3 of 5	A3	21-09-18
15-272-C3053	Stormwater Drainage Plan Sheet 4 of 5	A3	21-09-18
15-272-C3054	Stormwater Drainage Plan Sheet 5 of 5	A3	21-09-18
15-272-C3058	Stormwater Drainage Catchment Plan (Post-Developed)	A2	21-09-18
15-272-C3060	Bio-Retention Basin NO. 1 Detail Plan	A3	21-09-18
15-272-C3070	Pavement Plan Sheet 1 of 5	A3	21-09-18
15-272-C3071	Pavement Plan Sheet 2 of 5	A3	21-09-18
15-272-C3072	Pavement Plan Sheet 3 of 5	A3	21-09-18
15-272-C3073	Pavement Plan Sheet 4 of 5	A3	21-09-18
15-272-C3074	Pavement Plan Sheet 5 of 5	A2	21-09-18
15-272-C3080	Retaining Wall Plan and Elevation	A1	21-09-18
15-272-C3081	Retaining Wall Sections Sheet 1 of 4	A1	21-09-18
15-272-C3082	Retaining Wall Sections Sheet 2 of 4	A1	21-09-18
15-272-C3083	Retaining Wall Sections Sheet 3 of 4	A1	21-09-18
15-272-C3084	Retaining Wall Sections Sheet 4 of 4	A1	21-09-18

Civil Plans prepared by AT&L			
Drawing	**Title**	**Issue**	**Date**
15-272-C5006	Typical Road Sections Sheet 1	3	31-01-20
15-272-C5018	Bulk Earthworks Cut/Fill Plan Sheet 1	2	31-01-20
15-272-C5021	Roadworks Plan Sheet 1	4	06-02-20
15-272-C5022	Roadworks Plan Sheet 2	4	31-01-20
15-272-C5033	Carpark Adjustment Siteworks Plans	4	31-01-20
15-272-C5057	Stormwater Drainage Plan Sheet 1	2	31-01-20
15-272-C5063	Subsurface Drainage Plan Sheet 1	2	31-01-20
15-272-C5101	Pavement Plan Sheet 1	3	31-01-20
15-272-C5121	Services and Utilities Coordination Plan Sheet 1	3	06-02-20
15-272-C5122	Services and Utilities Coordination Plan Sheet 2	4	06-02-20
15-272-C5131	Road Furniture Plan Sheet 1	3	31-01-20

Landscape Plans prepared by Scape Design Landscape Architecture			
Drawing	**Title**	**Issue**	**Date**
L.CD.101	Western North South Link Road Landscape Plan Sheet 1	S	14/2/20
L.CD.301	Western North South Link Road Planting & Revegetation Schedule	Q	31/1/20

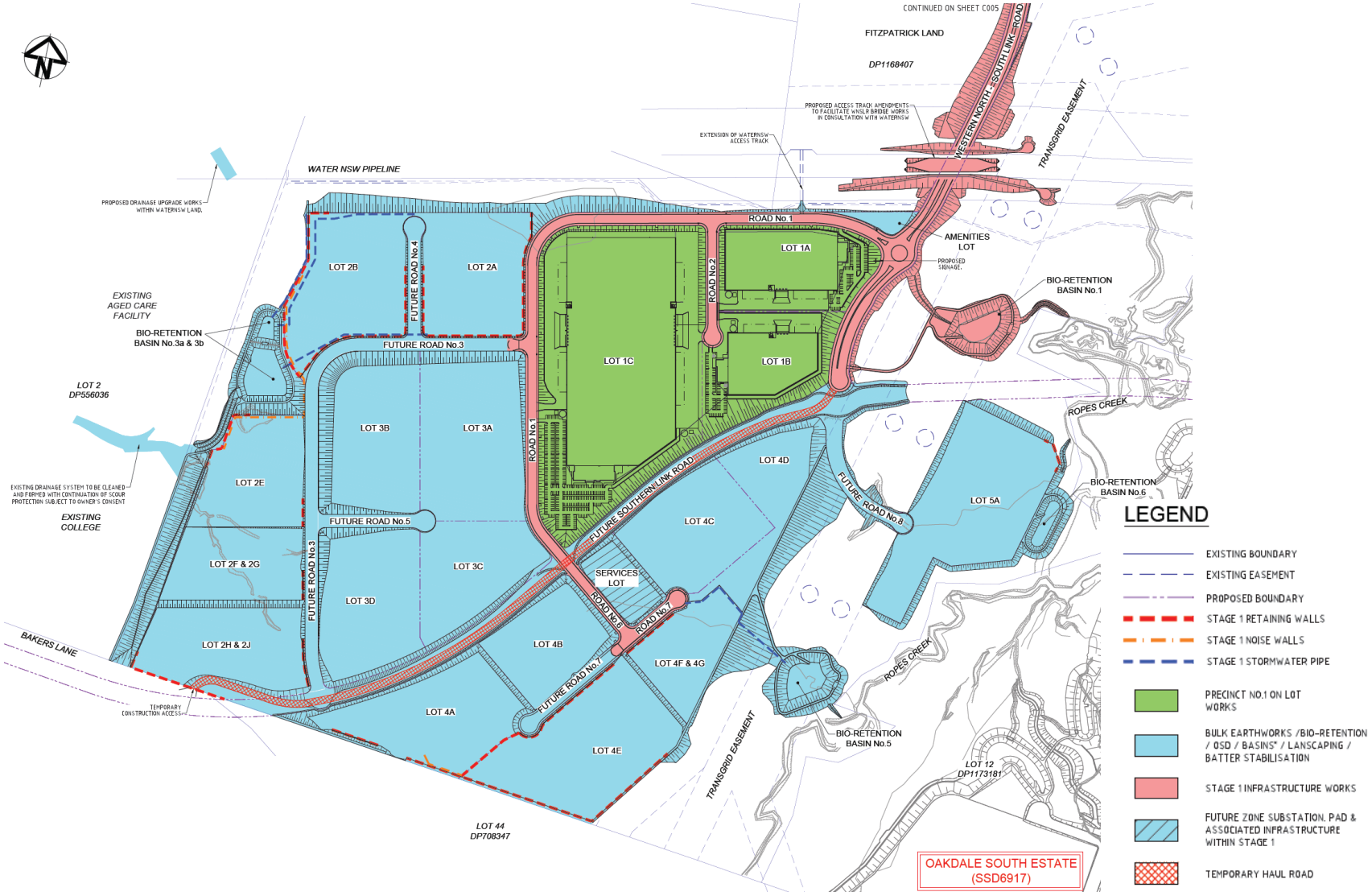


Figure 3: Stage 1 DA Layout

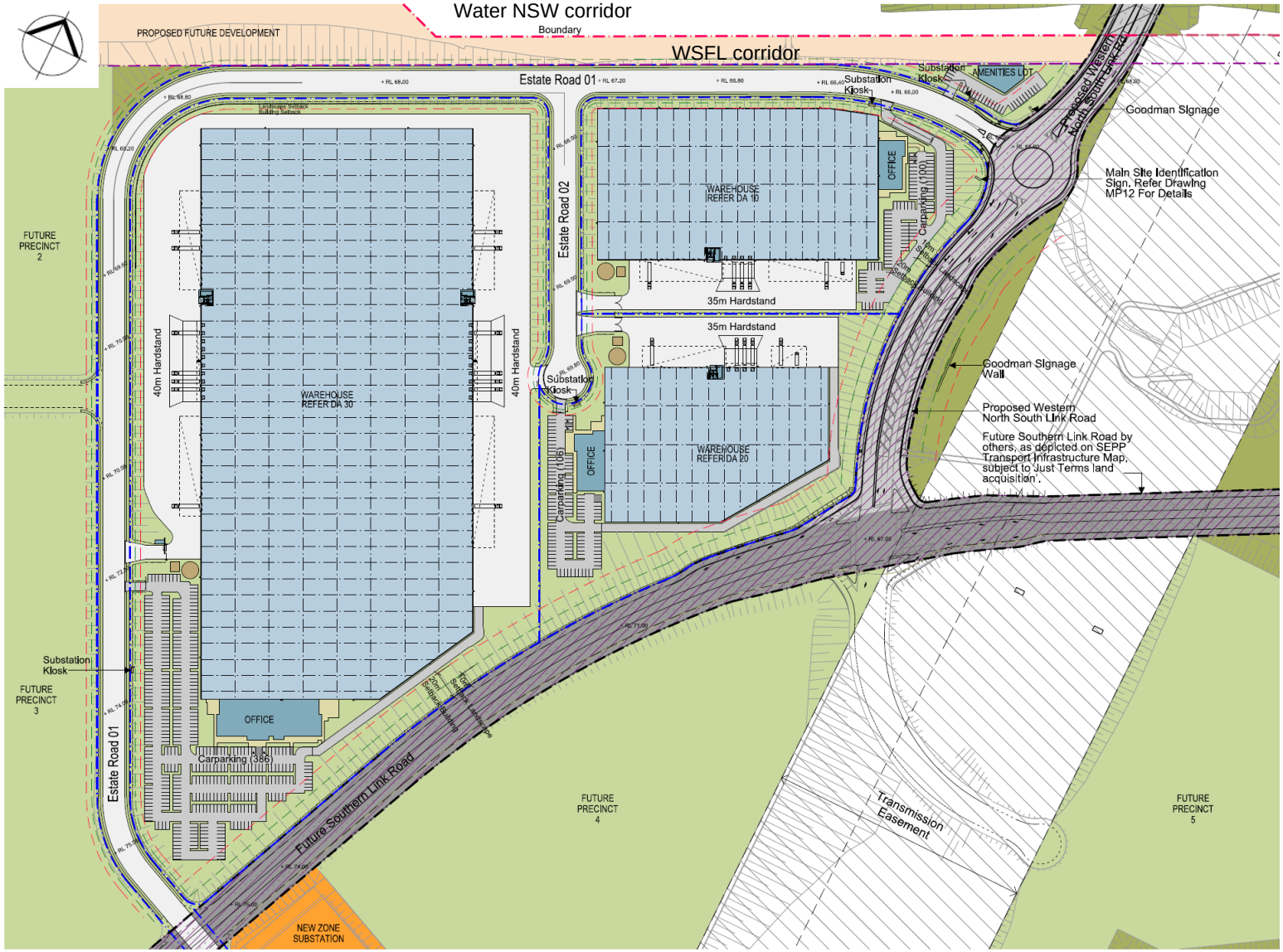


Figure 4: Stage 1 DA Detail

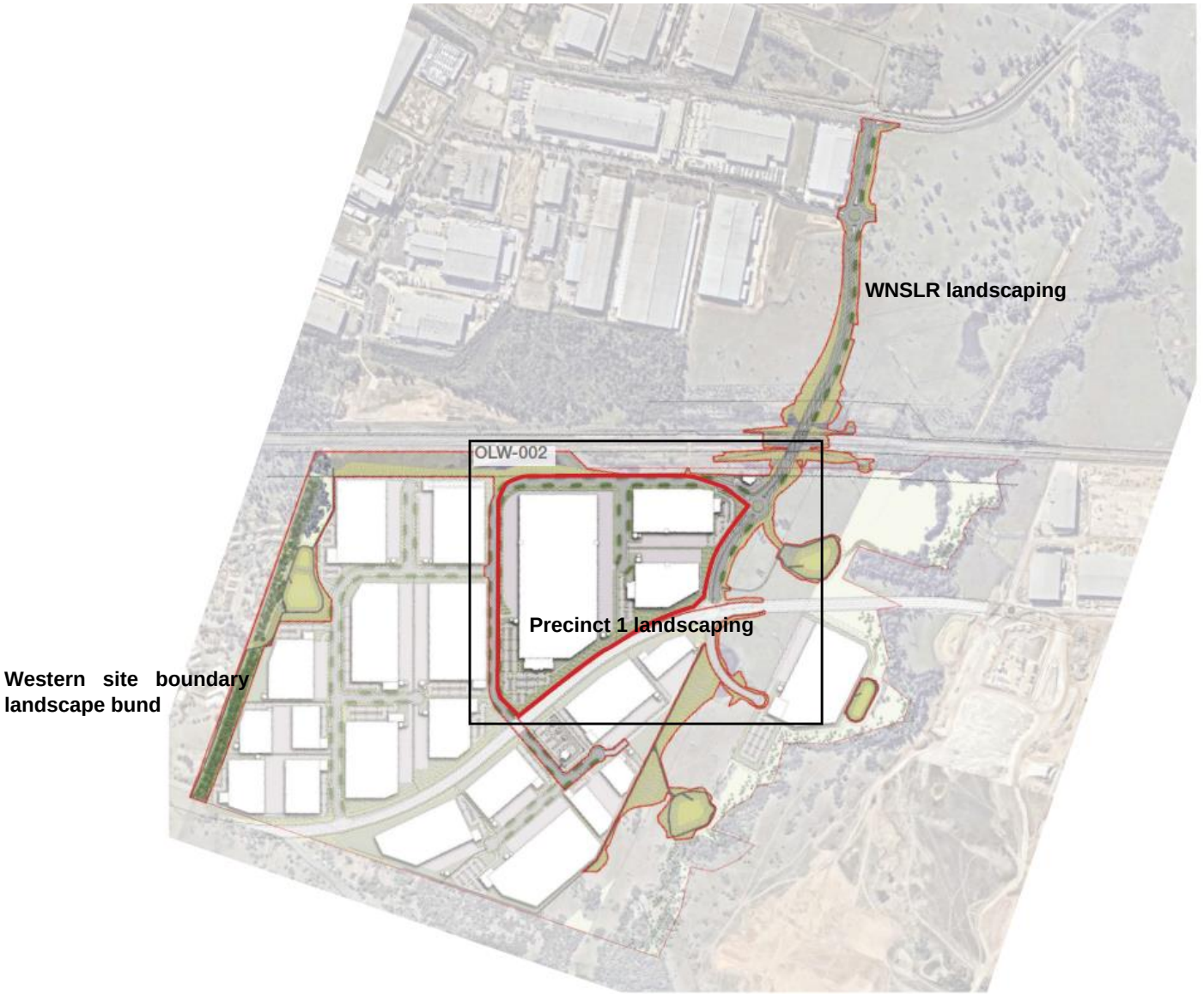


Figure 5: Stage 1 Landscape Plan

APPENDIX 3 WNSLR PLANS

Figure 6: WNSLR

APPENDIX 4 PLANNING AGREEMENT

APPENDIX 5 NOISE RECEIVER LOCATIONS

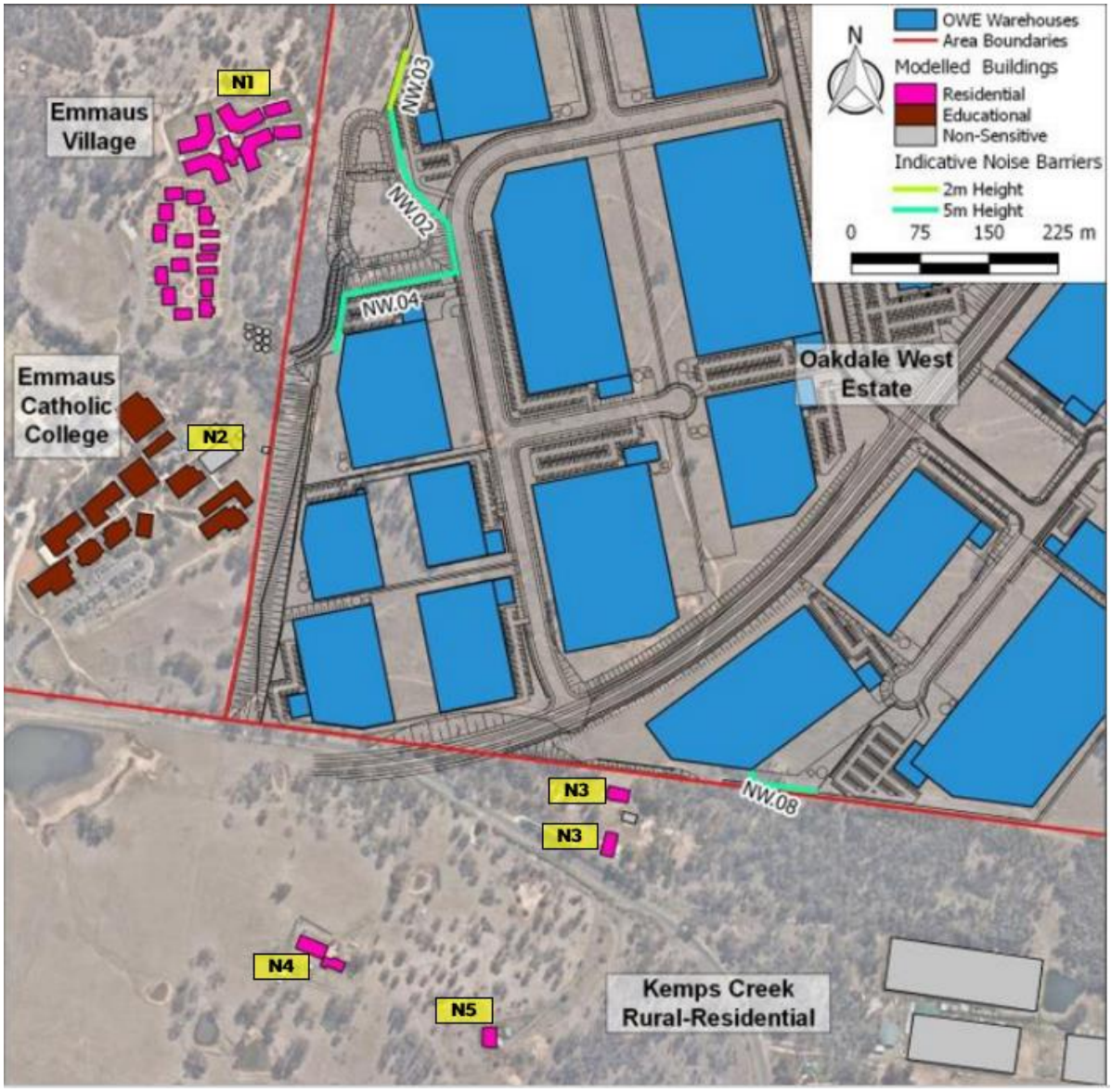


Figure 7: Sensitive Noise Receivers and Noise Wall Locations

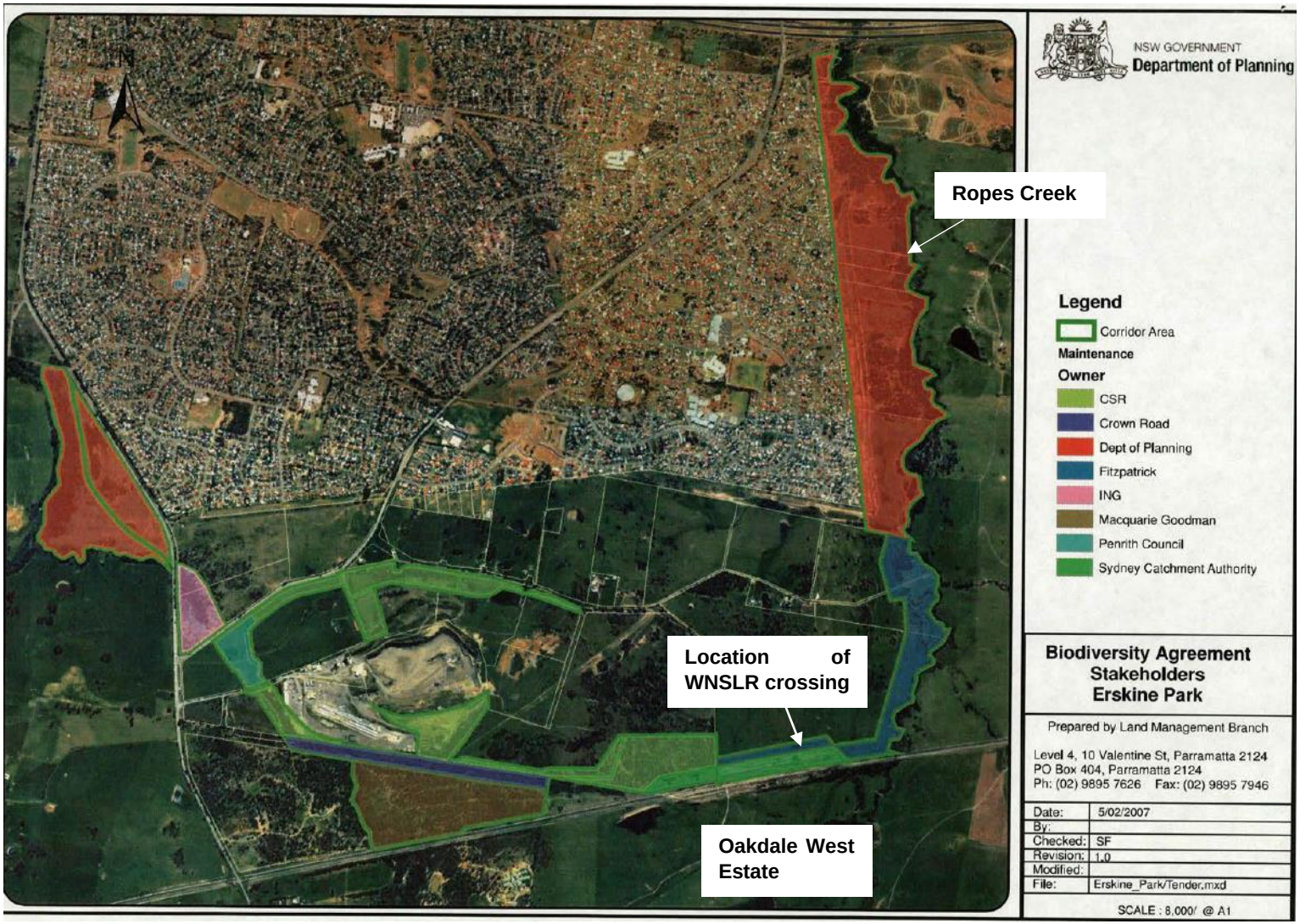


Figure 8: Erskine Park Biodiversity Corridor Land

Figure 9: Offsets for WNSLR – Planting Area

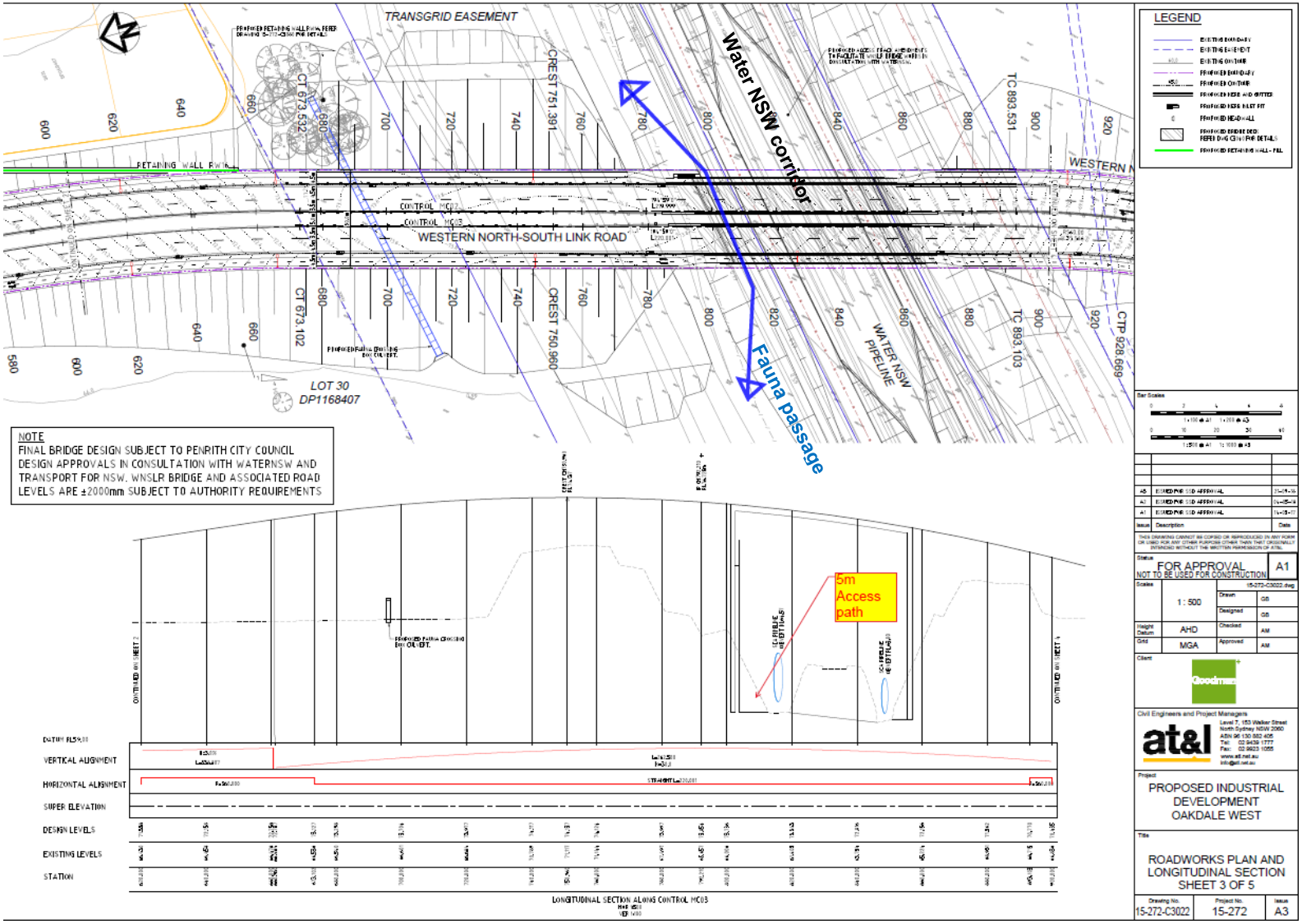


Figure 10: Fauna Passage under WNSLR

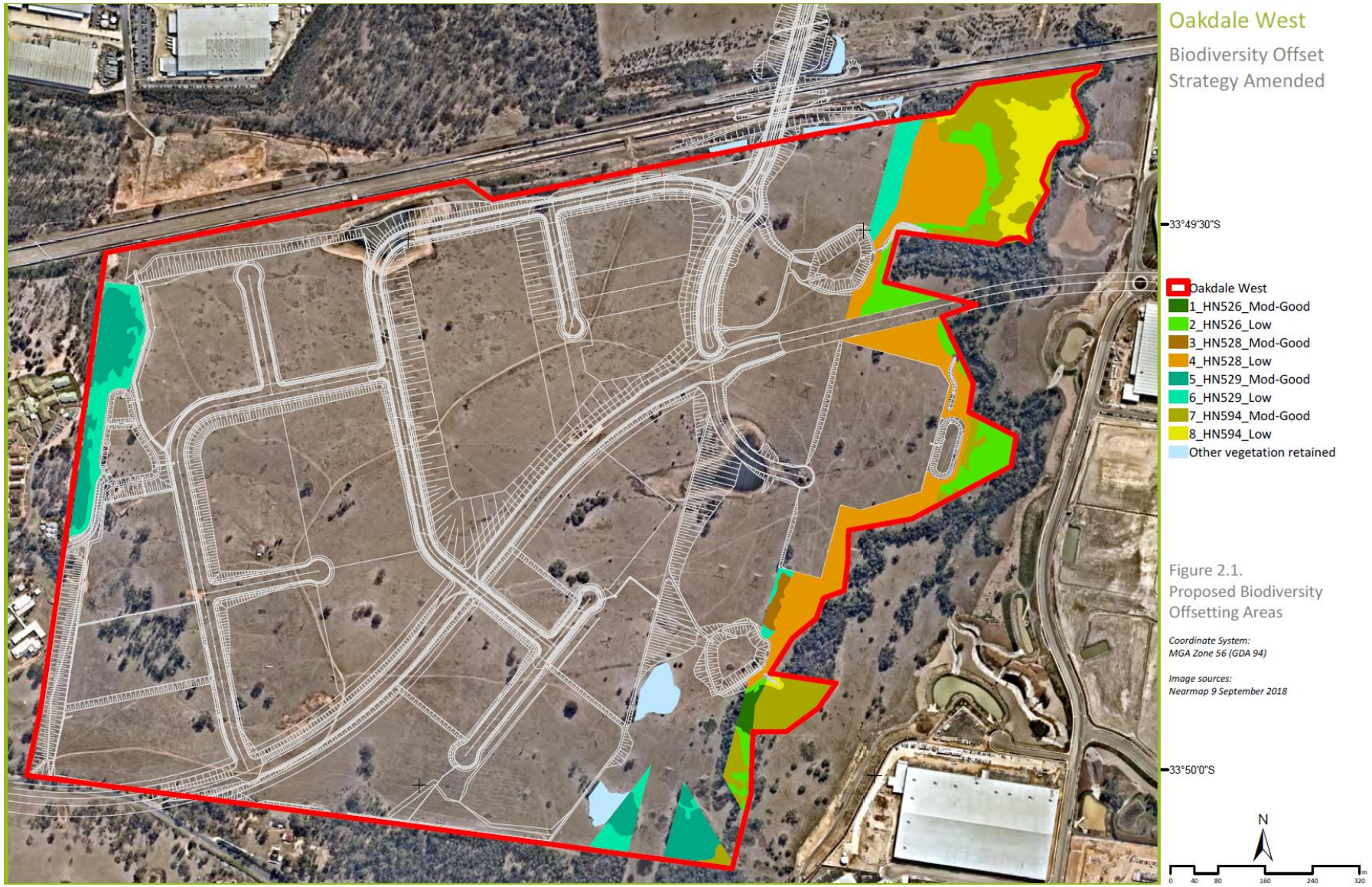


Figure 11: Offsets for Stage 1 - Biodiversity Offset Area

SUMMARY OF MITIGATION MEASURES

The collective measures required to mitigate the impacts associated with the proposed works are detailed in the table below.

Table 8: Applicant's Mitigation Measures

Issue	SSDA Component	Mitigation and Management
Construction Management		
General Construction Management	Stage 1 Development	• A CEMP to be prepared for the OWE Stage 1 Development capturing standard and specific management and mitigation measures as described in the SSDA, EIS and supporting technical documents.
Operational Management		
General Operational Management	Concept Proposal Stage 1 Precinct Development	• An OEMP to be prepared for the OWE capturing standard and specific operational management and mitigation measures as described in the SSDA, EIS and supporting technical documents.
Transport		
Construction Traffic	Stage 1 Development	• Preparation of a CTMP to form part of the CEMP addressing issues such as: – Truck haul routes, delivery schedules and curfews; – Protocols for the management of construction traffic moving onto and off the site.
Urban Design and Visual		
Site Layout and Design	Concept Proposal	• Future development of the OWE 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 OWE in the form of a DCP to guide future development on the site.
Visual Impact	Concept Proposal/Stage 1 Development	• Design and development controls to be established for the OWE in the form of a DCP to guide future development on the site. • Landscaping of key interfaces including the western boundary to minimise visual impact.
Soils and Water		
Water Usage	Stage 1 Development	• Rainwater tanks to be provided for each development site with size determined in accordance with Penrith Council DCP requirements. • Irrigation and toilet flushing for development to be plumbed to rainwater tanks. • Consideration to be given to other possible rainwater reuse opportunities such as for truck washing. • Measures and considerations for the minimisation of water use during construction and operation to be incorporated into CEMP and OEMP as relevant.

Issue	SSDA Component	Mitigation and Management
Soils	Stage 1 Development	• Mitigation measures inherent to the civil design of the proposal. • Sedimentation and erosion control measures are proposed as detailed in the Civil Design and Infrastructure Package and Traffic and Transport Impact Assessment.
Salinity	Stage 1 Development	• A Salinity Management Plan has been prepared for the proposed development. • Management measures described in the Salinity Management Plan to be adopted in the CEMP and OEMP as relevant.
Contamination	Stage 1 Development	• Identified areas of potential contamination to be subject to further investigation prior to the development of affected land.
Earthworks	Stage 1 Development	• Civil design achieves appropriate site levels with minimal impact upon hydrology. • Import of fill to be managed in accordance with CEMP. • Erosion and sediment controls included in the SSDA package.
Mineral Resources	Concept Proposal	• 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 OWE development.
Surface Water	Stage 1 Development	• Stormwater issues addressed through design measures incorporated into proposed development. • Stormwater management system designed to meet the requirements of Penrith Council's Engineering Works and WSUD guidelines and relevant NOW guidelines. • Detailed on-lot stormwater for future stages of the OWE to be designed and assessed under future applications.
Groundwater	Stage 1 Development	• Methods and management of any required dewatering required during construction works to be detailed in the CEMP.
Flooding	Stage 1 Development	• 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. • OSD designed to mitigate post-development flows to pre-development flows for peak ARI events. • Finished floor levels to have minimum 500mm freeboard to 100-year overland flows. • 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 included in the SSDA package.
Water Quality	Stage 1 Development	• Erosion and sediment controls as detailed in SSDA package to be implemented through CEMP. • Stormwater to be treated to compliant levels prior to discharge. • Gross Pollutant Trap (GPT) to be installed within each development site on the final downstream stormwater pit prior to discharge.

Issue	SSDA Component	Mitigation and Management

		• WSUD measures adopted to achieve target reductions for the OWE:
		  85% Total Suspended Solids
		  60% Total Phosphorus
		  45% Total Nitrogen
		  90% Gross Pollutants

Infrastructure		
Capacity and Upgrades	Concept Proposal	• 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.
Delivery and Staging	Concept Proposal/Stage 1 Development	• 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. • Staging of development of the OWE would be aligned with infrastructure and services delivery.
TransGrid Easement	Concept Proposal/Stage 1 Development	• Further consultation would be undertaken with TransGrid in relation to potential impacts and required mitigation.
Other Environmental Issues		
Flora and Fauna	Concept Proposal Stage 1 Development	• Implementation of the Biodiversity Offset Strategy for the site. • Preparation of a Flora and Fauna Management Plan for the site to inform the CEMP and OEMP as relevant to manage potential impacts to biodiversity during construction and operation. • Retained areas of native vegetation, including the Ropes Creek riparian corridor, will be rehabilitated and/or restored and conserved in perpetuity under a Biodiversity Stewardship Agreement to be entered into with the Biodiversity Conservation Trust. • Other areas of the site including road batters, embankments and bio-retention basins will be planted with native plant species and turf species as specified in the Landscape Planting Schedule. • Ongoing maintenance and management of these areas in accordance with the provisions of both the Biodiversity Management Action Plan and Landscape Management Plan.
Waterways and Riparian Lands		• Restoration and ongoing management of Ropes riparian corridor to be in accordance with the Biodiversity Management Action Plan

APPENDIX 8 INCIDENT NOTIFICATION AND REPORTING REQUIREMENTS

WRITTEN INCIDENT NOTIFICATION REQUIREMENTS

1. A written incident notification addressing the requirements set out below must be emailed to the Department at the following address: compliance@planning.nsw.gov.au within seven days after the Applicant becomes aware of an incident. Notification is required to be given under this condition even if the Applicant fails to give the notification required under Condition D135 or, having given such notification, subsequently forms the view that an incident has not occurred.
2. Written notification of an incident must:
   a. identify the development and application number;
   b. provide details of the incident (date, time, location, a brief description of what occurred and why it is classified as an incident);
   c. identify how the incident was detected;
   d. identify when the Applicant became aware of the incident;
   e. identify any actual or potential non-compliance with conditions of consent;
   f. describe what immediate steps were taken in relation to the incident;
   g. identify further action(s) that will be taken in relation to the incident; and
   h. identify a project contact for further communication regarding the incident.

INCIDENT REPORT REQUIREMENTS

3. Within 30 days of the date on which the incident occurred or as otherwise agreed to by the Planning Secretary, the Applicant must provide the Planning Secretary and any relevant public authorities (as determined by the Planning Secretary) with a detailed report on the incident addressing all requirements below, and such further reports as may be requested.
4. The Incident Report must include:
   a. a summary of the incident;
   b. outcomes of an incident investigation, including identification of the cause of the incident;
   c. details of the corrective and preventative actions that have been, or will be, implemented to address the incident and prevent recurrence; and
   d. details of any communication with other stakeholders regarding the incident.

Modification of Development Consent

Section 4.55(1A) of the *Environmental Planning and Assessment Act 1979*

As delegate of the Minister for Planning and Public Spaces, I approve the modification of the development consent referred to in Schedule 1, subject to the conditions in Schedule 2.

Chris Ritchie
Director
Industry Assessments

Sydney 26 MARCH 2020

SCHEDULE 1

Application Number:	SSD 7348
Applicant:	Goodman Property Services (Aust) Pty Ltd
Consent Authority:	Minister for Planning and Public Spaces
Site:	Lot 1 DP 663937, Lot 2 DP 1215268, Lot 6 DP 229784, Lot 2 DP 84578, Lot 3 DP 85393 and Lot 11 DP 1178389 2 Aldington Road, Kemps Creek NSW 2178
Development:	A Concept Proposal including: • concept layout of 22 warehouse buildings inclusive of dock offices and ancillary offices providing 476,000 square metres of gross lettable area, built over five development stages; • concept layout of development lots, internal roads, drainage, landscaping, noise walls, basins and biodiversity offsets; and • development controls A Stage 1 Development including: • bulk earthworks across all five stages including retaining walls and noise walls; • lead in services including but not limited to drainage, power, sewer, water and telecommunications; • service infrastructure to Precinct 1, including drainage, power, sewer, water and telecommunications; • construction and operation of three warehouse buildings inclusive of dock offices and ancillary offices in Precinct 1 (1A, 1B and 1C) providing 118,000 square metres of gross lettable area;

- Western North-South Link Road and associated subdivision, basins and drainage;
- estate roads 1, 2 and 6 and eastern part of road 7;
- landscaping of Stage 1, the western boundary, Western North-South Link Road, estate roads 1, 2 and 6 and the eastern part of road 7, detention basins and the amenity lot
- subdivision of Stage 1 lots and road infrastructure including the services (substation) lot;
- stormwater drainage infrastructure for Lots 2A and 2B and all basins;
- temporary works to facilitate construction including but not limited to swales, haul road (construction access), landscaping and basins; and
- works including construction of traffic signals at Lenore Drive/Grady Crescent/WNSLR intersection.

Date of Original Consent: 13 September 2019

Modification: SSD 7348 MOD 1 - Modifications to the concept plan and Stage 1 development, including changes to building pad level of Precinct 2, bio-retention basins and biodiversity offset strategy.

SCHEDULE 2

This consent is modified as follows:

In Definitions:

1. Delete the definition for Development, and replace with:

Development The development described in the EIS and RtS, including construction and operation of 22 warehouse buildings, offices and associated infrastructure, as modified by the conditions of this consent, as shown on the plans in **Appendix 1**, **Appendix 2** and **Appendix 3** and as modified by SSD 7348 MOD 1.

2. Insert the following definition in alphabetical order:

SSD 7348 MOD 1 The section 4.55(1A) modification application prepared by Goodman Property Services (Aust) Pty Ltd titled 'Section 4.55(1A) Modification Application (SSD 7348 MOD 1) Oakdale West Estate – Amendments to Concept Plan and Stage 1 development', dated 16 December 2019.

In Schedule B:

3. Delete condition B5 and replace with the following:

B5. The Applicant shall carry out the Concept Proposal in accordance with:

(a) the EIS and RtS;

(b) the plans in **Appendix 1** and **Appendix 2**;

(c) SSD 7348 MOD 1; and

(d) the Applicant's Management and Mitigation Measures in **Appendix 7**.

In Schedule D:

4. Delete Condition D2 and replace with the following:

D2. Stage 1 of the Development may only be carried out:

(a) in compliance with the conditions of this consent;

(b) in accordance with all written directions of the Planning Secretary;

(c) in accordance with the EIS and RTS;

(d) in accordance with the plans in **Appendix 2** and **Appendix 3**;

(e) in accordance with SSD 7348 MOD 1; and

(f) in accordance with the Applicant's Management and Mitigation Measures in **Appendix 7**.

5. Delete Condition D35(c)(ii) and replace with the following:

D35. Prior to the commencement of construction of Stage 1, the Applicant must prepare a Landscape Management Plan (LMP), to the satisfaction of the Planning Secretary. The plan must form part of the CEMP in accordance with Condition D119 and the OEMP in accordance with Condition D130 and must:

(c) include visual impact mitigation measures for construction including but not limited to:

(ii) the contractor shall employ the use of a dust supressing polymer agent with a green tint to reduce the visual impact of the exposed building pads and to assist in reducing the dust generated on site.

6. Insert 'Terrestrial and Aquatic' in Condition D88 and delete Condition D88(c) and replace with the following:

D88. The Applicant must prepare a Terrestrial and Aquatic Flora and Fauna Management Plan (FFMP) for Stage 1, to the satisfaction of the Planning Secretary. The Plan must form part of a CEMP in accordance with Condition D119 and must:

(c) include procedures for clearing, marking and protecting the areas of vegetation to be retained on the Site, including the mature vegetation in the north-western corner and the Riparian Corridor adjacent to Ropes Creek in accordance with the Vegetation Management Plan (VMP) prepared under Condition D91;

7. Delete '172' and '4.41' in Condition D90 and insert 173 and 4.38 as follows:

D90. Within 12 months of the date of this development consent, or as otherwise agreed with the Planning Secretary, the Applicant must retire 173 ecosystem credits to offset the removal of 4.38 hectares of native vegetation on the Site.

8. Delete Condition D91 and Condition D92.

9. Insert new Condition D91 and heading as follows:

Vegetation Management Plan

D91. Within 12 months of the date of the approval of MOD 1, or as otherwise agreed with the Planning Secretary, the Applicant must prepare and implement a VMP for the restoration and rehabilitation of 4.2 ha of Riparian Corridor adjacent to Ropes Creek to meet the objectives of the *Water Management Act 2000*.

In the Appendices

10. In Appendix 1, delete the schedule of approved drawings and replace with the following schedule:

Architectural Plans prepared by SBA Architects		
Drawing	**Title**	**Date**
OAK MP 02 (AWD)	SSDA Estate Masterplan	24 February 2020
OAK MP 03 (X)	Western North South Link Road	21 Sept 2018
OAK MP 07 (U)	Indicative Ultimate Lot Layout	21 Sept 2018
OAK MP 13 (S)	Fire Protection Plan	21 Sept 2018
OAK MP 14 (Y)	Biodiversity Management Plan	21 Sept 2018

Landscape Plans prepared by Site Image Architects			
Drawing	**Title**	**Issue**	**Date**
LC-002	Landscape Concept Master Plan	H	19.06.2019
LC-003	Landscape Concept Master Plan	H	19.06.2019
LC-004	Vegetation Typologies	H	19.06.2019
LC-005	Vegetation Typologies	H	19.06.2019
LC-006	Vegetation Typologies – Indicative Species List and Reference Table	H	19.06.2019
LC-007	Typical Landscape Site Section	H	19.06.2019
LC-008	Street Tree Master Plan	G	11.10.2018
LC-009	Streetscape Typical Detail	H	19.06.2019
LC-010	Signage Landscape Treatment	H	19.06.2019
LC-011	Boundary Landscape Treatment Key Plan	G	11.10.2018
LC-012	Western Boundary Treatment Plan	G	11.10.2018
LC-013	Western Boundary Treatment Section A & B	H	19.06.2019
LC-014	Western Boundary Treatment Section C & D	H	19.06.2019
LC-015	Western Boundary Treatment Sections E & F	H	19.06.2019
LC-016	Southern Boundary Treatment Section G, H & I	H	19.06.2019
LC-017	Southern Boundary Treatment Sections J & K	H	19.06.2019

Civil Plans prepared by AT&L			
Drawing	**Title**	**Issue**	**Date**
15-272-C0000	Cover Sheet	A5	24-07-19
15-272-C0001	General Arrangement Master Plan	A8	19-02-20
15-272-C0002	Existing Site Plan	A6	24-07-19
15-272-C0003	Precinct Plan	A5	24-07-19
15-272-C0006	Cut/Fill Plan	A6	20-03-20
15-272-C0007	Stormwater Drainage Catchment Plan (Pre-Developed)	A5	24-07-19
15-272-C0008	Stormwater Drainage Catchment Plan (Developed)	A5	24-07-19
15-272-C0009	Erosion and Sediment Control Master Plan	A4	24-07-19
15-272-C0010	Typical Sections Sheet 1	A7	20-03-20
15-272-C0011	Typical Sections Sheet 2	A5	24-07-19
15-272-C0012	Typical Sections Sheet 3	A7	20-03-20
15-272-C0013	Typical Sections Sheet 4	A4	24-07-19

11. In Appendix 2, delete the schedule of approved drawings and replace with the following schedule:

Architectural Plans prepared by SBA Architects		
Drawing	**Title**	**Date**
OAK MP 04 (Z)	SSDA Stage 1 Development – Precinct 1	21 Sept 2018
OAK MP 05 (Z)	Precinct 1 Plan	21 Sept 2018
OAK MP 12 (12)	Signage Precinct 1 Plan	21 Sept 2018

Architectural Plans prepared by SBA Architects		
Building 1A plans prepared by SBA Architects		
OAK 1A DA 10 (H)	Site Plan/Floor Plan	04 May 2018
OAK 1A DA 11 (C)	Roof Plan	03 April 2017
OAK 1A DA 12 (C)	Office Plan – Ground Floor	06 Sept 2016
OAK 1A DA 13 (c)	Office Plan – First Floor	06 Sept 2016
OAK 1A DA 14 (C)	Elevations Office	06 Sept 2016
OAK 1A DA 15 (C)	Elevations 1A	03 April 2017
OAK 1A DA 16 (D)	Sections	4 May 2018
Building 1B plans prepared by SBA Architects		
OAK 1B DA 20 (F)	Site Plan/Floor Plan	17 April 2018
OAK 1B DA 21 (C)	Roof Plan	06 Sept 2016
OAK 1B DA 22 (B)	Office Plan	06 Sept 2016
OAK 1B DA 24 (B)	Elevations Office	06 Sept 2016
OAK 1B DA 25(B)	Elevations 1B	06 Sept 2016
OAK 1B DA 26 (B)	Sections	06 Sept 2016
Building 1C plans prepared by SBA Architects		
OAK 1C DA 30 (H)	Site Plan/Floor Plan	17 April 2018
OAK 1C DA 31 (C)	Roof Plan	03 April 2017
OAK 1C DA 32 (B)	Office Plan – Ground Floor	06 Sept 2016
OAK 1C DA 33 (B)	Office Plan – First Floor	06 Sept 2016
OAK 1C DA 34 (B)	Elevations Office	06 Sept 2016
OAK 1C DA 35 (C)	Elevations Sheet 1	03 April 2017
OAK 1C DA 36 (C)	Elevations Sheet 2	03 Sept 2017
OAK 1C DA 37 (C)	Sections	03 April 2017

Landscape Plans prepared by Site Image Landscape Architects			
Drawing	**Title**	**Issue**	**Date**
ELW-101	-	G	11.10.2018
ELW-102	-	G	11.10.2018
ELW-103	-	G	11.10.2018
ELW-104	-	G	11.10.2018
ELW-105	-	G	11.10.2018
ELW-106	-	G	11.10.2018
ELW-107	-	G	11.10.2018
ELW-108	-	G	11.10.2018
ELW-109	-	G	11.10.2018
ELW-110	-	G	11.10.2018
ELW-111	-	G	11.10.2018
ELW-112	-	G	11.10.2018
ELW-113	-	G	11.10.2018
ELW-114	-	G	11.10.2018
WNSLR-101	-	G	11.10.2018
WNSLR-102	-	G	11.10.2018
ELW-502	Plant Schedule	G	11.10.2018
OLW-001	Precinct 1 Landscape Plan	G	11.10.2018
OLW-501	Planting Palette	G	11-10-2018

Civil Plans prepared by AT&L			
Drawing	**Title**	**Issue**	**Date**
15-272-C0004	Stage 1 SSD Approval Extents Sheet 1 of 2	A7	24-07-19
15-272-C0005	Stage 1 SSD Approval Extents Sheet 2 of 2	A6	24-07-19

Civil Plans prepared by AT&L			
15-272-C0020	Western North-South Link Road General Arrangement Plan	A5	24-07-19
15-272-C0021	Western North-South Link Road Stormwater Drainage Catchment Plan (Pre-Developed)	A5	24-07-19
15-272-C0022	Western North-South Link Road Stormwater Drainage Catchment Plan (Developed)	A5	19-07-19
15-272-C0023	Western North-South Link Road Proposed Land Acquisition Plan	A8	24-07-19
15-272-C1000	Cover Sheet	A6	24-07-19
15-272-C1001	Drawing List	A6	24-07-19
15-272-C1002	General Notes	A6	24-07-19
15-272-C1003	Precinct General Arrangement Plan	A8	24-07-19
15-272-C1004	Typical Site Sections Sheet 1 of 6	A8	20-03-20
15-272-C1005	Typical Site Sections Sheet 2 of 6	A6	24-07-19
15-272-C1006	Typical Site Sections Sheet 3 of 6	A8	20-03-20
15-272-C1007	Typical Site Sections Sheet 4 of 6	A5	24-07-19
15-272-C1008	Typical Site Sections Sheet 5 of 6	A6	20-03-20
15-272-C1009	Typical Site Sections Sheet 6 of 6	A7	20-03-20
15-272-C1010	Typical Road Sections	A5	24-07-19
15-272-C1011	Contour Plan	A6	20-03-20
15-272-C1014	Bulk Earthworks Cut/Fill Plan	A7	20-03-20
15-272-C1015	Earthworks and Stormwater Drainage Plan Sheet 1 of 20	A5	24-07-19
15-272-C1016	Earthworks and Stormwater Drainage Plan Sheet 2 of 20	A5	24-07-19
15-272-C1017	Earthworks and Stormwater Drainage Plan Sheet 3 of 20	A5	24-07-19
15-272-C1018	Earthworks and Stormwater Drainage Plan Sheet 4 of 20	A5	24-07-19
15-272-C1019	Earthworks and Stormwater Drainage Plan Sheet 5 of 20	A5	24-07-19
15-272-C1020	Earthworks and Stormwater Drainage Plan Sheet 6 of 20	A5	24-07-19
15-272-C1021	Earthworks and Stormwater Drainage Plan Sheet 7 of 20	A5	24-07-19
15-272-C1022	Earthworks and Stormwater Drainage Plan Sheet 8 of 20	A5	24-07-19
15-272-C1023	Earthworks and Stormwater Drainage Plan Sheet 9 of 20	A5	24-07-19
15-272-C1024	Earthworks and Stormwater Drainage Plan Sheet 10 of 20	A5	24-07-19
15-272-C1025	Earthworks and Stormwater Drainage Plan Sheet 11 of 20	A5	24-07-19
15-272-C1026	Earthworks and Stormwater Drainage Plan Sheet 12 of 20	A5	24-07-19
15-272-C1027	Earthworks and Stormwater Drainage Plan Sheet 13 of 20	A5	24-07-19
15-272-C1028	Earthworks and Stormwater Drainage Plan Sheet 14 of 20	A5	24-07-19
15-272-C1029	Earthworks and Stormwater Drainage Plan Sheet 15 of 20	A6	24-07-19

Civil Plans prepared by AT&L			
15-272-C1030	Earthworks and Stormwater Drainage Plan Sheet 16 of 20	A5	24-07-19
15-272-C1031	Earthworks and Stormwater Drainage Plan Sheet 17 of 20	A5	24-07-19
15-272-C1032	Earthworks and Stormwater Drainage Plan Sheet 18 of 20	A5	24-07-19
15-272-C1033	Earthworks and Stormwater Drainage Plan Sheet 19 of 20	A5	24-07-19
15-272-C1034	Earthworks and Stormwater Drainage Plan Sheet 20 of 20	A5	24-07-19
15-272-C1040	Roadworks and Stormwater Drainage Plan Sheet 1 of 10	A5	24-07-19
15-272-C1041	Roadworks and Stormwater Drainage Plan Sheet 2 of 10	A5	24-07-19
15-272-C1042	Roadworks and Stormwater Drainage Plan Sheet 3 of 10	A5	24-07-19
15-272-C1043	Roadworks and Stormwater Drainage Plan Sheet 4 of 10	A5	24-07-19
15-272-C1044	Roadworks and Stormwater Drainage Plan Sheet 5 of 10	A5	24-07-19
15-272-C1045	Roadworks and Stormwater Drainage Plan Sheet 6 of 10	A5	24-07-19
15-272-C1046	Roadworks and Stormwater Drainage Plan Sheet 7 of 10	A5	24-07-19
15-272-C1047	Roadworks and Stormwater Drainage Plan Sheet 8 of 10	A5	24-07-19
15-272-C1048	Roadworks and Stormwater Drainage Plan Sheet 9 of 10	A4	24-07-19
15-272-C1049	Roadworks and Stormwater Drainage Plan Sheet 10 of 10	A4	24-07-19
15-272-C1050	Road and Longitudinal Sections Sheet 1 of 5	A5	24-07-19
15-272-C1051	Road and Longitudinal Sections Sheet 2 of 5	A5	24-07-19
15-272-C1052	Road and Longitudinal Sections Sheet 3 of 5	A5	24-07-19
15-272-C1053	Road and Longitudinal Sections Sheet 4 of 5	A5	24-07-19
15-272-C1054	Road and Longitudinal Sections Sheet 5 of 5	A5	24-07-19
15-272-C1058	Western Boundary Layout and Sections	A5	20-03-20
15-272-C1059	Southern Boundary Layout and Sections	A4	24-07-19
15-272-C1062	Bio-Retention Basin 2 and 3 Detail Plan Sheet 1 of 2	A5	24-07-19
15-272-C1063	Bio-Retention Basin 2 and 3 Detail Plan Sheet 2 of 2	A4	24-07-19
15-272-C1064	Bio-Retention Basin 4 Detail Plan Sheet 1 of 2	A3	24-07-19
15-272-C1065	Bio-Retention Basin 4 Detail Plan Sheet 2 of 2	A5	24-07-19
15-272-C1066	Bio-Retention Basin 5 Detail Plan	A5	24-07-19
15-272-C1068	Stormwater Drainage Catchment Plan (Pre-developed)	A4	24-07-19
15-272-C1069	Stormwater Drainage Catchment Plan (Post-developed)	A4	24-07-19
15-272-C1070	Retaining Wall General Arrangement Plan	A6	24-07-19
15-272-C1071	Retaining Wall Profiles Sheet 1 of 7	A5	24-07-19
15-272-C1072	Retaining Wall Profiles Sheet 2 of 7	A5	24-07-19
15-272-C1073	Retaining Wall Profiles Sheet 3 of 7	A5	24-07-19
15-272-C1074	Retaining Wall Profiles Sheet 4 of 7	A5	24-07-19
15-272-C1075	Retaining Wall Profiles Sheet 5 of 7	A6	20-03-20

Civil Plans prepared by AT&L			
15-272-C1076	Retaining Wall Profiles Sheet 6 of 7	A5	24-07-19
15-272-C1077	Retaining Wall Profiles Sheet 7 of 7	A3	21-09-18
12-272-C1080	Stage 1 Services and Utilities Coordination Plan Sheet 1 of 6	A5	24-07-19
12-272-C1081	Stage 1 Services and Utilities Coordination Plan Sheet 2 of 6	A5	24-07-19
12-272-C1082	Stage 1 Services and Utilities Coordination Plan Sheet 3 of 6	A5	24-07-19
12-272-C1083	Stage 1 Services and Utilities Coordination Plan Sheet 4 of 6	A5	24-07-19
12-272-C1084	Stage 1 Services and Utilities Coordination Plan Sheet 5 of 6	A5	24-07-19
12-272-C1085	Stage 1 Services and Utilities Coordination Plan Sheet 6 of 6	A5	24-07-19
12-272-C1086	Existing Transgrid Overhead Electrical Cables Plan	A5	24-07-19
12-272-C1087	Existing Transgrid Overhead Electrical Cables and Longitudinal Sections	A5	24-07-19
12-272-C1088	Existing Transgrid Overhead Electrical Cables Typical Sections Sheet 1 of 2	A5	24-07-19
12-272-C1089	Existing Transgrid Overhead Electrical Cables Typical Sections Sheet 2 of 2	A5	24-07-19
12-272-C1090	Erosion and Sediment Control Plan Sheet 1 of 7	A5	24-07-19
12-272-C1091	Erosion and Sediment Control Plan Sheet 2 of 7	A5	24-07-19
12-272-C1092	Erosion and Sediment Control Plan Sheet 3 of 7	A5	24-07-19
12-272-C1093	Erosion and Sediment Control Plan Sheet 4 of 7	A5	24-07-19
12-272-C1094	Erosion and Sediment Control Plan Sheet 5 of 7	A5	24-07-19
12-272-C1095	Erosion and Sediment Control Plan Sheet 6 of 7	A5	24-07-19
12-272-C1096	Erosion and Sediment Control Plan Sheet 7 of 7	A5	24-07-19
12-272-C1097	Erosion and Sediment Control Details	A4	24-07-19
15-272-C2003	General Arrangement Plan	A3	21-09-18
15-272-C2010	Siteworks and Stormwater Drainage Plan Sheet 1 of 15	A3	21-09-18
15-272-C2011	Siteworks and Stormwater Drainage Plan Sheet 2 of 15	A3	21-09-18
15-272-C2012	Siteworks and Stormwater Drainage Plan Sheet 3 of 15	A3	21-09-18
15-272-C2013	Siteworks and Stormwater Drainage Plan Sheet 4 of 15	A3	21-09-18
15-272-C2014	Siteworks and Stormwater Drainage Plan Sheet 5 of 15	A3	21-09-18
15-272-C2015	Siteworks and Stormwater Drainage Plan Sheet 6 of 15	A3	21-09-18
15-272-C2016	Siteworks and Stormwater Drainage Plan Sheet 7 of 15	A3	21-09-18
15-272-C2017	Siteworks and Stormwater Drainage Plan Sheet 8 of 15	A3	21-09-18
15-272-C2018	Siteworks and Stormwater Drainage Plan Sheet 9 of 15	A3	21-09-18
15-272-C2019	Siteworks and Stormwater Drainage Plan Sheet 10 of 15	A3	21-09-18
15-272-C2020	Siteworks and Stormwater Drainage Plan Sheet 11 of 15	A3	21-09-18

Civil Plans prepared by AT&L			
15-272-C2021	Siteworks and Stormwater Drainage Plan Sheet 12 of 15	A3	21-09-18
15-272-C2022	Siteworks and Stormwater Drainage Plan Sheet 13 of 15	A3	21-09-18
15-272-C2023	Siteworks and Stormwater Drainage Plan Sheet 14 of 15	A3	21-09-18
15-272-C2024	Siteworks and Stormwater Drainage Plan Sheet 15 of 15	A3	21-09-18
15-272-C2030	Pavement Plan	A3	21-09-18
15-272-C3003	General Arrangement Plan	A3	21-09-18
15-272-C3010	Typical Road Sections	A3	21-09-18
15-272-C3020	Roadworks Plan and Longitudinal Section Sheet 1 of 5	A3	21-09-18
15-272-C3021	Roadworks Plan and Longitudinal Section Sheet 2 of 5	A3	21-09-18
15-272-C3022	Roadworks Plan and Longitudinal Section Sheet 3 of 5	A3	21-09-18
15-272-C3023	Roadworks Plan and Longitudinal Section Sheet 4 of 5	A3	21-09-18
15-272-C3024	Roadworks Plan and Longitudinal Section Sheet 5 of 5	A3	21-09-18
15-272-C3030	Road Longitudinal Sections	A3	21-09-18
15-272-C3040	Bridge Elevation and Typical Section	A4	04-10-18
15-272-C3050	Stormwater Drainage Plan Sheet 1 of 5	A3	21-09-18
15-272-C3051	Stormwater Drainage Plan Sheet 2 of 5	A3	21-09-18
15-272-C3052	Stormwater Drainage Plan Sheet 3 of 5	A3	21-09-18
15-272-C3053	Stormwater Drainage Plan Sheet 4 of 5	A3	21-09-18
15-272-C3054	Stormwater Drainage Plan Sheet 5 of 5	A3	21-09-18
15-272-C3058	Stormwater Drainage Catchment Plan (Post-Developed)	A2	21-09-18
15-272-C3060	Bio-Retention Basin NO. 1 Detail Plan	A3	21-09-18
15-272-C3070	Pavement Plan Sheet 1 of 5	A3	21-09-18
15-272-C3071	Pavement Plan Sheet 2 of 5	A3	21-09-18
15-272-C3072	Pavement Plan Sheet 3 of 5	A3	21-09-18
15-272-C3073	Pavement Plan Sheet 4 of 5	A3	21-09-18
15-272-C3074	Pavement Plan Sheet 5 of 5	A2	21-09-18
15-272-C3080	Retaining Wall Plan and Elevation	A1	21-09-18
15-272-C3081	Retaining Wall Sections Sheet 1 of 4	A1	21-09-18
15-272-C3082	Retaining Wall Sections Sheet 2 of 4	A1	21-09-18
15-272-C3083	Retaining Wall Sections Sheet 3 of 4	A1	21-09-18
15-272-C3084	Retaining Wall Sections Sheet 4 of 4	A1	21-09-18

12. In Appendix 7, delete Table 8 and replace with the following table:

Table 8: Applicant's Mitigation Measures

Issue	SSDA Component	Mitigation and Management
Construction Management		
General Construction Management	Stage 1 Development	• A CEMP to be prepared for the OWE Stage 1 Development capturing standard and specific management and mitigation measures as described in the SSDA, EIS and supporting technical documents.
Operational Management		
General Operational Management	Concept Proposal Stage 1 Precinct Development	• An OEMP to be prepared for the OWE capturing standard and specific operational management and mitigation measures as described in the SSDA, EIS and supporting technical documents.
Transport		
Construction Traffic	Stage 1 Development	• Preparation of a CTMP to form part of the CEMP addressing issues such as: – Truck haul routes, delivery schedules and curfews; – Protocols for the management of construction traffic moving onto and off the site.
Urban Design and Visual		
Site Layout and Desigr	Concept Proposal	• Future development of the OWE 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 OWE in the form of a DCP to guide future development on the site.
Visual Impact	Concept Proposal/Stage 1 Development	• Design and development controls to be established for the OWE in the form of a DCP to guide future development on the site. • Landscaping of key interfaces including the western boundary to minimise visual impact.
Soils and Water		
Water Usage	Stage 1 Development	• Rainwater tanks to be provided for each development site with size determined in accordance with Penrith Council DCP requirements. • Irrigation and toilet flushing for development to be plumbed to rainwater tanks. • Consideration to be given to other possible rainwater reuse opportunities such as for truck washing. • Measures and considerations for the minimisation of water use during construction and operation to be incorporated into CEMP and OEMP as relevant.

Issue	SSDA Component	Mitigation and Management
Soils	Stage 1 Development	• Mitigation measures inherent to the civil design of the proposal. • Sedimentation and erosion control measures are proposed as detailed in the Civil Design and Infrastructure Package and Traffic and Transport Impact Assessment.
Salinity	Stage 1 Development	• A Salinity Management Plan has been prepared for the proposed development. • Management measures described in the Salinity Management Plan to be adopted in the CEMP and OEMP as relevant.
Contamination	Stage 1 Development	• Identified areas of potential contamination to be subject to further investigation prior to the development of affected land.
Earthworks	Stage 1 Development	• Civil design achieves appropriate site levels with minimal impact upon hydrology. • Import of fill to be managed in accordance with CEMP. • Erosion and sediment controls included in the SSDA package.
Mineral Resources	Concept Proposal	• 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 OWE development.
Surface Water	Stage 1 Development	• Stormwater issues addressed through design measures incorporated into proposed development. • Stormwater management system designed to meet the requirements of Penrith Council's Engineering Works and WSUD guidelines and relevant NOW guidelines. • Detailed on-lot stormwater for future stages of the OWE to be designed and assessed under future applications.
Groundwater	Stage 1 Development	• Methods and management of any required dewatering required during construction works to be detailed in the CEMP.

Issue	SSDA Component	Mitigation and Management
Flooding	Stage 1 Development	• 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. • OSD designed to mitigate post-development flows to pre-development flows for peak ARI events. • Finished floor levels to have minimum 500mm freeboard to 100-year overland flows. • 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 included in the SSDA package.
Water Quality	Stage 1 Development	• Erosion and sediment controls as detailed in SSDA package to be implemented through CEMP. • Stormwater to be treated to compliant levels prior to discharge. • Gross Pollutant Trap (GPT) to be installed within each development site on the final downstream stormwater pit prior to discharge. • WSUD measures adopted to achieve target reductions for the OWE: □ 85% Total Suspended Solids □ 60% Total Phosphorus □ 45% Total Nitrogen □ 90% Gross Pollutants
Infrastructure		
Capacity and Upgrades	Concept Proposal	• 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, dated 1 November 2017; and Section 4.0 of MOD1 EIS, dated 9 December 2019.
Delivery and Staging	Concept Proposal/Stage 1 Development	• 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, dated 1 November 2017; and Section 4.0 of MOD1 EIS, dated 9 December 2019. • Staging of development of the OWE would be aligned with infrastructure and services delivery.
TransGrid Easement	Concept Proposal/Stage 1 Development	• Further consultation would be undertaken with TransGrid in relation to potential impacts and required mitigation.
Other Environmental Issues		

Issue	SSDA Component	Mitigation and Management
Flora and Fauna	Concept Proposal Stage 1 Development	• Implementation of the Biodiversity Offset Strategy for the site. • Preparation of a Flora and Fauna Management Plan for the site to inform the CEMP and OEMP as relevant to manage potential impacts to biodiversity during construction and operation. • Retained areas of native vegetation, including the Ropes Creek riparian corridor, will be rehabilitated and/or restored and conserved in perpetuity under a Biodiversity Stewardship Agreement to be entered into with the Biodiversity Conservation Trust. • Other areas of the site including road batters, embankments and bio-retention basins will be planted with native plant species and turf species as specified in the Landscape Planting Schedule. • Ongoing maintenance and management of these areas in accordance with the provisions of both the Biodiversity Management Action Plan and Landscape Management Plan.
Waterways and Riparian Lands		• Restoration and ongoing management of Ropes riparian corridor to be in accordance with the Biodiversity Management Action Plan

End of modification

(SSD 7348 MOD 1)

Modification of Development Consent

Section 4.55(2) of the *Environmental Planning and Assessment Act 1979*

As delegate of the Minister for Planning and Public Spaces, under delegation executed on 9 March 2020, I approve the modification of the development consent referred to in Schedule 1, subject to the conditions in Schedule 2.

Anthea Sargeant
Executive Director
Regions, Industry and Key Sites

Sydney 21/4/2020

SCHEDULE 1

Applicant Number:	SSD 7348
Applicant:	Goodman Property Services (Aust) Pty Ltd
Consent Authority:	Minister for Planning and Public Spaces
Site	Lot 1 DP 663937, Lot 2 DP 1215268, Lot 6 DP 229784, Lot 2 DP 84578, Lot 3 DP 85393 and Lot 11 DP 1178389 2 Aldington Road, Kemps Creek NSW 2178
For the following:	A Concept Proposal including: • concept layout of 22 warehouse buildings inclusive of dock offices and ancillary offices providing 476,000 square metres of gross lettable area, built over five development stages; • concept layout of development lots, internal roads, drainage, landscaping, noise walls, basins and biodiversity offsets; and • development controls A Stage 1 Development including: • bulk earthworks across all five stages including retaining walls and noise walls; • lead in services including but not limited to drainage, power, sewer, water and telecommunications; • service infrastructure to Precinct 1, including drainage, power, sewer, water and telecommunications; • construction and operation of three warehouse buildings inclusive of dock offices and ancillary offices in Precinct 1 (1A, 1B and 1C) providing 118,000 square metres of gross lettable area; • Western North-South Link Road and associated subdivision, basins and drainage; • estate roads 1, 2 and 6 and eastern part of road 7; • landscaping of Stage 1, the western boundary, Western North-South Link Road, estate roads 1, 2 and 6 and the eastern part of road 7, detention

basins and the amenity lot subdivision of Stage 1 lots and road infrastructure including the services (substation) lot;
- stormwater drainage infrastructure for Lots 2A and 2B and all basins;
- temporary works to facilitate construction including but not limited to swales, haul road (construction access), landscaping and basins; and
- works including construction of traffic signals at Lenore Drive/Grady Crescent/WNSLR intersection.

Date of Original Consent: 13 September 2019

Modification: SSD 7348 MOD 2 – Modifications to Concept Proposal and Stage 1 DA

SCHEDULE 2

This consent is modified as follows:

In Definitions:

1. Delete the definition for Development, and replace with:

Development	The development described in the EIS and RtS, including construction and operation of 22 warehouse buildings, offices and associated infrastructure, as modified by the conditions of this consent, as shown on the plans in Appendix 1, Appendix 2 and Appendix 3 and as modified by SSD 7348 MOD 1, SSD 7348 MOD 2, SSD 7348 MOD 3 and SSD 7348 MOD 4.

2. Insert the following definition in alphabetical order:

Building 1A	Warehouse building 1A including high-bay (39 metres) and low-bay (28 metres) components, located on Lot 1A as described in the EIS and RtS for MOD 2
SSD 7348 MOD 2	The section 4.55(2) modification application prepared by Goodman Property Services (Aust) Pty Ltd titled 'Section 4.55(2) Modification Applicant (SSD 7348 MOD 2) Oakdale West Estate – Amendments to Concept Plan and Stage 1 Development', dated 12 December 2019.

In Schedule B: Conditions for the Concept Proposal

3. Replace Table 1 in Condition B9 as follows:

Table 1: *GLA Maximum for Concept Proposal*

Land Use	Maximum GLA square metres (m^2)
Total Warehousing	529,101
Total Office	23,374
Other	4,349
Total GLA	**556,824**

4. Insert the following Note after Table 1 in Condition B9 as follows:

Note: Other includes but is not limited to the skybridge, gatehouse, dangerous goods store and energy complex in Building 1A.

5. Insert Condition B9(g) after Condition B9(f) as follows:

B9(g) all traffic associated with operation of the Development shall use the West North South Link Road, and the future SLR, to access the site and shall not use Bakers Lane or Aldington Road.

6. Insert the additional text into the row titled “Height” in Table 2 in Condition B10 as follows:

Table 1: *Development Controls*

	Development Aspect	Control
-	Building 1A	39 m

7. Insert the following words into Condition B11, after the words “no warehouse building in the Concept Proposal”:

B11. except Building 1A in Precinct 1,

8. Insert a new row in Table 3 in Condition B18 as follows:

Table 2: *Noise Limits dB(A)*

Location	Day	Evening	Night	
	$L_{Aeq\ (15\ minute)}$	$L_{Aeq\ (15\ minute)}$	$L_{Aeq\ (15\ minute)}$	L_{AMax}
All other non-associated residences	40[2]	35[2]	35[2]	52

9. Insert the following notes after Table 3 in Condition B18:

Notes:

1. *Noise generated by the development is to be measured in accordance with the relevant procedures and modifications, including certain meteorological conditions, of the Noise Policy for Industry (EPA, 2017). Refer to the plan in Appendix 2 for the location of residential sensitive receivers.*
2. *or background + 5 dB, whichever is higher.*

In Schedule D: Conditions for Stage 1

10. Insert new Condition D6(c) as follows:

D6(c) all construction traffic associated with the Stage 1 warehouse buildings (Buildings 1A, 1B and 1C) must use the West North South Link Road to access the site.

11. Replace Table 4 in Condition D6 as follows:

Table 3: *GLA Maximum for Stage 1*

Land Use	Maximum GLA (m^2)
Total Warehousing	81,286
Total Office	4,151
Other	4,004
Total GLA	**89,440**

12. Insert the following Note after Table 4 in Condition D6 as follows:

Note: Other includes but is not limited to the skybridge, gatehouse, dangerous goods store and energy complex in Building 1A.

13. Insert new Condition D43A as follows:

D43A Prior to construction of any signage for Stage 1, the Applicant must consult with Council on the final signage strategy and obtain approval of the final signage strategy from the Planning Secretary.

14. Insert new Condition D45A as follows:

D45A Prior to construction of Building 1A, the Applicant must submit a final architectural design for Building 1A detailing building articulation, colour schemes and signage. The Applicant must not commence construction of Building 1A until the final architectural design is approved by the Planning Secretary.

15. Insert the additional words in Condition D65(i) after the words 'construction traffic management approved under':

'MOD 2 and'

16. Replace Condition D69(b) with the following:

D69(b) parking for Stage 1 is provided in accordance with the EIS and RtS for MOD 2;

17. Insert new Condition D69A as follows:

Operational Traffic Management Plan

D69A The Applicant must prepare an Operational Traffic Management Plan (OTMP) for Stage 1. The OTMP must form part of the OEMP required by condition D130 and must:

(a) be prepared by a suitably qualified and experienced expert, in consultation with Council and TfNSW;

(b) detail the numbers and frequency of truck movements, sizes of trucks, vehicle routes and hours of operation;

(c) include measures to maintain road safety and network efficiency;

(d) detail measures to minimise traffic noise, including procedures for receiving and addressing complaints from the community about Stage 1 related traffic and noise;

(e) include a Driver's Code of Conduct that addresses:

(i) travelling speeds and adherence to site-specific speed limits;

(ii) procedures to ensure drivers adhere to designated heavy vehicle routes; and

(iii) procedures to ensure drivers implement safe driving practices.

18. Insert new Condition D69B as follows:

D69B The Applicant must:

(a) not commence operation of Stage 1 until the OTMP required by condition D69A is approved by the Planning Secretary; and

(b) implement the most recent version of the OTMP approved by the Planning Secretary for the duration of operation.

19. Insert new Condition D75(c)(v) after D75(b)(iv) as follows:

(v) include monitoring during the night-time to confirm the development complies with the sleep disturbance limits in Condition B18.

20. Insert new Condition D75(c) as follows:

Noise Barrier

D75(c) The Applicant must install the noise barrier as shown on Figure 7B in Appendix 5, no later than 31 October 2020, unless the noise barrier is installed in accordance with Condition D75(a).

21. Delete Condition D109 and replace it with new Condition D109 as follows:

D109. The storage of dangerous goods in Building 1A must not exceed the quantities provided in Table 6.

Table 6: *Maximum storage quantities of dangerous goods*

Class	Description	Packing Group	Quantity (kg)
1.4s	Explosives	n/a	20,000
2.1	Flammable gas (LPG)	n/a	7,500L /4125
2.1	Flammable Gas (LPG) – kitchen	n/a	450L / 247.5
2.1	Flammable gas (aerosols)	n/a	70,000*
2.2	Non-flammable, non-toxic gas (aerosols)	n/a	25,000
3	Flammable liquids	II & III	300,000
4.1	Flammable solids	III	24,000
5.1	Oxidising agents	III	25,000
6.1	Toxic substances	III	45,000
8	Corrosive substances	II & III	45,000
9	Miscellaneous Dangerous Goods	III	105,000

**This refers to the quantity of LPG within the aerosols and not the total package weight. The LPG content within the cannisters is typically around 25% of product weights.*

22. Insert new Condition D109(a) as follows:

Pre-construction

D109(a) The Applicant must prepare the studies set out under subsections (b) to (c) below (the pre-construction studies). Construction, other than of preliminary works that are outside the scope of the hazard studies, must not commence until study recommendations have been considered and, where appropriate, acted upon. The Applicant must submit the studies to the Planning Secretary no later than one month prior to the commencement of construction of Building 1A (other than preliminary works), or within such further period as the Planning Secretary may agree.

(b) A Fire Safety Study for Building 1A. This study must cover the relevant aspects of the Department of Planning's *Hazardous Industry Planning Advisory Paper No. 2, 'Fire Safety Study Guidelines'* and the New South Wales Government's *'Best Practice Guidelines for Contaminated Water Retention and Treatment Systems'*. The study must meet the requirements of Fire and Rescue NSW.

(c) A Final Hazard Analysis (FHA) of Building 1A, consistent with the Department of Planning's *Hazardous Industry Planning Advisory Paper No. 6, 'Hazard Analysis'*. The FHA must report:

- layout of dangerous goods storage area for specific dangerous goods classes;
- firewall and fire safety requirement between the dangerous goods storage and Energy Complex 2
- implementation of all recommendations of the Preliminary Hazard Analysis prepared by RiskCon Engineering dated 24 October 2019
- compliance with all relevant standards.

Pre-commissioning

(a) Prior to commissioning Building 1A, the Applicant must develop and implement the plans and systems set out under subsections (b) to (c) below. The Applicant must submit to the Planning Secretary documentation describing the plans and systems no later than two months prior to

the commencement of commissioning of Building 1A, or within such further period as the Planning Secretary may agree.

(b) A comprehensive Emergency Plan and detailed emergency procedures for Building 1A. This plan must include detailed procedures for the safety of all people outside of the project who may be at risk from the project. The plan must be consistent with the Department of Planning's *Hazardous Industry Planning Advisory Paper No. 1, 'Emergency Planning'*.

(c) A document setting out a comprehensive Safety Management System, covering all on-site operations and associated transport activities involving hazardous materials. The document must clearly specify all safety related procedures, responsibilities and policies, along with details of mechanisms for ensuring adherence to the procedures. The Safety Management System must be consistent with the Department of Planning's *Hazardous Industry Planning Advisory Paper No. 9, 'Safety Management'*. Records must be kept on-site and shall be available for inspection by the Planning Secretary upon request.

Post-startup

Hazard Audit

(a) Twelve months after the commencement of operation of Building 1A and every five years thereafter, or at such intervals as the Planning Secretary may agree, the Applicant must carry out a comprehensive Hazard Audit of Building 1A and within one month of each audit submit a report to the Planning Secretary.

The audits must be carried out at the Applicant's expense by a qualified person or team, independent of the development, and must be consistent with the Department of Planning's *Hazardous Industry Planning Advisory Paper No. 5*, '*Hazard Audit Guidelines*'.

23. Insert the following into Condition D131(c) after Condition D131(c)(iii):

(iv) Operational Traffic Management Plan (see Condition D69A)

In the Appendices

24. Delete Table 7 in Appendix 2 and replace it with the following:

The architectural, landscape and civil plans included in the RtS dated 25 March 2020.

25. Replace Figures 3, 4 and 5 in Appendix 2 with two new figures as follows:

Figure 3: Stage 1 DA Detail
Figure 4: Stage 1 Landscape Plan

26. Insert new Figure 7B in Appendix 5 as follows:

Figure 7B: Noise Receivers and Noise Wall Locations (MOD 2)

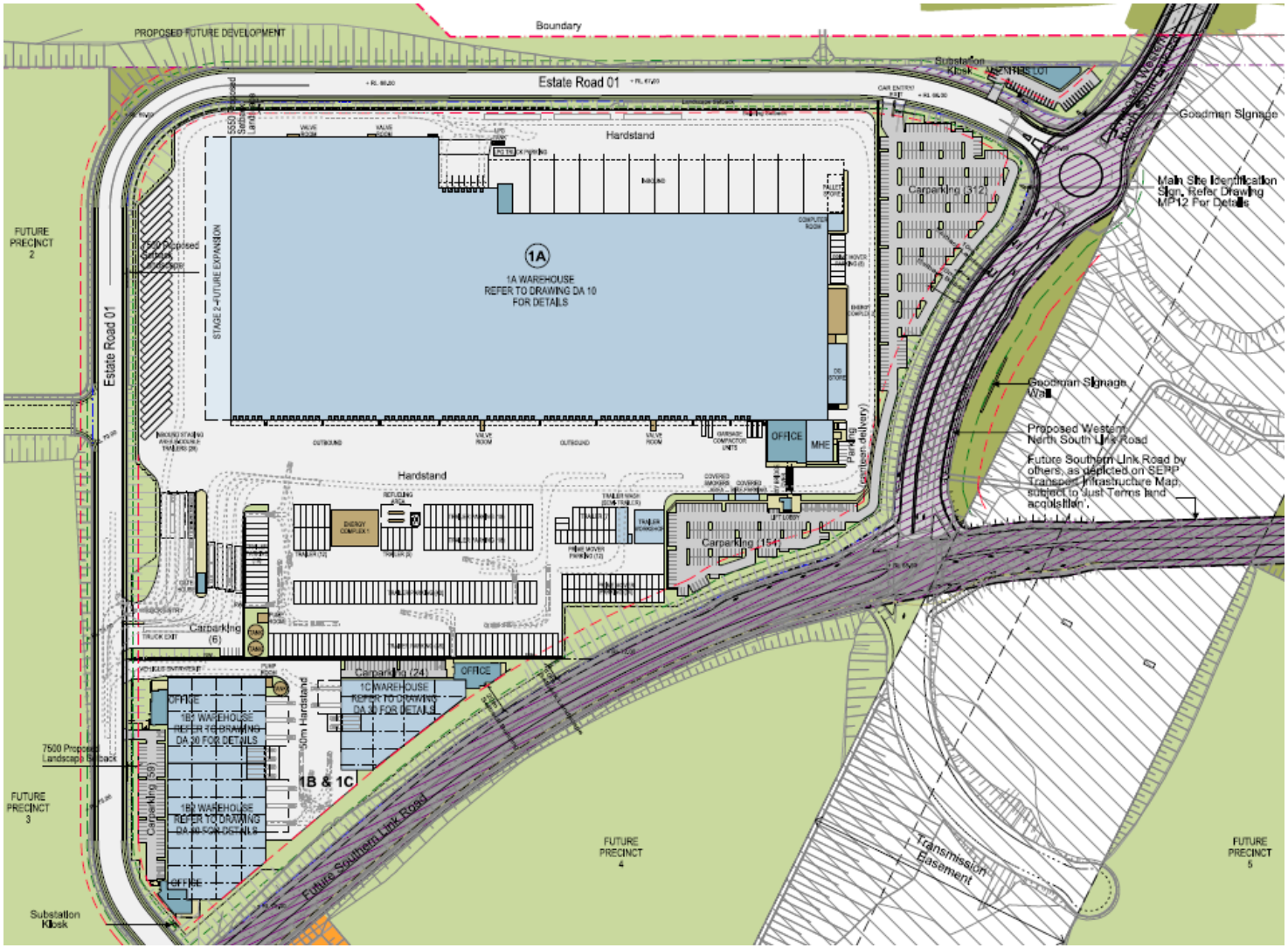


Figure 3: Stage 1 DA Layout

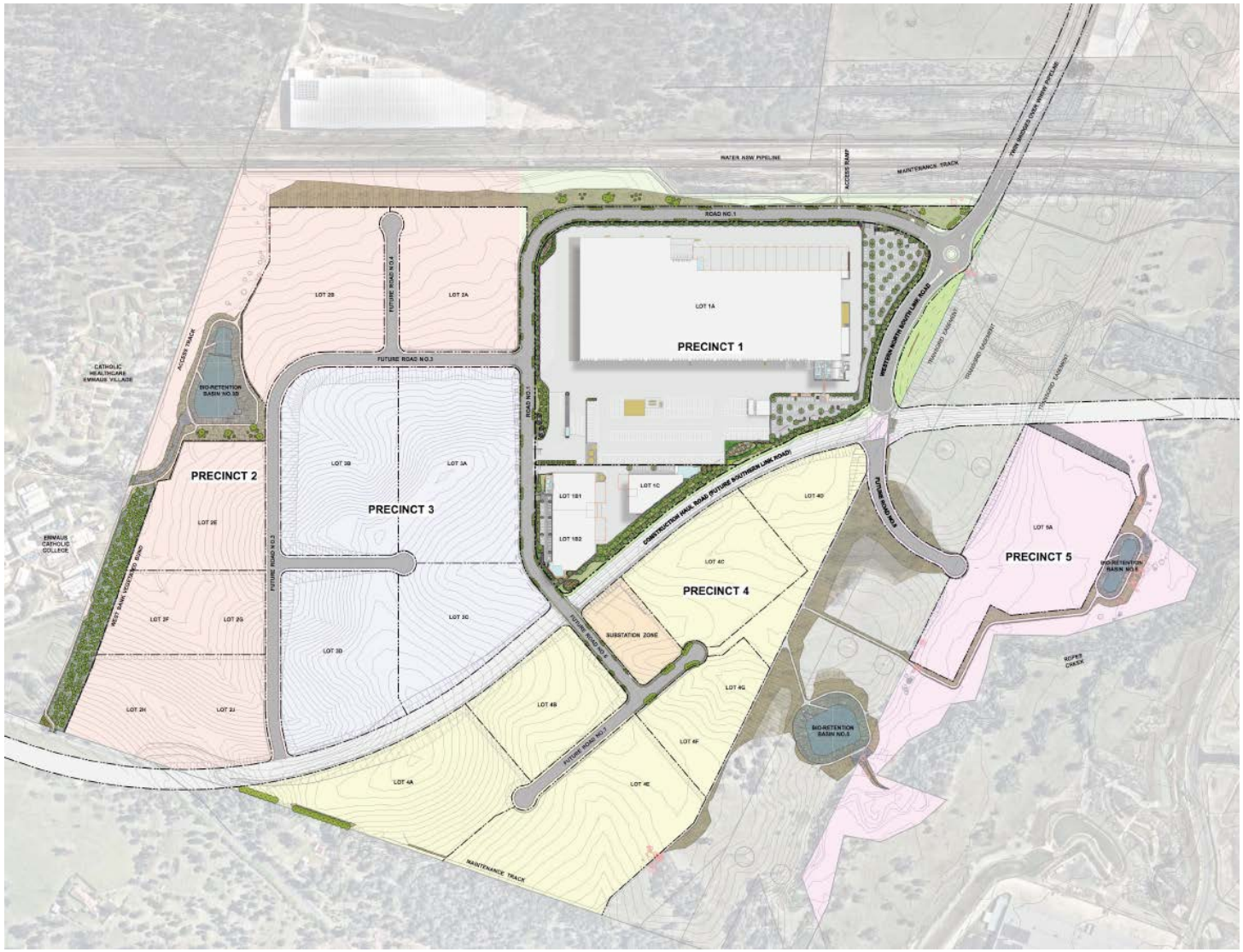


Figure 4: Stage 1 Landscape Plan

APPENDIX 5 NOISE RECEIVER LOCATIONS

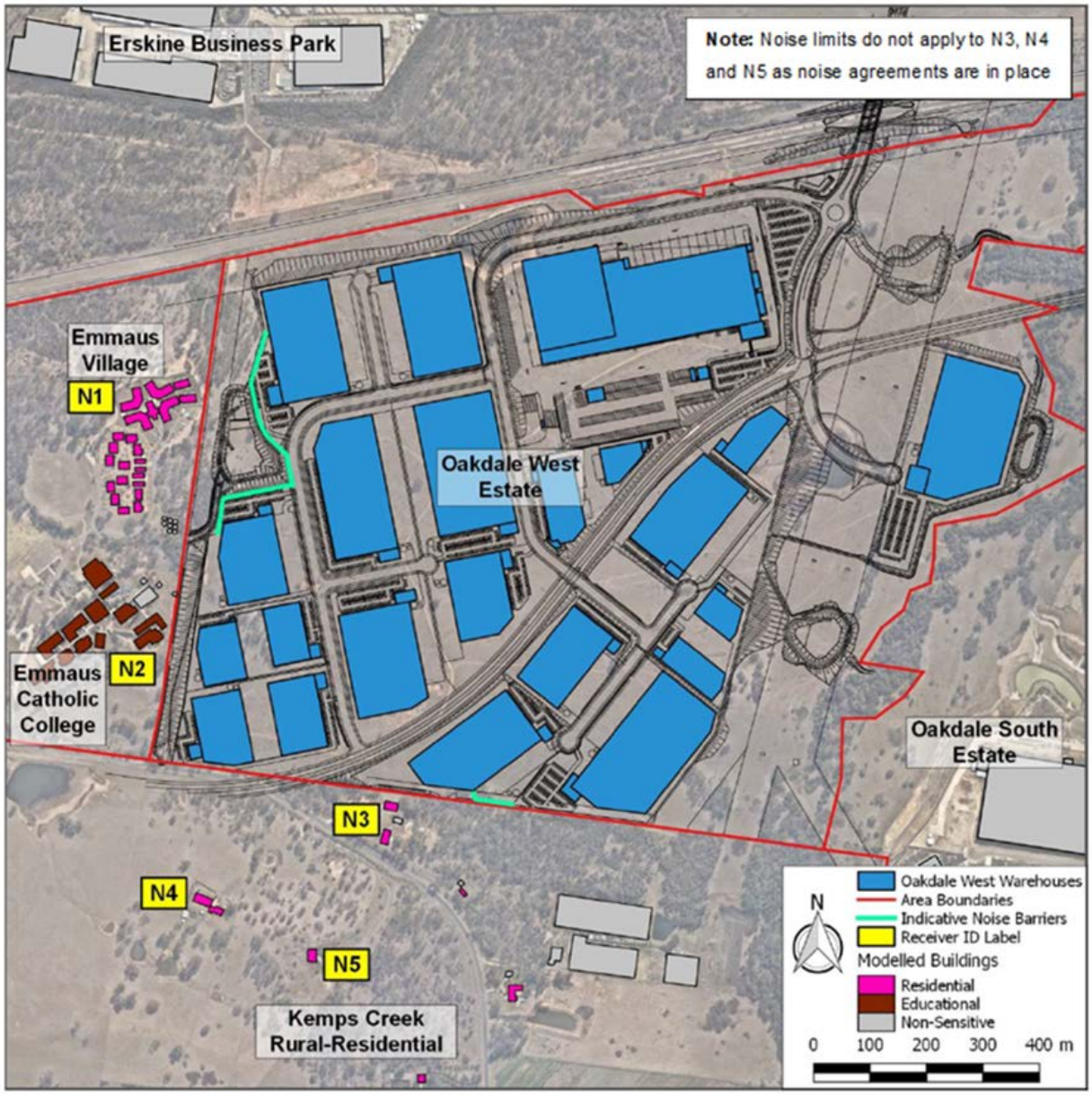


Figure 1B: Noise Receivers and Noise Wall Locations (MOD 2

Modification of Development Consent

Section 4.55(1A) of the *Environmental Planning and Assessment Act 1979*

As delegate for the Minister for Planning and Public Spaces, under delegation executed on 9 March 2020, 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
Regions, Industry and Key Sites

Sydney 3/4/2020 File: EF19/29682

SCHEDULE 1

Application Number:	SSD 7348
Applicant:	Goodman Property Services (Aust) Pty Ltd
Consent Authority:	Minister for Planning and Public Spaces
Site:	Lot 1 DP 663937, Lot 2 DP 1215268, Lot 6 DP 229784, Lot 2 DP 84578, Lot 3 DP 85393 and Lot 11 DP 1178389 2 Aldington Road, Kemp Creek NSW 2178
Development:	A Concept Proposal including: • concept layout of 22 warehouse buildings inclusive of dock offices and ancillary offices providing 476,000 square metres of gross lettable area, built over five development stages; • concept layout of development lots, internal roads, drainage, landscaping, noise walls, basins and biodiversity offsets; and • development controls A Stage 1 Development including: • bulk earthworks across all five stages including retaining walls and noise walls; • lead in services including but not limited to drainage, power, sewer, water and telecommunications; • service infrastructure to Precinct 1, including drainage, power, sewer, water and telecommunications; • construction and operation of three warehouse buildings inclusive of dock offices and ancillary offices in Precinct 1 (1A, 1B and 1C) providing 118,000 square metres of gross lettable area; • Western North-South Link Road and associated subdivision, basins and drainage; • estate roads 1, 2 and 6 and eastern part of road 7;

- landscaping of Stage 1, the western boundary, Western North-South Link Road, estate roads 1, 2 and 6 and the eastern part of road 7, detention basins and the amenity lot
- subdivision of Stage 1 lots and road infrastructure including the services (substation) lot;
- stormwater drainage infrastructure for Lots 2A and 2B and all basins;
- temporary works to facilitate construction including but not limited to swales, haul road (construction access), landscaping and basins;
- works including construction of traffic signals at Lenore Drive/Grady Crescent/WNSLR intersection.

Date of Original Consent: 13 September 2019

Modification: SSD 7348 MOD 3 – Modifications to Concept Proposal and Stage 1 DA

SCHEDULE 2

This consent is modified as follows:

In Definitions:

1. Delete the definition for Development, and replace with:

Development	The development described in the EIS and RtS, including construction and operation of 22 warehouse buildings, offices and associated infrastructure, as modified by the conditions of this consent, as shown on the plans in Appendix 1, Appendix 2 and Appendix 3 and as modified by SSD 7348 MOD 3.

2. Insert the following definition in alphabetical order:

SSD 7348 MOD 3	The section 4.55(1A) modification application prepared by Goodman Property Services (Aust) Pty Ltd titled 'Oakdale West Industrial Estate Concept Plan and Stage 1 Modification (MOD 3 SSD 7348)', January 2020.

In Schedule B: Conditions for the Concept Proposal

3. Delete the words "Lots 2E, 2F, 2G, 2H, 2J and 4A" in Condition B3 and replace with the following:

   B3. Lots 3A, 3B, 3C, 3D, 3E, 3F, 3G and 4A

4. Insert new Condition B5(d) after Condition B5(c) as follows:

   B5(d) modifications to this consent.

5. Delete the words "Lots 2E, 2F, 2G, 2H, 2J and 4A" in Condition B9(c) and replace with the following:

   B9. Lots 3A, 3B, 3C, 3D, 3E, 3F, 3G and 4A

6. Insert new Conditions B9(d), (e) and (f) after Condition B9(c) as follows:

   B9(d) any rooftop mechanical plant on buildings on Lots 2C, 2D, 2E, 3A, 3B, 3C, 3D, 3E, 4A, 4B and 4E are not to be operated during the night-time period;

   B9(e) forklifts are not to operate during the night-time period on Lots 2C, 2D, 2E, 3B, 3C, 3D, 3E, 4A, 4E and 5A; and

   B9(f) vehicles associated with the Development shall adhere to the following speed limits when using estate roads within the Development:

   i) 25 kilometres per hour for heavy vehicles; and
   ii) 40 kilometres per hour for light vehicles.

7. Delete Table 1 in Condition B9 and replace with the following:

Table 1: *GLA Maximum for Concept Proposal*

Land Use	Maximum GLA square metres (m^2)
Total Warehousing	533,670
Total Office	23,126
Total GLA	**556,796**

8. Insert the additional text into the row titled "Height" in Table 2 in Condition B10 as follows:

Table 2: *Development Controls*

Development Aspect	Control
- Building 2B	28 m

9. Insert the following words into Condition B11, after the words "no warehouse building in the Concept Proposal":

B11. except Building 2B in Precinct 2,

10. Delete Table 3 in Condition B18 and replace with new Table 3 as follows:

Table 3: *Noise Limits dB(A)*

Location	Day	Evening	Night	
	$L_{Aeq\ (15\ minute)}$	$L_{Aeq\ (15\ minute)}$	$L_{Aeq\ (15\ minute)}$	L_{AMax}
N1 Emmaus Village Residential	44	43	41	52
N3 Kemps Creek – nearest residential property	39	39	37	52
N4 & N5 Kemps Creek – other residences	39	39	37	52
N2 Emmaus Catholic College (school)	**When in use**: 35 (internal)			

11. Insert the following words into Condition B19, after the words "N3":

B19. N4 and N5

12. Insert the following words into Condition B20(b), after the words "dated September 2016":

B20(b). and updated 13 January 2020

In Schedule C: Conditions for Future Development Applications

13. Delete the words "lots 2E, 2F, 2G, 2H, 2J and 4A" in Condition C3 and replace with the following:

C3. lots 3A, 3B, 3C, 3D, 3E, 3F, 3G and 4A

14. Delete the words "lots 2E, 2F, 2G, 2H, 2J and 4A" in Condition C4 and replace with the following:

C4. lots 3A, 3B, 3C, 3D, 3E, 3F, 3G and 4A

15. Insert the following words in Condition C12(b) after the words "dated September 2016"

C12(b) and updated 13 January 2020

16. Delete the words "and 2B" from Condition C16.

In Schedule D: Conditions for Stage 1 DA

17. Insert new Condition D2(f) after Condition D2(e) as follows:

D2(f) in accordance with modifications to this consent.

18. Insert new Condition D35(i) after Condition D35(h) as follows:

D35(i) update the LMP to include modifications to the western bund, bio-retention basin 2/3 and the noise wall approved under MOD 3.

19. Insert new Condition D65(i) after Condition D65(h) as follows:

D65(i) update the CTMP to include modifications to construction traffic management approved under MOD 3.

20. Insert new Conditions D75(a) and D75(b) after Condition D75 as follows:

Noise Barrier

D75(a) The Applicant must install the noise barrier located on the western boundary, as shown on **Figure 7** in **Appendix 5**, to the satisfaction of the Planning Secretary. The noise barrier must be completed no later than 31 October 2020, unless otherwise agreed by the Planning Secretary.

Noise Verification

D75(b) Within three months of commencing operation of any buildings on the site, the Applicant must prepare a noise verification report, to the satisfaction of the Planning Secretary. The noise verification report must:

(i) be prepared by an appropriately qualified and experienced noise expert;
(ii) describe the noise monitoring undertaken to verify the effectiveness of the noise barrier;
(iii) demonstrate compliance with the noise limits in Condition B18; and
(iv) if required, recommend, prioritise and implement measures to improve noise controls to ensure the development meets the noise limits in Condition B18.

In the Appendices

21. Delete Table 6 in Appendix 1 and replace with the following:

The architectural, landscape and civil plans included in the RtS dated 25 March 2020.

22. Replace Figure 1 and Figure 2 in Appendix 1 with new figures as follows:

Figure 1: Concept Proposal Layout (MOD 3)

Figure 2: Staging Plan (MOD 3)

23. Replace Figure 7 in Appendix 5 with a new figure as shown in Appendix 5.

APPENDIX 1 CONCEPT PROPOSAL

The architectural, landscape and civil plans included in the RtS dated 25 March 2020.

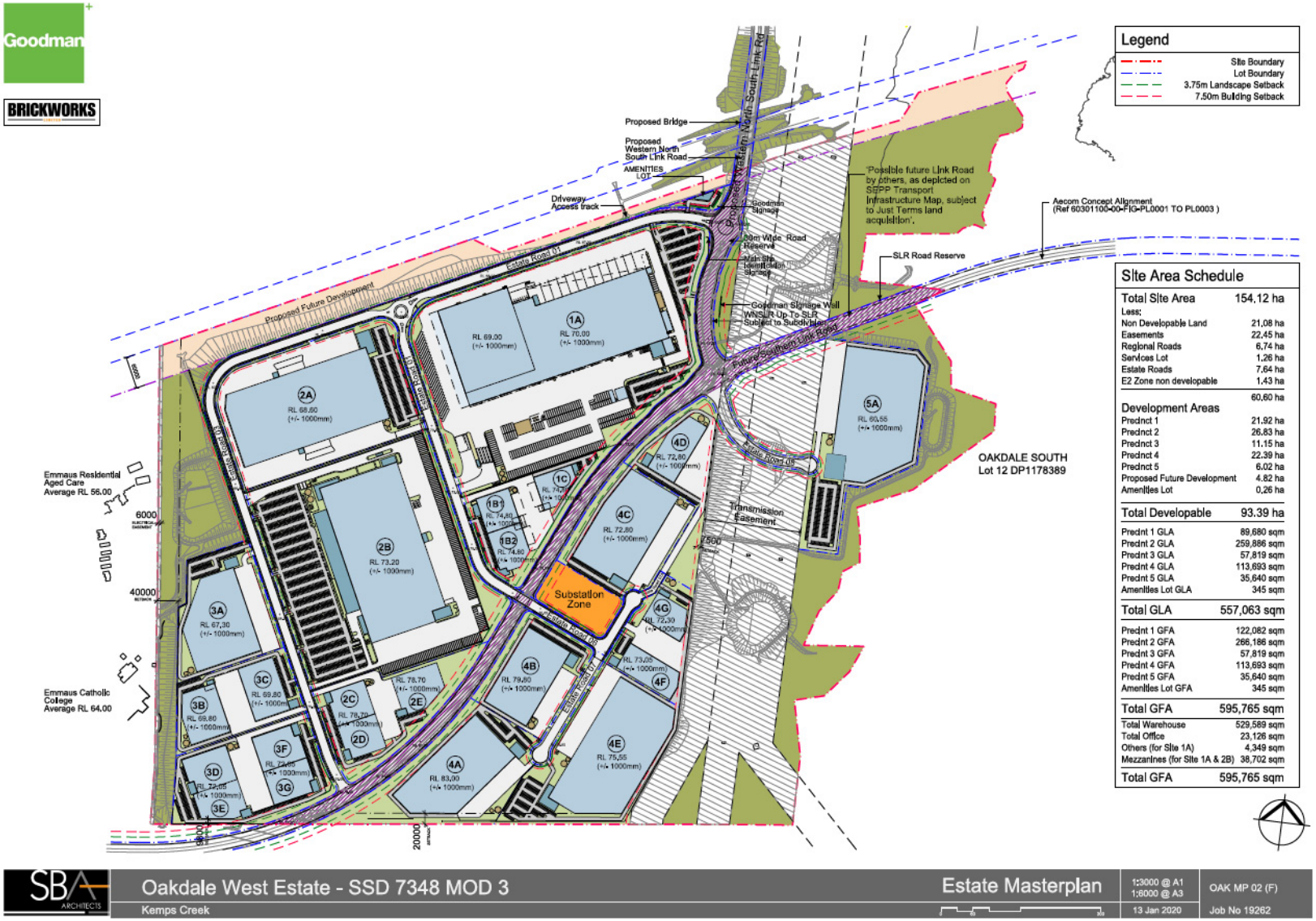


Figure 1: Concept Proposal Layout (MOD 3)

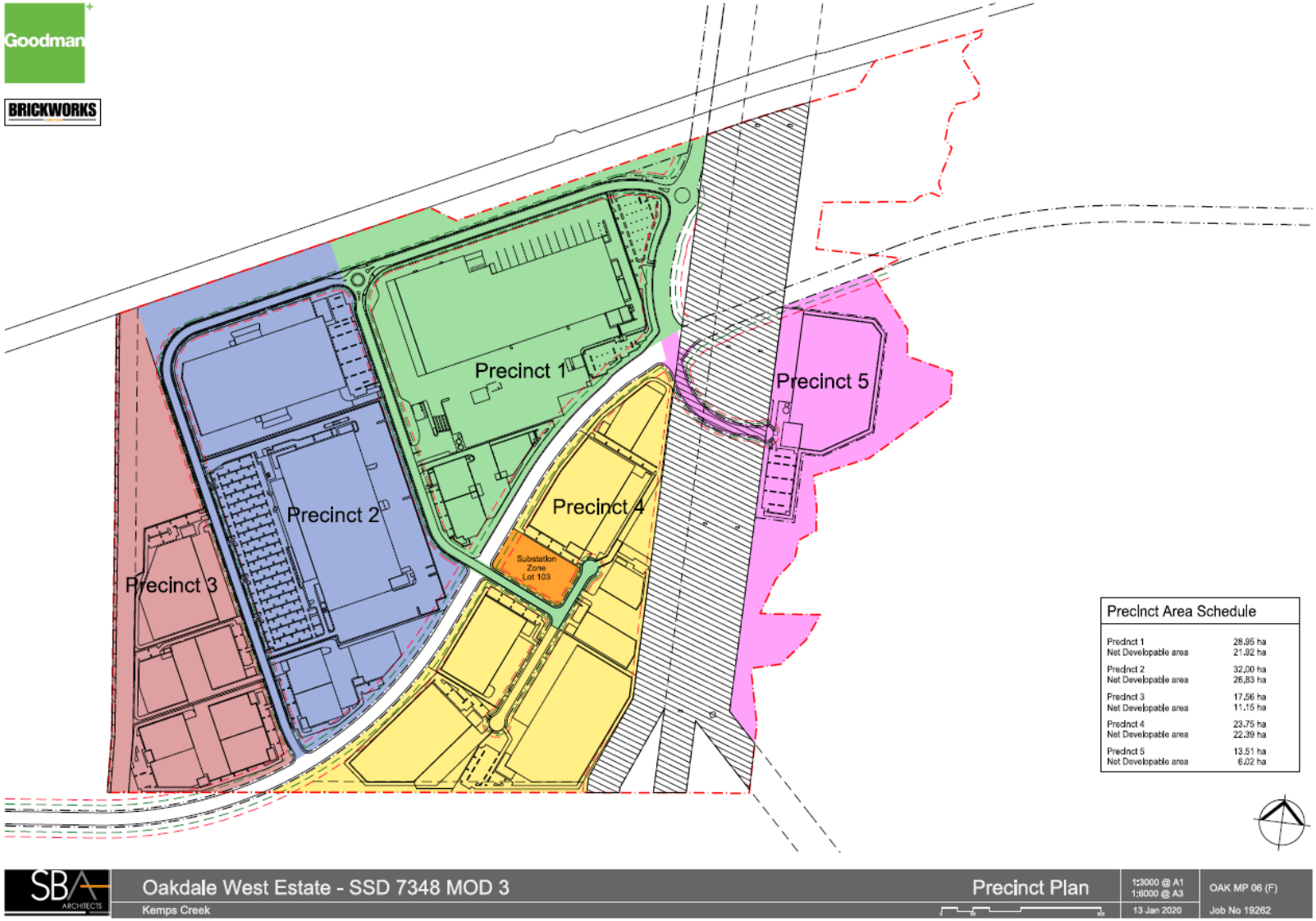


Figure 2: Staging Plan (MOD 3)

APPENDIX 5 NOISE RECEIVER LOCATIONS

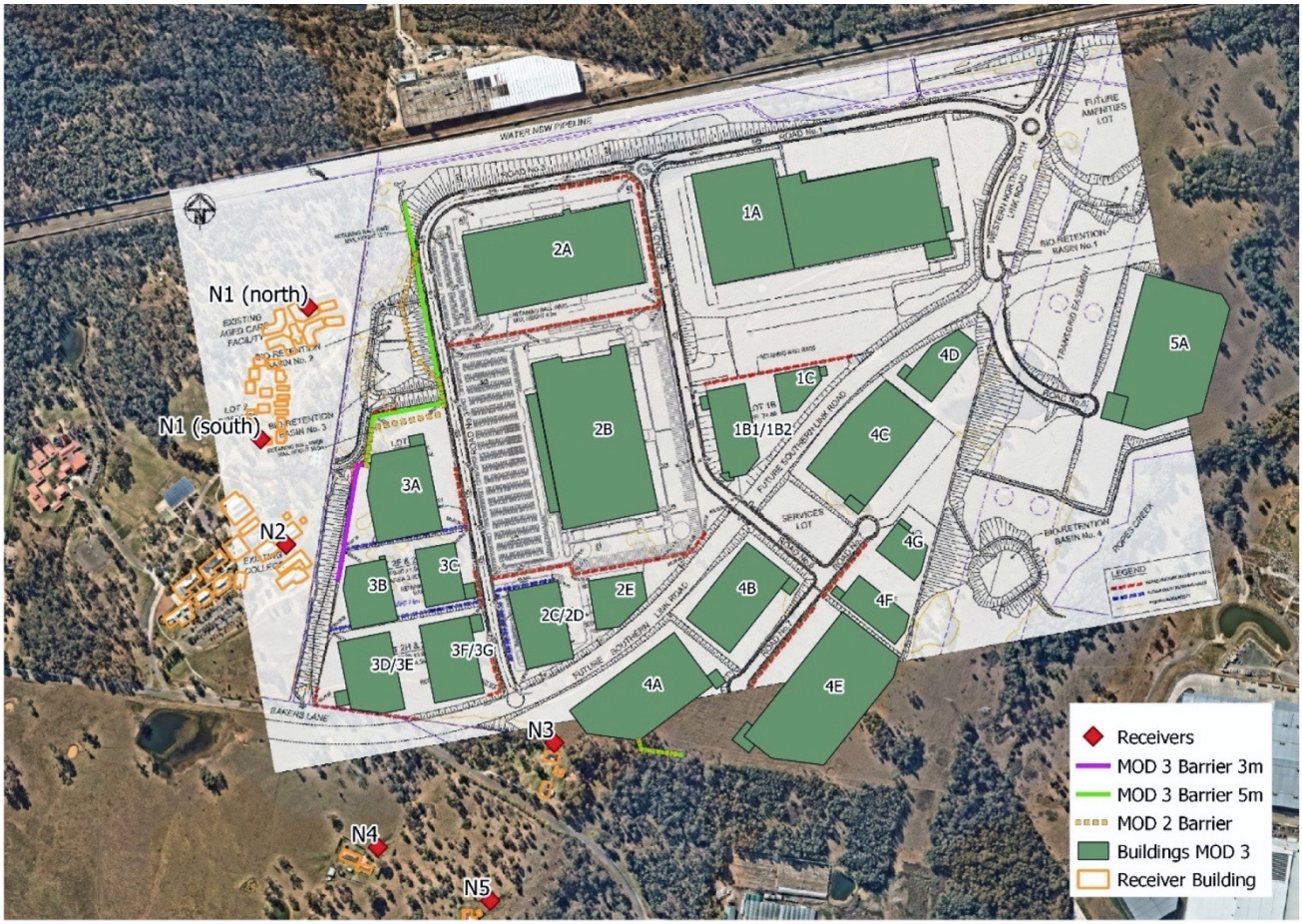


Figure 3: Noise Receivers and Noise Wall Locations

APPENDIX B

Erosion and Sediment Control Plans

Oakdale West Estate – Concept Erosion & Sediment Control Plan
Stage 1 – Topsoil stripping and enabling works.
Precinct 1 and 2

NOTES – General Construction Notes

1. This concept plan details the basic concept of erosion and sediment control for the project and is to be read in conjunction with the preliminary erosion and sediment control strategy and the project specific CEMP and other relevant procedures.
2. The staging of construction activities will aim to implement final controls where possible to be utilised during construction (i.e. drainage features, detention areas and basins).
3. The staging of activities will minimise exposure of disturbed surfaces at any one time and will implement permanent and temporary soil stabilisation measures (i.e. final landscape and vegetation areas), in minimising the duration of soil disturbance.
4. Local weather stations will be monitored daily (for excessive rainfall events, high wind periods and fire risk) as part of works planning with construction activities in high risk locations (i.e. drainage lines and riparian areas) scheduled for dry weather periods. Works shall be scheduled to consider predicted weather conditions.
5. The controls depicted are subject to staging and the controls may be progressively implemented or removed according to progression of works.
6. Staging of construction will be coordinated to reduce exposed areas and allow for implementation of erosion and sediment controls prior to significant disturbance activity.
7. Controls identified on the plan are indicative and will be revised for implementation on site as required. Alternative measures may be applied where the control may provide the same functionality for erosion and sediment control.
8. The plan is to be revised as necessary (i.e. progression of works, altered site controls etc.).
9. Temporary controls in addition to those shown may be required where extreme weather events are predicted or for extended site shut down periods (i.e. Christmas)
10. Erosion and sediment controls are to be constructed in accordance with `Blue Book' specifications and standard drawings as identified in the approved ESCP. Relevant guidelines include:
    - Managing Urban Stormwater: Soils and Construction, 4th Edition, Landcom, 2004;
    - Managing Urban Stormwater: Soils and Construction – Vol 2A Installation of Services, 2008;
    - Managing Urban Stormwater: Soils and Construction – Vol 2D Main Road Construction, 2008
11. Site personnel responsible for implementing erosion and sediment controls are to be appropriately trained in implementation and maintenance of control measures
12. Toolbox talks/ training sessions are to be provided to site personnel on the importance of erosion and sediment control, their individual requirements, specific project site controls to be implemented and required mitigation measures.

Vegetation Removal

13. Vegetation removal is limited to isolated trees and shrubs, this will be managed on an individual basis with the tree/shrub removed and the root base backfilled and compacted as required.
14. Vegetation in proximity to the riparian zone or Ropes Creek will be cut at the base with the root structure to remain in place until earthworks stage.

Sediment Basins

15. Sediment basin locations are indicated on the ESCP drawings.
16. Within 5 days of the conclusion of a rainfall event, sediment basins must be treated and approved capacity restored for the ongoing management of the site sediment yield. It is noted that some basins may be oversized to retain site water for construction purposes.

Stockpiling Activities

17. Topsoil will be stripped and stockpiled in accordance with Bluebook standard drawing SD 4-1. Topsoil may be used as direct placement wherever possible and viable.
18. Soils are to be segregated on site (i.e. topsoil, subsoil, contaminated material) to prevent cross contamination and to preserve soil structure and viability of topsoil for site use and management.
19. Stockpiling activities are to be undertaken in designated areas away from concentrated flows and drainage lines. Adequate controls (i.e. upslope diversions and downslope sediment controls) are to be implemented for all stockpile sites. Stockpiles are to be stabilised in accordance with the requirements of the Bluebook and covered in times of high winds.
20. Sediment fence installed on site is to be installed in accordance with standard drawing SD6-8.

Onsite Water Management

21. Site controls will include the diversion of 'clean' (off site water) away from work areas and minimise external water entering the project area. Where possible, final drainage infrastructure (i.e. stormwater pipes and culverts) will be constructed as early as practical to allow for clean water passage through the Project site.
22. Any water accumulating on site, either in depressions, basins or other controls, will be considered dirty water and will be managed in accordance with the project specific CEMP and the requirements for discharge criteria.
23. Where possible, site water will be reused on site for activities such as dust suppression and soil compaction.
24. Site water discharged from the Project will be compliant with CEMP criteria and will be undertaken at approved locations by appropriately trained site personnel. Water discharge is to be undertaken at non-erosive velocities with adequate diffusers, level spreaders, etc. and will ensure localised flooding does not occur.
25. On site water flows paths will be managed to reduce flow length (less than 80m) and minimise velocities likely to result in scour and erosion impacts. Long slope lengths will be divided with check dams, diversions, drop structures and batter chutes at regular intervals to manage high velocity flows.
26. Diversion drains and inlets are to be stabilised with erosion control products such as jute mesh, rock material, bitumen emulsion or soil binders for improved stabilisation.
27. Project basins are to be oversized to allow for retention of water to be used in construction activities and for dust suppression.
28. Stabilisation of areas is to occur progressively in conjunction with the completion of earthworks.

Monitoring & Reporting and Maintenance

29. Inspections of erosion and sediment controls will occur (and be documented) on a regular basis as detailed in the project CEMP. This will include immediately following rainfall events >10mm, with any necessary repairs implemented as soon as possible.
30. Sediment traps, sumps and filters are to be maintained in effective working order including desilting of sediment controls, stabilisation of drains and diversion structures and appropriate management of basins.
31. Erosion and sediment controls are to be maintained until the Project catchments area is stabilised to achieve soil surface protection factors as per the 'Bluebook' and CEMP requirements. An inspection by the project soil conservationist will be undertaken to verify the stabilisation of the project catchment area prior to removal of controls.

Project: Oakdale West Estate

Prepared for: Burton Contractors

Project Number:	**Drawing Number:**
PR102 – Oakdale West Estate	**ESCP-OWE-001**

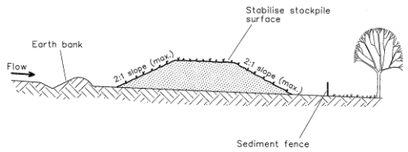
Author	Revision	Date	Comment
B. Cole	D1	30/07/2019	Initial Draft for PR102 – Oakdale West Estate
B. Cole	R1	06/08/2019	Updated with ER comments
B. Cole	R2	13/11/2019	Updated with comments on timing of future precinct plans

Oakdale West Estate – Concept Erosion & Sediment Control Plan
Stage 1 – Topsoil stripping and enabling works.
Precinct 1 and 2

Site area	Sub-catchment or Name of Structure						Notes
	OWE1	OWE2	OWE3	OWE4	OWE5	CPD1	
Total catchment area (ha)	10.5	17.1	14.25	27.7	4.64	3	
Disturbed catchment area (ha)	10.5	17.1	14.25	27.7	4.64	3	
Soil analysis (enter sediment type if known, or laboratory particle size data)							
Sediment Type (C, F or D) if known:	D	D	D	D	D	D	From Appendix C (if known)
% sand (fraction 0.02 to 2.00 mm)							Enter the percentage of each soil fraction. E.g. enter 10 for 10%
% silt (fraction 0.002 to 0.02 mm)							
% clay (fraction finer than 0.002 mm)							
Dispersion percentage							E.g. enter 10 for dispersion of 10%
% of whole soil dispersible							See Section 6.3.3(e). Auto-calculated
Soil Texture Group	D	D	D	D	D	D	Automatic calculation from above
Rainfall data							
Design rainfall depth (no of days)	5	5	5	5	5	5	See Section 6.3.4 and, particularly, Table 6.3 on pages 6-24 and 6-25.
Design rainfall depth (percentile)	85	85	85	85	85	85	
x-day, y-percentile rainfall event (mm)	32.2	32.2	32.2	32.2	32.2	32.2	
Rainfall R-factor (if known)	2500	2500	2500	2500	2500	2500	Only need to enter one or the other here
IFD: 2-year, 6-hour storm (if known)							
RUSLE Factors							
Rainfall erosivity (*R*-factor)	2500	2500	2500	2500	2500	2500	Auto-filled from above
Soil erodibility (*K*-factor)	0.05	0.05	0.05	0.05	0.05	0.05	RUSLE LS factor calculated for a high rill/interrill ratio.
Slope length (m)	80	80	80	80	80	80	
Slope gradient (%)	3	6	3	6	4	3	
Length/gradient (*LS*-factor)	0.65	1.47	0.65	1.47	0.91	0.65	
Erosion control practice (*P*-factor)	1.3	1.3	1.3	1.3	1.3	1.3	
Ground cover (*C*-factor)	1	1	1	1	1	1	
Sediment Basin Design Criteria (for Type D/F basins only. Leave blank for Type C basins)							
Storage (soil) zone design (no of months)	2	2	2	2	2	2	Minimum is generally 2 months
Cv (Volumetric runoff coefficient)	0.64	0.64	0.64	0.64	0.64	0.64	See Table F2, page F-4 in Appendix F
Calculations and Type D/F Sediment Basin Volumes							
Soil loss (t/ha/yr)	106	239	106	239	148	106	
Soil Loss Class	1	3	1	3	1	1	See Table 4.2, page 4-13
Soil loss (m^3/ha/yr)	81	184	81	184	114	81	Conversion to cubic metres
Sediment basin storage (soil) volume (m^3)	142	524	193	848	88	41	See Sections 6.3.4(i) for calculations
Sediment basin settling (water) volume (m^3)	2164	3524	2937	5708	956	618	See Sections 6.3.4(i) for calculations
Sediment basin total volume (m^3)	2306	4048	3130	6556	1044	659	

BASIN NUMBER	REQUIRED SIZING (m^3)	AS BUILT SIZING (m^3)	SETLEMENT CAPACITY (m3)	60% MAINTENANCE
OWE1	2306	TBA		
OWE2	4048	TBA		
OWE3	3130	TBA		
OWE4	6556	TBA		
OWE5	1044	TBA		
CPD1	659	TBA		

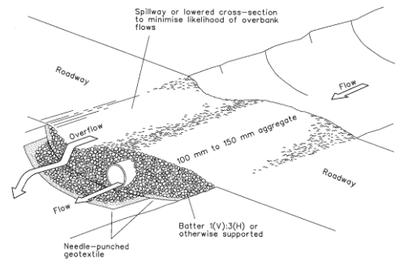
Oakdale West Estate – Concept Erosion & Sediment Control Plan
Stage 1 – Topsoil stripping and enabling works.
Precinct 1 and 2



Construction Notes

1. Place stockpiles more than 2 (preferably 5) metres from existing vegetation, concentrated water flow, roads and hazard areas.
2. Construct on the contour as low, flat, elongated mounds.
3. Where there is sufficient area, topsoil stockpiles shall be less than 2 metres in height.
4. Where they are to be in place for more than 10 days, stabilise following the approved ESCP or SWMP to reduce the C-factor to less than 0.10.
5. Construct earth banks (Standard Drawing 5-5) on the upslope side to divert water around stockpiles and sediment fences (Standard Drawing 6-8) 1 to 2 metres downslope.

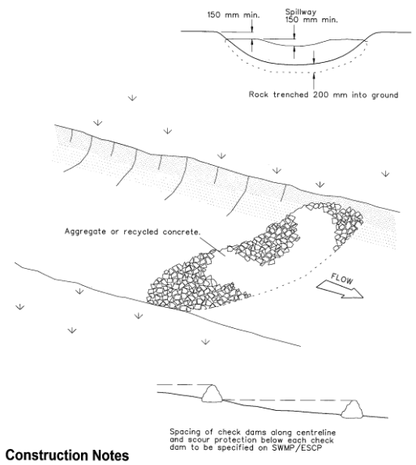
STOCKPILES **SD 4-1**



Construction Notes

1. Prohibit all traffic until the access way is constructed.
2. Strip any topsoil and place a needle-punched textile over the base of the crossing.
3. Place clean, rigid, non polluting aggregate or gravel in the 100 mm to 150 mm size class over the fabric to a minimum depth of 200 mm.
4. Provide a 3-metre wide carriageway with sufficient length of culvert pipe to allow less than a 3(H): 1 (V) slope on side batters.
5. Install a lower section to act as an emergency spillway in greater than design storm events.
6. Ensure that culvert outlets extend beyond the toe of fill embankments.

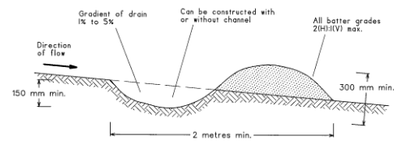
TEMPORARY WATERWAY CROSSING **SD 5-1**



Construction Notes

1. Check dams can be built with various materials, including rocks, logs, sandbags and straw bales. The maintenance program should ensure their integrity is retained, especially where constructed with straw bales. In the case of bales, this might require their replacement each two to four months.
2. Trench the check dam 200 mm into the ground across its whole width. Where rock is used, fill the trenches to at least 100 mm above the ground surface to reduce the risk of undercutting.
3. Normally, their maximum height should not exceed 600 mm above the gully floor. The centre should act as a spillway, being at least 150 mm lower than the outer edges.
4. Space the dams so the toe of the upstream dam is level with the spillway of the next downstream dam.

ROCK CHECK DAM **SD 5-4**

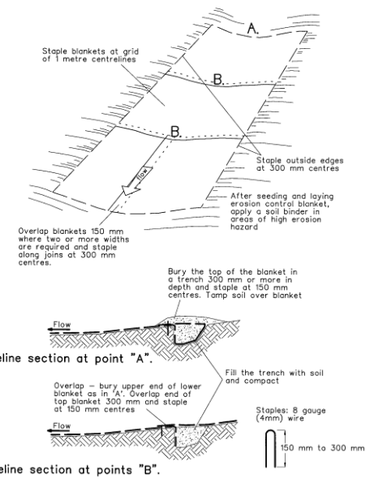


NOTE: Only to be used as temporary bank where maximum upslope length is 80 metres.

Construction Notes

1. Build with gradients between 1 percent and 5 percent.
2. Avoid removing trees and shrubs if possible - work around them.
3. Ensure the structures are free of projections or other irregularities that could impede water flow.
4. Build the drains with circular, parabolic or trapezoidal cross sections, not V shaped.
5. Ensure the banks are properly compacted to prevent failure.
6. Complete permanent or temporary stabilisation within 10 days of construction.

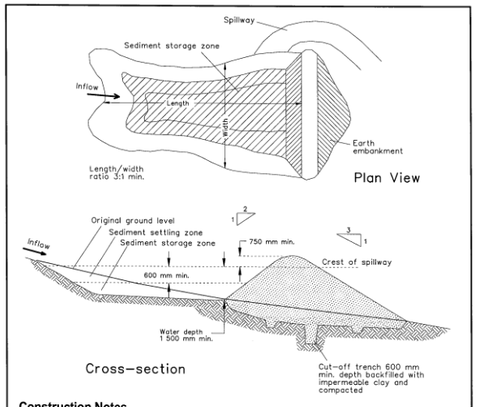
EARTH BANK (LOW FLOW) **SD 5-5**



Construction Notes

1. Remove any rocks, clods, sticks or grass from the surface before laying matting
2. Ensure that topsoil is at least 75 mm deep.
3. Complete fertilising and seeding before laying the matting.
4. Ensure fabric will be continuously in contact with the soil by grading the surface carefully first.
5. Lay the fabric in "shingle-fashion", with the end of each upstream roll overlapping those downstream. Ensure each roll is anchored properly at its upslope end (Standard Drawing 5-7b).
6. Ensure that the full width of flow in the channel is covered by the matting up to the design storm event, usually in the 10-year ARI time of concentration storm event.
7. Divert water from the structure until vegetation is stabilised properly.

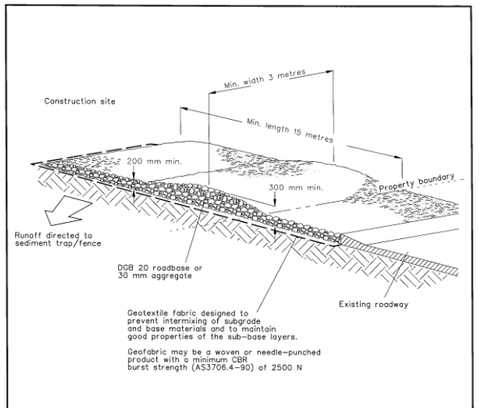
RECP : CONCENTRATED FLOW **SD 5-7**



Construction Notes

1. Remove all vegetation and topsoil from under the dam wall and from within the storage area.
2. Construct a cut-off trench 500 mm deep and 1,200 mm wide along the centreline of the embankment extending to a point on the gully wall level with the riser crest.
3. Maintain the trench free of water and recompact the materials with equipment as specified in the SWMP to 95 per cent Standard Proctor Density.
4. Select fill following the SWMP that is free of roots, wood, rock, large stone or foreign material.
5. Prepare the site under the embankment by ripping to at least 100 mm to help bond compacted fill to the existing substrate.
6. Spread the fill in 100 mm to 150 mm layers and compact it at optimum moisture content following the SWMP.
7. Construct the emergency spillway.
8. Rehabilitate the structure following the SWMP.

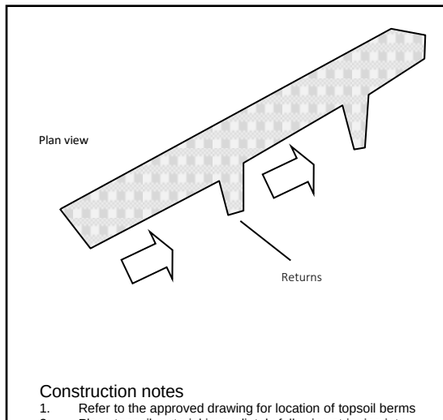
EARTH BASIN - WET **SD 6-4**
(APPLIES TO 'TYPE D' AND 'TYPE F' SOILS ONLY)



Construction Notes

1. Strip the topsoil, level the site and compact the subgrade.
2. Cover the area with needle-punched geotextile.
3. Construct a 200-mm thick pad over the geotextile using road base or 30-mm aggregate.
4. Ensure the structure is at least 15 metres long or to building alignment and at least 3 metres wide.
5. Where a sediment fence joins onto the stabilised access, construct a hump in the stabilised access to divert water to the sediment fence

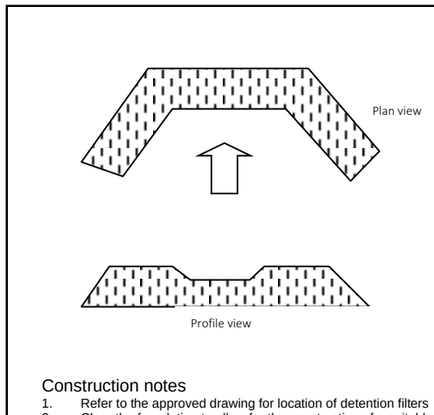
STABILISED SITE ACCESS **SD 6-14**



Construction notes

1. Refer to the approved drawing for location of topsoil berms
2. Place topsoil material immediately following stripping into linear diversion berms approximately 600mm in height and compact material to form stabilised mound with a batter no steeper than 2:1
3. Install returns on inside of berm to form a check dam / detention area that will facilitate the slowing of water flow along the toe of the batter. Returns may be constructed using topsoil material, rock material or sandbags / coir log as available.
4. Topsoil berms will be stabilised with hydromulch / cover crop to provide stability.

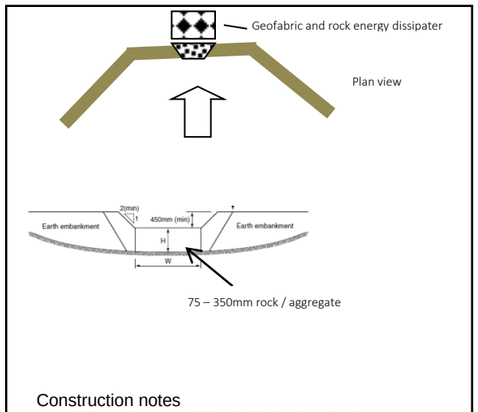
TOPSOIL BERM **OWE D01**



Construction notes

1. Refer to the approved drawing for location of detention filters
2. Clear the foundation to allow for the construction of a suitable sediment trap foundation
3. Place geofabric material and install aggregate / mulch / earth berm along the contour in a concave manner to a minimum height of 600mm
4. Wrap the placed material in geofabric sheeting to form a filter barrier.
5. Ensure 450mm freeboard is provided central to the berm / wall. The face should be no steeper than 2:1 and the spillway should be no steeper than 3:1

DETENTION FILTER **OWE D02**



Construction notes

1. Refer to the approved drawing for location of earth sump
2. Clear the foundation to allow for the construction of a suitable sediment trap foundation
3. Install earth berm along the contour in a concave manner with 600mm-1200mm width gap central to the berm
4. Install geofabric sheeting in gap allowing enough material to wrap around rock / aggregate
5. Place rock / aggregate material on geofabric and wrap rock with geofabric to create filter medium, ensure 450mm freeboard is provided. The rock face should be no steeper than 2:1 and the spillway should be no steeper than 3:1

EARTH SUMP WITH ROCK **OWE D03**

Oakdale West Estate – Concept Erosion & Sediment Control Plan
Stage 1 – Topsoil stripping and enabling works.
Precinct 1 and 2

Offsite water drains to bypass basin OWE3

Construct clean water diversions using lined channels

Grass will be retained as long as practical along the boundary which will convey channelised flows. Lining will be applied for channelised flows as grasses are removed.

Construction basin OWE2

Form a berm using compacted topsoil to separate onsite and offsite water and delineate Precinct

Construction basin OWE1

Construction basin OWE3

Contour berms / drains to be established prior to predicted rainfall

Construction basin OWE4

Retained Vegetation

Contour berms / drains to be established prior to predicted rainfall

Temporary earth sump with rock wrapped spillway

Indicative haul route (location to be determined on site)

Form a berm using compacted topsoil to separate onsite and offsite water and delineate Precinct boundaries

Contour berms / drains to be established prior to predicted rainfall

Construction basin OWE5

Precinct 5 ESCP to be developed prior to disturbance

Culvert cell / water channel across roadway

Compound Location Refer to compound ESCP

Precinct 4 ESCP to be developed prior to disturbance

Form a berm using compacted topsoil to separate onsite and offsite water and delineate Precinct boundaries

Stockpile locations to be determined on site. Sediment controls and upslope diversions to be implemented

Construct onsite water diversions with rock / coir log check dams (refer to SD5-4). Lining of drains is to be as agreed on site with Project soil conservationist

Detention filter / Sump with geofabric wrapped rock

Stabilised access area with shaker grid

250 0 250 500 m

Legend

Precinct Boundary	
Proposed construction basin location (refer to SD6-4)	
Offsite water diversion channel (refer to SD5-7)	
Compacted topsoil berm (refer to OWE D01)	
Stabilised access / shaker grid (refer to SD6-14)	
Filter sump (refer to OWE D02)	
Temporary earth sump with rock wrapped spillway (refer to OWE D03)	
Contour drain at max. spacing 80m (refer to SD 5-5)	
Culvert / road crossing	
Retained vegetation	
Site water flow direction	
Onsite Water diversion channel with check dams approx.20m spacing	
Stockpile location (indicative) (refer to SD4-1)	

Note: This document details the proposed erosion and sediment requirements for the Precinct 1 and Precinct 2 topsoil stripping ESC Concept only. Precincts 3, 4 and 5 will be updated with the progression of works and will adopt the same strategies for erosion and sediment control management. Erosion and sediment requirements for subsequent precincts will be provided at least one month prior to commencement of works in that precinct

Catchment Areas are based on EIS assessment. This proposal is based on implementation of diversion drains (formed with topsoil) to direct onsite water to construction basins for treatment. Basins are to be constructed as part of early works and berms to be constructed during topsoil stripping activities. The existing larger basins located on the site are to be retained as long as practical to be utilised for onsite water and dust suppression.

The roadway construction boundary and proposed roadway boundary controls (berms) will be used to delineate the southern / south eastern boundary and for offsite water diversions wherever possible.

Contour berms / drains are to be installed prior to rainfall to manage runoff velocities

Bradley Cole
Principal Environmental Consultant

Qualifications

Bachelor of Science in Geomorphology and Soils

WorkCover OHS General Induction (White Card #CGI00542374SEQ1)

Rail Industry Worker #000 302 323

Certified Professional in Erosion and Sediment Control (CPESC) #7645

ICAM Lead Investigator

Confined Spaces Certification #CSS5566

NATA Training in Dust and Water Sampling

Affiliations

Member of the International Erosion Control Association of Australasia (IECA)

Career History

Current

Element Environment Pty Ltd - Senior Environmental Consultant

June 2016 - March 2017

Lendlease - Environmental Advisor/Manager

October 2014 - June 2016

Downer Senior Environmental Advisor/Manager: National Rail Environmental Advisor, National Infrastructure Projects Environmental Advisor

May 2014 - October 2014

BMD Constructions - Environmental Coordinator/Manager (Southern Region)

April 2011 - May 2014

Abigroup (now Lendlease) - Environmental Coordinator/Manager (Hunter Expressway, Epping to Thornleigh Third Track Alliance)

June 2006 - April 2011

AECOM - Senior Environmental Scientist: Energy 2U Environmental Manager (May 2010 - April 2011) and BHP Approvals Officer (December 2009 - May 2009)

August 2004 - June 2006

NSW RTA (now RMS) - Environmental Officer

March 2001 - July 2004

NSW Department of Infrastructure and Planning (now Department of Planning & Environment) - Natural Resources Officer

Professional Profile

Bradley has over 15 years' experience as an environmental professional and over 10 years' experience in construction environmental impact management, construction approvals and environmental impact assessment, across the transport infrastructure, energy and water sectors. He is a certified professional in erosion and sediment control (CPESC) and is experienced in soil surveys / land capability assessments, erosion and sediment control advice and management and land rehabilitation. Bradley also has substantial experience in preparation, coordination and management of corporate erosion and sedimentation policies and procedures.

He is experienced in the management of project environmental approvals and construction delivery and erosion and sediment compliance roles on key projects such as the Dargues Gold Mine Development (NSW) and the Metropolitan Dams Services Upgrade (NSW). He has prepared erosion control strategies and management plan documentation for the Northern Beaches B-Line Project (NSW), the Hunter Expressway Project (NSW), Tasman Highway Upgrade (TAS), Bells Line of Road Upgrade (NSW), Epping to Thornleigh Third Track Alliance (NSW) and the Gosford Passing Loops Project (NSW). Bradley has managed all aspects of site construction activities, through ensuring compliance with approval conditions and licence conditions.

Bradley has earned a strong reputation as a leader in construction management delivering outcomes through innovation and leadership in collaboration with clients and regulators.

Key areas of Bradley's experience include erosion and sediment control management, preparation and review of construction environmental management plans and licencing requirements, project compliance and constructability assessment for projects of varying scales and across several industry sectors including rail and road construction, energy utility generation and creek / drainage channel rehabilitation.

Relevant Project Experience

SOIL CONSERVATION EXPERIENCE

Dargues Gold Mine Development, Majors Creek, NSW – Independent auditing of erosion and sediment control practices during the development of the mine work areas. Provision of advice during construction and compliance reporting on behalf of the Department of Planning NSW.

Metropolitan Dams Upgrade Project, Southern Sydney, NSW – Preparation of the project soil and water management plan and erosion and sediment control plans for the upgrade of services associated with the NSW drinking catchment metropolitan dams. Undertaking of site soil conservationist activities and auditing and advice on behalf of WaterNSW for protection of Sydney's water supply.

Tuggerah to Doyalson Motorway Upgrade, Central Coast, NSW – Preparation of the project soil and water management plan and erosion and sediment control strategy for the construction of the motorway upgrade project.

The Northern Road Upgrade-Stage 2, Sydney NSW - Preparation of the project soil and water plan (including erosion and sediment control plans) and erosion and sediment control strategy.

Jordan Springs Residential Development, Jordan Springs, NSW – Auditing of the erosion and sediment control practise during placement and construction for the residential development, including the management of erosion and sediment control plans and reporting.

Hunter Expressway, Hunter Valley, NSW – Site based environmental coordinator/manager for construction of a 40km roadway. Including preparation of erosion and sediment control plans, their implementation and review.

Nambucca to Urunga Pacific Highway Upgrade, North Coast, NSW - Provision of erosion and sediment control auditing and advice for the project rehabilitation and EPL closure.

Bells Line of Road Upgrade, Blue Mountains, NSW – Preparation of the project soil and water management plan, review of site erosion and sediment control, auditing of implementation and delivery of erosion and sediment control training to field staff.

Tasman Highway Upgrade, Tasmania – Auditing of environmental and sediment controls and provision of advice and training for construction management team.

Terrigal Drive Upgrade, Central Coast NSW - Preparation of the project soil and water managent plan and erosion and sediment control strategy. Onsite auditing and review of controls.

Balmain Wharf Upgrade, Sydney, NSW - Environmental management for the upgrade of a public ferry wharf on Sydney Harbour. Preparation of management plans, construction environmental advice and management and sustainability management.

Ulan Mine open cut mine expansion, NSW – Preparation of the project soil and water plan and erosion and sediment control for the open cut mining expansion of Ulan mine (Mudgee) and auditing of implementation.

Tahmoor Mine Expansion, Tahmoor, NSW – Site investigations and soil assessment for development approvals. Preparation of soil management strategy for erosion control and site management.

Wollongong City Council Riparian Policy and Issues Report - Management and preparation of Council's riparian policy for erosion protection of major waterways in the Wollongong Council area.

Towradgi Creek Survey and Management Plan, Wollongong, NSW - Design and reporting for bank stabilisation and erosion management for Towradgi Creek in the Wollongong Council area.

Narrabeen Lagoon Central Basin Re-profiling, Northern Beaches, NSW - Environmental advice, approvals management and design input associated with the dredging activities in Narrabeen Lagoon for Warringah Council.

Capertee Valley Salinity Management Program, DLWC 2004 - Investigation, design and reporting on erosion and salinity management in central NSW for the National salinity program.

APPENDIX C

Flora and Fauna Management Plan

Oakdale West Estate

Flora and Fauna Management Plan

Prepared for

Goodman Property Services (Aust.) Pty Ltd

écologique | environmental consulting

Document control

Approval and authorisation

Title	Oakdale West Estate – Flora and Fauna Management Plan
Prepared by	Kat Duchatel BSc. Env. CEnvP EIANZ #691 BAM Accreditation No.BAAS17054
Approved on behalf of Goodman by	[Insert name of Goodman project manager]
Signed	
Dated	
Approved on behalf of [Insert name of Construction Contractor] by	[Insert name of Construction Contractor project manager]
Signed	
Dated	

Document status

Revision	Date	Description	Issued to
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02	23/07/2019	Amended to include Client feedback	Goodman
03	02/08/2019	For submission with CEMP	Goodman
04	16/08/2019	For submission with CEMP – amended figures	Goodman
05	23/09/2019	Final FFMP – amended stamped conditions	Goodman
06	06/11/2019	Final FFMP – amended to include DPIE review/comments and combine terrestrial and aquatic FFMPs into one (this document)	Goodman
07	11/03/2020	Final FFMP – MOD 3 amendments	Goodman

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Contents

Glossary / Abbreviations ..... **iv**
1 Introduction **1**
1.1 Context 1
1.2 Purpose of the FFMP 1
1.3 Consent conditions 3
2 Relevant legislation **6**
2.1 Biodiversity Conservation Act 2016 6
2.2 Biosecurity Act 2015 6
2.3 Environment Protection and Biodiversity Conservation Act 1999 6
2.4 Fisheries Management Act 1994 6
2.5 Pesticides Act 1999 7
2.6 Prevention of Cruelty to Animals Act 1979 7
3 Existing Environment **8**
3.1 Vegetation 8
3.1.1 Threatened Ecological Communities 8
3.1.2 Threatened Flora Species 9
3.2 Fauna Habitat 9
3.2.1 Threatened fauna 10
3.3 Aquatic Habitat 12
3.3.1 Aquatic Flora 14
3.3.2 Aquatic fauna 14
3.4 Potential biosecurity risks 15
3.4.1 Priority Weeds 15
3.4.2 Alligator weed 16
3.4.3 Spiny rush 16
3.4.4 Aquatic pest animals 16
3.4.5 Chytrid fungus 17
4 Mitigation Measures - summary **18**
5 Terrestrial environment **22**
5.1 Pre-clearance process 22
5.1.1 Pre-clearance surveys 22
5.1.2 Marking limits of vegetation clearing 22
5.1.3 Protection of vegetation to be retained 23
5.2 Sediment and erosion control 25
5.2.1 Vegetation removal 25
5.2.2 Protection of retained vegetation 25
5.3 Single staged clearing 26

5.4 Two-staged clearing 26
5.4.1 Stage 1 26
5.4.2 Stage 2 26
5.5 Post-clearing 26
5.6 Fauna rescue and release procedure 27
5.6.1 Fauna handling protocol 27
5.6.2 Fauna release location 27
5.7 Weed management and mitigation measures 28
5.7.1 Weed control 28
5.7.2 Mitigation measures 28
5.8 Pathogen Control 28
5.8.1 Risk of Pathogens on site 28
5.8.2 Hygiene protocols 29
5.9 Large Woody Debris 29
5.9.1 Requirements 29
5.10 Snake Management Measures 30
5.10.1 Snake Deterrent Fencing 30
5.10.2 Rock Piles 30
5.11 Unexpected finds procedure 34
6 Dam Decommissioning Procedures 35
6.1 Overview 35
6.2 Pre-decommissioning procedures 35
6.2.1 Aquatic survey 35
6.2.2 Water and sediment sampling 35
6.2.3 Release locations 36
6.2.4 Dewatering for dust suppression 36
6.2.5 Temporary sediment placement 36
6.3 Decommissioning procedures 36
6.3.1 Requirements 36
6.3.2 Decommissioning approach 36
6.4 Aquatic fauna handling procedures 37
6.4.1 Amphibians 37
6.4.2 Turtles 37
6.4.3 Fin Fish 38
6.4.4 Dealing with injured native aquatic fauna 38
6.4.5 Euthanasia 38
6.5 Biosecurity risk minimisation 40
6.5.1 General biosecurity duty 40
6.5.2 Introduction and / or spread of aquatic weeds 40

6.5.3 Spread of aquatic pest fauna 40
6.5.4 Introduction and / or spread of Chytrid fungus 40
6.6 Unexpected Finds Procedure 41
7 Monitoring and Reporting 42
7.1 Monitoring 42
7.2 Reporting 42
7.3 Performance Targets 42
8 Contingency Plan 43
Appendix A – Fencing Detail 46
Appendix B – Photographic Plates 47

Figures

Figure 1-1. Extent of Works 2
Figure 3-1. Extent of native vegetation 11
Figure 3-2. Farm dams within the Project area 13
Figure 5-1. Vegetation to be retained 24
Figure 5-2. Stockpile controls schematic 25
Figure 5-3. Snake refuge schematic 31
Figure 5-4. Snake habitat - photographs 31
Figure 5-5. Biodiversity Offset Area – large woody debris installation areas 32
Figure 5-6. Snake refuge habitat areas 33
Figure 5-7. Stop work procedure (adapted from RMS Biodiversity Guidelines 2011) 34
Figure 6-2. Release locations within Ropes Creek 39
Figure 6-2. Stop work procedure (adapted from RMS Biodiversity Guidelines 2011) 41

Tables

Table 1-1. Consent Conditions 3
Table 3-1. Threatened Ecological Communities 8
Table 3-2. Extent of PCTs to be cleared 9
Table 3-3. Threatened flora species 9
Table 3-4. Fauna habitat within the Project area 10
Table 3-5. Farm dams 12
Table 3-6. Aquatic flora 14
Table 3-7. Aquatic fauna 14
Table 3-8. Priority weeds known to occur in the Project boundary 15
Table 4-1: Flora and fauna management and mitigation measures 18
Table 6-1. Indicative decommissioning timeline 35
Table 8-1. Contingency Management Plan 43

Glossary / Abbreviations

Abbreviations	Expanded text
BAR	Biodiversity Assessment Report
BC Act	Biodiversity Conservation Act 2016
BCT	Biodiversity Conservation Trust
BOS	Biodiversity Offset Strategy
CEEC	Critically Endangered Ecological Community
CEMP	Construction Environmental Management Plan
EEC	Endangered Ecological Community
EIS	Environmental Impact Statement
EPA	Environment Protection Authority
EPBC Act	Environmental Protection and Biodiversity Conservation Act 1999
EWMS	Environmental Work Method Statements
FFMP	Flora and Fauna Management Plan
FM Act	Fisheries Management Act 1994
MNES	Matters of National Environmental Significance
NATA	National Association of Testing Authorities, Australia
OEH	Office of Environment and Heritage
PCA Act	Prevention of Cruelty to Animals Act 1999
SSD	State Significant Development
ESCP	Erosion and Sediment Control Plan
WNSLR	Western North South Link Road

1 Introduction

1.1 Context

This Flora and Fauna Management Plan (FFMP) forms part of the Construction Environmental Management Plan (CEMP) developed for the Oakdale West Estate (Oakdale West) a State significant development (SSD7348).

Oakdale West is a staged development for a warehousing and distribution hub being developed by Goodman Property Services (Goodman), which includes estate-wide earthworks, infrastructure and services and the construction of the Western North South Link Road (WNSLR) (see Figure 1-1).

The Project is described and assessed in detail in the following SSD7348 documentation:

- Environmental Impact Statement (EIS) (Urbis November 2017)
- Response to Submissions (RTS) (Urbis May 2018)
- Supplementary RTS (Urbis October 2018)
- Biodiversity Assessment Report (BAR) (Cumberland Ecology 2015, 2016, 2017; and écologique 2018)
- Biodiversity Offset Strategy (BOS) (Cumberland Ecology 2015, 2016, 2017; and écologique 2018)

Consent for SSD7348 approves the removal of approximately 4.4 hectares (ha) of remnant native vegetation and 3.0 ha of regenerating or planted (derived) native woodland.

This FFMP addresses the removal of 3.8 ha of remnant native vegetation within the boundaries of Oakdale West and the decommissioning of four farm dams. The remaining remnant and derived native vegetation communities are addressed in a separate WNSLR specific FFMP.

Key aspects of the Project that could result in impacts to terrestrial flora and fauna include:

- Clearing of remnant native vegetation, which includes four threatened ecological communities
- Clearing of potential fauna habitat
- Risk of introducing and/or spreading weeds and pathogens
- Disturbance of soils, consequential erosion and the mobilisation of sediment

1.2 Purpose of the FFMP

As a subplan to the CEMP, this FFMP has been prepared to address the requirements of the SSD7348 consent conditions, relevant legislation, permits and approvals, which apply to the construction of the Oakdale West Estate (herein referred to as the Project).

These requirements will be met through implementing the procedures described in this FFMP, which include:

- Pre-clearance, construction and post construction strategies
- Fauna rescue and relocation protocol
- De-watering guidelines
- Euthanasia and disposal of pest aquatic species
- Weed and pathogen control
- Unexpected finds protocol
- Monitoring and reporting strategies

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Oakdale West Estate

Flora & Fauna Management Plan

Figure 1-1.
Extent of works

Coordinate System:
MGA Zone 56 (GDA 94)

Image sources:
Nearmap 20 July 2019

1.3 Consent conditions

SSD7348 consent conditions relevant to this FFMP are summarised in Table 1-1.

Table 1-1. Consent Conditions

Condition Requirement	Section/Comment
Flora and Fauna Management Plan	
D88. The Applicant must prepare a Flora and Fauna Management Plan (FFMP) for Stage 1, to the satisfaction of the Planning Secretary. The Plan must form part of a CEMP in accordance with Condition D119 and must:	Purpose of this FFMP
Be prepared by a suitably qualified and experienced person(s);	FFMP author: Kathryn Duchatel BSc. Env. CEnvP EIANZ #691 BAM Accreditation No.BAAS17054 Industry experience: 20+years
Describe procedures to manage impacts on biodiversity values during earthworks, clearing and dam decommissioning;	Refer Section 4 of this FFMP
Include procedures for clearing marking and protecting the areas of vegetation to be retained on the Site, including the mature vegetation in the north-western corner and the Biodiversity Offset Area, established in accordance with Condition D91 adjacent to Ropes Creek; and	Refer Section 5 of this FFMP
Detail the specific erosion and sediment controls to protect the retained vegetation.	Section 5.2 of this FFMP
D89. The Applicant must: Not commence bulk earthworks until the FFMP required by Condition D88 is approved by the Planning Secretary; and Implement the most recent version of the FFMP approved by the Planning Secretary for the duration of bulk earthworks and construction.	Noted
Offsets for Stage 1	
D90. Within 12 months of the date of this development consent, or as otherwise agreed with the Planning Secretary, the Applicant must retire 172 ecosystem credits to offset the removal of 4.41 hectares of native vegetation on the Site.	Completed in: Biodiversity Assessment Report (BAR); and Biodiversity Offset Strategy (BOS)
D91. The Applicant shall establish a Biodiversity Offset Area on the Site, consistent with the area described in the RTS, in accordance with a Biodiversity Stewardship Agreement with the Biodiversity Conservation Trust.	Completed in BOS
Biodiversity Management Action Plan	
D92. The Applicant must maintain the Biodiversity Offset Area on the Site in accordance with a Biodiversity Management Action Plan approved by the Biodiversity Conservation Trust (BCT).	To be completed in consultation with the BCT

Condition Requirement	Section/Comment
Offsets for WNSLR	
D93. Within 12 months of the date of this development consent, or as otherwise agreed with the Planning Secretary, the Applicant must:	To be completed in consultation with the Planning Ministerial Corporation
Offset 0.42ha of vegetation lost in the Erksine Park Biodiversity Corridor as a result of the WNSLR by carrying out planting within the area shown in the green edging on Figure 9 (Appendix 6 of consent conditions)	
Plant the areas shown in the green edging on Figure 9 (Appendix 6 of consent conditions) with species similar to those identified for zone 4a, on the south-eastern side of Ropes Creek, in the Biodiversity Management Plan Erskine Park Employment Area (HLA-Envirosciences, 2 May 2006)	
D94. The Applicant shall monitor and maintain the planting for a period of six months to ensure a minimum 85% survival rate of the planting.	
D95. The Applicant must notify the Planning Ministerial Corporation at least one month before the completion of planting to enable the Planning Ministerial Corporation to arrange ongoing maintenance.	
Snake Management Measurements	
D96. Prior to construction of Stage 1, the Applicant must implement snake management measures to limit, to the extent practicable, movement of snakes from the Site into the adjacent school and retirement village on the western boundary of the Site.	Section 5.10 of this FFMP and CEMP
The measures shall be detailed in the CEMP required by Condition D119 and shall include, but not be limited to, provision of alternative snake habitat on Site, fencing along the western boundary and installation of snake deterrents.	

Condition Requirement	Section/Comment
Construction Environmental Management Plan	
D119. The Applicant must prepare a Construction Environmental Management Plan (CEMP) for Stage 1, including the WNSLR, in accordance with the requirements of Condition D118 and to the satisfaction of the Planning Secretary.	
D118. Management plans required under this development consent must be prepared in accordance with relevant guidelines, and include:	
Details of: • The relevant statutory requirements (including any relevant approval, licence or lease conditions); • Any relevant limits or performance measures and criteria; and • The specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, Stage 1 or any management measures;	Refer Section 2 of this FFMP; and Refer Section 7 of this FFMP
A description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	Refer Section 4, Table 4-1 and Section 7 of this FFMP
A program to monitor and report on the: • Impacts and environmental performance of Stage 1; and • Effectiveness of the management measures set out pursuant to paragraph (b) above;	Refer Section 7 of this FFMP
A contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	Refer Section 8 of this FFMP
A program to investigate and implement ways to improve the environmental performance of Stage 1 over time;	External to this FFMP. Completed in CEMP
A protocol for managing and reporting any: • Incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria); • Complaint; • Failure to comply with statutory requirements; and • A protocol for periodic review of the plan	External to this FFMP. Completed in CEMP

2 Relevant legislation

Specific legislation relevant to this FFMP includes:

- *Biodiversity Conservation Act 2016*
- *Biosecurity Act 2015*
- *Environment Protection and Biodiversity Conservation Act 1999*
- *Fisheries Management Act 1994*
- *Pesticides Act 1999*
- *Prevention of Cruelty to Animals Act 1979*

2.1 Biodiversity Conservation Act 2016

Impacts on threatened flora and fauna species, populations and ecological communities are administered by the NSW Environment Minister under the *Biodiversity Conservation Act 2016* (BC Act).

Native vegetation that will be cleared for the construction of the Project has been assessed under the NSW Biodiversity Offset Scheme and approved under SSD7348.

Goodman propose to establish Biodiversity Offset Areas in order to create and retire sufficient ecosystem credits to offset the various plant community types (PCTs) being removed for the development. Four PCTs are impacted on by the development, each of which are threatened ecological communities listed under the BC Act (refer Section 3.1.1).

Biodiversity Offset Areas and any additional native vegetation that is to be retained are to be appropriately demarcated and protected (refer Section 5 of this FFMP).

2.2 Biosecurity Act 2015

The *Biosecurity Act 2015* commenced on 1st July 2017 at which time the *Noxious Weeds Act 1993* was wholly repealed and the *Fisheries Management Act 1994* (Aquatic Biosecurity) partly repealed.

The Greater Sydney Regional Strategic Weed Management Plan 2017-2022 identifies both State level and regionally determined priority weeds and high-risk activities. Priority weeds relevant to the Project area are identified in Section 3.4.

2.3 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act) is the Australian Government's central piece of environmental legislation. The EPBC Act provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places—defined in the EPBC Act as matters of national environmental significance (MNES).

A referral submitted to the Australian Government under SSD7348 relating to vegetation communities within Oakdale West (defined as MNES). The MNES were assessed as a controlled action under the EPBC Act but approved for assessment under a bilateral agreement with the NSW government.

Areas that will retain MNES are primarily located within the Biodiversity Offset Areas, which are to be appropriately demarcated and protected (refer Section 4 of this FFMP).

2.4 Fisheries Management Act 1994

The rescue and relocation of fin fish during dam decommissioning requires a permit under Section 37 of the *Fisheries Management Act 1994* (FM Act).

The power to grant an approval under Section 37 of the FM Act is limited by section 220ZW (Licence to harm threatened species, population or ecological community or damage habitat).

Based on biodiversity surveys conducted for the SSD7348 no threatened species, populations or ecological communities listed under the FM Act occur within the Project works extent and a licence under section 220ZW not required.

2.5 Pesticides Act 1999

The *Pesticides Act 1999* controls the use of pesticides in NSW. It aims to reduce risks to human health, the environment, property, industry and trade, and promote collaborative and integrated policies for pesticide use. Under this Act, all pesticide users in NSW must:

- Only use pesticides registered or permitted by the Australian Pesticides and Veterinary Medicines Authority (APVMA)
- Obtain an APVMA permit if they wish to use a pesticide in a way not covered by the label
- Read the approved label and/or APVMA permit for the pesticide product (or have the label/permit read to them) and strictly follow their directions
- Only keep registered pesticides in containers bearing an approved label
- Prevent injury to people, damage to property and harm to non-target plants and animals from using a pesticide

2.6 Prevention of Cruelty to Animals Act 1979

Consultation with the Department of Primary Industries (DPI) and Secretary of the Animal Care and Ethics Committee (ACEC) has confirmed animal relocation, or in some cases euthanasia, does not require animal ethics approval as it is being performed under animal management practices and does not fit under the definition of animal research under the *Animal Research Act 1985*.

Instead, the legislation pertaining to this activity is the *Prevention of Cruelty to Animals Act 1979* (PCA Act). For this reason an Animal Research Authority (ARA) is not required for the relocation of any terrestrial or aquatic fauna that may result from either clearing of native vegetation or dam decommissioning during the construction of the WNSLR.

Under this Act Part 2 Clause 5(3), a person in charge of an animal shall not fail at any time:

a. to exercise reasonable care, control or supervision of an animal to prevent the commission of an act of cruelty upon the animal,

b. where pain is being inflicted upon the animal, to take such reasonable steps as are necessary to alleviate the pain, or

c. where it is necessary for the animal to be provided with veterinary treatment, whether or not over a period of time, to provide it with that treatment.

These clauses have been provisioned for in Section 5.6 of this FFMP.

3 Existing Environment

The following sections summarise existing flora and fauna within and adjacent to the Project area including species, communities and habitats. The key reference documents are: the EIS (Urbis 2017); RTS (Urbis 2017); supplementary RTS (Urbis 2018); the BAR (écologique 2018) and BOS (écologique 2018).

The extent of native vegetation as relevant to the Project area is shown on Figure 3-1.

3.1 Vegetation

The Project area is mostly cleared pasture dominated by exotic pasture grasses. Native vegetation is relatively limited, occurring as sparsely scattered and small patches of remnant woodland and isolated paddock trees.

Consent for SSD7348 approves the removal of approximately 4.4 ha of remnant native vegetation, 3.8 ha of which is being cleared for the Oakdale West internal works. The remaining 0.6 ha being cleared for the WNSLR (and addressed in a separate WNSLR specific FFMP).

Remnant native vegetation includes plant community types listed under either or both of the BC Act and EPBC Act (refer Section 3.1.1).

Native vegetation that will not be cleared as a result of the Project includes remnant woodland and isolated trees (predominantly located within the Oakdale West biodiversity management area (see Figure 3-1).

3.1.1 Threatened Ecological Communities

Four plant community types (PCTs) have been identified within Oakdale West, each of which are listed as threatened ecological communities under either or both of the BC Act and EPBC Act (Table 3-1 and Figure 5-1).

Table 3-1. Threatened Ecological Communities

ID	PCT common name, (former biometric vegetation type code): EEC name	Status	
		BC Act	EPBC Act
PCT 835	Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion, (HN526): River-flat Eucalypt Forest (RFEF)	Endangered	Not listed
PCT 849	Grey Box - Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin Bioregion, (HN528): Cumberland Plain Woodland (CPW on flats)	Critically endangered	Critically endangered
PCT 850	Grey Box - Forest Red Gum grassy woodland on shale of the southern Cumberland Plain, Sydney Basin Bioregion, (HN529): Cumberland Plain Woodland (CPW on shale)	Critically endangered	Critically endangered
PCT 1232	Swamp Oak floodplain swamp forest, Sydney Basin Bioregion and South East Corner Bioregion, (HN594): Swamp Oak Floodplain Forest (SOFF)	Endangered	Endangered

Direct impacts on all vegetation within the Project area and construction of the WNSLR are being offset under SSD7348 consent conditions. The extent of PCTs that will be cleared by both projects is summarised in Table 3-2.

Table 3-2. Extent of PCTs to be cleared

PCT ID/Common name	Area (ha) #	
	Oakdale West	WNSLR
PCT 835 Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin, HN526 - RFEF	1.09	
PCT 849 Grey Box - Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin, HN528 – CPW on flats	0.49	0.62
PCT 850 Grey Box - Forest Red Gum grassy woodland on shale of the southern Cumberland Plain, Sydney Basin, HN529 – CPW on shale	0.94	
PCT 1232 Swamp Oak floodplain swamp forest, Sydney Basin Bioregion and South East Corner Bioregion, HN594 - SOFF	1.26	
Subtotal	3.78	0.62
Total	4.40	

Construction of the WNSLR may clear less vegetation than anticipated. As a consequence, the areas to be cleared as listed in Table 3-2 may vary.

Indirect impacts (such as, but not limited to: the introduction or spread of weeds and pathogens; clearing or damage to native vegetation to be retained; and sedimentation delivered in site runoff) are addressed in the control measures specified in this FFMP and the Project's CEMP.

All native vegetation that is to be retained will require protection measures specified in this FFMP (refer Figure 5-1 and Section 5.1.3).

3.1.2 Threatened Flora Species

Relevant biodiversity assessments have concluded that the Project area is unlikely to contain, or provide habitat for, threatened flora species.

Notwithstanding pre-clearance surveys shall target this and other threatened species that have a remote potential to occur within the Project area (see Table 3-3 and photographic plates in Appendix B).

Table 3-3. Threatened flora species

Scientific name	BC Act	EPBC Act
Dillwynia tenuifolia	Vulnerable	-
Grevillea juniperina subsp. juniperina	Vulnerable	-
Marsdenia viridiflora subsp. viridiflora	Endangered Population	-
Pimelea spicata	Endangered	Endangered
Pultenaea parviflora	Vulnerable	Endangered

3.2 Fauna Habitat

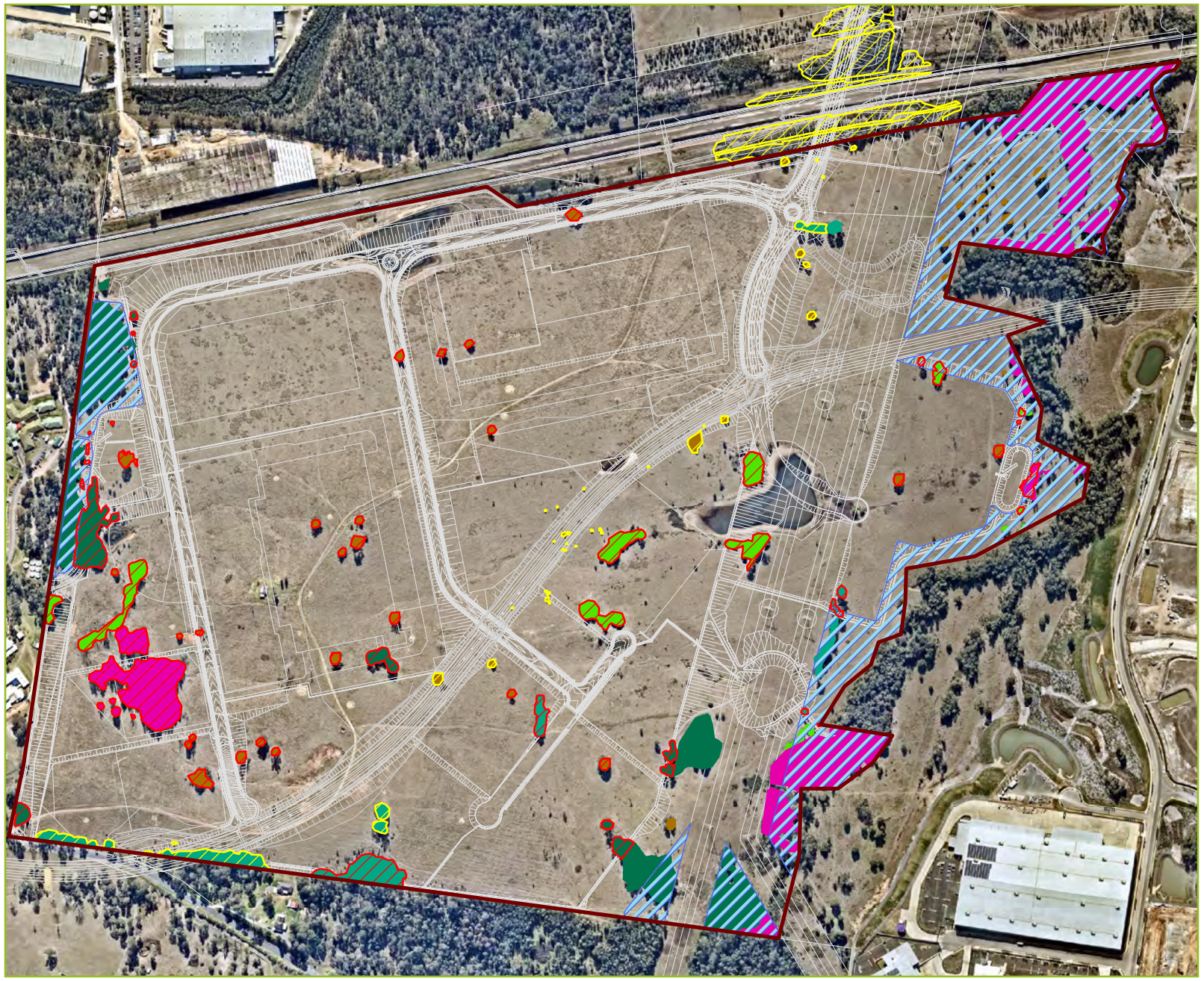
The Project area is highly disturbed by activities associated with cattle grazing and forms mostly degraded and unsuitable habitat for many native fauna species. Fauna habitat types identified during biodiversity investigations are listed in Table 3-4.

Table 3-4. Fauna habitat within the Project area

Name	Habitat features
Paddock trees	Several mature eucalypts have been retained within paddocks, which may provide foraging and refuge habitat for transient birds and mammals.
Dead standing trees (stags)	A number of stags containing hollows occur within or adjacent to the Project area. Hollows have been observed to be used by Red-rumped Parrots (Psephotus haematonotus).
Aquatic Habitat	Farm dam providing habitat for fin fish (short finned eels), amphibians, reptiles (turtles and snakes) and wetland birds (see Section 3.3).
Grassland Habitat	Grassland habitats comprise the majority of the available habitat at the development site. Grassland habitats are devoid of logs, rocks, caves and outcrops, and are more suited to grazing macropods and introduced herbivores. Grassland habitat across the development site is relatively uniform with no features such as burrows observed during site inspections.

3.2.1 Threatened fauna

No threatened fauna species were identified during biodiversity investigations undertaken and assessments concluded that threatened species are unlikely to occur in the Project area due to a lack of suitable habitat and breeding resources.



Oakdale West Flora & Fauna Management Plan

Figure 3-1
Native vegetation

Coordinate System:
MGA Zone 56 (GDA 94)

Image sources:
Nearmap 7 April 2019

3.3 Aquatic Habitat

In total there are five farm dams located within the Project Area, two major dams (>1 ha) and three minor dams (<0.2 ha). One of the minor dams is being decommissioned as part of the WNSLR works and is not considered in this Aquatic FFMP.

For the purpose of this Aquatic FFMP, the following numbering/identification of dams applies, with a summary of each dam provided in Table 3-5:

1. Major Dam
2. Major Dam
3. Minor Dam
4. Minor Dam

Table 3-5. Farm dams

Dam No.	Approx. area (ha)	Location	Surrounding environment
1	1.67	Adjacent WaterNSW land	Cleared pasture land Two apparent surface flows: 1. Towards drainage line under Warragamba pipelines 2. Overland surface flow to west northern boundary of Oakdale West
2	1.70	Adjacent transmission easement	Cleared pasture land and two patches of remnant River-flat Eucalypt Forest Overland surface flow towards Ropes Creek through transmission easement
3	0.11	Immediately adjacent western boundary	Cleared pasture land and one patch of remnant River-flat Eucalypt Forest Surface flow over weir into Emmaus College creek line
4	0.14	Adjacent bushland to be retained along western boundary	Cleared pasture land and large stand of remnant Cumberland Plain Woodland No obvious flow path

Figure 3-2 identifies each dam and the above numbering and the surrounding environs.

Oakdale West FFMP

Figure 3-2 Location of dams

Coordinate System: MGA Zone 56 (GDA 94)
Image sources: Nearmap 7 April 2019

3.3.1 Aquatic Flora

Aquatic flora observed in each dam are summarised in Table 3-6 No threatened flora species are found within any of the dams.

Table 3-6. Aquatic flora

Species name	Common name	Dam 1	Dam 2	Dam 3	Dam 4
Eleocharis sphacelata	tall spikerush	X	X	X	X
Juncus acutus **	spiny rush		X	X	
Juncus usitatus	common rush	X	X	X	X
Ludwigia peploides subsp. montevidensis	water primrose	X		X	X
Marsilea nutica	nardoo			X	
Myriophyllum crispatum		X			X
Persicaria decipiens	knotweed			X	
Philydrum lanuginosum	woolly frogsmouth	X	X	X	
Potamogeton sp.	pond weed	X			X
Otellia ovalifolia	swamp lily		X	X	
Triglochlin procerum	water ribbons	X	X	X	X
Typha orientalis	cumbungi			X	
Vallisneria americana	ribbon weed	X	X	X	

** introduced (see photographic plates in Appendix B)

3.3.2 Aquatic fauna

Aquatic fauna found in each dam is summarised in Table 3-7. No threatened aquatic fauna species were found within any of the dams, and it is considered highly unlikely that any threatened aquatic species would be encountered.

Table 3-7. Aquatic fauna

Species name	Common name	Dam 1	Dam 2	Dam 3	Dam 4
Anguilla australis	short-finned eel	X	X	X	X

Species name	Common name	Dam 1	Dam 2	Dam 3	Dam 4
Gambusia holbrooki **	eastern gambusia, plague minnow	X	X	X	
Hypseleotris compressa	empire gudgeon	X	X		
Paratya australiensis	freshwater shrimp	X	X	X	
Limnodynastes tasmaniensis	spotted marsh frog	X	X	X	X

** introduced (see photographic plates in Appendix B)

3.4 Potential biosecurity risks

Biosecurity risks that occur, or have the potential to occur, within the Project area include priority weeds and pest animals (see Section 3.4).

Biodiversity investigations undertaken in the Project area have not identified any evidence of disease or pathogens. As dam decommissioning may involve the capture and release of amphibians, appropriate hygiene measures are provisioned for to minimise the risk of introducing Chytrid fungus (see Section 3.4.4).

3.4.1 Priority Weeds

The Greater Sydney Regional Strategic Weed Management Plan 2017-2022 identifies both State level and regionally determined priority weeds and high-risk activities. Priority weeds identified in the Project area during pre-clearance surveys must be shown on FFMP constraints mapping. Priority weeds identified during biodiversity assessments for SSD7348 are identified in Table 3-8.

Table 3-8. Priority weeds known to occur in the Project boundary

Species	Biosecurity Duty
Woody weeds	
Dovyalis caffra Kei apple	Regional asset protection
Olea europaea subsp. *cuspidata* African olive	Regional - Containment
Rubus fruticosus blackberry	State asset protection
Senna pendula var. *glabrata* Cassia	Regional asset protection
Groundlayer/Vines	
Araujia sericifea moth vine	Regional asset protection
Asparagus aethiopicus ground asparagus	State asset protection
Asparagus asparagoides bridal creeper	State asset protection
Bryophyllum delagoense mother of millions	Regional asset protection
Chloris gayana Rhodes grass	Regional asset protection
Eragrostis curvula African lovegrass	Regional asset protection

Species	Biosecurity Duty
Pennisetum clandestinum kikuyu	Regional asset protection
Senecio madagascariensis fire weed	State – asset protection
Aquatic weeds	
Alternanthera philoxerioides alligator weed	State & Regional – containment
Juncus acutus spiny weed	Other – environmental weed

3.4.2 Alligator weed

Alternanthera philoxerioides (alligator weed) is the only priority aquatic weed species known to occur within the locality (found in Ropes Creek).

Alligator weed is considered one of the world's worst weeds because it impacts on both aquatic and terrestrial environments. It does not produce viable seed in Australia but spreads rapidly through vegetative reproduction, when fragments containing at least one node are moved from one place to another and take root in suitable habitat. It is commonly spread downstream when the plant is broken up into smaller fragments (e.g. by floods or following mechanical or chemical control).

Alligator weed is listed under both Schedule 1 (State priority weeds: containment) and Schedule 2 (Regional priority weeds: containment). The species is also a Weed of National Significance (WoNS).

Oakdale West lies within the region classified as the core infestation area for this species with the following management and mitigation actions applicable:

- Prevent spread from their land where feasible.
- Mitigate the risk of the plant being introduced to their land.
- Reduce the impact on priority assets.

While not observed in any of the farm dams during surveys, appropriate measures are provided in Section 0 (unexpected finds) to minimise this species spread should it be encountered.

3.4.3 Spiny rush

Juncus acutus (spiny rush) is a serious environmental weed which is widespread throughout the Project area and throughout Ropes Creek.

Spiny rush spreads by short rhizomes but is spread mostly by seeds, which is produces prolifically. The short rhizomes can be dispersed in soil attached to vehicles or animals, with seeds distributed by moving water, as well as by machinery, and animals.

The species can be hazardous to workers in its environment as the sharply-pointed stems are able to easily pierce the skin.

Soils containing the species and its seed bank should not be reused as topsoil (see Section 5.7).

3.4.4 Aquatic pest animals

Aquatic pest species known to occur in the locality include *Gambusia holbrookii* (Eastern Gambusia, mosquito fish, plague minnow) and *Cyprinus carpio* (European carp).

Only Eastern Gambusia was found during surveys of the dams with European carp occurring within Ropes Creeks in large numbers. Eastern Gambusia and European carp (if it should be encountered) are to be euthanised (see Section 6.4.5).

3.4.5 Chytrid fungus

The Chytrid fungus attacks the parts of a frog's skin affecting respiration and also damages the nervous system, affecting the frog's behaviour. Chytrid fungus is attributed to the widespread decline and disappearance of many frog species in Australia.

Chytrid fungus is probably transferred by direct contact between frogs and tadpoles, or through exposure to infected water. The disease may not kill frogs immediately, and they can swim or hop to other areas before they die, spreading fungal spores to new ponds and streams. Wet or muddy boots and tyres, machinery or frog-survey equipment may also be contributing to the spread of the disease (DECC, 2008).

Hygiene precautions are provisioned for in Section 5.8.2.

4 Mitigation Measures - summary

The mitigation measures and statutory requirements relevant to this FFMP are listed in Table 4-1 below.

Table 4-1: Flora and fauna management and mitigation measures

ID	Measure/Requirement	Responsibility	Timing / Frequency	Reference / Notes
[GENERAL]				
FF1	All employees and contractors will be inducted to ensure that procedures outlined in this FFMP are met. This will have a focus on no-go zones, clearing limits and compliance with statutory requirements applicable to flora and fauna.	Management / Contractors / Employees	Prior to each employee or contractor commencing work on site	Provisions under the BC Act, Biosecurity Act, FM Act, PCA Act Pesticides Act and best practice.
[VEGETATION CLEARING, PROTECTION AND MANAGEMENT]				
FF2	Pre-clearing surveys are to be undertaken immediately prior to clearing works by an experienced ecologist. Habitat features that will be cleared are to be appropriately marked and located by GPS.	Management / Project Ecologist	Pre-clearing	FFMP Section 5.1
FF3	Pre-clearance reporting (including GPS measurements and FFMP constraints mapping) must be prepared to inform the following: Clearing limits, no-go zones, and areas that must be protected; Habitat features within clearing limits that require two-stage felling; and Amendments required to the Project's CEMP.	Management / Project Ecologist	Pre-clearing	FFMP Section 5.1.2
FF4	Environmentally sensitive areas are to be fenced and habitat features that will be felled are to appropriately marked.	Management / Project Ecologist / Construction Contractor	Pre-clearing	FFMP Section 5.1.3

ID	Measure/Requirement	Responsibility	Timing / Frequency	Reference / Notes
[SEDIMENT AND EROSION CONTROLS]				
FF5	Sediment and erosion controls must be installed prior to any earthworks required.	Management / Contractors	Pre-clearing	FFMP Section 5.2
FF6	Temporary sediment sorting bunds/silt fenced areas are to be installed.	Management / Contractors	Pre-decommissioning of dams	FFMP Section 6.2.5
[TERRESTRIAL WILDLIFE PROTECTION]				
FF7	An ecologist is to be present for all felling of identified habitat features.	Management / Project Ecologist	Ongoing throughout construction	FFMP Section 5.1
FF8	Fauna rescue and release protocols will be followed to ensure native fauna are not impacted during construction.	Management / Project Ecologist	Ongoing throughout construction	FFMP Section 5.6
FF9	Should unexpected threatened flora or fauna be encountered on site, a stop works procedure must be followed.	Management / Contractors / Employees	Ongoing throughout construction	FFMP Section 5.11
[LARGE WOODY DEBRIS AND BUSH ROCKS]				
FF10	Large woody debris is to be salvaged for placement in habitat areas within the proposed Biodiversity Offset Areas located along the western boundary of the Project area and area associated with the Ropes Creek riparian corridor.	Management / Contractors	Throughout construction	FFMP Section 5.9 and Figure 5-5

ID	Measure/Requirement	Responsibility	Timing / Frequency	Reference / Notes
FF11	Various rock sizes and shapes are to be salvaged during earthworks and stockpiled within the Project boundary for use in creating snake refuge. Rock piles (snake refuge) are to be installed within the proposed Biodiversity Offset Areas located along the western boundary of the Project area	Management / Contractors	Throughout construction	FFMP Section 5.10 and Figure 5-6
[AQUATIC FAUNA PROTECTION]				
FF12	Pre-decommissioning aquatic surveys are undertaken to describe the types and species of aquatic fauna that require capture and release, identify suitable relocation sites, with water quality sampling and analysis undertaken to support the identification of suitable relocation sites.	Management / Project Ecologist	Completed	FFMP Section 5.2
FF13	Suitable filters are installed on pumping equipment to ensure aquatic fauna are not killed or injured during dewatering. Where excavation to house a pump sump is required, decommissioning approach procedures should be implemented	Management / Contractors	Pre-dewatering activities	FFMP Sections 6.2.4 and 6.3
FF14	A qualified ecologist must be present at all times with sufficient support personnel to ensure that the handling, storage and relocation is achieved with minimal stress to aquatic fauna.	Management / Contractors / Project Ecologist	During decommissioning	FFMP Section 6.3.1
FF15	Fauna handling protocols will be followed to ensure native aquatic fauna are not impacted during construction.	Management / Project Ecologist	During decommissioning	FFMP Section 6.4
[WEED AND PATHOGEN MANAGEMENT]				
FF16	General biosecurity duty shall be complied with at all times in order to minimise the risk of introduction and/or spread of biosecurity risks.	Management / Contractors / Employees	Throughout construction	FFMP Section 6.5

ID	Measure/Requirement	Responsibility	Timing / Frequency	Reference / Notes
FF17	Should unexpected biosecurity risks be encountered on site, a stop works procedure must be followed.	Management / Contractors / Employees	Ongoing throughout construction	FFMP Section 6.6
FF18	Declared priority weeds are to be managed according to requirements of the Biosecurity Act. Use of herbicides must be undertaken in accordance with the requirements of the Pesticides Act 1999	Management / Contractors	Pre-clearing / ongoing throughout construction	FFMP Section 6.5
FF19	Hygiene procedures are to be implemented to avoid the introduction and/or spread of soil borne pathogens	Management / Contractors / Employees	Ongoing throughout construction	FFMP Section 6.5.4

5 Terrestrial environment

5.1 Pre-clearance process

5.1.1 Pre-clearance surveys

Pre-clearing surveys are undertaken to provide a final check for presence of flora and fauna species and habitat on a site immediately before clearing begins. Pre-clearing surveys are required to:

- Identify habitat features suitable for native fauna that will require clear felling supervision and which will require a two-stage clearance procedure (refer Section 5.4);
- Identify areas of high priority weeds requiring specific controls (refer Section 3.4);
- Identify any threatened flora or fauna that may have that may have moved into the Project area since ecological surveys were conducted;
- Provide input into determining appropriate exclusion zones; through
    - Recording the details for all habitat features found in vegetation to be cleared (including where applicable: GPS location; species or type of habitat feature)
    - Marking the limits of clearing, habitat features in areas to be cleared and native vegetation to be protected during construction, using suitable methods
- Locate nearby habitat suitable for the release of fauna that may be encountered during the pre-clearing process or habitat removal
- Locate suitable areas for relocation of habitat features (e.g. large woody debris, bush rock)
- Prepare constraints mapping and relevant induction materials
- Determine any additional management measures that may need to be incorporated into the CEMP

5.1.2 Marking limits of vegetation clearing

Prior to any clearing being undertaken within the Project area, the edge of the vegetation to be cleared needs to be clearly delineated. Clearing limits can be marked with high visibility tape, temporary fencing, or other appropriate boundary markers.

To avoid unnecessary damage to adjacent vegetation or inadvertent habitat removal, disturbance is to be restricted to the delineated area. No stockpiling of equipment, soils, or machinery will occur beyond the boundary.

Stock piling of materials must be done so in allocated areas within the clearing boundary and must not be placed within environmental sensitive areas.

The Contractor responsible for the clearance activities will be responsible for ensuring that the boundary markers are installed.

Materials and methods of marking trees to be removed or retained and protected will be agreed to prior to their employment. This will ensure there is no overlap with methods used by various Project contractors and that vegetation to be cleared, habitat features to be cleared, and vegetation to be retained and protected, are clearly identifiable.

Generally to minimise confusion over growing amounts of flagging tape generated by different surveys and the marking of environmental sensitive areas, certain colours will be used for specific purposes. The following colour coding system shall be used for this Project:

- Orange flagging tape = individual trees to be retained and sensitive areas close to and/or adjoining the construction zone;

- Red spray-painted X = habitat trees to be cleared; and
- Yellow flagging tape = habitat features to be cleared that require fauna spotting and staged clearing.

On completion of pre-clearance surveys and marking, this information will be transferred to constraints mapping for use in site inductions and GPS measurements will be provided for use by contractors.

5.1.3 Protection of vegetation to be retained

The location of native vegetation to be protected is shown in Figure 5-1 and includes the following:

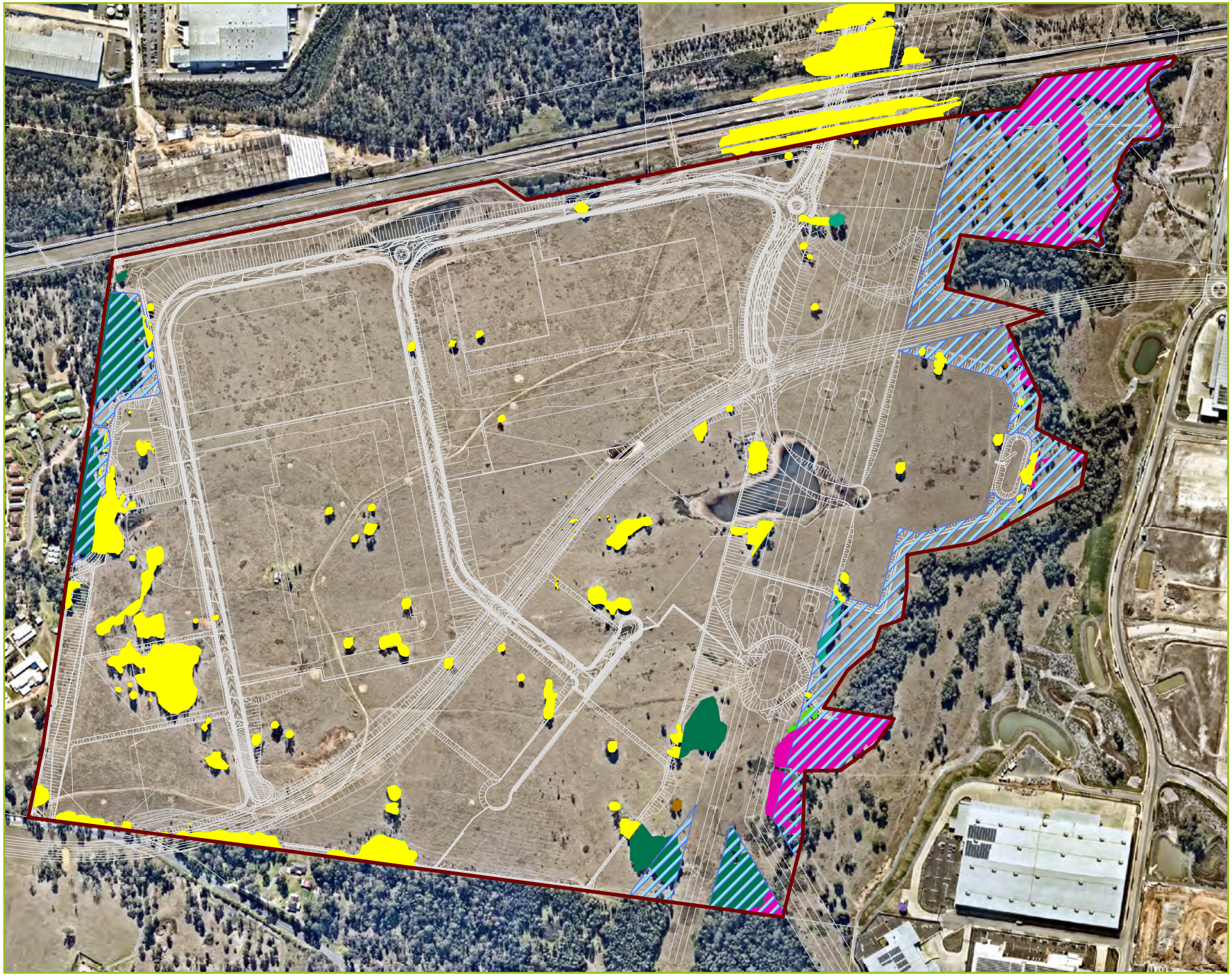
- Biodiversity management zones located:
    - Along the north western boundary of the Project site,
    - The Ropes Creek riparian corridor along the eastern boundary of the Project site,
    - Areas either side of the transmission easement in the south eastern section of the site, and
- Isolated native paddock trees and small remnant native patches as shown in Figure 5-1.

No-go / exclusion zones shall:

- Be made completely visible and known to all contractors working on the Project;
- Be suitably protected by exclusion fencing;
- Remain untouched and not impacted for the duration of construction; and
- Be marked on constraints mapping for use in site inductions.

In addition to exclusion fencing, vegetation that is to be retained within biodiversity management areas and other native vegetation to be retained must be protected through the following:

- All site offices, compounds and stockpile areas shall be located within the limits of clearing or otherwise away from no-go zones;
- Compaction of roots and / or physical damage in accordance with Australian Standard 4970 – 2009 Protection of Trees;
- Construction vehicles shall not enter into vegetation retained beyond the approved impact areas. At no point is cleared vegetation to be bulldozed into adjacent bushland retained beyond the limits of clearing;
- Where possible no plant, including motor vehicles, would be operated within 2x the dripline / canopy of retained trees, i.e. if the tree canopy is four metres in diameter, then an eight metre buffer will be placed around the tree trunk where the plant access is excluded;
- Sediment and erosion controls must be installed and maintained for the duration of the Project (see Section 5.2).



Oakdale West Estate

Flora & Fauna Management Plan

Figure 5-1.
Native vegetation to be retained

Coordinate System:
MGA Zone 56 (GDA 94)

Image sources:
Nearmap 20 July 2019

5.2 Sediment and erosion control

Sediment and erosion control measures are to be installed prior to earthworks and maintained for the duration of the works in accordance with the Project's CEMP and relevant erosion and sediment / soil and water control plans.

5.2.1 Vegetation removal

Specific controls required during vegetation removal include:

- Where vegetation removal is limited to isolated trees and shrubs, the tree/shrub removed shall have the root base backfilled and compacted as required;
- Vegetation in proximity to the Ropes Creek riparian zone and biodiversity management areas shall be cut at the base with the root structure to remain in place until the earthworks stage;
- Grass shall be retained as long as practical along boundaries, which are to convey channelised flows;
- During the process of vegetation clearing, a control bund of cleared vegetation where practical shall be maintained to control run-off as works progress;
- Boundary sediment controls shall be installed as soon as practical as the clearing front advances.

5.2.2 Protection of retained vegetation

Specific controls required to protect retained vegetation and biodiversity management areas include:

- Prior to soil disturbance, appropriate boundary sediment controls (sediment fencing, excavated sediment traps, check dams, straw bale filters, etc) shall be installed around all biodiversity management areas and other isolated areas of remnant vegetation to be retained;
- Stockpiles are not to be placed within no-go zones and shall be located at least five metres from existing vegetation, concentrated water flow areas, roads and hazard areas. Stockpiles shall be less than two metres in height, wherever possible. Where stockpiles are to be in place for more than ten days, they shall be stabilised to reduce the C-factor to less than 0.10;
- Earth banks are to be constructed on the upslope side to divert water around stockpiles and sediment fences one to two metres downslope (see Figure 5-2).

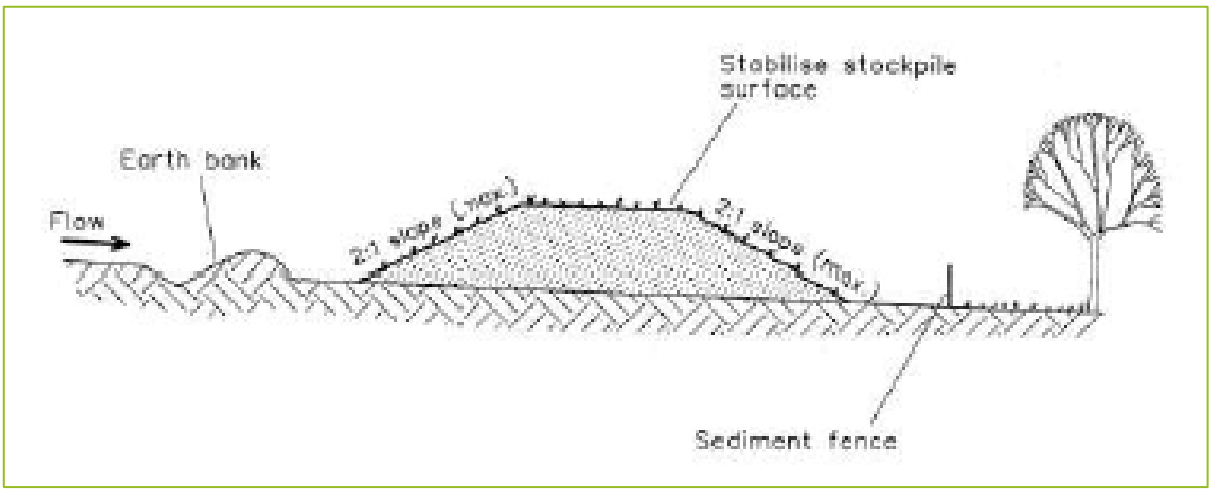


Figure 5-2. Stockpile controls schematic

5.3 Single staged clearing

Where no areas of habitat have been identified in vegetation to be cleared, clearing can be undertaken in a single-stage process, and includes the under-scrubbing of non-habitat trees, shrubs and other vegetation using a combination of forestry harvester and excavator. Vegetation cleared during single-stage clearance shall not be stockpiled on-site as it may provide temporary habitat for displaced fauna.

5.4 Two-staged clearing

A two-stage clearing process is designed to enable fauna to feel secure whilst clearing occurs around their tree, and to allow them a chance to self-relocate at night to coincide with typical foraging behaviours of arboreal animals.

During clearing, an experienced ecologist must be present for the clearing of any habitat features.

Before the commencement of clearing works, local vets and or wildlife carers are to be notified.

5.4.1 Stage 1

Firstly, vegetation not identified during pre-clearance surveys as fauna habitat will be cleared. All vegetation around the habitat item will be cleared so that the fauna habitat item is isolated.

5.4.2 Stage 2

Secondly, identified habitat trees are left to stand overnight to allow resident fauna to voluntarily move from the area. Habitat trees are then cleared using the following protocols:

- Trees will be gently agitated by machinery prior to clearing to encourage any animals remaining to leave the hollows;
- An excavator will be used to start pushing the tree over. The excavator should have a grab mechanism that allows for the habitat tree to be lowered to the ground slowly, thus minimising the risk of injury or mortality to fauna. If salvageable, branches with hollows and sections of trunk will be marked and set aside for transfer to a storage area for eventual placement within rehabilitation areas;
- The ecologist onsite will inspect all visible hollows for the presence of fauna following felling of the tree; and
- The felled habitat tree will then be left over night to allow further opportunity for resident fauna to relocate. Following this, the tree is to be mulched to prevent any additional fauna returning to the tree or transported to the rehabilitation area to be used to provide fauna habitat.

In the event that arboreal animals do not move or they cannot be captured because the tree hollow is too large, high or its recovery would breach WH&S requirements then the tree will be felled (in the direction of other tree debris if possible) and animals recovered post-felling.

5.5 Post-clearing

Following clearing, a post-clearing assessment will be prepared and must include at minimum the following results:

- Details of native fauna captured and relocated, injured or deceased;
- Photos of rescued fauna;
- Number of habitat features felled;
- Analysis of the effectiveness of clearing and fauna rescue methods; and
- Details of any woody debris, bushrock or hollow bearing trees that have been retained for habitat.

5.6 Fauna rescue and release procedure

All fauna handling and relocation shall be undertaken in accordance with this procedure to ensure that impacts upon native fauna are minimised for the duration of clearing works.

Employment of the procedure will assist in natural relocation of fauna that occupy the habitat features identified within the Project boundary, and where required handling and relocation.

5.6.1 Fauna handling protocol

Ecologists are responsible for capturing vertebrate fauna during the habitat clearing process. Fauna handling is to be only undertaken by the experienced ecologist on site or licenced wildlife carer.

All fauna that are encountered during clearance works are to be identified and assessed by an ecologist with records of their health status detailed (e.g. released, self-relocated, transported to vet or as per Wires).

The acting ecologists must operate under the following:

- Scientific Licence under Part 2 of the BC Act; and
- Compliance with the PCA Act.

The following procedure is relevant to the rescue/relocation and transport of fauna, instances where fauna is shocked, trapped, injured, or if eggs or juvenile fauna are discovered.

1. Stop work if encountering any fauna within work area
2. If fauna is not injured allow it to move out of work area
3. If fauna does not move out of work area due to injury or other reasons, the health of the animal must be determined and the decision based on the welfare of the animal and whether it is likely to survive on release. Stress would be minimised through:
    - The use of soft containment and placement in a pet carrier or similar,
    - Animal retained in a quiet, warm location that is well ventilated, and
    - Relevant vet/rescue agency contacted.
4. Once the vet/rescue agency arrives at the site, they are responsible for the animal. Any decisions regarding the care of the animal will be made by the vet/rescue agency.
5. In the event the local veterinary service and/or rescue service cannot attend the site, the injured/captured animal will be transported to their location.

5.6.2 Fauna release locations

A suitable release location must be identified and when needed, injured animals will be assessed by a licensed ecologist and taken to a vet for further treatment if required. The vets nearest to the Project site are

- St Clair Animal Hospital: 1 Olliver Cresent, St Clair. Tel: 02 9670 4955 (Mon-Fri 9am-7pm)
- Colyton Veterinary Hospital: 81 Great Western Hwy, Oxley Park. Tel: 02 9673 1106 (Mon-Fri 8am-7pm) (emergency/after-hours: 0409 291 189)

The location of where each fauna species that is released must also be recorded.

5.7 Weed management and mitigation measures

5.7.1 Weed control

The following methods are to be considered:

- Hand removal and other minimal impact techniques should be the first preference where practical;
- Where manual or mechanical removal is not feasible, treat weed infestations in accordance with the herbicide specific to each species;
- Herbicide application is to be administered by authorised personnel only (ChemCert Accreditation AQF 3), in accordance with Workcover requirements, the *Pesticides Act 1999*, other relevant legislation, label directions and any relevant industry codes of practice;
- Where weeds cannot be effectively destroyed prior to topsoil stripping, contaminated topsoil shall be either encapsulated by deep burying (see Section 5.7.2), or disposed of at an approved off-site facility;
- Weeds are to be segregated and bagged (where possible) when disposing off site. Transport must be covered to further reduce the potential for spread of weed propagules.

5.7.2 Mitigation measures

The following mitigation measures shall be implemented to ensure that the contractor's biosecurity duty is fulfilled and spread of existing weeds or introduction of new weed infestations is prevented.

- The re-use of topsoil and mulch from areas on site should be guided by constraints mapping prepared following pre-clearance surveys;
- Mulch or soils generated from locations that contain high-risk weeds such as those listed in Table 3-8 (see Section 3.4) should not be reused on the Project site unless buried away from any pavement, structure, watercourse or drainage path and covered with fill (free of weeds) of a minimum 500 mm compacted thickness;
- Hygiene protocols should be implemented to ensure that plant and machinery enter / leave the site clean to prevent the spread of weed species (refer Section 5.8);
- Monitoring of the site and general surrounds for weed infestations should be undertaken for the duration of the Project.

5.8 Pathogen Control

5.8.1 Risk of Pathogens on site

Biodiversity assessments undertaken for SSD7348 did not identify evidence of any pathogens of concern within the project area, in particular:

- Phytophora die-back (*Phytophthora cinnamomi*) - a soil borne pathogen that spreads in plant roots in warm, moist conditions. The pathogen appears to be widespread in coastal forests but may also occur at higher elevations. *P. cinnamomi* infects a large range of species. Susceptible species display a range of symptoms; some are killed, some are damaged but endure, and some show no apparent symptoms. The pathogen lives in soil and plant material therefore it is possible to be spread throughout the project area by construction machinery, boots and drainage waters.

  LOW RISK: it is considered unlikely that Phytophthora would be present as species that are susceptible to this pathogen are not present in the Project area. Regardless, hygiene procedures must be implemented throughout all stages of construction.

- Myrtle rust (*Puccinia psidii*) - a fungal disease which infects plants in the Myrtaceae family (eucalyptus, turpentine, bottlebrush, paperbark, tea tree and lilly pilly). Myrtle rust spreads naturally by wind, water, insects and animals. Myrtle rust spores can also spread over long distances if carried on infected plant material, contaminated equipment, vehicles and clothing.

  LOW RISK: no symptoms of infection by Myrtle rust were evident during preclearing inspections. Regardless, hygiene procedures must be implemented throughout all stages of construction.

- Chytrid fungus attacks keratin in frog's skin, which results in breathing difficulties. The fungus also damages the nervous system, affecting the frog's behaviour. Chytrid fungus may be spread on footwear and vehicle tyres and could be spread by construction activities.

  MODERATE RISK: farm dams within the Project area which will be decommissioned over time and amphibians found would be relocated to Ropes Creek. The risk of introducing and spreading the fungus (through the movement of vehicles and plant from sites where this fungus may be present) is therefore possible.

  As such, hygiene procedures for construction plant must be implemented throughout all stages of construction.

5.8.2 Hygiene protocols

- Minimise work during wet/rainy periods;
- Vehicles, plant and machinery are to be clean and free of soil on arrival to the Project area;
- Truck wash down, rumble grids to be installed and operated to ensure mud, weeds or pathogens are not transported around the region or onto roads;
- Mud spilt on roads to be immediately removed by a road sweeper.

5.9 Large Woody Debris

Fauna habitat including large woody debris is to be salvaged for placement in habitat areas within the proposed Biodiversity Offset Areas (Figure 5-5) and as snake refuge (Figure 5-6).

Large woody debris for use in habitat areas will be identified and appropriately marked during pre-clearance surveys. However, it is recognised that it is not always possible to use identified/marked trees should they become damaged as a result of felling.

Any trees (identified and marked for this purpose) that are unable to be used, shall be replaced by suitable alternative material during the clearing process to ensure that the required number of large woody installations in habitat areas are maintained.

5.9.1 Requirements

Up to 50 tree logs (either felled or already located on the ground in clearing areas) are to be salvaged and relocated to the areas as follows:

- 40 relocated to the Biodiversity Offset Area as shown in (Figure 5-5)
- 10 relocated to the Biodiversity Offset Area for snake refuge as shown in on (Figure 5-6).

Where large woody debris is not able to be directly relocated once felled, or otherwise removed from clearing areas, they are to be stockpiled within the Project boundary and all onsite contractors made aware that the material is to be retained.

Large woody debris installed within the 1:100 flood zone (i.e. the eastern most areas of the Biodiversity Offset Area / riparian area of Ropes Creek) will require anchoring to prevent potential dislodgement during floods. Generally anchoring will involve the following:

- The number of anchors for each tree log shall be no less than two (2) and as much as four (4), subject to the length of the tree or as otherwise similarly approved by the Project

superintendent. As a guide anchors should be installed every 3m or at least at each end of the tree log.

- Each anchor shall comprise the installation of a star picket on each side of the tree log with fencing wire looped around the tree log and through the star pickets.
- A 75mm diam x 6mm plate is to be spot welded onto the end of each star picket to avoid potential safety issues (such as trip hazards).

5.10 Snake Management Measures

Consent condition D96 requires that snake management measures to limit, to the extent practicable, movement of snakes from the Project into the adjacent school and retirement village on the western boundary of the Project boundary. Measures that are relevant to this FFMP include the installation of snake, rock piles (see Section 5.10.2) and large woody debris (see Section 5.9).

Installation of solar powered snake deterrents along the western boundary to the school will also be installed once earthworks are completed and disturbed areas along the western boundary are stabilised.

5.10.1 Snake Deterrent Fencing

Fencing to be installed along the western boundary of Oakdale West has been specified to make snake passage difficult, which includes chainlink fencing fabric to 1830mm high and a further 350mm 45 degree return. Detailed drawings are provided in Appendix A.

5.10.2 Rock Piles

- Various rock sizes and shapes are to be salvaged during earthworks and stockpiled within the Project boundary for use in creating snake refuge. All onsite contractors are to be made aware that the material is to be retained
- Three (3) rock piles are to be created in the areas shown in Figure 5-6.
- Rocks piles use a diversity of rock sizes and shapes, with the largest rocks on the bottom of the pile to create hiding places between rocks, with larger, flatter rocks placed on the top of the pile and smaller rocks placed between the bottom and top layers.
- Each rock pile should cover approximately 5 m long x 2 m wide x 1 m high (maximum height). Placement of rocks are to generally achieve the following layers (as shown schematically in Figure 5-3):
    - A bottom layer of larger rocks placed to create hiding places between each rock,
    - A middle layer of smaller sized rocks placed to avoid infilling of hiding places created within the bottom layer, and
    - Occasional, larger and flatter rocks are placed on the top layer to provide basking habitat
- Nominal rock sizes for each layer are suggested as follows:
    - Large rocks between 300mm and 500mm in diameter and maximum thickness of 750mm
    - Small rocks between 100-150mm in diameter
    - Large flatter rocks of varying sizes
- Signage stating "Reptile Habitat do not remove or displace rocks" is to be installed at each rock pile location.

Photographic plates shown in Figure 5-4 provide an indication of what created snake habitat looks like.

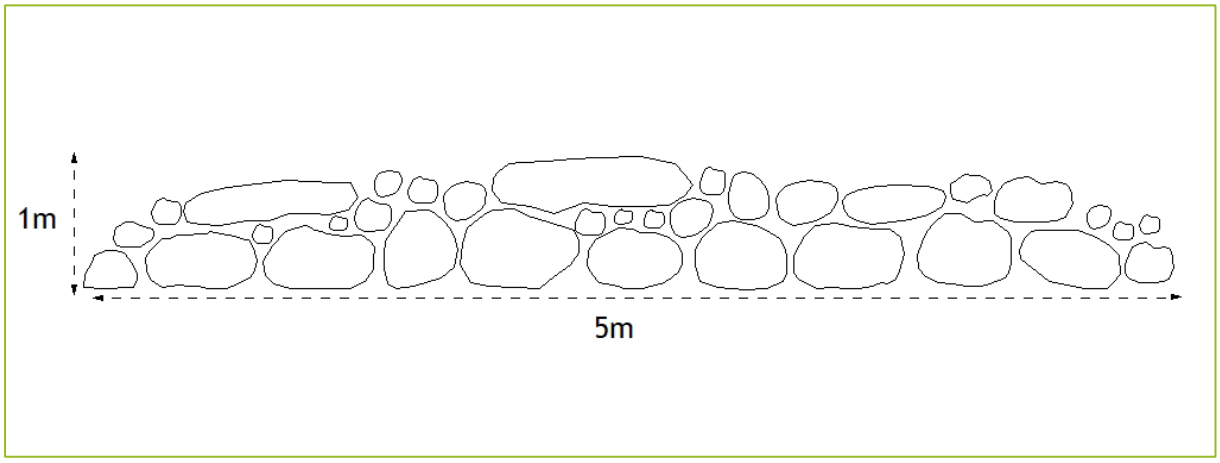


Figure 5-3. Snake refuge schematic

Figure 5-4. Snake habitat - photographs[1]

[1] Reference: Pennsylvania Fish & Boat Commission Division of Environmental Services Natural Diversity Section Guidelines for Timber Rattlesnake Habitat Creation - revised 3-5-2010 https://www.fishandboat.com/Resource/AmphibiansandReptiles/Documents/timber-conserve/HabitatCreationTimberRattlesnakes.pdf

OWE boundary
OWE to remove
WNSLR to remove
Biodiversity area
Vegetation to be retained
Indicative location of LWD habitat

N

0 30 60 120 180 240 m

Oakdale West Flora and Fauna Management Plan

Figure 5-5 Habitat installations

Coordinate System:
MGA Zone 56 (GDA 94)

Image sources:
Nearmap 20 July 2019

Biodiversity area

Indicative location of LWD habitat

Indicative location of LWD habitat

Oakdale West Flora and Fauna Management Plan

Figure 5-6 Snake Refuge

N

0 15 30 60 90 120 m

Coordinate System:
MGA Zone 56 (GDA 94)

Image sources:
Nearmap 20 July 2019

5.11 Unexpected finds procedure

All personnel working on the Project will need to be inducted on the potential for threatened species to occur within the Project area. The stop work procedure in the event any threatened flora or fauna unexpectedly occurs is shown in the following flow diagram.

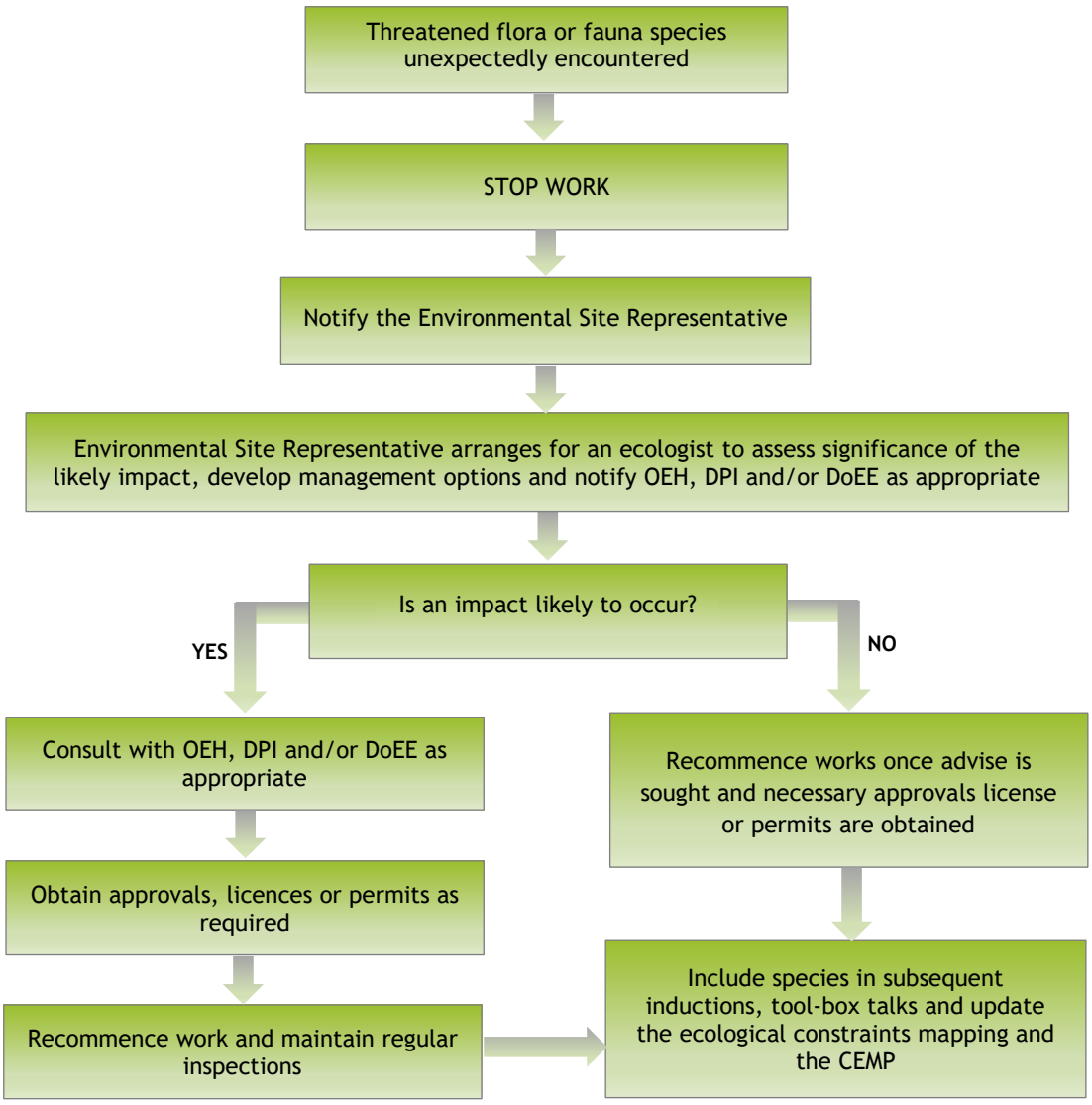


Figure 5-7. Stop work procedure (adapted from RMS Biodiversity Guidelines 2011)

6 Dam Decommissioning Procedures

6.1 Overview

Decommissioning of dams will be staged in line with the Project's development progress and will provide a source of water for initial dust suppression as summarised in Table 6-1.

Table 6-1. Indicative decommissioning timeline

Dam No.	Construction detail	Indicative decommissioning time
1	In deep filling area – to be decommissioned progressively at the start of Project. Will be used as water supply for initial earth works and would draw down progressively for the first 6 weeks	Weeks 5-10
2	To be converted to sediment basin and remain until fill importation works commence around week 45 Will be used as water storage and water supply for fill works	Week 45
3	Current dam is catchment for large area of site. Will remain until Basin 2/3 is constructed.	Weeks 3-6
4	Current dam will remain until Basin 2/3 is constructed.	First 4 weeks

6.2 Pre-decommissioning procedures

Pre-decommissioning aquatic surveys are undertaken to describe the types and species of aquatic fauna that require capture and release and also includes the identification of suitable relocation sites, with water quality sampling and analysis undertaken to support the identification of suitable relocation sites.

6.2.1 Aquatic survey

Aquatic surveys were conducted on the 19th June 2019 using electrofishing techniques and observational recordings. Site surveys were also undertaken to identify suitable relocation sites within Ropes Creek. Species captured and released back into each dam are identified in Table 3-3 (see Section 3.3.2).

6.2.2 Water and sediment sampling

A surface water and sediment sampling program were undertaken at Oakdale West to assess the suitability of dam sediments and water for use in bulk earthworks and the suitability of dam water for discharge to Ropes Creek (AECOM April 2019). The sampling included the small dam which is to be decommissioned as part of the Project works and two sites within Ropes Creek for comparison.

Samples were analysed by laboratories using NATA certified methods to evaluate concentrations of contaminants of potential concern. Laboratory results were than compares to assessment criteria endorsed by the NSW EPA.

AECOM found that the concentrations of contaminants of potential concern were below the adopted assessment criteria in water samples analysed and were also generally consistent between the dam water and Ropes Creek.

6.2.3 Release locations

The release locations within Ropes Creek as shown on Figure 6-1 were selected on the following basis:

- Consistency between water sampling from the farm dam and Ropes Creek
- Accessibility and relatively short distance and subsequent limited time period in which transport of aquatic fauna would be required from the dam to the release site (maximum time required driving slowly from dam to release site = 15mins)
- The geomorphology of the creek at the release site, which provides a relatively wide and deeper section within Ropes Creek and permanence of standing water
- It is an open system, which will enable released aquatic fauna to migrate freely from the point of release to reduce competition and predatory impacts at the release site

6.2.4 Dewatering for dust suppression

Dewatering for use of extracted water for dust suppression must ensure:

- Sufficient water is retained within each dam to provide habitat refuge.
- Suitable filters are installed on pumping equipment to ensure aquatic fauna are not killed or injured during dewatering.
- Where excavation to house a pump sump is required, decommissioning approach procedures should be implemented (refer Section 6.3.2).

6.2.5 Temporary sediment placement

Temporary bunded or silt fenced areas are to be provided alongside each dam for the placement of any sediments removed by excavators for immediate sorting by ecologist(s) to retrieve any fauna present.

The exact dimensions of each temporary holding area will be dependent on the extent of excavation required for decommissioning and the size of each dam (refer Section 6.3.2).

6.3 Decommissioning procedures

6.3.1 Requirements

- A qualified ecologist with relevant permit under Section 37 of the FM Act must be present on-site during, and following, the dewatering to ensure that appropriate action can be taken about care and relocation of fauna residing in the dam.
- Sufficient support personnel must also attend to ensure that the handling, storage and relocation of is achieved with minimal stress to aquatic fauna.
- Dewatering works are to cease when ecologist(s) leave to release fauna. Fauna are not to be handled or removed in the absence of an ecologist.
- Fauna are not to be handled or removed in the absence of an ecologist.

It is recommended that a site meeting be held with the ecologist, contractor and management to ensure that resourcing required is understood.

6.3.2 Decommissioning approach

- The exact method of final dewatering will vary depending on the shape and configuration of each dam being decommissioned.

- Typically a trench will be excavated in isolation from the dam's standing water retaining a berm or where a dam wall exists the trench should be excavated on the landside of the dam wall.
- The berm or dam wall will be breached and aquatic fauna captured via netting. For the major dams it is recommended that fyke netting be installed immediately upstream of the wall. Several nets would be required for rotation as aquatic fauna are progressively captured.
- The wall is then carefully breached to allow water flow into the trench. Fin fish, including eels will naturally migrate towards the flowing water and be captured in nets.
- As water levels lower it is likely that pools of stranded water will occur as a result of undulations in the dam bed. In order to access such pools:
    - An excavator should be used to gradually build a berm into the dam from which access is made possible to breach pools and enable flow to continue.
    - Nets should be relocated as necessary.
    - Additional trench excavation may be required depending on the size of the dam and nature of the dam bed.
    - Sediments removed for construction of trenches should be carefully scooped up by excavator for immediate sorting by ecologist(s) to retrieve any fauna present. Sediments should be placed in temporary bunded or silt fenced areas.
- Ecologist support would also traverse the dam during the de-watering to collect aquatic fauna where accessible, if required.

6.4 Aquatic fauna handling procedures

- Captured aquatic fauna would be temporarily stored in vehicle-based holding tanks for transportation to the release site.
- Holding tanks would vary in size and water depth and duration of temporary storage would be dependent on species captured.

A description of the specific requirements for handling different types of fauna is detailed below.

6.4.1 Amphibians

Hygiene precautions as detailed in the NSW Department of Environment and Climate Change (2008) (now OEH) must be observed when handling frogs.

- Frogs should only be handled when necessary.
- Gloved hands would be made wet in the local water or in wet grass/vegetation so that loss of skin secretions is minimised when frogs are first picked up.
- Frogs will be captured in aerated plastic bags (can be used as a glove) and kept as one per bag for release.
- Frogs should be released at night to disadvantage predators, however if this is not feasible they should be released into dense pool/pond side vegetation.

6.4.2 Turtles

Scoop nets may be utilised to capture turtles from the water. However from experience turtles respond quickly to water draw down and voluntary start to leave the dam and are relatively easy to capture by hand.

- If direct handling is required, captured individuals should be gripped from the side, with a firm grip on both their shell (carapace) and belly (plastron).

- Captured individuals are to be transferred into plastic buckets containing water from the dam for relocation.
- Turtle shells will be wiped down with a sponge to remove any carp eggs that may be attached and turtles transported separately to avoid the risk of shell damage and hence infection.
- Any injured turtles are to be taken to a local veterinary service for treatment.

6.4.3 Fin Fish

- Generally, all native fish would be handled as little as possible. Handling of fish would be in accordance with the NSW Department of Primary Industries (2017) guide to acceptable procedures and practices for aquaculture and fisheries research (4th Edition).
- The removal of the fish's protective mucous covering and reducing temperature shock would be minimised by wetting hands first with dam water.

  Fish would be placed into holding tanks which: allow fish to rest comfortably, minimise the risk of escape or injury, be adequately aerate, maintain constant temperature, and minimise the risk of disease transmission
- The time for which the fish is held should be minimal.
- Wherever possible, fish must be captured whilst still in the water.
- Holding areas must be safe, quiet and hygienic.
- Fish must be assessed regularly if prolonged restraint or confinement is required.
- Fish should be transported in a dark environment, with very low light intensity to reduce stress.
- When releasing fish from holding tanks, fish must be supported by both hands and gently lowered into the water.
- Any captured pest species are to be humanely euthanased and the carcasses disposed in an appropriate manner to prevent any potential contamination of soil or waterbodies.

6.4.4 Dealing with injured native aquatic fauna

Injured fauna will be taken to an appropriately trained animal carer. The trained animal carer will be contacted prior to the start of dewatering to ensure they are able and willing to accept any injured fauna.

6.4.5 Euthanasia

Aquatic fauna would only be euthanased if severely injured and suffering or if they are exotic pest species. Euthanasia would be applied either by way of percussive stunning or hypothermal euthanasia.

Percussive stunning involves a sharp blow to the head in the area just above the eyes (the area adjacent to the brain) using a special tool such as a heavy wooden handle or a priest. When applied correctly the fish’s gill covers should stop rhythmically moving and the eye should remain still.Percussive stunning is considered a good approach provided it is done swiftly and delivered to the correct area.

Hypothermal euthanasia involves the depression of the fish in an ice slurry at a temperature of 2–4 Celsius. The fish is to come into contact with the chilled water as quickly as possible and not come into direct contact with the ice. This may lead to the development of internal ice crystals.

Ropes Creek & tributaries
Farm dams
Aquatic_release_sites

N

0 70 140 280 420 560 m

Oakdale West Aquatic FFMP

Figure 6-1 Dams to be decommissioned

Coordinate System: MGA Zone 56 (GDA 94)
Image sources: Nearmap 22 January 2020

6.5 Biosecurity risk minimisation

6.5.1 General biosecurity duty

Management, contractors and employees are required to fulfil their general biosecurity duty, which may simply be to ensure that their vehicles, boots and equipment are clean of any potential biosecurity risks.

It is expected that management, contractors and employees should know all biosecurity risks associated with the industry, business and relevant day-to-day work activities.

Biosecurity risks relevant to the decommissioning of each dam are to be minimised and mitigated as detailed in the following sections.

6.5.2 Introduction and / or spread of aquatic weeds

The following mitigation measures shall be implemented to ensure that the contractor's biosecurity duty is fulfilled and spread of existing weeds or introduction of new weed infestations is prevented.

- Hygiene protocols should be implemented to ensure that plant and machinery enter / leave the site clean to prevent the spread of weed species. In particular, Contractors that have recently engaged in work activities within waterbodies (watercourses, wetlands, farm dams) must ensure that all equipment and vehicles are free of sediment and plant material.
- Monitoring of the site and general surrounds for aquatic weed infestations should be undertaken prior to disturbance of each dam by the Project ecologist.
- Should alligator weed or other weed species of significance be found at any time, works are to cease in accordance with the unexpected finds procedure (refer Section 6.6).
- Generally, the re-use of topsoil and/or sediments removed during excavation of dams that are found to contain aquatic weeds should not be reused on the Project site unless encapsulated by burying.
- Weed contaminated soils can be buried away from any pavement, structure, watercourse or drainage path and covered with fill (free of weeds) of a minimum 500 mm compacted thickness.

6.5.3 Spread of aquatic pest fauna

The Project ecologist will be responsible for the identification and euthanasia of any aquatic pest fauna rescued from each dam using methods provided in Section 6.4.5.

6.5.4 Introduction and / or spread of Chytrid fungus

The following mitigation measures shall be implemented to ensure that the contractor's biosecurity duty is fulfilled and spread of Chytrid fungus.

- Hygiene protocols should be implemented to ensure that plant and machinery enter / leave the site clean to prevent the spread of Chytrid fungus.
- Contractors that have recently engaged in work activities where the Chytrid fungus is known to occur must ensure that hygiene protocols include disinfection of work boots, car/plant wheels and tyres with benzalkonium chloride (an active ingredient to commercially available products such as 'toilet duck').
- Frogs rescued from each dam are to be inspected for any symptoms of Chytrid fungus by the Project ecologist and transported from the site in accordance with hygiene protocols for the control of disease in frogs (DECC 2008).

6.6 Unexpected Finds Procedure

All personnel working on the Project will need to be inducted on the potential for biosecurity risks to occur within the Project area. The stop work procedure in the event any unexpected biosecurity risk occurs is shown in the following flow diagram.

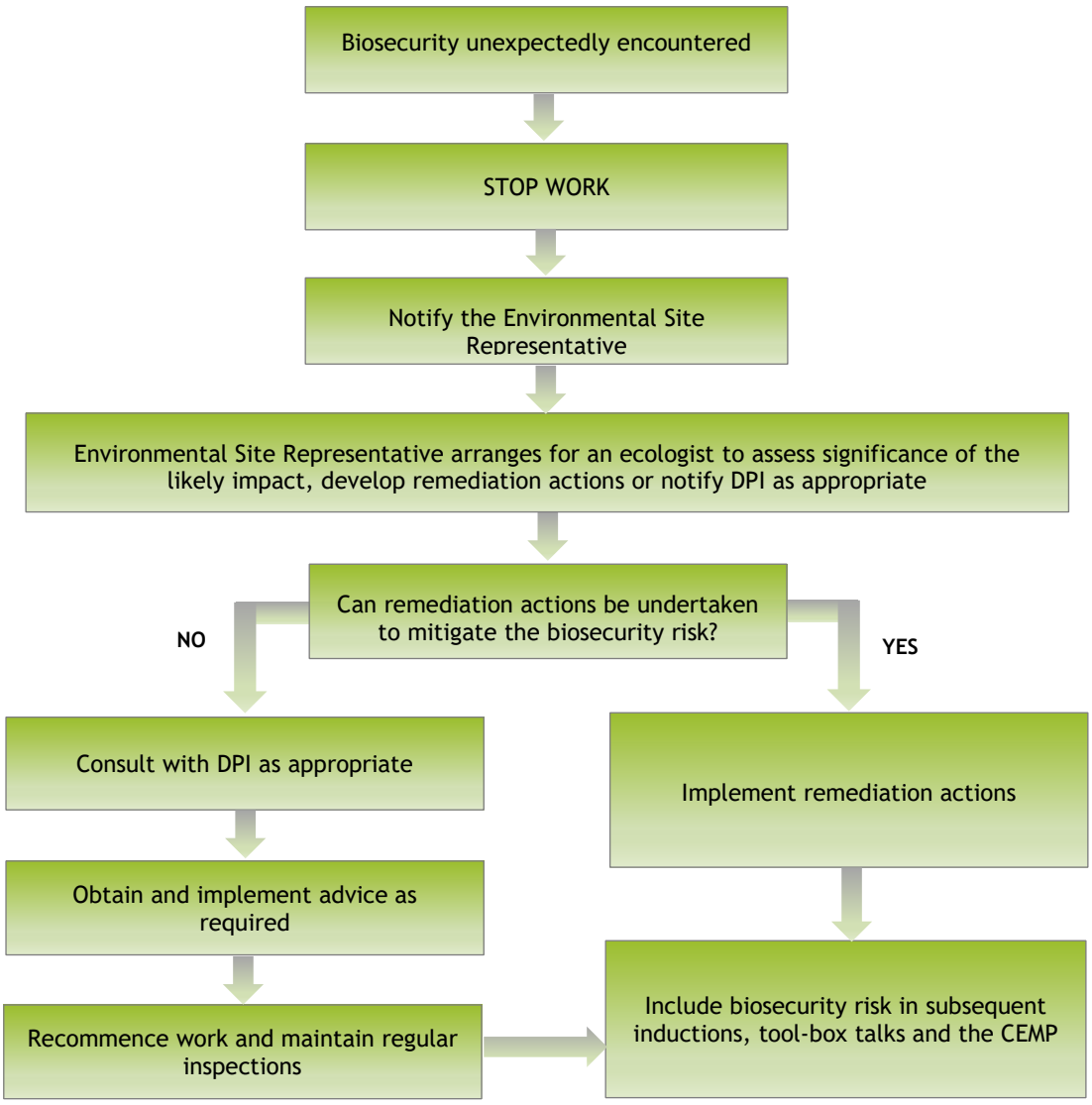


Figure 6-2. Stop work procedure (adapted from RMS Biodiversity Guidelines 2011)

7 Monitoring and Reporting

7.1 Monitoring

Inspections of protected vegetation and activities with the potential to impact on flora and fauna will occur for the duration of the Project.

This shall include inspection of sediment and erosion controls, exclusion-fencing and other protection controls implemented to ensure that these measures remain fully functional for the duration of the Project.

7.2 Reporting

As part of the Project records legible environmental records of all environmental activities associated with FFMP are to be maintained to demonstrate compliance with the SSD7328 consent conditions and related legislation. The records must include:

- Induction and training records
- Pre-clearance survey reports
- Records of related amendments to the Project CEMP
- Post-clearance reports, which are to include:
  - Details of native fauna captured and relocated, injured or deceased
  - Photos of rescued fauna
  - Location of released fauna
  - Number of habitat features felled
  - Analysis of the effectiveness of clearing and fauna rescue methods
  - Details of any woody debris, bushrock or hollow bearing trees that have been retained for habitat
- Reports of any stop work incidents (relating to unexpected finds), associated actions taken, and follow-up actions.

7.3 Performance Targets

The following targets have been established for the management of flora and fauna impacts during the Project, to ensure full compliance with the relevant legislative requirements, approvals, licences or permits:

- No disturbance to biodiversity management areas other than approved clearing
- No disturbance to flora and fauna outside the proposed construction footprint and associated access tracks and site compounds
- Habitat provided through the installation of fifty (50) large woody debris/logs and three (3) rock piles
- No increase in distribution of weeds currently existing within the Project area and no new weeds introduced to the Project area
- No transfer of plant diseases or pathogens to or from the Project work area
- All fauna species encountered during construction are handled humanely in accordance with industry standards
- No pollution or siltation enters biodiversity conservation areas

8 Contingency Plan

Table 8-1 provides a summary contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduced as quickly as possible.

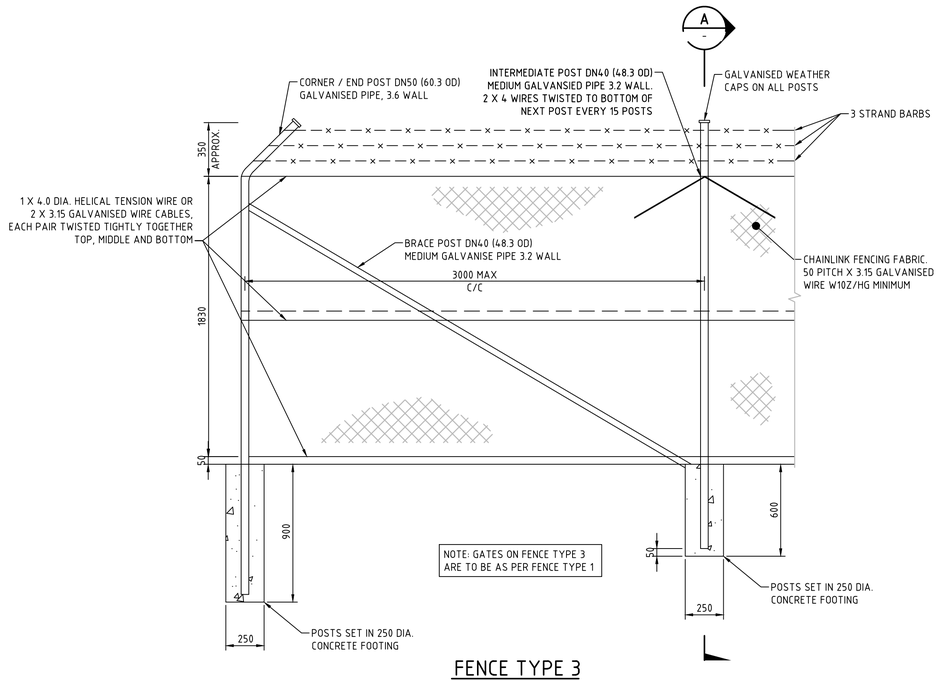
Table 8-1. Contingency Management Plan

Key Element	Trigger/ Response	Condition Green	Condition Amber	Condition Red
Native vegetation clearance	Trigger	Clearing limits are clearly marked and disturbance is restricted to the delineated clearance areas. No stockpiling of equipment, soils, or machinery occurs beyond the clearance boundary. No encroachment of vehicles, equipment or works occurs beyond the clearance boundary.	Monitoring verifies that demarcation of clearing limits is not functioning in accordance with their design intent, OR Works activities / vehicle or plant movements have encroached beyond clearing limits.	Monitoring verifies clearing of native vegetation has occurred beyond clearing limits, OR Works activities / vehicle or plant movements that have encroached beyond clearing limits have caused damage to protected areas of vegetation.
	Response	No response required. Continue monitoring program.	Remediate immediately, OR Review work practices of contractors / personnel responsible and provide further site induction to ensure responsibilities are understood.	Reporting to government agencies. Implement relevant responses and undertake immediate review to determine source of issues and implement remediation measures identified as soon as practicable.
Fauna protection	Trigger	Clearing of native vegetation and habitat features is completed in accordance with Clearance protocols All fauna species encountered during construction are handled humanely in accordance with industry standards	Monitoring/review of reporting procedures verifies that Clearing of habitat features is undertaken in the absence of Clearance protocols, but no fauna species encountered	Monitoring/review of reporting procedures verifies that clearing of habitat features is undertaken in the absence of Clearance protocols, and results in death or injury of fauna species encountered

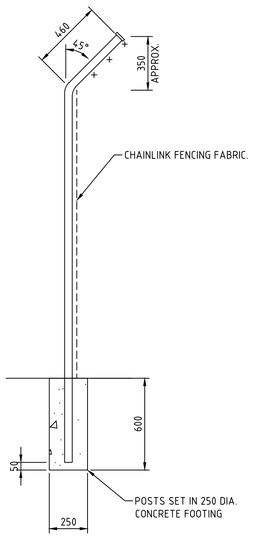
Key Element	Trigger/ Response	Condition Green	Condition Amber	Condition Red
	Response	No response required	Review work practices of contractors / personnel responsible. Further clearance of native vegetation is to cease until further site induction undertaken to ensure responsibilities are understood.	Reporting to government agencies. Implement relevant responses and undertake immediate review to determine source of issues and implement remediation measures identified as soon as practicable.
Native vegetation protection	Trigger	Exclusion fencing and protection measures are installed and are functioning in accordance with their design intent.	Monitoring verifies that exclusion fencing and protection measures are not functioning in accordance with their design intent.	Monitoring verifies that works activities / vehicle or plant movements have impacted on areas of native vegetation to be protected.
	Response	No response required	Remediate immediately	Reporting to government agencies. Implement relevant responses and undertake immediate review to determine source of issues and implement remediation measures identified as soon as practicable.
Dam decommissioning	Trigger	• All aquatic fauna species encountered during construction are handled humanely in accordance with industry standards • No introduction or spread of biosecurity risks within the Project area • No pollution or siltation enters biodiversity conservation areas	Monitoring verifies that dewatering of dams commences or continues in the absence of project ecologist, OR Biosecurity risk identified OR Sediment and erosion controls are not installed correctly	Monitoring verifies that dewatering of dams commences or continues in the absence of project ecologist, and aquatic fauna are harmed or killed OR Biosecurity risk identified is not remediated appropriately and spread from point of origin OR Sediment and erosion controls failed and pollution or siltation enters biodiversity conservation areas

Key Element	Trigger/ Response	Condition Green	Condition Amber	Condition Red
	Response	No response required. Continue monitoring program.	Stop work immediately and implement remediation actions OR Review work practices of contractors / personnel responsible and provide further site induction to ensure responsibilities are understood.	Reporting to government agencies. Implement relevant responses and undertake immediate review to determine source of issues and implement remediation measures identified as soon as practicable.

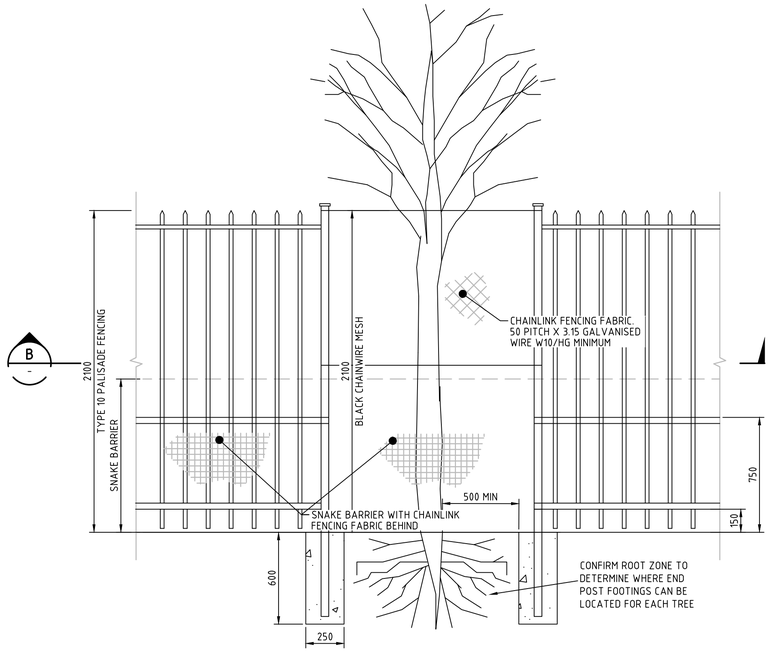
Appendix A – Fencing Detail



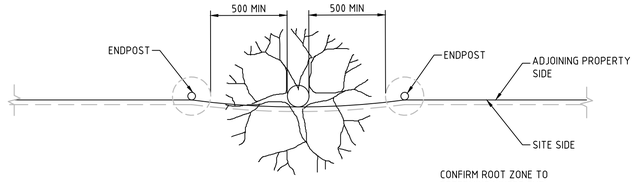
FENCE TYPE 3
BLACK POWDER COATED CHAINWIRE FENCE
1 : 20



DETAIL A
1 : 20

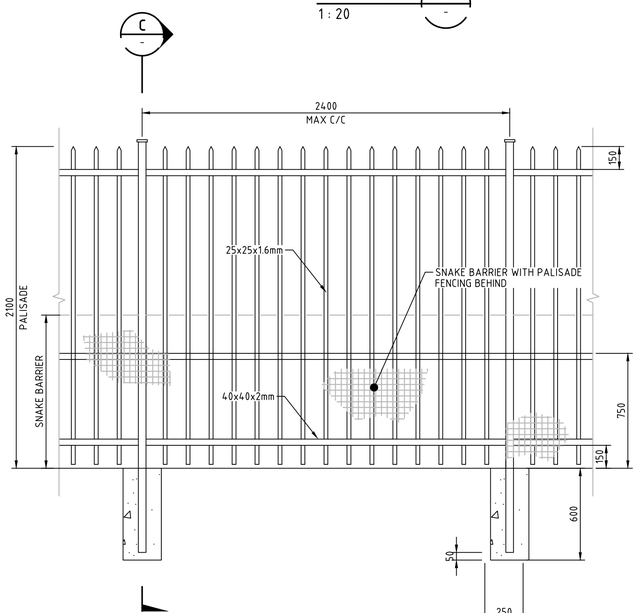


FENCING AROUND TREE ON BOUNDARY DETAIL
1 : 20

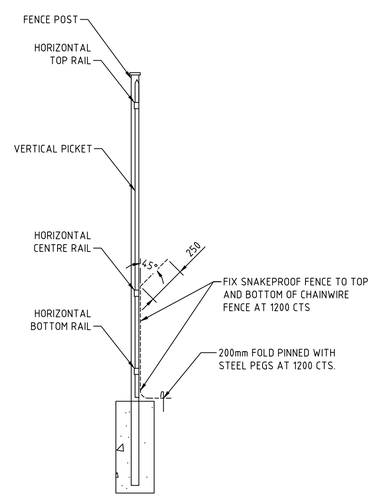


CONFIRM ROOT ZONE TO
DETERMINE WHERE END
POST FOOTINGS CAN BE
LOCATED FOR EACH TREE

DETAIL B
1 : 20



FENCE TYPE 10
PALISADE FENCING
1 : 20



DETAIL C
1 : 20

Bar Scales

0 500 1000 1500

1 : 20 @ A1 1 : 40 @ A3

Issue	Description	Date
D	ISSUED FOR CONSTRUCTION CERTIFICATE	XX-XX-19
C	RE-ISSUED FOR TENDER	02-04-19
B	RE-ISSUED FOR TENDER	10-01-19
A	ISSUED FOR TENDER	17-12-18

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

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION — A1

Scales	AS SHOWN	15-272-C4277.dwg	
		Drawn	GB
		Designed	GB
Height Datum	AHD	Checked	AMc
Grid	MGA	Approved	AMc

Client: Goodman

Civil Engineers and Project Managers
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Level 7, 153 Walker Street
North Sydney NSW 2060
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Project
PROPOSED INDUSTRIAL
DEVELOPMENT
OAKDALE WEST

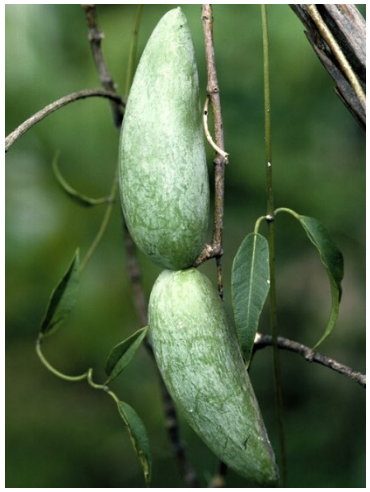
Title
PROPOSED FENCE
DETAILS
SHEET 2

Drawing No.	Project No.	Issue
15-272-C4277	15-272	D

Appendix B – Photographic Plates

Dillwynia tenuifolia

Grevillea juniperina subsp. juniperina | *Pultenaea parviflora*



Marsdenia viridiflora subsp. viridiflora

Pimelea spicata

WEED: Alteranthera philoxerioides (alligator weed) – opposite leaves

NATIVE: Ludwidigia peploides (water primrose) – alternate leaves

WEED: Juncus acutus (spiny rush) – very sharp leave tips

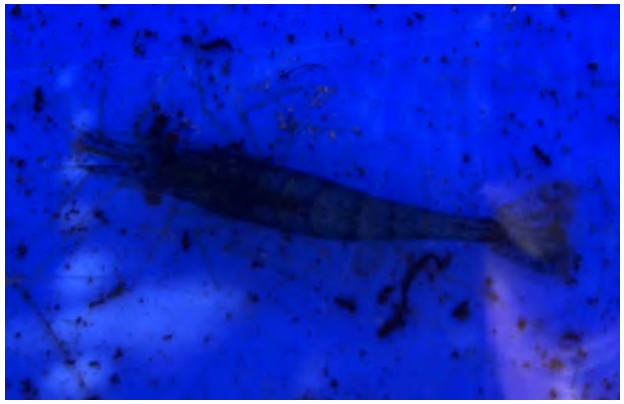
NATIVE: Juncus acutus (common rush) – softer leave tips

NATIVE: Empire gudgeon

PEST: Female (large) and male (small) Eastern gambusia / plague minnow (Schmida 2019)

NATIVE: Short finned eel

PEST: European carp

		
NATIVE: Australian shrimp	NATIVE: Spotted marsh frog	**ENDANGERED**: Green and golden bell frog

APPENDIX D

Landscape Management Plan

Scape Design Pty Ltd
ABN: 79 568 162 276
Suite 5, 15 The Corso, Manly 2095 NSW
office@scapedesign.com.au
NATSPEC Subscriber Number: 15125307

Oakdale West Estate (OWE)
Landscape Management Plan

Prepared by: Scape Design Pty Ltd
Prepared for: Goodman Property Services

Revision Schedule

Revision	Date	Issued by
01	07/12/18	HW & CH
02	13/12/18	HW & CH
03	08/01/19	HW & CH
04	12/06/19	HW & CH
05	25/06/19	MF & CH
06	17/07/19	HW & CH
07	20/08/19	MF & CH
08	21/08/19	MF & CH
09	20/09/19	MF & CH
10	04/10/19	MF & CH
11	31/10/19	MF & CH
12	14/11/19	MF & CH
13	30/03/20	MF & CH

1 TABLE OF CONTENTS

1 TABLE OF CONTENTS ii

2 CONDITIONS 1

2.1 Table of conditions 1

3 INTRODUCTION 3

3.1 General 3
3.1.1 General conditions 3
3.1.2 Drawing reference 3
3.1.3 Workmanship and materials 3
3.1.4 Council Consulation 3

3.2 Description 3
3.2.1 Site location 3
3.2.2 Purpose of landscape management plan 4

4 SITE MANAGEMENT 5

4.1 Environmental aspects 5
4.1.1 Description 5

4.2 Objectives & performance criteria 5
4.2.1 Objectives 5

4.3 Management actions 5
4.3.1 Retention of existing environment 5
4.3.2 Temporary landscape management 6
4.3.3 Permanent landscape management 10

5 VISUAL AND LANDSCAPE TREATMENTS 13

5.1 General 13
5.1.1 Quality 13
5.1.2 Approach 13
5.1.3 Requirements 13

5.2 Maintenance programs 13
5.2.1 General conditions 13
5.2.2 Areas defined in landscape maintenance plan 14
5.2.3 Protection of persons and property 14
5.2.4 Rectification 14
5.2.5 Existing services 14
5.2.6 Access for maintenance 14
5.2.7 Logbook 15

5.3 Maintenance works 15
5.3.1 Plant care 15
5.3.2 Pruning 16
5.3.3 Spraying 16
5.3.4 Fertilising 17

5.3.5 Stakes, ties, treeguards and Root Barriers 17
5.3.6 Mulched surfaces 18
5.3.7 Hydromulching 19
5.3.8 Mowing and topdressing 19
5.3.9 Irrigation & watering 19
5.3.10 Erosion control measures 20
5.3.11 Final cleaning 20
5.3.12 Reinstatement 20
5.3.13 Adjoining property 20
5.3.14 Removal of plant 20
5.3.15 Urgent works 20

5.4 Completion *21*

6 MAINTENANCE SCHEDULES **22**

6.1 Maintenance report schedule *22*

6.2 Maintenance procedure schedule *25*

6.3 Irrigation schedule *26*

6.4 Pruning schedule *27*
6.4.1 Pruning schedule – Oakdale West Estate (OWE) *27*

6.5 Contingency Management Plan *30*

7 APPENDICES **33**

7.1 Referenced Landscape Drawings *33*

7.2 Referenced Landscape Specification *34*

7.3 Goodman Maintenance Guidelines *37*

2 CONDITIONS

2.1 TABLE OF CONDITIONS

Visual Amenity			
Condition No.		Condition	Action
D35. Prior to the commencement of construction of Stage 1, the Applicant must prepare a Landscape Management Plan (LMP), to the satisfaction of the Planning Secretary. The plan must form part of the CEMP in accordance with Condition D119 and the OEMP in accordance with Condition D130 and must:	(a)	*be prepared in consultation with Council*	**Refer to Section 3.1.4** for Council Consultation
	(b)	*detail procedures for the retention of existing native vegetation in the north-western corner of the Site and protection of this vegetation from construction impacts*	Refer to Oakdale West Estate - Flora and Fauna Management Plan *and* Erosion and Erosion and Sediment Control Plan Refer to **Section 4.3.1** of this LMP for species specific vegetation management.
	(c)	*include visual impact mitigation measures for construction including but not limited to:* *(i) the location of site sheds, compounds and machinery parking areas, avoiding the western and southern side boundaries, or other locations highly visible from adjacent residential properties.* *(ii) procedures for progressive grassing of exposed soil, as soon as reasonably practical after disturbance, focusing on the areas where building construction will occur at a later stage*	(i) Refer to Construction Environmental Management Plan *and* **Section 4.3.2** for location of construction facilities operations. (ii) Refer to **Section 4.3.2** of this LMP for procedures of progressive grassing techniques.
	(d)	*detail the works required to construct the landscape bund along the western boundary of the Site, as shown on Figure 5 in Appendix 2, including provision for the landscaping to incorporate mature tree (no less than 75 litre pot size)*	Refer to **Section 4.3.3** of the LMP
	(e)	*include a schedule of works which prioritises the construction of the landscape bund along the western*	Refer to **Section 4.3.3** of the LMP

		boundary of the Site, as shown on Figure 5 in Appendix 2.	
	(f)	*include a program for implementing the landscape bund as soon as reasonably practicable and no later than prior to operation of Stage 1.*	Refer to **Section 4.3.3** of this LMP
	(g)	*describe the integration of landscaping with fixed elements, including retaining walls and noise walls*	Refer to **Section 4.3.3** of this LMP
	(h)	*describe the monitoring and maintenance procedures to ensure the success of the landscaping work over the life of the Development.*	Refer to **Section 5** of this LMP
	(i)	*update the LMP to include modifications to the western bund, bio-retention basin 2/3 and the noise wall approved under MOD 3.*	Refer to **Section 4.3.3** of this LMP
D36. The applicant must:	(a)	*not commence construction of Stage 1 until the LMP is approved by the Planning Secretary*	N/A
	(b)	*must implement the most recent version of the LMP approved by the Planning Secretary*	Noted
	(c)	*Include the monitoring and maintenance procedures contained in the LMP within the OEMP required in accordance with Condition D130*	N/A
Landscaping			
D37. The Applicant must complete the landscape bund along the western boundary of the Site as shown on Figure 5 in Appendix 2 within six months of commencing any construction including bulk earthworks.	-	-	Refer to **Section 4.3.3** of this LMP

D38. The Applicant must maintain all landscaping implemented as part of Stage 1, as shown on Figure 5 in Appendix 2, for the duration of the Development. If the monitoring carried out as part of Condition D35 indicates that any aspect of the landscaping has not been successful, the Applicant must undertake re-planting and rehabilitation works, as soon as reasonably practicable.	-	-	Refer to **Section 5 of this LMP** for maintenance requirements. Refer to **Section 5.3.1 of this LMP** for requirements of unsuccessful planting
Management Plan Requirements			
D118. Management plans required under this must be prepared in accordance with relevant guidelines, and include:	(a)	*details of:* *(i) the relevant statutory requirements (including any relevant approval, license or lease conditions)* *(ii) any relevant limits or performance measures and criteria* *(iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, Stage 1 or any management measures*	*(i, ii)* In relation to landscape softworks, the following Australian Standards are applicable and have guided all landscape works: **AS 4419-1998** Soils for landscaping and garden use, **AS 4970-2009** Protection of existing trees on development sites (where not covered by council requirements) and **AS 2303-2015** Tree stock for landscape use. *(iii)* Refer to this **LMP** for more information.
	(b)	*a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria*	All landscape works have been designed using relevant Australian Standards as a guiding point. Refer to this **LMP** for more information.
	(c)	*a program to monitor and report on the:* *(i) impacts and environmental performance of Stage 1*	(i) Refer to **Section 6 of this LMP** for maintenance and monitoring schedule *(ii)* Refer to **Section 6 of this LMP** for maintenance and monitoring schedule

		(ii) effectiveness of the management measures set out pursuant to paragraph (b) above	
	(d)	*a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible*	Refer to **Section 6.5 of this LMP** for the contingency management plan
	(e)	*a program to investigate and implement ways to improve the environmental performance of Stage 1 over time*	Refer to **Section 5.3 and Section 6 of this LMP** for maintenance and monitoring requirements and schedules
	(f)	*a protocol for managing and reporting any:* *(i) incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria)* *(ii) complaint* *(iii) failure to comply with statutory requirements*	Completed in CEMP
	(g)	*a protocol for periodic review of the plan*	Completed in CEMP

3 INTRODUCTION

3.1 GENERAL

3.1.1 GENERAL CONDITIONS

Contract: Oakdale West Estate (OWE)

Local Council(s): Penrith City Council

3.1.2 DRAWING REFERENCE

All landscape plans, details and specifications included in the project documents should be read in conjunction with the Landscape Management Plan. All structural and civil works components of the landscape design should be referenced to engineers' details and specifications. Read the Landscape Management Plan in conjunction with these packages. If in doubt about any details or if conflicts are found in the documents, seek advice.

3.1.3 WORKMANSHIP AND MATERIALS

All landscape works must be carried out by a competent, trained and qualified landscape contractor who is experienced in horticultural practices, landscape construction and planting techniques.

The landscape contractor must hold a current Building Contractors License and/or be a financial member of LNA Landscape Association NSW & ACT or equivalent organisations in other states.

3.1.4 COUNCIL CONSULATION

Queries and consultation with Penrith City Council (PCC) have been resolved as per the table below:

Query	Penrith City Council (PCC) Advice	Action
-	-	No action required

3.2 DESCRIPTION

3.2.1 SITE LOCATION

The Oakdale West Estate is located in the Penrith Local Government Area (LGA) at the far south-western extent of the WSEA. The site is bound to the north by the Water NSW Pipeline and to the east by the Ropes Creek riparian corridor. Land along the eastern boundary of the site is also affected by a transmission easement associated with TransGrid infrastructure.

Other boundaries interface with adjoining rural lands used for a mix of rural-residential, agricultural. Emmaus Catholic College and Emmaus Retirement Village is located to the west of the site. To the east of the site is Goodman's Oakdale South estate.

3.2.2 PURPOSE OF LANDSCAPE MANAGEMENT PLAN

This Landscape Management Plan (LMP) has been developed as per the Development Consent for the Oakdale West Estate works specifically.

4 SITE MANAGEMENT

4.1 ENVIRONMENTAL ASPECTS

4.1.1 DESCRIPTION

The Landscape Management plan seeks to manage potential visual impacts as a result of operational activities that may affect local and regional visual receptors. These impacts need to be managed to minimise impacts to sensitive visual receptors, and satisfy the conditions of the DA.

4.2 OBJECTIVES & PERFORMANCE CRITERIA

4.2.1 OBJECTIVES

The objectives of this LMP include:

- *ensuring that the conditions of the DA and Goodman Landscape standards are met*
- *managing the visual impacts of the project to comply with the landscape performance criteria*
- *ensuring the visual and landscape treatments are consistent with the ecological revegetation works described in the Oakdale West Estate – Flora & Fauna Management Plan*

4.3 MANAGEMENT ACTIONS

4.3.1 RETENTION OF EXISTING ENVIRONMENT

Existing vegetation retention

Procedures detailing how existing native vegetation in the north western corner of the Site will be protected from construction impacts are provided for in the "Oakdale West Estate - Terrestrial Flora and Fauna Management Plan" (écologique, June 2019).

Generally, clearly marked and identified No-Go zones are to be stablished with star pickets and parawebbing, with site-wide vegetation clearing minimised where possible. Trees that are to be retained are to have a 2x dripline exclusion zone where no motor vehicles are to be operated. Compaction of soil and trampling of tree roots by machinery may lead to the damage and death of retained trees and should be avoided. All site offices, compounds and stockpile areas are to be located within the limits of clearing or otherwise away from No-Go zones. Construction vehicle movements are to be restricted to the haul road network or previously disturbed areas, and should not enter into retained vegetation areas beyond the approved impact areas. At no point is cleared vegetation to be bulldozed into adjacent bushland retained beyond the limits of clearing. These areas will be under the supervision of the project ecologist.

Sediment and erosion control measures are to be installed prior to earthworks and maintained for the duration of the works in accordance with the Project's CEMP. Prior to soul disturbance, appropriate boundary sediment controls shall be installed around all biodiversity management areas and other isolated areas of remnant vegetation to be retained. Stockpiles are not to be placed within No-Go zones and shall be located at least 5 metres from existing vegetation, concentrated water flow areas, roads and hazard areas. Earth banks are to be constructed on the upslope side to divert water around

stockpiles. Further information on sediment and erosion control can be found in the "Oakdale West Estate - Terrestrial Flora and Fauna Management Plan" and the "Erosion and Sediment Control Plans"

Trees to be Retained and Protected

Refer to *Oakdale West Estate - Flora and Fauna Management Plan* for information and requirements relating to existing trees to be protected.

Tree protection measures must be in accordance with Australian Standard AS4970-2009 Protection of trees on development sites.

Any "Site works" including the demolition of existing structures or the entrance onto the site with any machinery for excavation, demolition or large-scale rubbish removal requires protection measures to be installed. These protection measures must be installed prior to the commencement of any site work in accordance with Australian Standard AS4970-2009 Protection of trees on development sites.

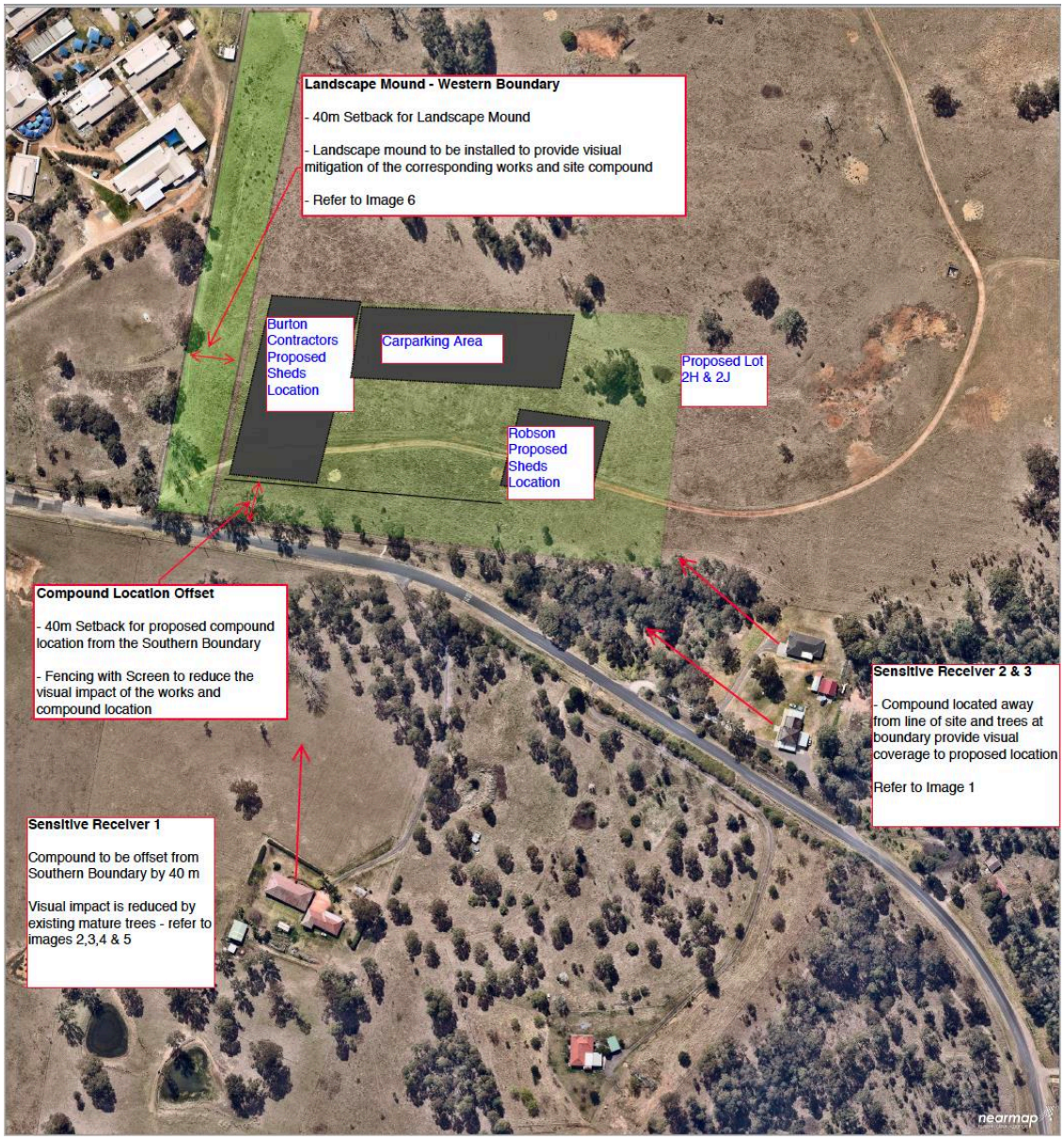
- *Identify and mark trees and shrubs to be retained using a suitable non-injurious, easily visible and removable means of identification.*
- *Protect from damage the trees and shrubs to be retained, including those beyond the site area, both above and below the ground.*
- *If a tree becomes damaged during the works or it is proposed to perform work on a tree, give written notice immediately and obtain instructions.*
- *Keep the area of the drip-line free from construction material and debris. Do not place bulk materials and harmful materials under or near trees.*
- *Do not place spoil from excavations against tree trunks.*
- *Prevent wind-blown materials such as cement from harming trees and plants.*
- *Do not remove topsoil from, or add topsoil to, the area within the drip-line of trees.*

Where existing vegetation is to be retained, that vegetation must be protected from soil compaction, root, trunk and limb damage, soil contamination and changes in surface levels that affect the health of the vegetation.

4.3.2 TEMPORARY LANDSCAPE MANAGEMENT

Site compound access must be suitable in all weather conditions. Therefore, the main site compound is located just North of the Southern site boundary, near Bakers Lane.

The compound is identified below.



Site compounds along the southern site boundary have been offset by 40m to ensure minimal visual impact.

Image 1 – Proposed Compound Location: Taken at the nominated bulk earthworks level looking towards Sensitive Receiver 2 and 3. Existing trees provide visual amenity to the proposed compound location.

Image 2 – Proposed Compound Location: Taken at the nominated bulk earthworks level looking towards sensitive receiver 1. Existing trees provide visual amenity to the proposed compound location.

Image 3 – Proposed Compound Location: Taken at the nominated bulk earthworks level looking towards sensitive receiver 1. Existing trees provide visual amenity to the proposed compound location.

Image 4 – Proposed Compound Location: Taken at the nominated bulk earthworks level looking towards sensitive receiver 1. Existing trees provide visual amenity to the proposed compound location.

Image 5 – Proposed Compound Location: Taken at the nominated bulk earthworks level looking towards sensitive receiver 1. Existing trees provide visual amenity to the proposed compound location.

Image 6 – Proposed Compound Location: Taken from proposed compound location towards Western Boundary. Existing levels are currently higher than the proposed pad bulk level. Landscape Bund to provide visual amenity and reduce the visual impact of works adjacent to school. Further detail of the Landscape Bund is located in the **Section 4.3.3 of this LMP.**

As part of the Soil and Water Management measures implemented by 'The Contractor', the topsoil that is stripped from the site will be stockpiled adjacent in berms adjacent to the tops/toes of batters. Once the earthworks batters in both cut and fill situations are complete, the topsoil will be placed back on these batters and revegetated as required. For completed building pad footprints, 'The Contractor' is to apply a stabilisation polymer with green dye to improve visual amenity of the Site, whilst simultaneously suppressing dust and erosion from exposed soil.

Landscape management actions to mitigate the construction of site sheds, compounds, and machinery parking areas fall into a temporary landscape treatment. The procedures for these treatments require progressive grassing on exposed soils following construction (after disturbance).

Progressive grassing involves seeding, which must be carried out within 2 days of completion of soil preparation, or in the case of inadequate weather conditions, as soon as reasonably practicable after preparation of earthworks. Seed mixture is to be agitated continuously during application, where it is to be applied uniformly over the whole surface. A minimum thickness must be achieved to ensure successful seed germination and growth. Further detail of progressive grassing techniques can be found within the **Landscape Specification and Drawings Packages.**

As outlined in the Visual Impact Assessment, generally visual impacts of site construction are minimal with the western edge being the main exception. As a result, a landscape bund is to be completed early on in the Projects timeline. Further detail of the Landscape Bund is located in the **Section 4.3.3 of this LMP,** and further information about visual impacts can be found in the "Visual Impact Assessment".

Refer to Detail 03-01-03 – L.CD.600 for pasture grass revegetation.

Refer to Section 7.1 and 7.2 in Appendices for referenced **Landscape Specification and Drawings.**

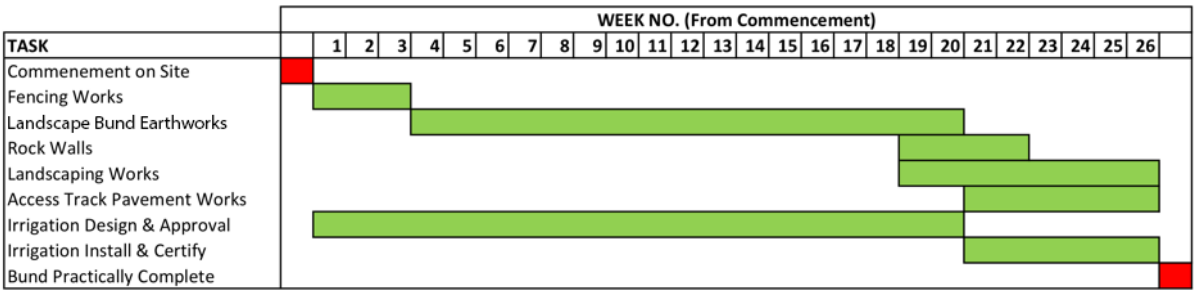
4.3.3 PERMANENT LANDSCAPE MANAGEMENT

Landscape Bund

The major screening element to be constructed will be the environmental bund along the western boundary of the site.

Once the site is established and environmental protections are in place, the new western boundary fence with snake barrier adjacent the school will be installed. Earthworks will commence to provide the spoil material for the western bund which will be formed, shaped, landscaped and irrigated, with a commitment made that this will be complete within 6 months of commencing earthworks on site, and prior to operation of Stage 1. Vegetation on this landscape bund is to incorporate mature trees that are no less than 75 litre in pot size. For further information regarding landscape bund implementation refer to the table below and Construction Management Plan.

Target Programme for Western Landscape Bund
Oakdale West Estate



Further detail of the landscape bund can be found within the Oakdale West Estate **Landscape Drawings (Refer to Section 3 on Landscape Drawing L.CD.501 and detail 08-02-08 on Landscape Drawing L.CD.601).**

Integration of landscaping with fixed elements

The Integration of fixed elements and the landscape within the Oakdale West Estate (OWE) include elements such as:

Bio Retention Basins No.'s 2, 3, 4 and 5
Bio Retention Basins are to be entirely vegetated with **RM3** 'Pasture Grass Revegetation Mix' **refer to Landscape detail 03-01-02 on L.CD.600** for further details.

Drainage Culverts
All drainage culverts are to be finished as per the CIVIL ENG. Drawings. Monitor maintenance requirements at the interface of all drainage culverts & gutters (Section 5 of this LMP).

Entry Signage
Entry signage is typically to be installed within TF1 – Turf Rolls. Monitor Maintenance requirements of lawn care with interface elements (Section 5 of this LMP).

Fencing& Gates
All fencing and gates are to be finished as per the CIVIL ENG. Drawings. Monitor Maintenance requirements with lawn care at fence and gate interfaces (Section 5 of this LMP).

Maintenance and Access Tracks
Typically, the maintenance tracks around the Bio Basins are to be revegetated with **RM1A/B & RM3**. **Refer to Landscape detail 03-01-02 and 03-01-03 on L.CD.600** for further details

Noise Walls
Noise walls are typically to be installed within TF1– Turf Rolls or revegetation mixes (seed). Monitor maintenance requirements of lawn care, hydroseeding and their interfaces (Section 5 of this LMP).

Planted Verges (Excluding Turfing)
Where road medians and verges are to be planted, **250mm of mulch only** is to be used next to kerbing. **Refer to Landscape detail 03-02-20 on L.CD.600** for further details.

Retaining Walls

Retaining walls and balustrading are to be finished as per CIVIL ENG. Drawings. Planting at the top of RW09 is inclusive of spill over species (PM4B) these are to be planted at the front of the top of the wall. PM4B is also to be planted at the base of the wall as a buffer between the outlet swale and RW09. **Refer to Section 4 on Landscape Drawing L.CD.501** for further detail.

5 VISUAL AND LANDSCAPE TREATMENTS

5.1 GENERAL

5.1.1 QUALITY

This section of the Landscape Management Plan describes the procedures to ensure the success of the landscaping work over the life of the development.

All landscaped areas must be maintained to the approval of the principal and landscape architect.

5.1.2 APPROACH

A proactive approach to all landscape tasks must be adopted to ensure that the appearance of the landscape as a whole is highly presentable at all times.

5.1.3 REQUIREMENTS

Contractors must submit annual routine landscape maintenance program to the Project Superintendent, Landscape Manager and/or the Landscape Architect within two weeks of the contract commencement date.

It is the contractor's responsibility to ensure the success of the landscaping work over the establishment period of the development.

5.2 MAINTENANCE PROGRAMS

5.2.1 GENERAL CONDITIONS

The Contractor shall rectify all defects during installation that become apparent in the works during the defect's liability period **(18 months).**

The Contractor shall maintain the contract areas by the implementation of industry accepted horticultural practices between the date of practical completion and the date of final completion **(18 months).**

The landscape maintenance works shall include, but not be limited to the following:

- *Replacing failed plants*
- *Pruning*
- *Herbicides/Insect and pest control*
- *Fertilizing*
- *Maintaining mulch*
- *Mowing*
- *Watering/Irrigation*
- *Weeding*
- *Rubbish removal; and Cleaning of the surrounding areas.*
- *Timber stakes and ties*

Ongoing maintenance: Ongoing maintenance facilitated by the Owner's corporation. Goodman is to contract the management of all landscape areas. The standard specification and reporting requirements of this contract are located in Goodman's Landscape Guidelines. **Refer to Section 7.3 in Appendices** for further detail.

Safety: Safety procedures/ plans are to be documented for review by Principal prior to commencement of work.

Failure to maintain the landscape planting in a healthy condition may result in the Principal arranging for the maintenance work to be carried out by others at your expense.

5.2.2 AREAS DEFINED IN LANDSCAPE MAINTENANCE PLAN

Hard and Soft Landscape works to be maintained throughout the maintenance program includes all landscape areas including the landscape bund and street trees.

5.2.3 PROTECTION OF PERSONS AND PROPERTY

Temporary works: Provide and maintain required barricades, guards, fencing, shoring, temporary roadways, footpaths, signs, lighting, watching and traffic flagging.

Accessways, services: Do not obstruct or damage roadways and footpaths, drains and watercourses and other existing services in use on or adjacent to the site. Determine the location of such services.

Property: Do not interfere with or damage property which is to remain on or adjacent to the site, including adjoining property encroaching onto the site, and trees.

5.2.4 RECTIFICATION

Accessways, services: Rectify immediately any obstruction or damage to roadways and footpaths, drains and watercourses and other existing services in use on or adjacent to the site. Provide temporary services whilst repairs are carried out.

Property: Rectify immediately any interference or damage to property which is to remain on or adjacent to the site, including adjoining property encroaching onto the site, and trees.

5.2.5 EXISTING SERVICES

General: Attend to existing services as follows:

- *If the service is to be continued, repair, divert or relocate. Submit proposals.*
- *If the service crosses the line of a required trench, or will lose support when the trench is excavated, provide permanent support for the existing service. Submit proposals.*
- *If the service is to be abandoned, remove redundant parts, and make safe.*

Proposals: Submit proposals for action to be taken with respect to existing services before starting this work. Minimise the number and duration of interruptions.

5.2.6 ACCESS FOR MAINTENANCE

Requirement: Provide access for maintenance of plants and equipment.

Standards: Conform to the relevant requirements of AS 1470, AS 1657, AS/NZS 1892.1, AS 2865 and AS/NZS 3666.1.

Work Health and Safety: Conform to the requirements of the applicable Work Health and Safety regulations for all temporary and permanent works.

Protection from injury: Protect personnel from injury caused by contact with objects including those that are sharp or protrude at low level.

5.2.7 LOGBOOK

Ensure a Maintenance Logbook is recorded to demonstrate that maintenance work has been undertaken and what materials, including chemical materials, have been used throughout the maintenance and establishment period.

The logbook must include the date of visit, maintenance works completed, maintenance works in progress and maintenance works required. The logbook must give details of damaged, dead or missing plants and show their locations on the relevant sheets of the Drawings.

Use the logbook to identify chemicals used as well as the reason for their use. Submit the initial logbook for inspection prior to Practical Completion and again at the end of the Defects Liability Period as a prerequisite for granting Practical and Final Completion Certificates.
Record all major events and activities in the logbook. Ensure the logbook is available for inspection on request.

5.3 MAINTENANCE WORKS

5.3.1 PLANT CARE

Planting: Ensure the general appearance and presentation of the landscape and the quality of plant material at date of practical completion is maintained for the full planting establishment period. Trees, shrubs and groundcovers shall at all times display healthy growth. Spent flower heads or stalks shall be removed immediately following flowering.

All shrubs, hedges, ground covers and trees must be trimmed into shape as required to an acceptable presentation standard.

Excessive foliage impacting onto roads, paths, fencing and lighting must be pruned during all site visits. Leaf litter and or all cuttings should be removed from all gardens and site each visit and disposed of at contractor's cost. Any dead or dying plants/shrubs should be removed and replaced with same or comparable species. The Landscape Manager must be consulted when large trees need to be removed and or replaced. The contractor will maintain each plant in a healthy condition to increase the visual appeal of the gardens.

Replacements: Replace failed, dead and/or damaged plants at maximum 3-week intervals as necessary throughout the full plant establishment period. 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 Contractor unless advised otherwise. If the cause of the failure is due to a controllable situation then correct the situation prior to replacing plants.
Keep all planting areas as specified and free of grass and weed.
Carry out grass and weed removal at intervals of not more than four (4) weeks and ensure that weeds do not flower to form seed heads.

For those species listed by the relevant local government authority as noxious under the Biosecurity Act 2015 take action as required by that local Government Authority (Penrith City Council). Refer to the Flora and Fauna Management Plan (FFMP) for further information regarding Weed Management and Mitigation Measures.

5.3.2 PRUNING

General: Prune to the Pruning schedule and AS 4373.

Any pruning 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.

Pruning to ensure pathways, roads, lighting and services such as fire hydrants, overhead services and signs are kept clear from encroaching growth of plant material at all times.

- *Remove all damaged, dead or diseased wood by pruning to the nearest lateral shoot or active bud with a neat clean cut*
- *No more than 40mm - 50mm of new growth present on hedges at any time*
- *Remove all spent or dead flower heads from plants following flowering*
- *Prune young shrubs for shape by pinching out the growing tips to encourage lateral bushy growth*
- *Hedging shall be carried out to appropriate plants within garden beds. This should be carried out on a regular basis so as to avoid cutting back into 'old wood' in order to achieve the desired form.*
- *All existing hedges on site to be maintained*
- *Removal of suckers from base of trunks*
- *Formative pruning of trees to allow effective canopy development and retain natural or desired shape of the tree*
- *Pruning cuts shall be made and close to the bud at a 45° angle to ensure that any water is shed away from the bud*

5.3.3 SPRAYING

Responsibility for insect and disease control: Contractor

Period of treatment: Until the problem has been eliminated.

Chemical spray: Apply outside of normal working hours.

Avoid spraying:

- *whenever possible*
- *in the case of wet weather*
- *if wet weather is imminent*
- *if target plants are still wet after rain*
- *during windy weather*
- *if adjacent desirable species are too close to the target plants to be avoided.*

Do not spray where herbicide could fall into a watercourse or when wind conditions could cause drift outside the area to be treated or onto desirable plants.

After spraying, lop any dead weeds flush with the ground surface and dispose of the cuttings. Remove by hand any weeds which cannot be controlled by herbicide. Ensure that the entire weed including all roots is removed. Dispose of the weeds off site.

Immediately report to the Project superintendent/landscape 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*

5.3.4 FERTILISING

Soil tests: Take samples from planting beds areas and conduct tests.

Fertilising: Base the fertilisation program on the soil testing results. Fertilise trees once every two years. Generally, apply an all-purpose fertiliser of N:P: K (nitrogen: phosphorus: potassium) 10:4:6 at recommended rates. Alternatively apply 12-month slow release fertiliser (such as Nutricote) at the manufacturer's recommended rate. Apply all-purpose fertiliser to shrubs annually in two bands and cultivated into the soil 100 mm deep.

Record in the logbook all relevant details of fertilizing including:

- *Product brand / manufacturer's name*
- *Fertilizer / product name*
- *Application quantity and rate*
- *Date of Application and Location*

5.3.5 STAKES, TIES, TREEGUARDS AND ROOT BARRIERS

Stakes
Generally: If plants are unable to be self-supported or if stakes are damaged, stake or restake the plants

Material: Hardwood, straight, free from knots or twists, pointed at one end.

Installation: Drive stakes into the ground at least one third of their length, avoiding damage to the root system.

Stake sizes and quantities:
- *For plants ≥ 2.5 m high: Three 50 x 50 x 2400 mm stakes per plant.*
- *For plants 1 to 2.5 m high: Two 50 x 50 x 1800 mm stakes per plant.*

- *For plants < 1 m high: One 38 x 38 x 1200 mm stake per plant.*

Ties
General: Provide ties fixed securely to the stakes, one tie at half the height of the main stem, others as necessary to stabilise the plant. Attach ties loosely so as not to restrict plant growth.

Tie types:
- *For plants ≥ 2.5 m high: Two strands of 2.5 mm galvanized wire neatly twisted together, passed through reinforced rubber or plastic hose, and installed around stake and stem in a figure eight pattern.*
- *For plants < 2.5 m high: 50 mm hessian webbing stapled to the stake.*

Marker stakes
Material: Timber offcuts 25 x 25 x 1200 mm. Dip the top 200 mm in white paint.
Installation: Drive firmly into the ground at least 300 mm from the plant. Do not tie to the plant.

Location of marker stakes:
- *Trees in grass: Mark each tree.*
- *Rip line planting areas: Mark each rip line at every fifth plant along the line.*

Trunk protection/Tree guards
Collar guards: 200 mm length of 100 mm diameter agricultural pipe split lengthways.
Removal: If plants are robust with well-developed systems and are strong enough to no longer require support, remove stakes and ties at the end of the planting establishment period (Defects Liability Period).

- Adjust and replace as required to ensure plants remain correctly staked.

- Repair any tree ties that have been broken and replace any missing stakes.

- Maintain the tree guards around each plant so that the natural plant growth is not impeded or restricted. Replace damaged and missing tree guards as soon as practicable after being identified.

- Remove tree guards progressively as plants mature and where it is deemed that the tree guard provides no further benefit to the establishment of the plant.

Root Barriers
Type/ location: Street Trees **Refer Detail 08-02-22 on L.CD.601** City Green 'ReRoot' 600mm Depth

Supplier: City Green. Ph: +61 1300 066 949

https://citygreen.com/products/reroot/

5.3.6 MULCHED SURFACES

The contractor is required to maintain all areas of mulch cover within garden beds. Displaced mulch should be returned to the garden beds wherever possible. All areas of mulch cover must be packed to a depth of 75mm. If replacement of mulch is required, the contractor must notify the Landscape Manager and provide quotation for approval. Specific mulch must be approved prior to installation.

5.3.7 HYDROMULCHING

General: Maintain temporary and permanent grassing areas.

Weeding: Remove weeds that emerge in newly established hydroseeded/hydromulched areas.

Reseeding: Repair topsoil, supplementing if necessary, to achieve design surface levels. Reseed over the course of the contract to maintain required densities and repair bare patches.

Watering: Until germination, keep the surface damp and the topsoil moist but not waterlogged.

After germination: Water to maintain a healthy condition, progressively hardened off to the ambient climatic conditions

5.3.8 MOWING AND TOPDRESSING

Mow and edge all turf areas and remove all grass clippings. Do not mow if there is litter, roadside rubbish and debris left on the turf as the litter may be transformed into confetti-like pieces after mowing.

Unless directed otherwise, the cut grass height must not be less than 35 mm or greater than 75 mm. Do not remove more than 50% of the height of the uncut grass at any one time. The upper limit may be varied to account for terrain, species of grass and presence of debris.
Clippings may remain where they fall, except for those that fall on road surfaces, line drains, footways or paved areas where they must be swept clear.

Lawn care
Lawn areas, including nature strips must be neatly mown and edged weekly in the high season (summer months), fortnightly in the low season (winter months), or weekly if required due to abnormal weather condition. All clippings must be removed from the site. All lawns must be fertilized once a year with an approved lawn fertilizer.

Interface Issues
Where landscape treatments requiring lawn care interface fixed elements such as signage, fencing and walling ensure optimal care to avoid damaging the fixed element.

5.3.9 IRRIGATION & WATERING

Maintain the irrigation system to sure that each individual plant receives the required amount of water to maintain healthy growth, adjust and rectify as required.

Provide additional hand watering, if irrigation system fails or is yet to be installed.
Undertake watering at two-day intervals for four weeks after completion of each planting area.

The irrigation system must be fully functional at all times to ensure that all plants, trees and lawns receive adequate water at optimal frequency. The system should be tested during each site visit to ensure proper operation timing is set correctly. Adjustments must be made where necessary.

It is the contractor's responsibility to submit a bi-monthly report throughout the defect's liability period. This report should include a comprehensive report on the operational function of the system.

Notification as to when the system is in need of major repair must be done so immediately as the cost of major repairs to the system can be claimed as variation to the contract price and should be invoiced separately.

When water restrictions prevent the use of the irrigation system, arrangements must be made by the contractor to provide an alternative system of watering. Under no circumstances should plant stock be allowed to perish through lack of water.

Locations of water supply points have been marked indicatively on Landscape Drawings; all irrigation supply conduits are subject to Sydney Water Approval.

5.3.10 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. Refer to the **Erosion and Sediment Control Plan** for erosion control measures.

5.3.11 FINAL CLEANING

Lamp and filter replacement and the like are dealt with in the various SERVICES worksections.

General: Before practical completion, clean throughout, including interior and exterior surfaces exposed to view. Clean debris from the site, roofs, gutters, downpipes and drainage systems. Remove waste and surplus materials.

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.

Samples: Remove non-incorporated samples, prototypes and sample panels.

5.3.12 REINSTATEMENT

General: Before practical completion, clean and repair damage caused by installation or use of temporary work and restore existing facilities used during construction to original condition.

5.3.13 ADJOINING PROPERTY

Evaluation: At practical completion, for properties described in the Adjoining properties to be Recorded schedule inspect the properties with the project superintendent, recording any damage that has occurred since the pre-commencement inspection.

5.3.14 REMOVAL OF PLANT

General: Within 10 working days after practical completion, remove temporary works and construction plant no longer required. Remove the balance before the end of the defect's liability period.

5.3.15 URGENT WORKS

Not with standing anything to the contrary in the Contract, the Project Superintendent may instruct the Contractor to perform urgent maintenance works that place the completed contract works at risk.

If the Contractor fails to carry out the work within seven (7) days of such notice, the Project Superintendent (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 Contractor.
Such work shall include but not limited to the inspection and clearing of drains in the pavement and gardens.

5.4 COMPLETION

A final inspection shall be made by the Project Superintendent, 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.

Maintenance requirements should extend for a minimum of 18 months after the completion of works (i.e. Practical Completion or PC). Prior to handover, the contractor(s) is/are required to submit all maintenance records, progress reports and a final monitoring report. The final monitoring report shall provide a summary of all works undertaken during the plant establishment period.

6 MAINTENANCE SCHEDULES

The following Maintenance Schedule is only applicable to the 'Defects Liability Period' and/or 'Establishment Period'.

6.1 MAINTENANCE REPORT SCHEDULE

General

Landscape Maintenance Schedule, Landscape Maintenance Procedure Schedule and Landscape Specification are to be read in conjunction with one another

Task	Activity	Frequency						Action
		D	W	F	M	3-6M	Y	
1	Logbook				x		x	Complete a logbook entry when at site and at a minimum every two weeks. Upon request, make the logbook available for inspection. Submit copies of new entries in the logbook to the Contract Administrator on a monthly basis. Maintenance requirements should extend for a minimum of 1 year 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 corridors, basins and verge/median planting is achieved.
2	Planting and Replacement			x	x			Inspect planting every 2 weeks and remove spent flowers and dead stalks as they become apparent. Inspect and replace failed plants within 2 weeks of observation of failure. Match species with original planted sizes and location of new with old.
3	Pruning			x				Inspect every 2 weeks and prune as necessary to remove dead wood.

								Pruning should Improve plant shape and promote healthy new growth.
4	Spraying			x				Inspect every 2 weeks and action as necessary. Do not spray if other nonchemical methods will satisfy the need to remove pests. Spray for disease control only when absolutely necessary.
5	Fertilising					x		Fertilise gardens every 3 months or in accordance with fertiliser manufacturer's directions.
6	Stakes and Ties			x			x	Inspect every 2 weeks, adjust and/or replace as necessary but remove as plants mature and are able to support themselves.
7	Mulching			x			x	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 fertilizer 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 yearly period.
8	Hydroseeding		x		x		x	Remove weeds monthly that emerge in newly established hydroseeded/hydromulched areas. Reseed monthly over the course of the contract to maintain required densities.

								Water until germination, keep the surface damp and the topsoil moist but not waterlogged. After germination: Water to maintain a healthy condition, progressively hardened off to the ambient climatic conditions
9	Mowing and Topdressing			x	x	x		Summer fortnightly. Winter monthly. Top-dress 6 monthly.
10	Irrigation and Watering	x		x				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.
11	Erosion Control Measures							Refer to the **Erosion and Sediment Control Plan** for erosion control measures.
12	Final Cleaning		x				x	Inspect and remove litter 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 12 months after the completion of primary works with an increase in maintenance hours occurring throughout the warmer growing months.
13	Urgent Works		x					Complete within 1 week (7 days) of notification. Inspect and clear drains as required.

* Key: D – Daily, W – Weekly, F – Fortnightly, M – Monthly, 3-6M – Quarterly or Half Yearly, Y – Yearly

6.2 MAINTENANCE PROCEDURE SCHEDULE

Maintenance Scope of Works

The Maintenance procedure schedule should be used as a check list of tasks when in attendance

Week	Spring (Sep, Oct, Nov)	Summer (Dec, Jan, Feb)	Autumn (Mar, April, May)	Winter (June, July, Aug)
1	Mow and trim lawns	Mow lawns, weed	Mow Lawns	Weed
2	Weed; trim and adjust trees and shrubs	Weed; mow lawns, trim and adjust trees and shrubs	Weed; mow lawns, trim and adjust trees and shrubs	Mow and trim lawns Trim and adjust trees and shrubs
3	Mow and fertilise lawns; treat plant material for insects and disease	Mow lawns; weed; treat plant material for insects and disease	Mow and trim lawn	Weed
4	Weed; topdress, condition lawns and oversow bare patches; issue logbook	Weed; mow and trim lawns; issue logbook	Weed; mow lawns; issue logbook	Mow lawns; issue logbook
5	Fertilise all trees and shrubs in garden beds; mow and trim lawns	Mow lawns; weed	Mow lawns	Mow lawns
6	Weed; inspect mulch for deficiencies in cover; check and adjust irrigation	Mow lawns; check and adjust irrigation	Weed; inspect mulch for deficiencies in cover; check and adjust irrigation	Mow and trim lawns; treat for insects and disease; check and adjust irrigation
7	Reinstate mulch as required; treat plant material for insects and disease; mow lawns	Mow lawns; weed	Reinstate mulch as required; mow, trim and fertilise lawns	Weed
8	Weed; inspect condition of paving and furniture; issue logbook	Mow and trim lawns; inspect condition of paving & furniture; issue logbook	Weed; inspect condition of paving and furniture; issue logbook	Mow lawns; Inspect condition of paving and furniture; issue logbook
9	Mow and trim lawns	Mow lawns; treat plant material for	Mow lawns	Weed

		insects and disease		
10	Weed; mow lawns	Mow and topdress lawns	Weed; treat plant material for insects and disease	Mow and trim lawns
11	Mow and fertilise lawns; trim and adjust trees and shrubs	Mow lawns; trim and adjust lawns; weed	Weed	Mow lawns; treat plant material for insects and disease
12	Weed; mow lawns; treat plant material for insects and disease	Mow, trim & fertilise lawns	Weed	Mow lawns; treat plant material for insects and disease
13	Check and adjust irrigation; mow lawns; issue logbook	Check and adjust irrigation; mow lawns; weed; issue logbook	Check and adjust irrigation; mow lawns; weed; issue logbook	Check and adjust irrigation; weed; issue logbook

6.3 IRRIGATION SCHEDULE

The following Irrigation Schedule is only applicable to the 'Defects Liability Period' and/or 'Establishment Period'.

Irrigation Maintenance Schedule

The Irrigation Maintenance Schedule should be used as a check list of minimum attendance

Task	Timeframe
Filters – Mainline	Monthly
Electrical Source Output (auto system)	Monthly
Controller (automatic system)	Monthly
Operation – Progression	Monthly
Activation of Valves	Monthly
Timing of Stations	Bi-Annually
Time and Day Readings	As Required
Exterior Appearance	Bi-Annually
Valve Operation	Bi-Annually
Open/Close Weeping	As Required
Sprinkler Operation	As Required
Rotaries – Clogged Nozzles	Bi-Monthly
Plant Obstructed Pattern	Bi-Monthly
Arc Coverage	Bi-Monthly
Radius Adjustment	Bi-Monthly
Pop-up Action	Bi-Monthly
Riser Seal Leaks	Bi-Monthly
Set to Grade	Bi-Monthly

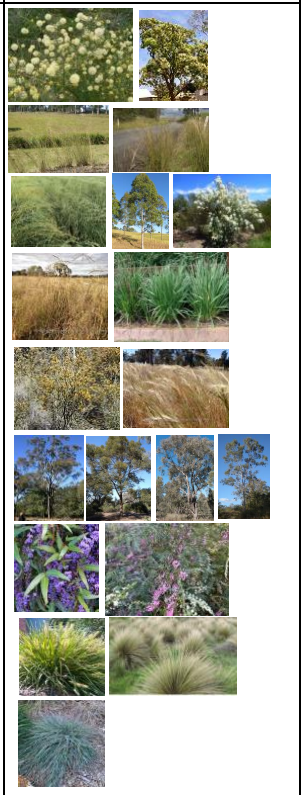
Coverage Pressure	Bi-Monthly
Rotational Speed	Bi-Monthly
Clogged Screens	Bi-Monthly
Head Damage	Bi-Monthly
Piping	Bi-Monthly
Leaks – Broken of Cracked	As Needed
Poor Welding or Threading	As Needed
Connection	As Needed
Clogged Piping	As Needed
Irrigation Report	Bi-Monthly

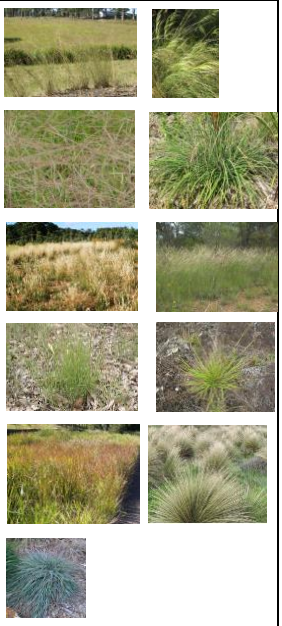
6.4 PRUNING SCHEDULE

The contractor is to prune all plants or shrubs species as required to satisfy Goodman's presentation standard. Pruning should be carried out on a 'needs-basis' specific to each plant. Pruning should be carried out to encourage new growth that will result in a dense canopy density. No more than 30mm of new growth should be seen before pruning takes place. All plant pruning should be carried out using best horticultural techniques. No hedging of native grasses permitted at any time.

6.4.1 PRUNING SCHEDULE – OAKDALE WEST ESTATE (OWE)

Plant Mix	Shape/description	Critical issues	Pruning Frequency	Planting Palette
PM3A	Verge Planting *Gazania tomentosa* *Hibbertia scandens* *Trachelospermum jasminoides* *Trachelospermum jasminoides 'Tricolor'*	**Shrubs/Groundcovers** Drought tolerant, low water and fertiliser requirements.	**Shrubs/Groundcovers** Prune after flowering to remove spent flowers, encourage healthy growth and maintain safe access.	
PM3B	Fence Planting *Acmena smithii 'Minor'* *Callistemon 'White Anzac'*	**Native Grasses** Drought tolerant, low water and fertiliser requirements.	**Native Grasses** Remove spent flowers and any dieback. Only prune to maintain safe access.	

Plant Mix	Shape/description	Critical issues	Pruning Frequency	Planting Palette
PM4A	Mound Planting *Acacia falcata* *Angophora floribunda* *Aristida racemosa* *Bothriochloa decipens* *Bursaria spinose* *Corymbia maculata* *Chloris ventricosa* *Dianella revoluta* *Dillwynia sieberi* *Elymus scaber* *Eucalyptus crebra* *Eucalyptus eugenioides* *Eucalyptus moluccana* *Eucalyptus tereticornis* *Hardenbergia violacea* *Indigofera australis* *Lomandra longifolia* *Poa labillardieri* *Themeda triandra*	**Native Grasses** Drought tolerant, low water and fertiliser requirements. **Shrubs/Groundcovers** Drought tolerant, low water and fertiliser requirements. **General Trees** Plant in moist soils and ensure sufficient water when young	**Native Grasses** Remove spent flowers and any dieback. Only prune to maintain safe access. **Shrubs/Groundcovers** Prune after flowering to remove spent flowers, encourage healthy growth and maintain safe access. **Trees** Prune during flower dormancy and to encourage dense canopy	
PM4B	Shrub and Groundcover Planting *Acmena smithii 'Minor'* *Metrosideros thomasii* *Pennisetum alopecuroides 'Nafray'* *Photinia x fraseri 'Red Robin'* *Trachelospermum jasminoides* *Viburnum odoratissimum*	**Native Grasses** Drought tolerant, low water and fertiliser requirements. **Shrubs/Groundcovers** Drought tolerant, low water and fertiliser requirements.	**Native Grasses** Remove spent flowers and any dieback. Only prune to maintain safe access. **Shrubs/Groundcovers** Prune after flowering to remove spent flowers, encourage healthy growth and maintain safe access.	
PM5	Basin Planting *Carex appressa*	**Native Sedges/Grasses** Tolerates periods of water inundation. If pruning for safe access is required never prune more than 1/3 of leaf total length.	**Native Sedges** Remove spent flowers and any dieback. Only prune to maintain safe access.	

Revegetation Mix	Shape/description	Critical issues	Pruning Frequency	Planting Palette
RM1A & RM1B	Native Grasses and Groundcovers on Fill Embankment/Cut Batter *Aristida vagans* *Austrostipa ramosissima* *Chloris truncata* *Cymbopogon refractus* *Danthonia tenuior* *Dichelachne micrantha* *Entolasia stricta* *Eragrostis brownii* *Imperata cylindrica* *Poa labillardieri* *Themeda australis*	**Native Grasses** Drought tolerant, low water and fertiliser requirements. **Shrubs/Groundcovers** Drought tolerant, low water and fertiliser requirements.	**Native Grasses** Remove spent flowers and any dieback. Only prune to maintain safe access. **Shrubs/Groundcovers** Prune after flowering to remove spent flowers, encourage healthy growth and maintain safe access.	
RM3	Pasture Grasses *Cynodon dactylon (Royal Bengal Couch)* *Coolabah Oats* *Eclipse Rye* *Secale cereal 'Sterile' (Sterile Rye Corn)*	**Annual / Perennial Grasses** Quick growing and soil stabilising species, ensure complete coverage of area and eradicate any competing undesirable species.	N/A	

Tree Mix	Shape/description	Critical issues	Pruning Frequency	Planting Palette
Tree Mix 1	Street Trees *Corymbia maculata* *Eucalyptus fibrosa* *Eucalyptus tereticornis*	**Street Trees** Plant in moist but well drained soils with full or partial sun.	**Trees** Prune during flower dormancy, to encourage dense canopy and maintain safe access.	

Tree Mix	Shape/description	Critical issues	Pruning Frequency	Planting Palette
Tree Mix 2	General Trees *Angophora floribunda* *Eucalyptus crebra* *Eucalyptus moluccana* *Eucalyptus tereticornis*	**General Trees** Plant in moist but well drained soils with full or partial sun.	**Trees** Prune during flower dormancy, to encourage dense canopy and maintain safe access.	
Tree Mix 3	Mound Trees *Angophra floribunda* *Corymbia maculata* *Eucalyptus crebra* *Eucalyptus eugenioides* *Eucalyptus moluccana* *Eucalyptus tereticornis*	**Mound Trees** Plant in moist but well drained soils with full or partial sun. Ensure sufficient water when young.	**Trees** Prune during flower dormancy, to encourage dense canopy and maintain safe access.	
Tree Mix 4	Feature Street Trees *Magnolia grandiflora 'Exmouth'* *Pyrus calleryana 'Bradford'*	**Feature Street Trees** Plant in moist soils and ensure sufficient water when young. Mulch in summer to retain high moisture levels and fertilise in spring to enhance floral display.	**Trees** Prune during flower dormancy, to encourage dense canopy and maintain safe access.	

6.5 CONTINGENCY MANAGEMENT PLAN

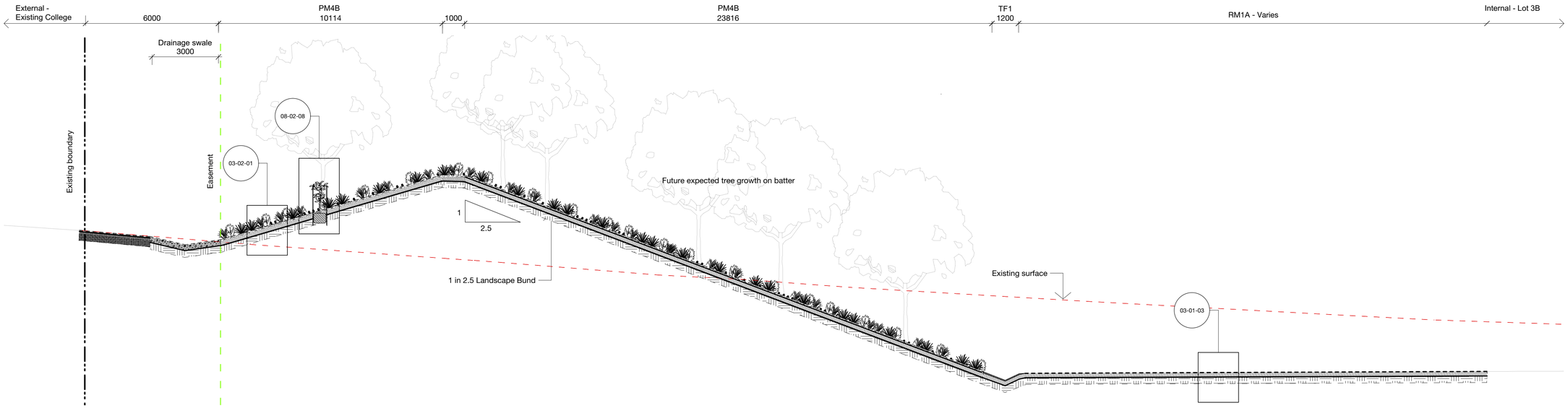
Contingency Management Plan – Oakdale West Estate

Key Element	Trigger/ Response	Condition Green	Condition Amber	Condition Red
Irrigation	**Trigger**	Irrigation system operating at optimum frequency.	Irrigation system yet to be installed.	Irrigation system fails.
	Response	No response required. Continue to monitor.	Provide additional hand watering until system is installed.	Provide additional hand watering until system is repaired. The irrigation system must be fully functional at all times to ensure that all plants, trees and lawns receive adequate water at optimal frequency.
Plant Failure	**Trigger**	No significant plant failure is present. Monitoring verifies that there is <5% of plants failing.	Monitoring verifies there is plant failure at a rate between 5% -10%.	Monitoring verifies there is plant failure at a rate greater than 10%.
	Response	No response required. Continue to monitor.	If the cause of failure is due to a controllable situation then correct situation prior to replacing plants. All planting areas are to be free of grass and weed. Replace plants with one of similar size and quality and identical species. of variety of the ones failed.	If the cause of failure is due to a controllable situation then correct situation prior to replacing plants. All planting areas are to be free of grass and weed. Replace plants with one of similar size and quality and identical species. of variety of the ones failed.
Revegetation Failure	**Trigger**	Revegetation is growing to desired design surface levels	Monitoring verifies that weed emergence has occurred.	Monitoring verifies that weed emergence and plant failure has occurred.

Key Element	Trigger/ Response	Condition Green	Condition Amber	Condition Red
	Response	No response required. Continue to monitor.	Refer to LMP for monitoring requirements once problem has been identified. Possible solutions include the removal of weeds as per **Section 5.3.7 of this LMP.**	Refer to LMP for monitoring requirements once problem has been identified. Possible solutions include removal of weeds and re-seeding of revegetation cover crop as per **Section 5.3.7 of this LMP.**
Slope Failure	**Trigger**	No significant erosion is present that would constitute a safety hazard or compromise the capability of supporting the end land use. Monitoring verifies there are no gully or tunnel erosion features, or rill erosion >200mm deep.	Monitoring verifies there is gully or tunnel erosion features, or rill erosion 200mm deep.	Monitoring verifies there is gully or tunnel erosion features, or rill erosion > 200mm deep.
	Response	No response required. Continue to monitor.	A suitably trained person to inspect the site. Investigate opportunities to install water management infrastructure to address erosion. Remediate as appropriate.	Undertake a review of the drainage of the area and provide recommendations to appropriately remediate the erosion. Remediate as soon as practicable.

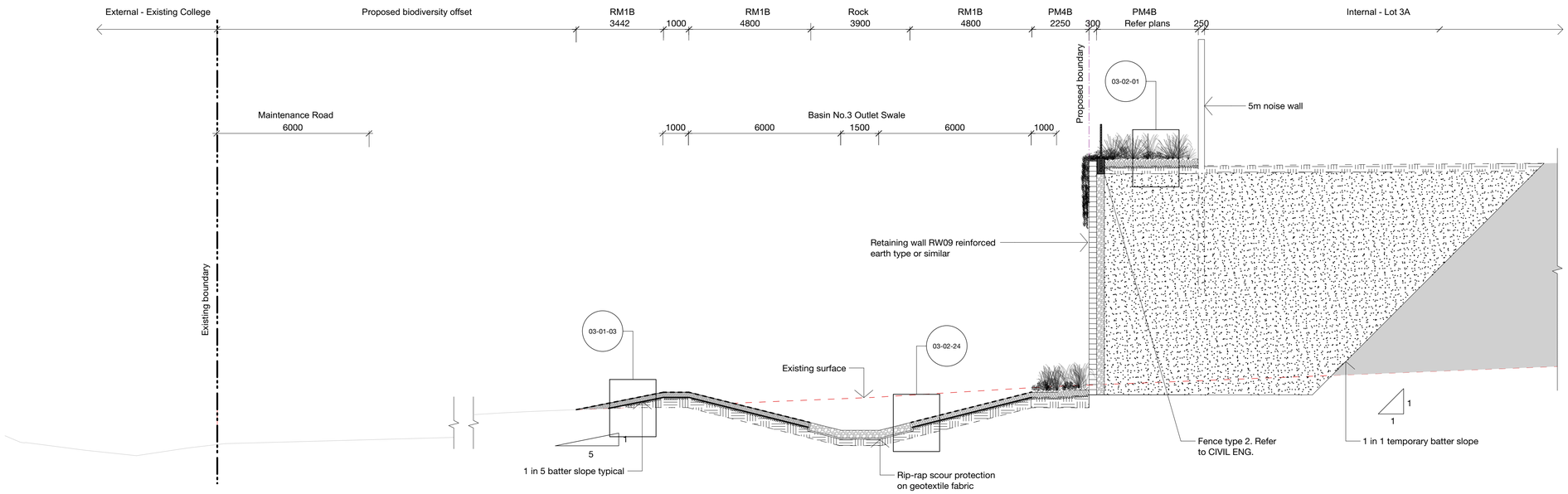
7 APPENDICES

7.1 REFERENCED LANDSCAPE DRAWINGS



03 Landscape Bund
Typical Cross Section - Scale 1:100 @ A1

0 1 2 3 4 5 M



04 Basin No.3 Outlet Swale
Typical Cross Section - Scale 1:100 @ A1

0 1 2 3 4 5 M

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revision	revision description	by	date
K	ISSUED FOR APPROVAL	MF	16/3/20
J	ISSUED FOR APPROVAL	MF	27/11/19
I	ISSUED FOR APPROVAL	MF	5/11/19
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LANDSCAPE - SECTIONS 2 of 2

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checked	CH
project no.	163-18
project phase	Construction Documentation

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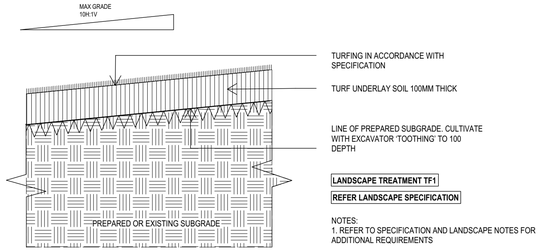
LANDSCAPE DETAILS



D-CD	TURFING TO VERGES AND FLAT AREAS
01-05-01	TYPICAL SECTION - SCALE 1:10 @ A3 - revA

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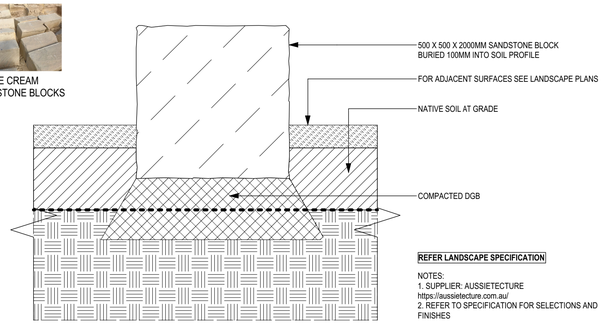
AUSSIE CREAM
SANDSTONE BLOCKS



D-CD	SOIL TYPE - SANDSTONE BLOCK
01-08-03	SECTION - SCALE 1:10 @ A4 - rev A

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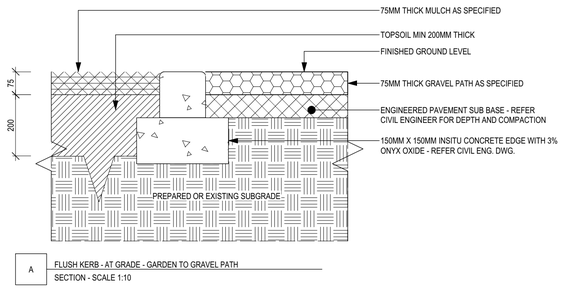

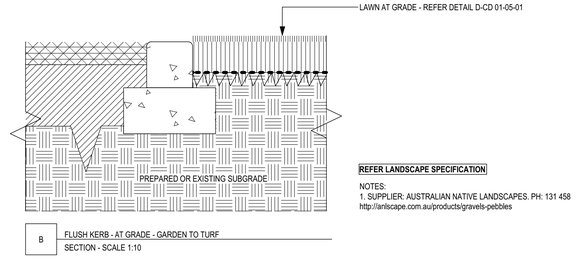

D-CD	EDGE TYPE - FLUSH CONCRETE KERB
02-03-17	SECTION - SCALE 1:10 @ A4 - rev B

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PRODUCT RANGE

"DECO GOLD"

D-CD	PAVEMENT FINE AGGREGATE PEDESTRIAN
03-01-01	SECTION SCALE 1:10 @ A1

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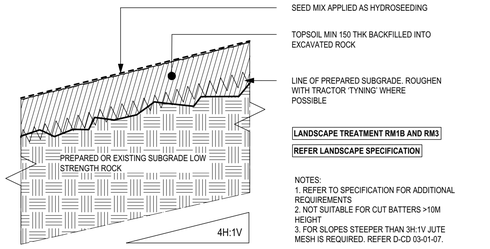

D-CD	REVEGETATION OF CUT BATTERS
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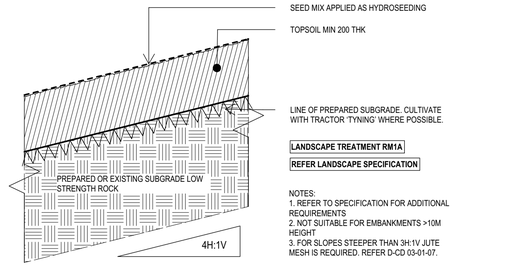

D-CD	REVEGETATION OF FILL EMBANKMENTS
03-01-03	TYPICAL SECTION - SCALE 1:10 @ A4 - revA

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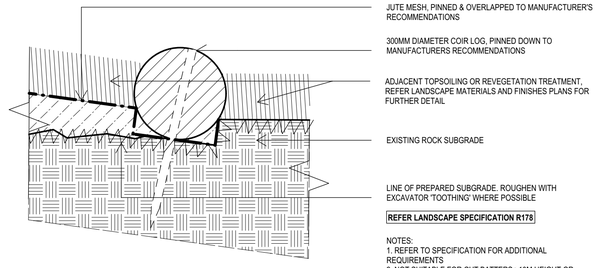

D-CD	COIR LOG
03-01-05	TYPICAL SECTION - SCALE 1:10 @ A3 - revA

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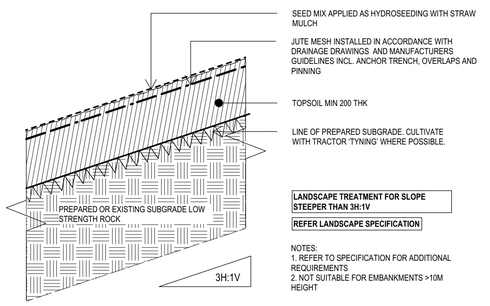
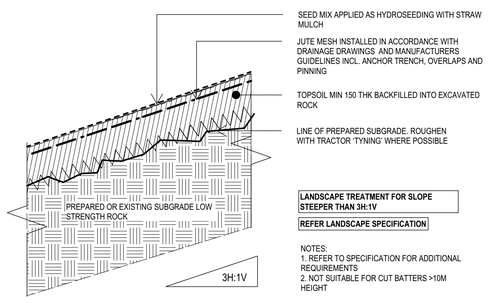


D-CD	HYDROSEEDING ON FILL EMBANKMENT WITH SLOPE STEEPER THAN 3H:1V
01	TYPICAL SECTION - SCALE 1:10 @ A1



D-CD	HYDROSEEDING ON CUT BATTER WITH SLOPE STEEPER THAN 3H:1V
02	TYPICAL SECTION - SCALE 1:10 @ A1

D-CD	REVEGETATION OF SLOPES STEEPER THAN 3H:1V
03-01-07	TYPICAL SECTION - SCALE 1:10 @ A4 - revA

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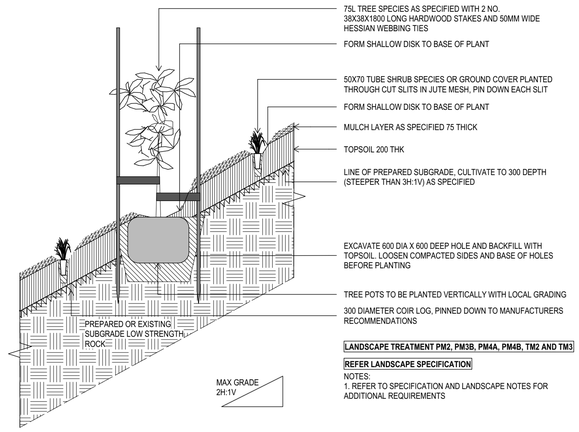

D-CD	PLANTING ON FILL EMBANKMENT
03-02-01	TYPICAL SECTION - SCALE 1:20 @ A3 - revA

0 0.25 0.50 0.75 1.00 M

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revision	revision description	by	date
K	ISSUED FOR APPROVAL	MF	16/3/20
J	ISSUED FOR APPROVAL	MF	27/11/19
I	ISSUED FOR APPROVAL	MF	5/11/19
H	ISSUED FOR APPROVAL	MF	21/6/19
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drawn	MF
checked	CH
project no.	163-18
project phase	Construction Documentation

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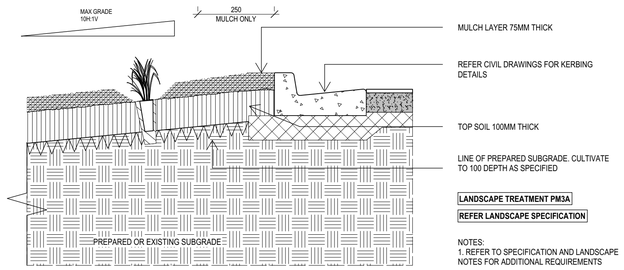

D-CD PLANTED VERGE GRASSES
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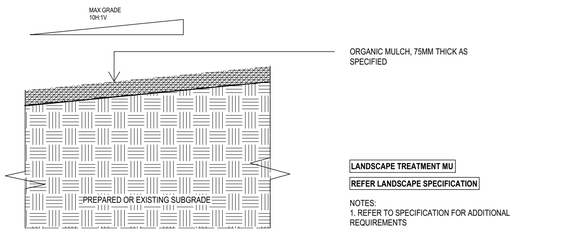
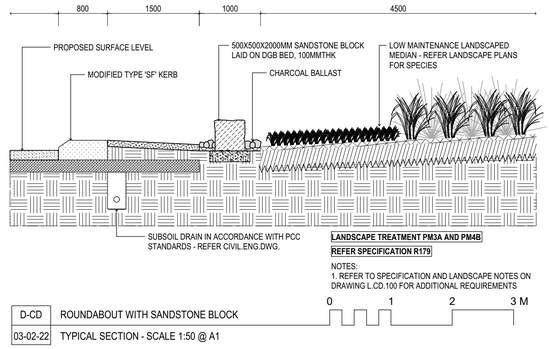
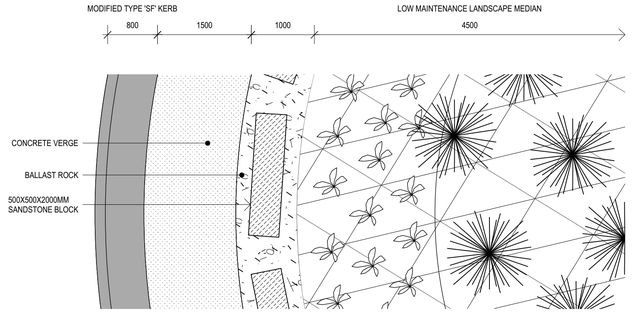


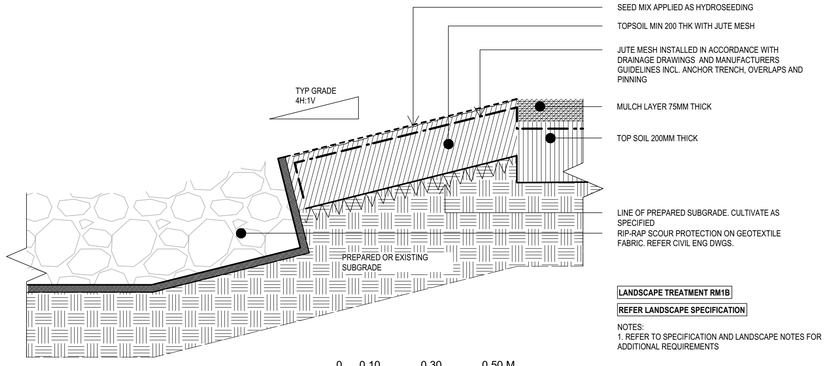
D-CD MULCHING ONLY TO VERGES, FENCELINES AND FLAT AREAS
03-02-21 TYPICAL SECTION - SCALE 1:10 @ A3 - revA



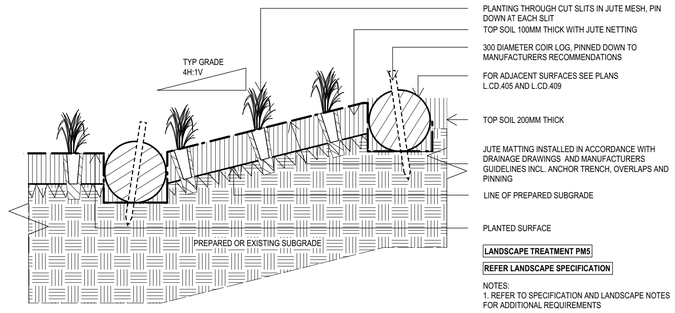
D-CD ROUNDABOUT WITH SANDSTONE BLOCK
03-02-22 TYPICAL SECTION - SCALE 1:50 @ A1



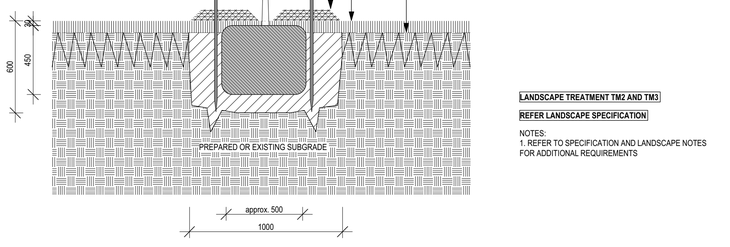
D-CD ROUNDABOUT WITH SANDSTONE BLOCK
03-02-23 PLAN - SCALE 1:50 @ A1



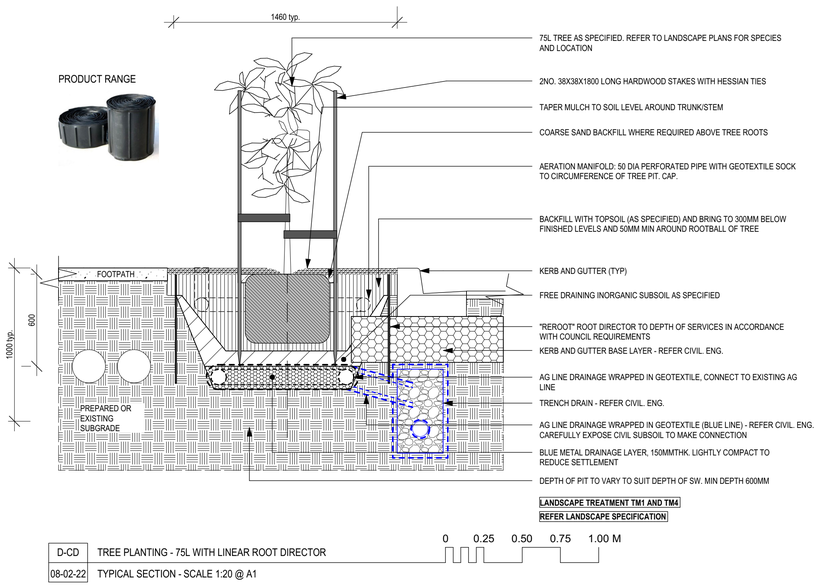
D-CD SEEDED SWALE WITH RIP-RAP SCOUR
03-02-24 TYPICAL SECTION - SCALE 1:10 @ A3 - revA



D-CD PLANTED SWALE WITH JUTE OVERLAY AND PLANTED INVERT
03-02-26 TYPICAL SECTION - SCALE 1:10 @ A3 - revA



D-CD PLANTING - 75L TREE
08-02-08 TYPICAL SECTION - SCALE 1:20 @ A1



D-CD TREE PLANTING - 75L WITH LINEAR ROOT DIRECTOR
08-02-22 TYPICAL SECTION - SCALE 1:20 @ A1

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revision	revision description	by	date
M	ISSUED FOR APPROVAL	MF	16/3/20
L	ISSUED FOR APPROVAL	MF	27/11/19
K	ISSUED FOR APPROVAL	MF	5/11/19
J	ISSUED FOR APPROVAL	MF	12/7/19
I	ISSUED FOR APPROVAL	TR	11/7/19

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LANDSCAPE - DETAILS 2 of 2

scale	Varies
drawn	MF
checked	CH
project no.	163-18
project phase	Construction Documentation

L.CD.601 M

7.2 REFERENCED LANDSCAPE SPECIFICATION

Quantity of Soil Additive

Plant Size	Quantity
"Viro-Tube"	Nil
"Forestry Tube"	20 grams
"Semi Advanced"	40 grams
"Advanced"	80 grams
"Super Advanced"	400 grams
"Semi Mature"	One kilogram

3.8 STAKES AND TIES

Stakes

Material: Hardwood, straight, free from knots or twists, pointed at one end.

Installation: Drive stakes into the ground at least one third of their length, avoiding damage to the root system.

Stake sizes:

- For plants ≥ 2.5 m high: Three 50 x 50 x 2400 mm stakes per plant.
- For plants 1 to 2.5 m high: Two 50 x 50 x 1800 mm stakes per plant.
- For plants < 1 m high: One 38 x 38 x 1200 mm stake per plant.

Ties

General: Provide ties fixed securely to the stakes, one tie at half the height of the main stem, others as necessary to stabilise the plant. Attach ties loosely so as not to restrict plant growth.

Tie types:

- For plants ≥ 2.5 m high: Two strands of 2.5 mm galvanized wire neatly twisted together, passed through reinforced rubber or plastic hose, and installed around stake and stem in a figure of eight pattern.
- For plants < 2.5 m high: 50 mm hessian webbing stapled to the stake.

Trunk protection

Collar guards: 200 mm length of 100 mm diameter agricultural pipe split lengthways.

3.9 SEED PREPARATION

Where site conditions are not suitable for the pre-treatment and mixing of native and grass seed, this work may be done off site in conditions conducive for this purpose.

HOLD POINT	
Process Held:	Use of seed pre-treated off site.
Submission Details:	At least 3 working days prior to delivery, submit the accompanying certificate showing the species, variety, weight and place of pre-treatment.
Release of Hold Point:	The Principal will consider the submitted documents and may inspect the seed prior to authorising the release of the Hold Point.

Pre-treatment to Assist Germination

Where hot water is the specified pre-treatment, place the seed in a calico bag together with camphor granules as an insect repellent at the rate of 50 g per 10 litres of water. Immerse the bag in hot water

with temperature of around 90ºC for a minimum period of 60 minutes and then remove from the water, drain and allow to dry. When dry, mix the treated seed with the remaining seed and broadcast when conditions are suitable.

Seed that has been pre-treated must be used within five days of pre-treatment.

Where proprietary products are used to assist germination, use as recommended by the manufacturer.

Preparation for Hydromulching, Hydroseeding and Straw Mulching

Storage tanks, containers and equipment to be used in hydromulching, hydroseeding and straw mulching must be clean and free of contamination from previous operations.

Table– Application Rates for Materials

Material	Rate per Hectare
Hydromulching	
Water	35,000 litres
Organic fertiliser: pelletised poultry manure	250 kg
Seed	See Planting Schedule
Cellulose fibre mulch: – Sugar cane mulch, mixed with 20% (by weight) of shredded paper – Wood fibre mulch	 3,500 kg 2,500 kg
Binder: granulated 'Guar gum'	60 kg
Biodegradable green dye	As recommended
Hydroseeding	
Water	20,000 litres
Organic fertiliser: pelletised poultry manure	250 kg
Seed	See Planting Schedule
Biodegradable green dye	As recommended
Straw mulching	
Straw	5,000 kg
Binder – Undiluted residual bitumen emulsion – Granulated 'Guar gum'	 2,500 litres 100 kg

Produce hydromulch / hydroseed slurry mixtures by adding the specified materials into the tank and agitate until a homogenous blend is obtained.

Sowing Methods

Unless otherwise shown on the Drawings, sow areas with slopes of 5 to 1 or flatter, using one of the following methods:

- dry sowing
- for small areas only, by hand.

Unless otherwise shown on the Drawings, sow areas with slopes steeper than 5 to 1 in any direction, using one of the following methods:

- hydroseeding and straw mulching
- hydromulching
- for rock face batters, hydroseeding
- for small areas only, by hand.

Stepped batters must be topsoiled as described and hydroseeded or hydromulched.

WITNESS POINT	
Process Witnessed:	Sowing
Submission Details:	Notify the Principal, not less than 5 clear working days prior to the intended time of sowing, giving details of the area to be sown.

3.10 DRY SOWING

Undertake dry sowing using either:

- a tractor drawn seed drill to place seed at a depth of 5 mm
- a spreader followed immediately by a single pass with an unweighted diamond harrow.

Where practicable, tractor passes with the seed drill or harrow must follow finished surface contours. Distribute seed and fertiliser evenly over the areas to be sown at the rates specified. Apply fertiliser concurrently with the seeding operation.

Gauge the application rate of the seed mix to ensure an even distribution over the areas sown, in accordance with the nominated rates. Maintain records of measurements and calculations to determine actual distribution rates for each lot.

Hydromulching and Hydroseeding

Carry out hydromulching / hydroseeding within 2 days of completion of soil preparation or, if delayed by weather conditions, as soon as weather conditions permit.

Agitate continuously the slurry to maintain a uniform consistency during application.

The sprayed hydromulch layer within 48 hours of application must have a minimum thickness at any location of 5 mm when using sugar cane mulch (mixed with shredded paper), or 2 mm when using wood fibre.

Straw Mulching

The straw mulch must comprise the materials and application rates set out in Table R178.1.

Apply the straw mulch uniformly using a purpose-made blower unit. Incorporate the emulsion as a spray into the air stream of the mulch blower or apply it in a separate operation within 12 hours from the application of straw mulch.

The straw mulch layer within 48 hours of application must have a minimum thickness at any location of 25 mm.

Weather Conditions for Hydroseeding, Hydromulching and Straw Mulching

Do not apply hydroseeding, hydromulching and straw mulching:

- when winds exceed 15 km/hr
- when temperatures exceed 37°C
- where the surface is too wet
- during rain periods or when rain appears imminent.

Signposting

Supply and install information signs approximately 1,500 x 600 mm stating, "NATIVE PLANT REGENERATION AREA—PLEASE KEEP OFF", including the requisite posts, brackets and fittings, where shown on the Drawings or as directed by the Principal. Support each sign at a height of 1.5 metres on two 75 mm dia steel posts set in concrete 500 mm deep into the ground at a distance of 900 mm apart.

7.3 GOODMAN MAINTENANCE GUIDELINES

Appendix 2 | Specification

system again to re-flush if blockages are apparent and re-seal tube ends

Commissioning

The entire system should be tuned and tested to deliver an adequate amount of water to all plants and turf. Test the system in the presence of the Landscape Architect and/or irrigation designer to facilitate the issue of a Certificate of Practical Completion.

Maintain the system for the duration of the establishment maintenance period as detailed elsewhere in the specification. Replace any faulty, broken or stolen components. Leave the system operating as if it was newly installed upon acceptance of the completed work.

Maintenance

General

Gardens, lawns and landscaped areas must be maintained to Goodman's presentation standard and condition at all times. Goodman places a heavy emphasis on a high standard of landscaping to support their market image.

Plants and shrubs should be cultivated to maintain optimal growth while individual plants that don't thrive should be replaced with healthy specimens. Plants and shrubs should be pruned appropriately to promote growth. Where necessary, all plants should be dead headed to maintain optimal appearance.

Weeds should be removed at all visits while measures should be taken to discourage weed growth. Weeds must be removed from all garden beds, fence lines and surrounding areas, all paved areas and walkways, construction joints and any entrance areas. All large weeds should be removed by hand, small weeds are to be sprayed with appropriate industrial strength weed killer with blue dye additive.

A prophylactic chemical weeding program should be implemented. Goodman Building Manager must be notified and approve any application of chemical weed treatment. The contractor must specify the type of chemical weed treatment product used, where it was used and quantity used. The contractor must submit a certificate or signed documentation received from chemical weed treatment supplier confirming application of chemical treatment to Goodman Landscape Manager. Spraying is to occur during non-office hours to reduce any health hazard for occupants of the commercial offices or industrial estates.

Every effort must be made to ensure that all plants are adequately watered at all times. When irrigation is not permitted, alternative methods of watering should be discussed with the Building Manager.

A proactive approach must be adopted to ensure that appearance of the landscape as a whole is highly presentable at all times. Recommendations on new plant or shrub specimen, landscape design, modifications etc should be made to Goodman Landscape Manager where opportunities exist to enhance the appearance of the landscape generally or in specific areas.

Contractors must submit annual routine landscape maintenance program to Goodman Landscape Manager within two weeks of contract commencement date.

Lawn care

Lawn areas, including nature strips must be neatly mown and edged weekly in the high season (summer months), fortnightly in the low season (winter months), or weekly if required due to abnormal weather condition. All clippings must be removed from the site.

All lawns must be fertilized once a year with an approved lawn fertilizer.

Tree shrub and plant care

All shrubs, hedges, ground covers and trees must be trimmed into shape as required to an acceptable Goodman presentation standard. Flowering plants/ shrubs should be pruned to promote optimal flowering at the appropriate times.

Excessive foliage impacting onto roads, paths, fencing and lighting must be pruned during all site visits.

Leaf litter and or all cuttings should be removed from all gardens and site each visit and disposed of at contractor's cost.

Any dead or dying plants/shrubs should be removed and replaced with same or comparable species. Goodman Landscape Manager must be consulted when large trees need to be removed and or replaced.

The contractor will maintain each plant in a healthy condition to increase the visual appeal of the gardens.

Appendix 2 | Specification

Remove faded leaves, fronds and flowers to encourage new growth.

The contractor will prune all plants or shrubs species as required and satisfy Goodman's presentation standard. Pruning should be carried out on a 'needs-basis' specific to each plant. Pruning should be carried out to encourage new growth that will result in a dense canopy density. No more than 30mm of new growth should be seen before pruning takes place. All plant pruning should be carried out using best horticultural techniques. No hedging of native grasses permitted at any time.

Replacement of any plant or shrub which may die, fail to thrive, or are damaged due to contractors negligence must be replaced by the contractor without cost to Goodman. The replacement plant or shrub must be of a similar size, quality and identical species or variety to the plant or shrub which has failed, unless otherwise directed by Goodman Landscape Manager

Where plants fail due to vandalism, or where plants are stolen, the cost of replacement of the plants will be met by Goodman.

Mulch

The contractor is required to maintain all areas of mulch cover within garden beds. Displaced mulch should be returned to the garden beds wherever possible. All area of mulch cover must be packed to a depth of 75mm. If replacement of mulch is required, the contractor must notify Goodman Landscape Manager and provide quotation for approval. Specific mulch must be approved by Goodman representative prior to installation.

Irrigation

The irrigation system must be fully functional at all times to ensure that all plants, trees and lawns receive adequate water at optimal frequency. The system should be tested during each site visit to ensure proper operation timing is set correctly. Adjustments must be made where necessary.

It is the contractors responsibility to submit a monthly report to Goodman which includes a comprehensive report on the operational function of the system.

Goodman Landscape Manager must be notified when the system is in need of major repair. The cost of major repairs to the system can be claimed as variation to the contract price and should be invoiced separately.

When water restrictions prevent the use of the irrigation system, arrangements must be made by the contractor to provide an alternative system of watering. Under no circumstances should plant stock be allowed to perish through lack of water.

Herbicide / pesticide application

Apply pesticide treatment to lawn areas to eliminate weeds/pests and diseases as soon as any attack is noticed. At any given time no more than 2% may be effected by weeds/pests and diseases. Spraying must occur during non-office hours to reduce any health hazard for occupants of the commercial offices or industrial estates. Do not use pesticides near streams, ditches, wetlands, or shorelines.

Rubbish

All rubbish generated by landscaping maintenance activities and from garden beds must be removed from the site at each visit and deposited at an approved waste collection depot at contractor's cost.

General rubbish accumulating within the driveways, car parks etc. will be removed by the landscape contractor on each weekly visit.

Fertilizing

Apply slow-release fertiliser in liquid form or in pellet form to all plants as required to maintain healthy growth conditions.

Fertilising of individual trees, individual palms, garden beds containing shrubs and groundcovers, and lawns should occur as required by individual species to maintain healthy growth conditions. All garden plants are to be fertilised in March and September of every year.

Seasol or other seaweed extract type fertilises and/or Dynamic Lifter or other organic fertiliser in pelletised form should be used. Do not use soluble fertilizers near streams, ditches, wetlands, or shorelines. Do not use blood and bone. All fertiliser is to be odourless.

Turf topdressing

The contractor is to review the condition of lawn areas to assess the need to provide topdressing. If topdressing is required, the contractor must report to Goodman Landscape Manager for approval. Premium topdressing mix must be 80% sand and 20% soil.

Appendix 2 | Specification

Repairs

Any repairs required to lawn areas should occur immediately following notification of the extent of works and approval to proceed by Goodman Landscape Manager.

Restaking

Where trees, palms, or shrubs require staking during plant establishment, the contractor will ensure that staking remains intact and rigid for its intended purpose. Staking that has failed must be repaired immediately to ensure no plant stress from winds.

Garden edging

The contractor is to review the condition of garden bed edging and ensure that no damage, sinking, or lifting has occurred. If any repair is required, contractor must notify Goodman Landscape Manager for approval. Contractor is to ensure that all garden edging is maintained in original condition.

Planters

The maintenance of any planter box (especially on-slab) requires careful attention to ensure that the waterproofing element is not affected. Any work done within planter box must be by hand. Neither machinery nor tools are to be used within any planter box that may cut and damage the waterproofing elements. The contractor will replenish soil nutrients and fertilisers in each planter box on a regular basis to ensure healthy continual growth of any plant species.

Letterboxes / directory boards

The contractor is to clean and wipe down directory boards and letter boxes at the entrance to the property and remove unwanted material (this is limited to a height accessible by ladder).

All hedges or shrubbery near directory boards must be kept trimmed, so that clear visual recognition by any emergency services can be ascertain the clear address of the site or direction to any part of the site.

Drains

All grated stormwater drains or strip drains in all car park levels and driveways zones must be inspected monthly and cleared of accumulation of debris, leaves and soil, so that there is no hindrance or impediment of their correct operation as stormwater drains.

All grated stormwater drains or strip drains in all gardens, lawn zones and pavement areas must be inspected weekly or after storms and maintained free of and accumulation of debris, leaves and soil, so that there is no hindrance or impediment of their correct operation as stormwater drains.

Any drains grate or section of strip drains that is rusted, faulty or may constitute a hazard to the site's tenants or visitors must be reported to Goodman Landscape Manager. Recommendation and replacement cost is to be submitted to Goodman Landscape Manager for approval.

Equipment

The contractor will supply all necessary equipment required to conduct landscape maintenance in the most efficient manner and with minimal interruption to tenants. All necessary equipment will be tested and tagged to comply with all relevant OH&S legislation and regulations.

Supervision / communication

Contractor is to appoint one point of contact (Supervisor/Operation Manager) to represent the contractor for the term of the agreement. The nominated point of contact should provide regular supervision to the on-site staff undertaking the works. Goodman anticipates that this supervisor should attend all sites as a minimum weekly to ensure presentation standards and workmanship is within required KPI's. The supervisor will also to attend site meetings with the relevant Goodman Landscape Manager to inspect the site and review any landscape maintenance issues and or variations each month.

A works report will be required to be filled out by the contractor and sent to Goodman, including relevant information regarding the following (Photos, Summary of works for period, works to be completed next month, safety issues, enhancement ideas, general issues). This report should be forwarded to Goodman on a monthly basis.

APPENDIX E

Construction Traffic Management Plan

Construction Traffic Management Plan

Oakdale West Estate, Kemps Creek

Ref: 0129r06v25
7/05/2020

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Document Control

Project No: 0129r06v25

Project: Oakdale West Estate – Construction Traffic Management Plan

Client: Goodman Property Services (Aust) Pty. Limited

File Reference: 0129r06v25 CTMP_Oakdale West Estate, Kemps Creek Issue XXV

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Table of Contents

1 INTRODUCTION 4
1.1 Overview 4
1.2 Report Purpose 4
1.3 Statutory Requirements 6
1.4 Overview of Works 9

2 EXISTING CONDITIONS 14
2.1 Existing Access 14
2.2 Road Hierarchy 14
2.3 Public Transport Services 16
2.4 Active Transport Connections 16

3 MANAGEMENT PLAN 19
3.1 Traffic Movement Restrictions 19
3.2 Other General Requirements 21
3.3 Phase 1 - Prior to the completion of WNSLR 23
3.4 Phase 2 – Post completion of the WNSLR 27
3.5 Contractor Parking 28
3.6 Traffic Control Plans 28

4 DRIVERS CODE OF CONDUCT 29
4.1 Objectives of the Drivers Code of conduct 29
4.2 Code of Conduct 29
4.3 Driver Responsibilities 30
4.4 The Site Team Responsibilities 31
4.5 Crash or incident Procedure 32
4.6 Environmental Procedures. 32

5 TRANSPORT IMPACT ASSESSMENT 34
5.1 Construction Traffic Generation 34
5.2 Impacts on Surrounding Network 36
5.3 Cumulative Impacts 37

6 PLAN ADMINISTRATION 38
6.1 Monitoring Program 38
6.2 Contingency Plan 38
6.3 Communications Strategy 41

Appendices

Appendix A) Evidence of Stakeholder Correspondence

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.

1 Introduction

1.1 Overview

Ason Group has been engaged by Goodman Property Services (Aust) Pty. Limited (Goodman) to prepare a Construction Traffic Management Plan (CTMP) relating to construction of the Oakdale West Industrial Estate (OWE) at Kemps Creek (the Site). A location plan is provided in **Figure 1**.

The OWE is proposed as part of a State Significant Development (SSD 7348), with an overview of the proposed extent provided in **Figure 2**. It is noted that SSD 7348 also includes reference to the construction of the Western North-South Link Road (WNSLR), however those works are to be completed under a separate works contract and therefore not included as part of this CTMP. Notwithstanding, the effect of traffic movements will be cumulative, and therefore shall be discussed within this CTMP.

The construction of OWE itself – the basis of this CTMP - will involve earthworks and construction of road infrastructure but excludes the construction of any warehouses. An anticipated schedule (subject to SSDA approval) for these works is as follows:

- Section A (Blue in Figure 2): Earthworks and local infrastructure
- Section B (Red in Figure 2): Construction of Western North South Link Road (WNSLR)
- Section C (Green in Figure 2): Stage 1 building works

It is expected that these works shall be occurring concurrently, however this CTMP will be focused on the item 1 of the above. Construction of the WNSLR is covered under a separate contract and CTMP.

Notwithstanding, given the concurrent activities, regular engagement between contractors (if being undertaken by separate entities) should be undertaken to ensure the works are managed in an integrated manner.

1.2 Report Purpose

The purpose of this report is to detail a traffic plan for construction that seeks:

- To minimise traffic impacts on the surrounding road network,
- Ensure safety and efficiency for workers, pedestrians, other road users, and
- Provide information regarding the construction vehicle access routes and any changed road conditions (if applicable).

It is expected that this plan will be updated should any necessary changes to the currently proposed arrangements arise in the future. Any special events (if required) would be subject to a separate request for a specific permit not covered by this report.

Ason Group is responsible for the preparation of this Plan only and not for its implementation, which is the responsibility of the Contractor. In accordance with Condition D65 of the consent, no works can commence until a CTMP report is approved by the Planning Secretary of the Department of Planning, Industry & Environment.

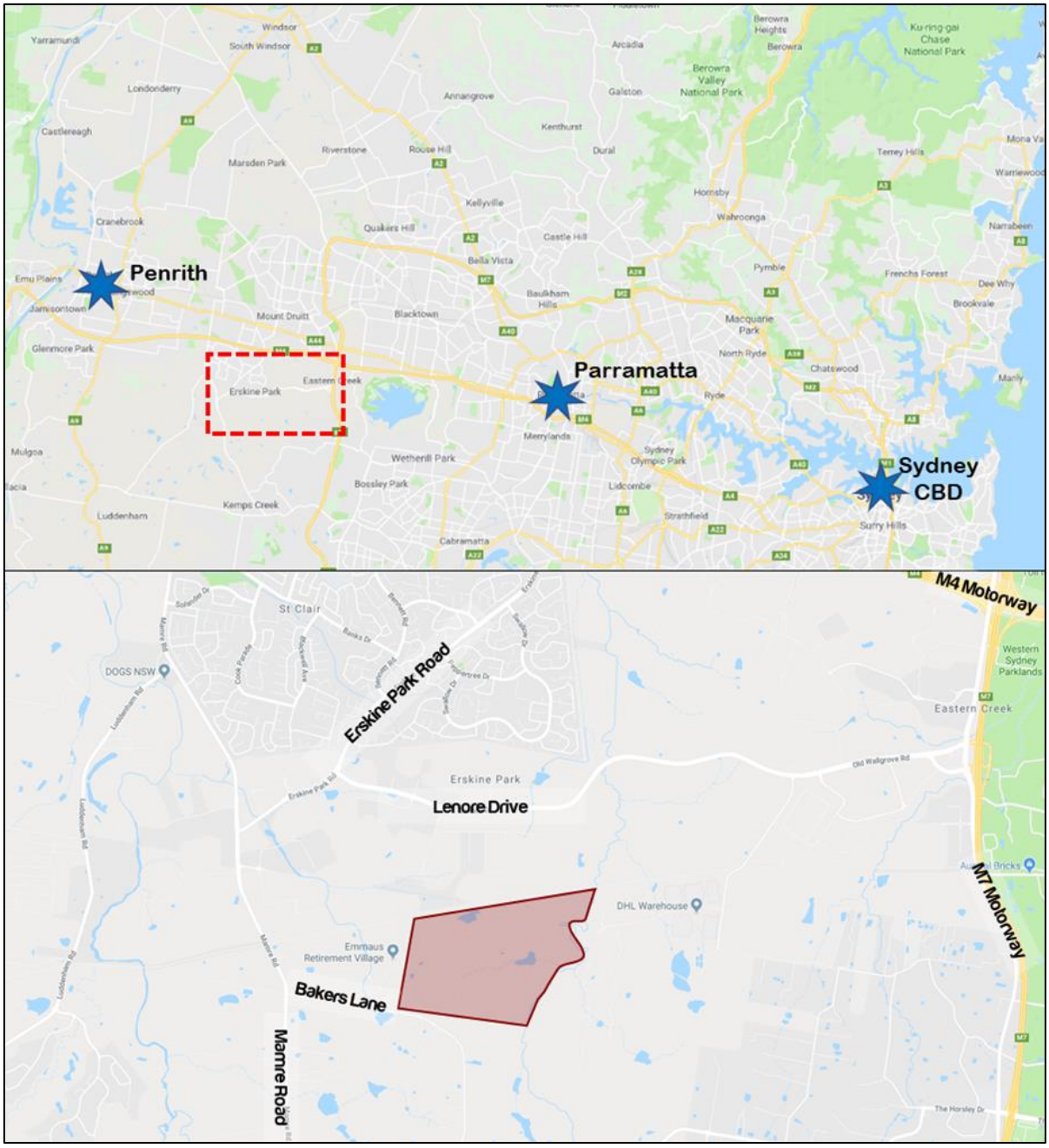

Figure 1: Site Location

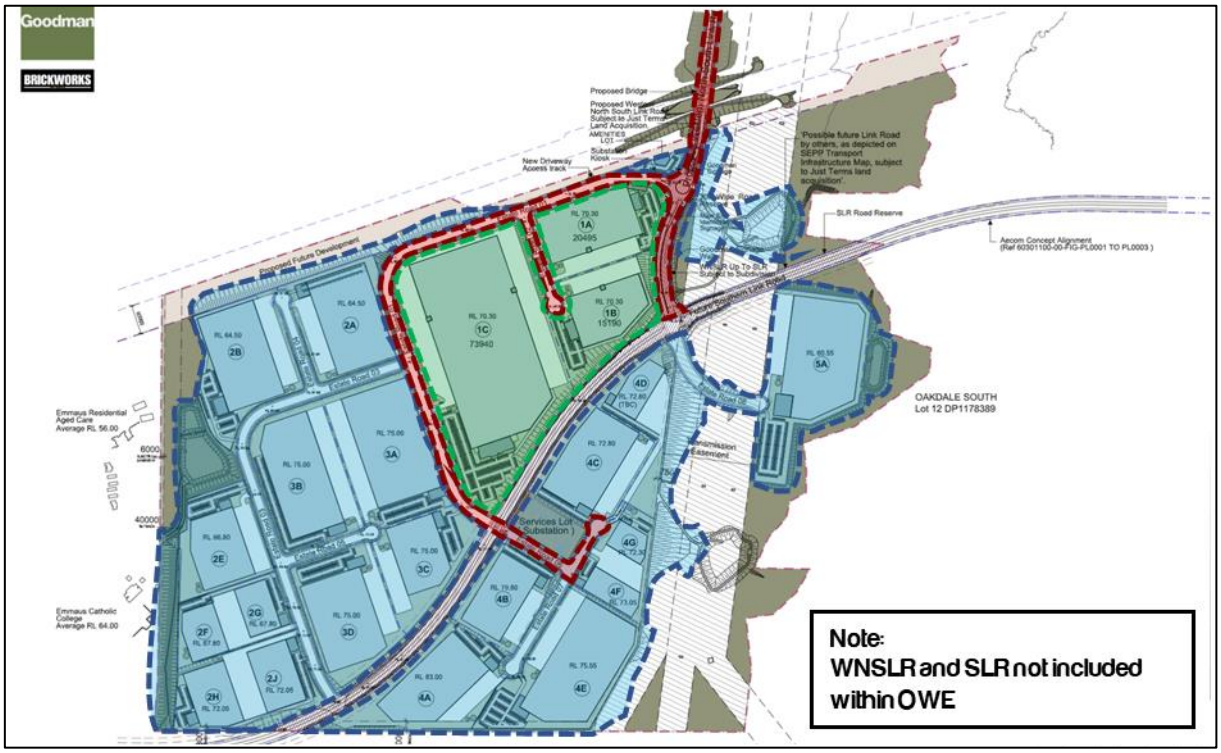

Figure 2: Proposed OWE Works

1.3 Statutory Requirements

The following conditions have been imposed with respect to construction traffic management.

Table 1: SSD 7348 Approval - Compliance Table

Reference	Requirement	Response
D65	Prior to the commencement of Stage 1, the Applicant must prepare a Construction Traffic Management Plan (CTMP) for the Development to the satisfaction of the Planning Secretary. The CTMP must form part of the CEMP required by Condition D111 and must:	
	a) be prepared by a suitably qualified and experienced person(s)	Consultants from Ason Group are suitably qualified Traffic Engineers, with relevant "*Prepare a Work Zone Traffic Management Plan*" accreditation. Further consultation is expected to occur, following issue of development approval, prior to finalisation of this CTMP.
	b) be prepared in consultation with Council, Mamre Anglican School, Emmaus Catholic College, Emmaus Catholic Care Village and Trinity Catholic Primary School	Consultation has been undertaken with the schools and aged care facility within Bakers Lane. Reference should be made to minutes regarding the consultation which has been completed to date which outlined/discussed the use of Bakers Lane during school peak periods. This CTMP is now being discussed further with the schools.

Reference	Requirement	Response
	c) detail specific measures to manage construction traffic to avoid school drop off and pick up times (Monday to Friday 8 am – 9.30 am and 2.30 pm – 4 pm) and Higher School Certificate exam periods, including any temporary infrastructure arrangements and traffic safety measures;	Refer Section 3.1.4. Deliveries and contractor movements will be scheduled by the Builder within these periods. Additional Signage shall be provided within Bakers Lane (including Variable Message Bord Signs (VMS)), and any heavy vehicles utilising Bakers Lane shall be controlled by dedicated Traffic Controllers to ensure the minimisation of impacts to the schools. Notwithstanding, deliveries and contractor movements will be scheduled to avoid these periods. Light vehicles will be directed to use Aldington Road to access Mamre road and thus not pass directly past the neighbouring schools during these periods. Light Vehicles shall be clarified within Section 1.4.3 Upon completion and dedication of WNSLR, construction vehicles shall use WNSLR and avoid using Bakers Lane.
	d) detail the measures to be implemented to ensure road safety and network efficiency during construction, including scheduling deliveries of heavy plant and equipment outside of peak periods, or during school holidays where possible.	Refer Section 5.2 with regard to impacts to traffic efficiency. This concludes that the construction traffic will not have a detrimental impact on the network. Furthermore, Traffic Control Plans (TCPs) shall be developed for all works impact public roads and approved by the Roads and Maritime Service Traffic Management Centre.
	e) detail heavy vehicle routes, access and parking arrangements;	The site access arrangements – relevant to each stage - are outlined in subsequent sections of this report (Refer Section 3).
	f) include a Driver Code of Conduct to: (i) minimise the impacts of earthworks and construction on the local and regional road network; (ii) minimise conflicts with other road users, including the students, staff, visitors and residents of the neighbouring schools and aged care village; (iii) minimise road traffic noise, both on Bakers Lane and from construction vehicles on Site; and (iv) ensure truck drivers use specified routes and adhere to the speed restrictions on Bakers Lane;	A driver Code of Conduct is a requirement of and included within this CTMP. The Drivers Code of Conduct (included in Section 4) addresses ways to minimise the impacts on the road network, with other road users, ensure truck routes are utilised and to manage pedestrian movements.
	g) include a program to monitor the effectiveness of these measures	The Contractor shall include a program to monitor the effectiveness of the measures. Deliveries will be tracked against approved volumes and will keep a vehicle log - including rego & time of entry - for the purpose of assessing the effectiveness of these monitoring programs. These programs will be completed in accordance with Section 6.1.

Reference	Requirement	Response
	h) detail procedures for notifying residents and the community (including local schools), of any potential disruptions to routes.	Previous communication with stakeholders have been included within Appendix A. Further consultation will be undertaken with the schools to ensure appropriate consultation has bee undertaken. The Contractor will notify the community liaison representative when traffic conditions are expected to exceed parameters with within Condition Green of Table 8. Measures that may be included within the strategy have been identified within Section 6.3. Meetings are to be undertaken on a regular basis to keep key stakeholders informed of any upcoming events. Reference should also be made to the Community Consultation Strategy prepared by SLR.
	i) update the CTMP to include modifications to construction traffic management approved under MOD 3	This CTMP has been updated in response to proposed modifications approved under MOD 3 works. Construction traffic is based on the proposed schedule, and is influenced by other CTMPs within the immediate vicinity. Therefore refence has been made to the Consolidated Cumulative Traffic Impact (CCTI) Statement which addresses any modifications made to the CTMP and to consolidate any cumulative impacts to the road network
D66	The Applicant must:	
	a) not commence construction of Stage 1 until the CTMP required by Condition D65 is approved by the Planning Secretary; and	Noted and reiterated in Section 1.1.
	b) implement the most recent version of the CTMP approved by the Planning Secretary for the duration of construction.	Refer Section 6.1 of this Plan which outlines requirement for this Plan to be updated regularly.
D118	Management plans required under this consent must be prepared in accordance with relevant guidelines, and include:	
	a) details of: i. the relevant statutory requirements (including any relevant approval, licence or lease conditions); ii. any relevant limits or performance measures and criteria; and iii. the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, Stage 1 or any management measures;	Relevant requirements are outlined in this table. Other specific requirements are detailed in Section 3.
	b) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	Refer Section 3.
	c) program to monitor and report on the: i. impacts and environmental performance of Stage 1; and ii. effectiveness of the management measures set out pursuant to paragraph (b) above;	Refer Section 6.1 of this Plan which outlines requirement for this Plan to be updated regularly.

Reference	Requirement	Response
	d) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	Refer Section 6.1 of this Plan which outlines the requirement for this Plan to be updated regularly. Traffic Control Plans — outlined in Section 3.2.7 — shall be prepared to respond to specific work situations and subject to approval by the relevant Roads Authority (Council and/or RMS), providing a suitable level of independent oversight.
	e) a program to investigate and implement ways to improve the environmental performance of Stage 1 over time	Refer Section 6.1 of this Plan which outlines requirement for this Plan to be updated regularly.
	f) a protocol for managing and reporting any: i. incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria); ii. complaint; iii. failure to comply with statutory requirements; and	Management and reporting protocols are outlined in the Construction Environmental Management Plan. Reference is also made to Section 4.5 of this Plan in relation to incident management.
	g) a protocol for periodic review of the plan.	Refer Section 6.1 of this Plan.

Refer to the Department of Planning, Industry & Environment's Major Project Assessments website for a full list of all conditions of approval and other background documents.

1.4 Overview of Works

1.4.1 Hours of Work

Having regard for the EIS, the permitted hours of works are as follows:

- 7:00AM – 6:00PM Monday – Friday;
- 8:00AM – 1:00PM Saturday; and
- No work Sunday or public holidays.

Work outside the hours above may be undertaken in the following circumstances:

- Works that are inaudible at the nearest sensitive receivers;
- Works agreed to in writing by the Planning Secretary;
- For the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or
- Where it is required in an emergency to avoid the loss of lives, property or to prevent environmental harm.

1.4.2 Works Stages

The works will comprise an extensive number of discrete tasks; detailed as part of the Construction Environmental Management Plan (CEMP), prepared separately. It includes (but not limited to) the following tasks;

- Bulk earthworks across the entire site (with the exception to the WNSLR works area, which covers the construction Access Road and Basin 1) – refer attached plan.
- Construction of retaining and noise walls across the site.
- Construction of the western bund.
- Construction of lead in services infrastructure, including potable water, sewer, telecommunications and electrical.
- Construction of Roads 1, 2,6 and part Road 7.
- Construction of basins 2, 3, 4, and 5.
- Landscaping across the site.

For the purposes of this CTMP, these works are broadly grouped as the following Phases:

1. Prior to the completion of WNSLR
2. After the completion of WNSLR

It is anticipated that Phase 1 and the construction of WNSLR shall occur concurrently. The access and traffic management required for each Phase is outlined separately for each stage later within this report.

1.4.3 Access Arrangements

Access to the OWE shall initially occur via Bakers Lane and Aldington Road. Upon completion of the WNSLR, such that access to the work area from the north becomes available, all vehicular access shall be restricted to the northern access routes, via Lenore Drive and WNSLR. This is discussed in further detail below.

Bakers Lane is the primary access point for these works with works arriving to site from Mamre Road to the west. All construction vehicles are to use the primary access from Bakers Lane. A secondary access route is proposed from Aldington Road (to the south-west of the access gate), however the proposed alternative route will be restricted for use only when Bakers Lane is unavailable.

Every effort shall be made to plan deliveries out side of school zone hours along Bakers Lane. The monitoring strategies outlined within Section 6.1 shall ensure that deliveries are scheduled outside of the school zone hours in order to avoid any additional conflicts between construction vehicles and the school. During school zones, Aldington Road shall be used for deliveries to and from the Site.

Furthermore, any construction traffic crossing the WNSLR Construction Access Road shall do so via designated crossing points which shall be determined in consultation between OWE Contractor and WNSLR contractor.

For reference, the definitions of light and heavy vehicles are as follows;

- Light Vehicles: For the purpose of this report a light vehicle is a car, ute, four-wheel drive, small bus, and/or concrete truck up to a 9.6m Medium Rigid Vehicle (MRV)
- Heavy Vehicle: For the purpose of this report, a heavy vehicle ranges from (but is not limited to) a 12.5m Heavy Rigid Vehicle (HRV) up to a 26.0m B-Double.

Furthermore. any construction traffic crossing the WNSLR Construction Access Road shall do so via designated crossing points which shall be determined in consultation between OWE Contractor and WNSLR contractor.

Finally, For additional reference, a construction vehicle would relate to all contracted parties involved in day to day construction activities on site. This would include ;

- All Vehicles making material deliveries to and from the Site
- All Contractors and their sub-contractors construction site vehicles
- All construction staff working on the projects arriving / departing the Site in private cars

In turn, the following are exempt from the requirements of the CTMP (as they are not part of construction works within the Site);

- All Goodman staff and their design / management consultants
- Food vans / food deliveries by non-contracted parties
- Relevant Authorities / Agencies (including DPIE or Penrith City Council/, and other stakeholders including Endeavour Energy, TransGrid, Sydney Water, NBN or others who have assets on the site)
- Members of the public who may drive in ad hoc

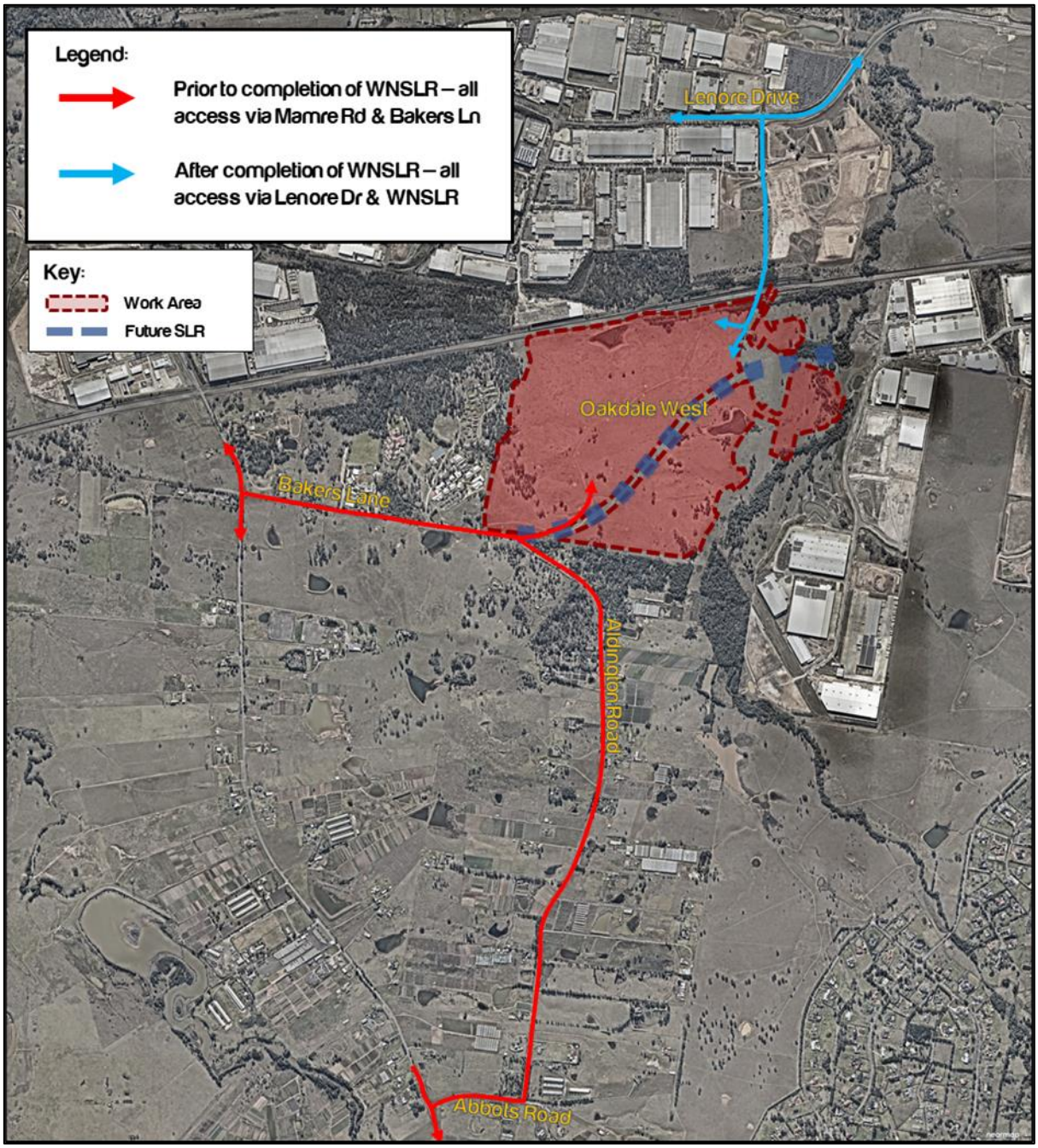

Figure 3: OWE Construction Vehicle Access Routes

A more detailed outline of the vehicle routes from the south can be seen below in **Figure 4**.

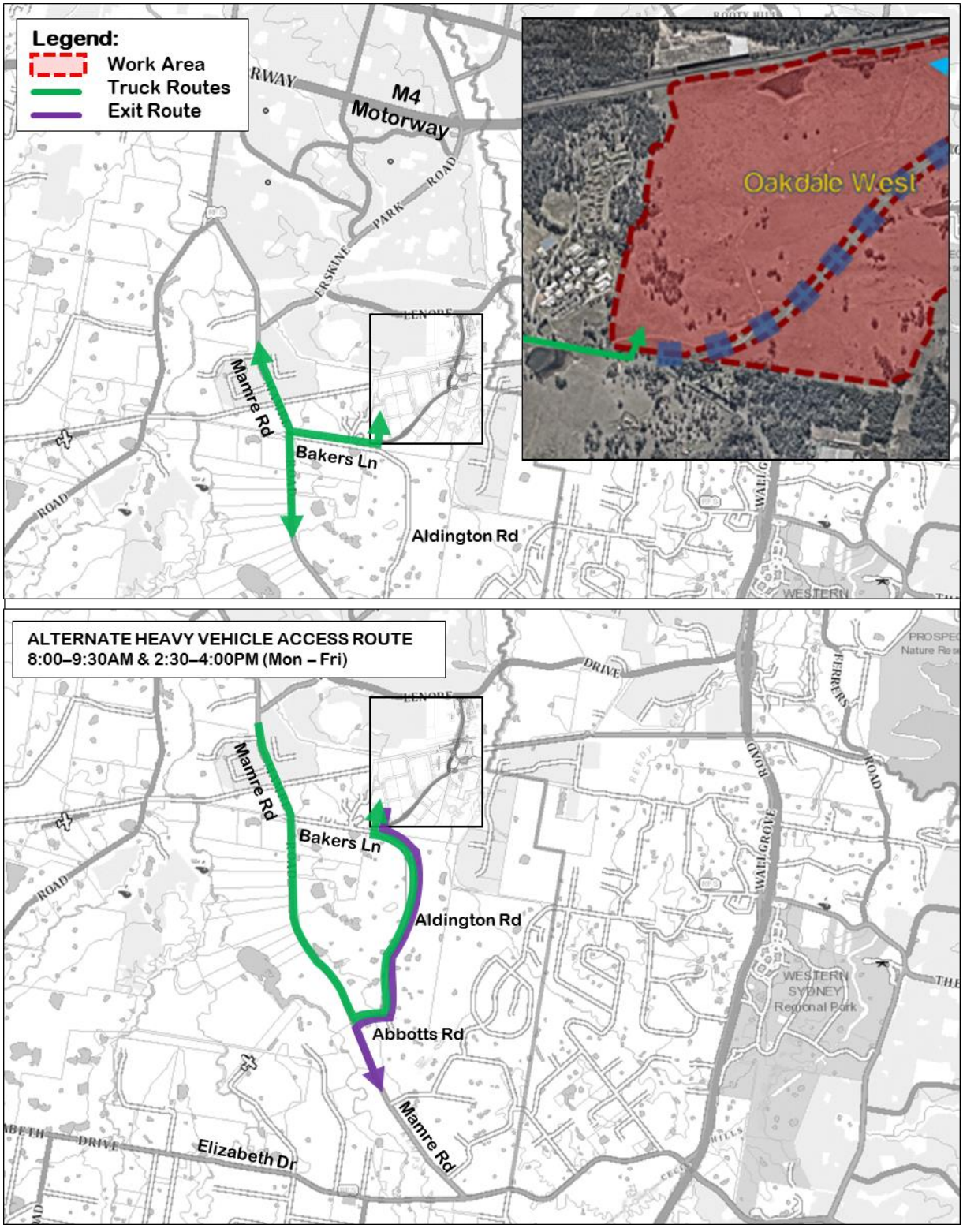

Figure 4: OWE Access Routes from Bakers Lane

2 Existing Conditions

2.1 Existing Access

Access to the site is currently available via Bakers Lane access gate.

Figure 5: Existing Site Access - Bakers Lane

2.2 Road Hierarchy

The road hierarchy in the locality is presented in **Figure 6** and summarised below for key roads.

2.2.1 M7 Motorway

The M7 motorway is a high capacity road link and provides a key north-south link, to the east of OWE, between the M2 motorway in the north and the M5 motorway to the south as part of the Sydney orbital road network. A major interchange between the M7 motorway and M4 Western motorway is located 2.5 km north of OWE, which connects the Sydney CBD and western Sydney suburbs. The motorway carries 4 trafficable lanes within a divided carriageway and is generally subject to a 100 km/h speed limit (within proximity of OWE).

2.2.2 Wallgrove Road

Wallgrove Road is an arterial road that runs in a north-south direction to the east of OWE and parallel to the M7 motorway. It provides a link between Elizabeth Drive in the south and the Great Western Highway in the north. Similar to the M7 motorway, Wallgrove Road connects to the M4 motorway

approximately 2.5 kilometres to the north of OWE. The posted speed limit on the road within proximity of the site is 70 km/h and the road carries approximately 30,000 vpd. Access to the M7 motorway is also provided from Wallgrove Road.

2.2.3 Lenore Drive

Lenore Drive is a recently upgraded sub-arterial route providing an east-west connection linking Old Wallgrove Road (OWR) to the east and Erskine Park Road to the west. It provides four lanes (two in each direction) within a divided carriageway with a shared path along the northern side of the road. It is subject to an 80 km/h speed zoning.

2.2.4 Old Wallgrove Road

OWR generally runs north-south in the vicinity of the site before turning to provide an east-west connection to Wallgrove Road. It forms part of an RMS Main Road (MR 629) route between Lenore Drive and Wallgrove Road. To the south of Lenore Drive, it functions as a local collector road.

2.2.5 Mamre Road

Mamre Road generally runs in a north-south direction to the west of the work area. It is a classified road and subject to an 80 km/h speed limit.

2.2.6 Bakers Lane

Bakers Lane is a local road that connects to Mamre Road. Surrounding land-uses include schools and rural residential properties. A signalised intersection is provided at Mamre Road providing access to the wider road network.

2.2.7 Aldington Road

Aldington Road is a local road that connects to Bakers Lane in the north, and Abbotts Road to the south. Surrounding land-uses include schools and rural residential properties. It is a sealed two lane, two road with no kerbs and gutters.

2.2.8 Abbotts Road

Abbotts Road is a local road that connects to Mamre Road via an unsignalised T-intersection. Surrounding land-uses include rural residential properties. It is a sealed two lane, two road with no kerbs and gutters.

2.3 Public Transport Services

As shown in **Figure 7**, bus services operate along Lenore Drive. Accordingly, any works affecting traffic conditions along Lenore Drive shall require advanced notification to local bus operators and TfNSW.

2.4 Active Transport Connections

A Shared Path (cyclists and pedestrians) is provided along the northern side of Lenore Drive and western side of Old Wallgrove Road, providing connections to the regional pedestrian and cycle networks.

No footpaths are provided on Mamre Road or Bakers Lane in the vicinity of the proposed construction site access locations. However, an on-road cycle lane is provided within Mamre Road to the north of the Water NSW Pipeline.

Footpaths and cycle routes do not carry high volumes of pedestrians or cyclists. Notwithstanding, any TCP shall maintain a suitable level of access past work areas for these users at all times.

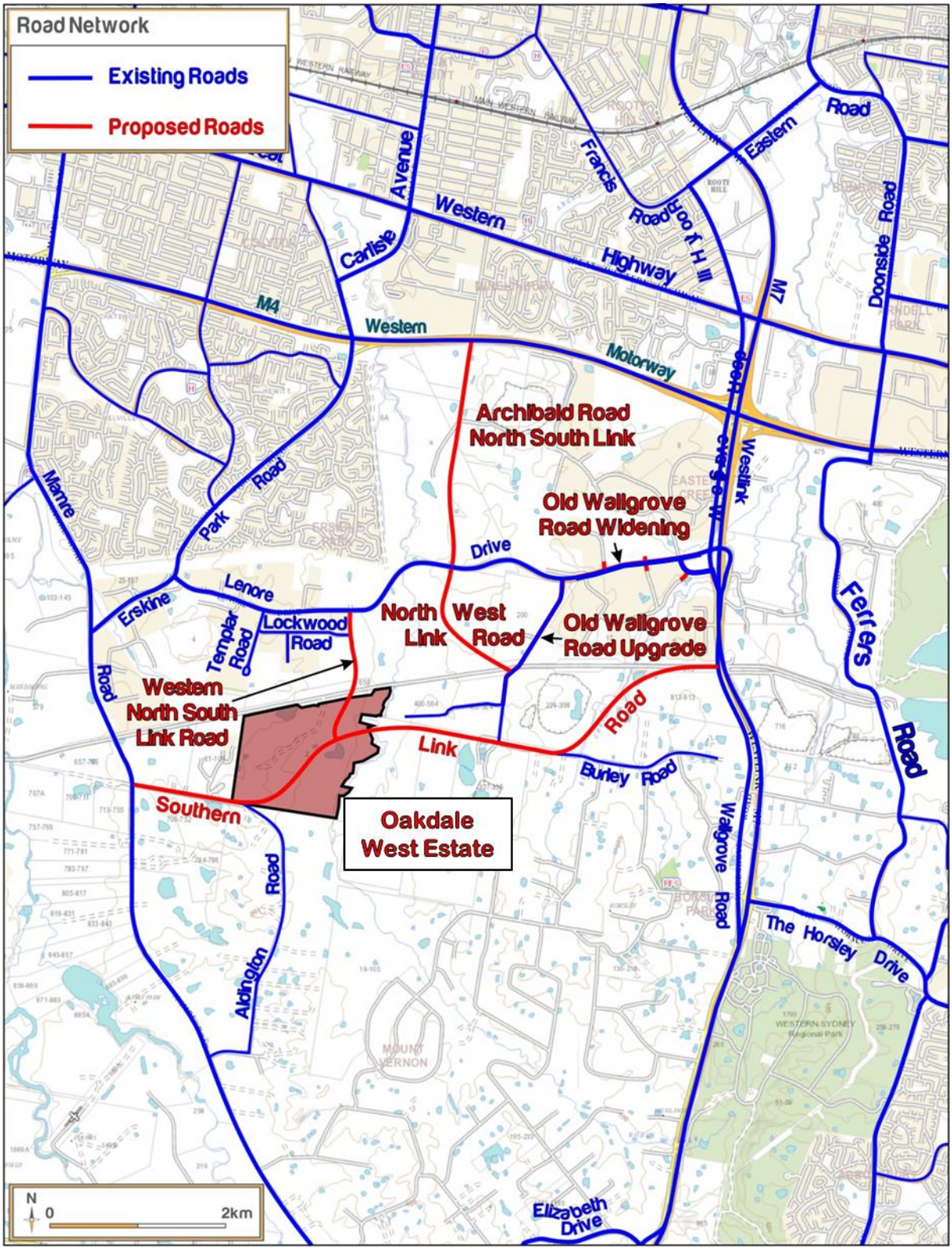

Figure 6: Road Hierarchy

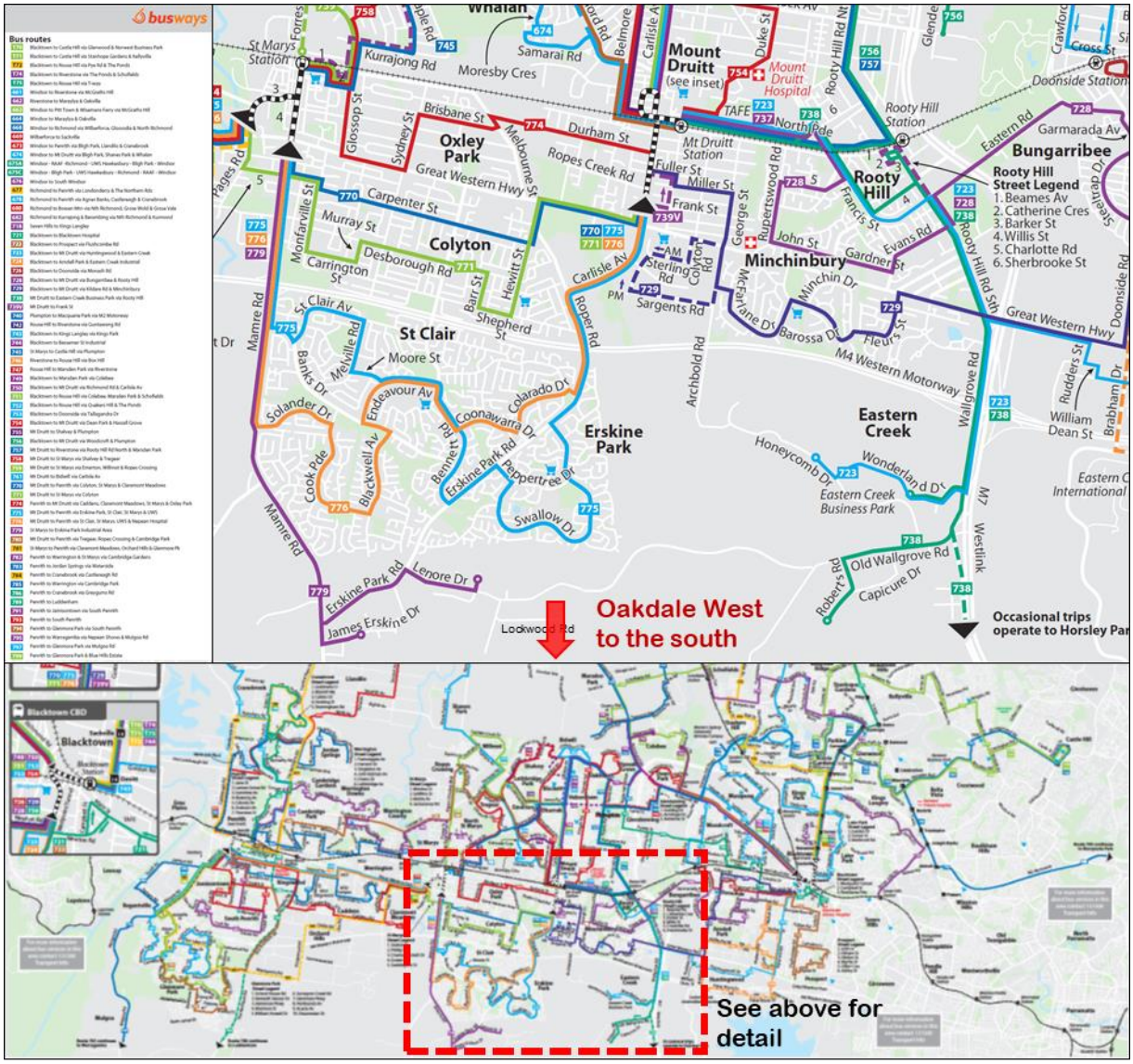

Figure 7: Public Transport Connections

3 Management Plan

3.1 Traffic Movement Restrictions

3.1.1 Background

The traffic report (Ason Group Ref: 0129r01v3) supporting the Oakdale West Estate submission, outlined the following relevant figures with regard to future operational traffic volumes associated with the Oakdale West Estate:

- Modelled 942 veh/h (movements, in & out combined)
- Projected 777 veh/h (movements, in & out combined)

For the purpose of this report, 1 truck is equal to 1 inbound movement plus 1 outbound movement which equals to a total of 2 movements

3.1.2 Current Construction Traffic Estimates

The anticipated vehicle movements generated by the construction of the OWE have been estimated having consideration of the likely requirements for construction staff, plant, equipment and haulage. In this regard, the design of the warehouses within OWE minimises the requirement for the importation or exportation of fill. Notwithstanding there is still a requirement for large quantities of fill material for the benching of warehouse building envelopes to be imported following the completion of WNSLR.

Having regard for the above and the anticipated construction schedule, the estimated traffic volumes are as follows:

- Earthworks and local infrastructure – 85 – 120 employee vehicles per day and 170 – 200 construction vehicles per day (including truck and dog and 3 tonne rigid trucks), accessing OWE via Bakers Lane. This equates to a daily construction generation of about 510 - 700 vehicle movements per day.

During the Phase 1, prior to completion of the WNSLR and its associated Water NSW pipeline crossing, it is anticipated that all construction traffic will use Mamre Road, via Bakers Lane outside of school peak periods.

Within these school peak periods, it is expected that light vehicles access the Site via Abbotts Road and Aldington Road, while the arrivals of larger vehicles shall be rescheduled to outside of the school peaks.

3.1.3 TransGrid Easement

A TransGrid easement runs along the eastern side of the Work Area which is subject to a number of restrictions. Importantly, no vehicle circulation is permitted within 5 metres of any transmission structure or guy-wires unless otherwise pre-arranged. All endeavours shall be undertaken to limit vehicular movements with the easement areas for all construction works, wherever practicable.

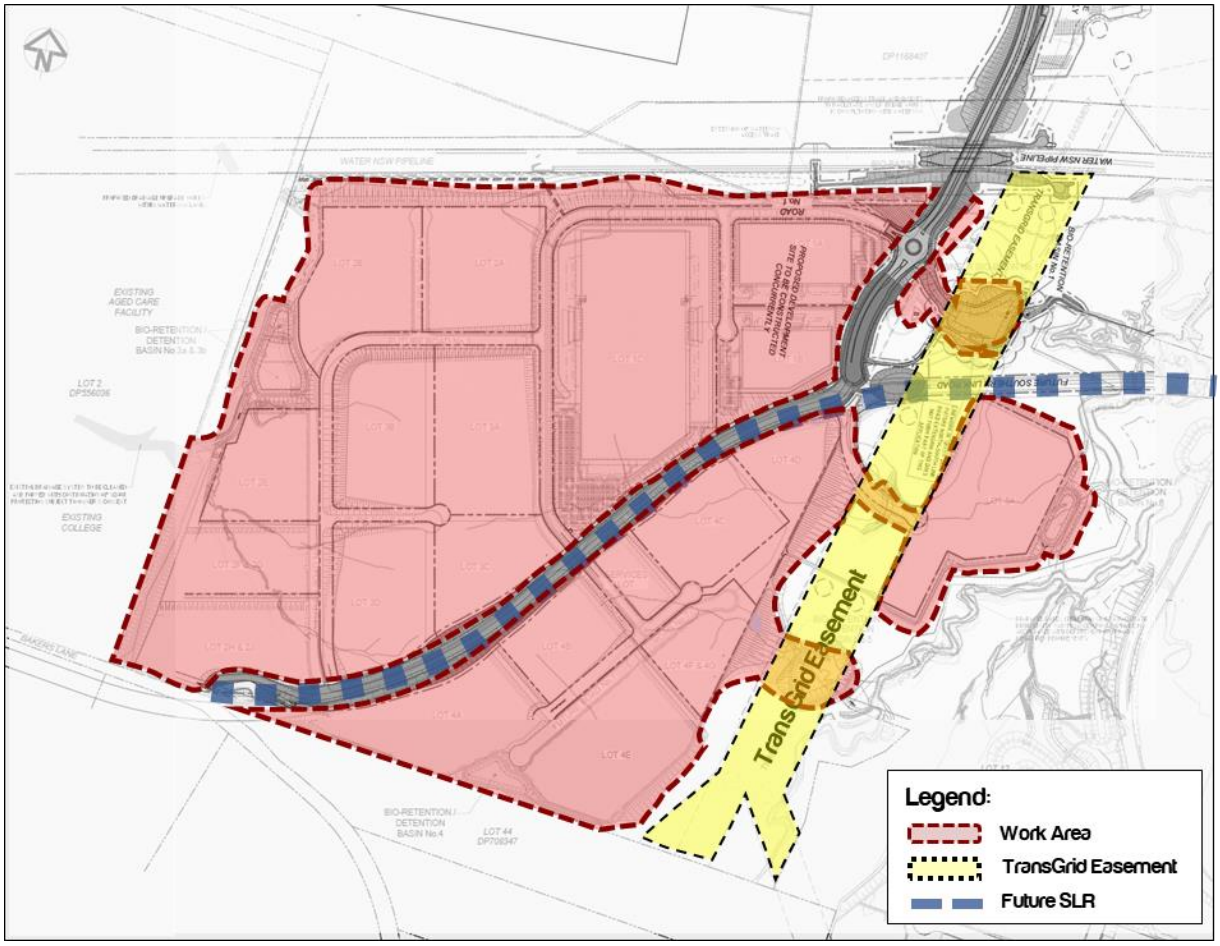

Figure 8: TransGrid Easement Within Site

3.1.4 Measures to Manage Construction Traffic in Bakers Lane During School Zone Periods

Subsequent to Condition 65(c) which requires specific measures to restrict construction traffic from Bakers Lane during school drop-off and pick up (Monday to Friday 8:00 – 9.30AM and 2.30 – 4:00PM, and Higher School Certificate exam periods). These restrictions shall not be enforced during school holidays, pupil free days or during 'other' events which creates minimal activities within the schools.

In this regard, the following measures shall be implemented to minimise the impact to the schools (as far as practicable) from Heavy Vehicles using Bakers Lane during the above hours:

- All suppliers/haulage contractors to have Vehicle Movement Plans issued at supply agreement stage
- When placing all orders, dispatch shall be instructed to minimise deliveries during school peak periods and include the notification on the delivery docket provided to the driver, where possible
- Additional signage to be provided on Bakers Lane prior to the schools, notifying delivery drivers of increased school activity interactions ahead and to use extra caution. Signage to include long term fixed signage and Variable Message Signage (VMS) boards,
- Similarly, additional signage is to be installed along Aldington Road – particularly near crests in the road – outlining an increase in construction vehicles, and the prominence in crests which limits sight visibility to oncoming vehicles ahead.
- Line marking is to be installed along the full length of Aldington Road with centre-line and edge-line marking, whilst also including raised reflective pavement markers (RRPM's).
- Tracking loads in/out of each site, which also includes communicating and monitoring access/egress routes accordingly,
- Any vehicles found to be in breach of the Driver Code of Conduct (outlined within **Section 4)** to undergo driver induction on the spot and their manager/dispatch advised; repeat offenders to be prevented from returning to site

3.2 Other General Requirements

3.2.1 Driver Code of Conduct

All drivers shall adhere to the Driver Code of Conduct, outlined in Section 4.

3.2.2 Loading & Materials Handling

All deliveries and materials handling shall occur on-site at all times.

3.2.3 Work Zone Requirements

An on-street Works Zone is proposed for the use of hydrant fill points on Bakers Lane by Contractor water carts. The locations will be confirmed (and approved) with the PCC prior to any filling.

A separate application to Council will therefore be required in the event that any special or discreet work activities do require the use of kerbside parking for the purposes of a Works Zone.

3.2.4 Pedestrian Management

Man-proof fencing shall be provided along all site frontages accessible by the public to prevent unwanted pedestrian access.

Careful consideration for pedestrian protection shall be included within relevant TCP, as outlined below.

3.2.5 Cyclist Management

Man-proof fencing shall be provided along all site frontages accessible by the public to prevent unwanted cyclist access.

Careful consideration for cyclist protection shall be included within relevant TCP, as outlined below.

3.2.6 Access Road Management

Access to the OWE will be separate from the construction access associated with the WNSLR works which itself is to be constructed along the future Southern Link Road alignment. The OWE construction access shall be located to the west of the SLR access.

Any construction traffic crossing the WNSLR Construction Access Road shall do so via designated crossing points which shall be determined in consultation between OWE Contractor and WNSLR contractor.

3.2.7 Traffic Control Plans

Any Traffic Control Plans (TCPs) shall be prepared by an accredited person, in accordance with the RMS *Traffic Control at Worksites Manual* and AS1742.3.

All TCPs involving signage or impacts to public roads shall be approved by RMS Traffic Management Centre, prior to the works for which they relate. These TCPs shall be updated to respond to any changes to prevailing traffic conditions throughout the life of the works.

3.3 Phase 1 - Prior to the completion of WNSLR

3.3.1 Key Stage Details Summary

Table 2: Stage Summary – Phase 1

Criteria	Response
Description of Key Activities	Bulk earthworks across the entire site (with the exception to the WNSLR works area, which covers the construction Access Road and Basin 1) – refer attached plan. Construction of retaining and noise walls across the site. Construction of the western bund. Construction of lead in services infrastructure, including potable water, sewer, telecommunications and electrical. Construction of Roads 1, 2,6 and part Road 7. Construction of basins 2, 3, 4, and 5. Landscaping across the site.
Max. Vehicle Size	Truck + Dog Trailer (Special Permits may be required for floating in plant)
Vehicle Movement Frequency	Approximately 800 movements / day
Truck Access Requirements	All vehicles shall access via Baker Lane Access during school periods shall be limited to vehicle up to 9.6m via Aldington Road – therefore no heavy vehicles to arrive to site during school peak periods.
Vehicle access / egress in a forward direction (Y / N)	Y
Out of Hours Deliveries (Y/N)	Y – upon written approval by the Planning Secretary
Contractor Parking	Y – Location varies depending on discreet work area(s). Builder shall nominate contactor parking zones, clear of truck manoeuvring areas.
Pedestrian Control	Wire mesh site boundary fencing.
Public Transport Services Affected	Nil
Road Occupancy Requirements (if yes, provide further details)	Y – Phase 1a might involve boundary treatment works within the verge of Bakers Lane to
Lane or Footpath Closures (if yes, provide further details)	Y – Kerbside lane occupancy within Bakers lane may be required for a short duration. Works may be restricted to outside of peak periods.
Traffic Control Plan	Refer below.

3.3.2 Truck Movements & Contractor Parking

Truck access routes under Phase 1 generally seek to use Bakers Lane and temporary haulage routes within the Site to access work areas. Primary haulage routes likely to utilise the future SLR route, as depicted below.

Relevant truck routes are presented below for each sub-phase. The implementation of each access route shall be done so in accordance with any and all conditions of consent received by the RMS. It is expected that a schedule for deliveries of materials and goods will be established prior to that day, with Traffic Controllers maintaining radio contact with construction vehicles at all times. Thus, at no stage shall queueing occur on the public road network.

In the event that vehicles were required to use a layover prior to arrival to site, it is expected that the vehicles shall laydown within Distribution Drive before arriving to site in order to avoid any on-street queuing. **Figure 9** identifies the proposed location in reference to the Site.

Figure 9: Truck Layover Locations

These sub-phases assume that Stage 1 earthworks and surrounding precinct roads will be completed first to enable building works associated with the final built-form to commence, whilst remaining earthworks are to be complete. It is expected that future contractors shall prepare Vehicle Movement Plans (VMP) for on-site circulation for key stages generating more than 20 truck movements (10 in, 10 out) per day.

In preparing relevant details VMPs, the contractor should:

- Minimise interaction with other work areas, as far as possible.
- Where possible, separate truck movements from contractor car parking areas
- Prepare Traffic Control Plans where necessary to provide additional management of on-site vehicle movements.
- Maintain connectivity between Bakers Lane and the southern end of the WNSLR works

All internal haul routes shall be set up by the OWE contractor, while any crossing points over the WNSLR Construction Access Road are to be agreed between the two contractors.

It should be noted that RMS is yet to complete detailed design of the SLR. As such, it is unlikely that SLR works will commence during the timeframes envisaged by this CTMP (out to September 2019). Nevertheless, regular engagement with RMS should be undertaken to coordinate any final design and/or construction access requirements.

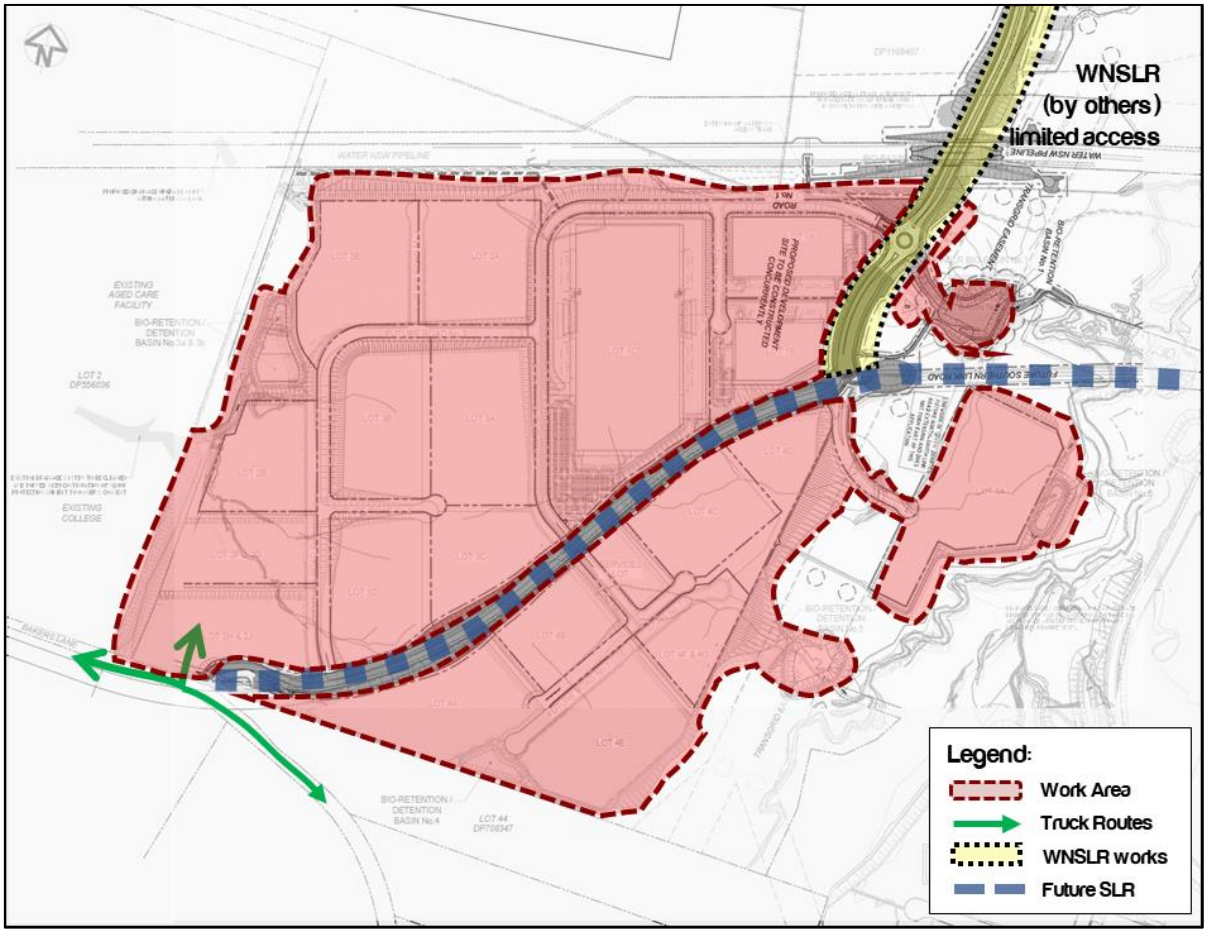

Figure 10: Truck Routes - Phase 1

3.3.3 Traffic Control Plans

Having regard for the anticipated truck movements exceeding 20 movements per day, it is expected that signage (e.g. “Trucks Turning”) may be required at the site access points to advise other road users of changed traffic conditions. In this regard, it is expected that site-specific versions of the standard TCP 195 would be implemented by the Contractor. The TCP’s shall be integrated to accommodate the spacing and clearances of each access.

Further to the above, it is expected that additional signage shall be installed within Bakers Lane near the intersection of Mamre Road x Bakers lane and VMS shall be installed on approach to the schools to provide additional opportunities for drivers to be made aware of the increased pedestrian activity ahead.

In addition, site-specific versions of standard TCP 93 will be required for any works within Lenore Drive where the kerbside lane is obstructed or insufficient clearances to passing traffic cannot be maintained.

Supplementary site-specific TCPs shall be developed and submitted to TMC for approval, as required to reflect specific work activities and/or changes to road conditions.

3.4 Phase 2 – Post completion of the WNSLR

3.4.1 Key Stage Details Summary

Table 3: Stage Summary – Phase 2

Criteria	Response
Description of Key Activities	Estate Road No.01, Estate Road No.06 and Estate Road No.07.
Max. Vehicle Size	Truck + Dog Trailer / (Special Permits may be required for floating in plant)
Vehicle Movement Frequency	Approximately 1,500 movements / day
Truck Access Requirements	All vehicles shall access via the WNSLR.
Vehicle access / egress in a forward direction (Y / N)	Y
Out of Hours Deliveries (Y/N)	Y
Contractor Parking	Contactors shall nominate the parking zones without obstructing any vehicle manoeuvre routes.
Pedestrian Control	Wire mesh site boundary fencing.
Public Transport Services Affected	Nil
Road Occupancy Requirements (if yes, provide further details)	N – all affected internal road will be in private ownership until completion of construction.
Lane or Footpath Closures (if yes, provide further details)	N
Traffic Control Plan	Refer below.

3.4.2 Truck Movements

Relevant truck routes to be adhered to during this Phase are outlined below. Upon the completion of the WNSLR, all construction vehicles shall access work areas via the WNSLR.

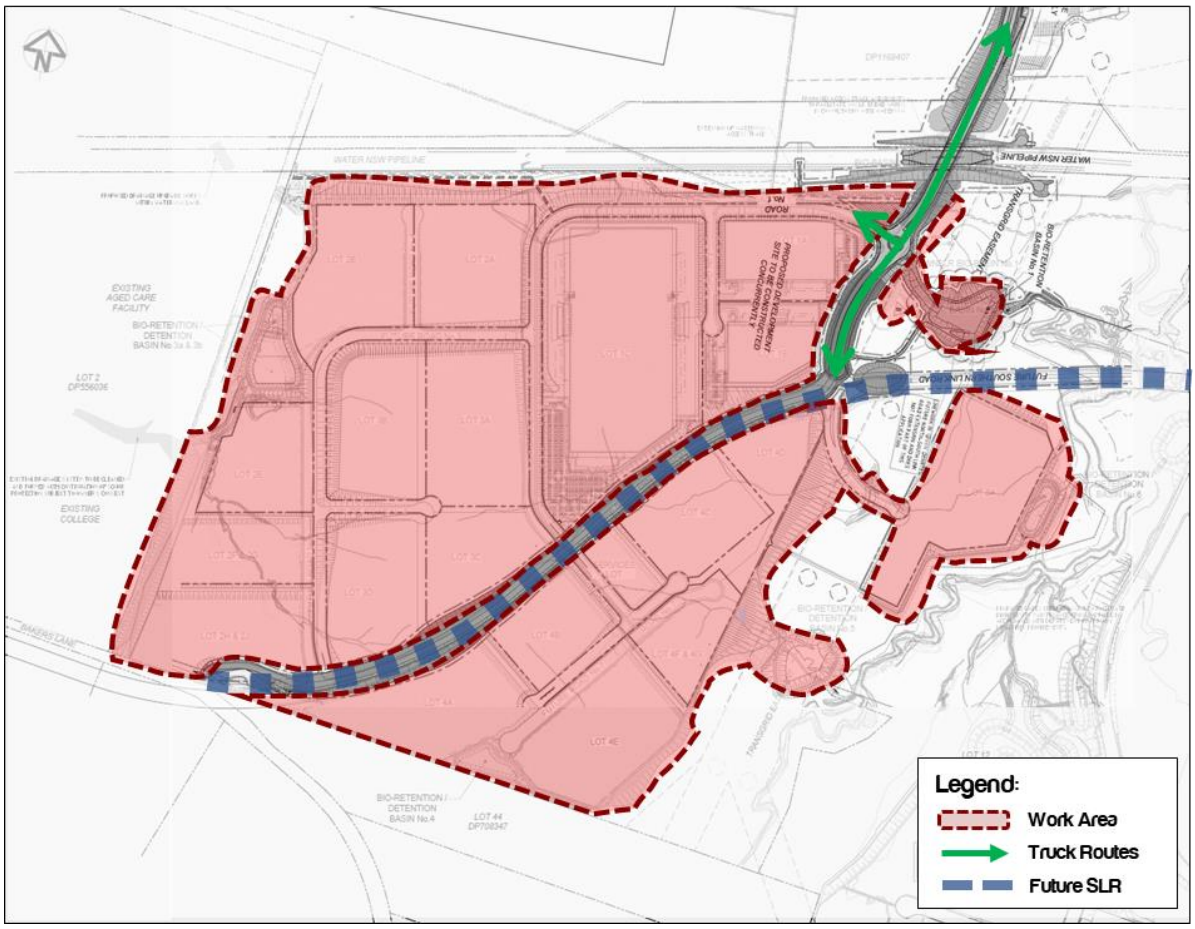

Figure 11: Truck Routes - Phase 2

3.5 Contractor Parking

Contactors shall nominate the parking zones without obstructing any vehicle manoeuvre routes.

3.6 Traffic Control Plans

Having regard for the anticipated truck movements exceeding 20 movements per day, it is expected that some signage (e.g. “Trucks Turning”) may be required at the site access points to advise other road users of changed traffic conditions. In this regard, it is expected that site-specific versions of the standard TCP 195 would be implemented by the Contractor. Further site-specific TCPs may be development in consultation with the contractor once a Contractor has been appointed.

4 Drivers Code of Conduct

Safe Driving Policy for Oakdale West Estate construction activities.

4.1 Objectives of the Drivers Code of conduct

- To minimise the impact of earthworks and construction on the local and regional road network;
- Minimise conflict with other road users;
- Minimise road traffic noise; and
- Ensure truck drivers use project approved routes only

4.2 Code of Conduct

The code of conduct requires that while driving any vehicle for work-related purposes. Drivers are to be issues with a copy of the Drivers Code of Conduct, and must comply with all of the following:

- Demonstrate safe driving and road safety activities
- Abide by traffic, road and environmental legislations
- Follow site signage and instructions
- Drivers must only enter and exit the site via the approved entry and exit points and travel routes.

The below activities in any vehicles will be considered as a breach of conduct and will result in removal from site:

- Reckless or dangerous driving causing injury or death
- Driving whilst disqualified or not correctly licensed
- Drinking or being under the influence of drugs while driving
- Failing to stop after an incident
- Loss of demerit points leading to suspension of licence
- Any actions that warrant the suspension of a licence
- Exceeding the speed limit in place on any permanent or temporary roads
- Turning right into Abbotts Road from Mamre Road, or turning right out of Abbotts Road into Mamre Road in direct contradiction to the approved traffic route.

4.3 Driver Responsibilities

All Drivers on site must:

- Be responsible and accountable for their actions when operating a company vehicle or driving for the purposes of work.
- Display the highest level of professional conduct when driving a vehicle at all times.
- Ensure they have a current driver licence for the class of vehicle they are driving, and this licence is to be carried at all times
- Immediately notify their supervisor or manager if their drivers' licence has been suspended, cancelled, or has had limitations applied.
- Comply with all traffic and road legislation when driving.
- Assess hazards while driving.
- Undertake daily pre-start checks of oil, tyre pressures, radiator and battery levels of company vehicles they regularly used.
- Drive within the legal speed limits, including driving to the conditions.
- Not drive outside of the approved heavy vehicle routes. All drivers must obey weight, length and height restrictions imposed by the National Vehicle Regulator, and other Government agencies. Heavy Vehicles shall adhere to the routes outlined in Section 3.
- Be cognisant of the noise and emissions requirements imposed within the EIS, and in a broader sense, the NSW/ Australian Road Rules. Works must be constructed with the aim of achieving the construction noise management levels detailed in the Interim Construction Noise Guideline.
- Do not queue on public roads unless a prior approval has been sought.
- Be aware that at no time may a tracked plant be permitted or required on a paved road.
- Never drive under the influence of alcohol or drugs, including prescription and over the counter medication if they cause drowsiness – to do so will merit disciplinary measures.
- All drivers to report to their supervisor if they have been prescribed medication prior to the start of work.
- Wear a safety seat belt at all times when in the vehicle.
- Avoid distraction when driving – the driver will adjust car stereos/mirrors etc. before setting off, or pull over safely to do so.
- Report ALL near-misses, crashes and scrapes to their manager,

- Report infringements to a manager at the earliest opportunity.
- Report vehicle defects to a manager prior to the next use of the vehicle.
- Follow the approved site access/egress routes only.
- Follow speed limits as imposed within the estate.
- Keep loads covered at all times.

4.4 The Site Team Responsibilities

The Contractor is responsible to take all steps necessary to ensure company vehicles are as safe as possible and will not require staff to drive under conditions that are unsafe.

This will be achieved by undertaking the following:

- Ensuring all vehicles are well maintained and that the equipment enhances driver, operator and passenger safety by way of:
  - Pre-commencement checks for all new plant arriving on-site and prior to undertaking any work.
  - Daily prestart inspections for all plant, vehicles and equipment currently on-site.
  - All construction plant must be fitted with a flashing light, fire extinguisher and reverse alarms (or squawkers).
  - Ensure all operators onsite have a current verification of competency (VOC) for their current driver's licence of the appropriate class.
  - Ensure maintenance requirements are met and recorded.
- Identify driver training needs and arranging appropriate training or re-training. This may include providing the below:
  - Operator VOC assessment as part of all inductions.
  - Regular Toolbox discussions on safety features, managing fatigue, approved heavy routes, driver responsibility and drink-driving
- Encouraging Safe Driving behaviour by:
  - Ensuring the subcontractor is informed if their staff become unlicensed
  - Not covering or reimbursing staff speeding or other infringement notices
  - Ensuring Legal use of mobile phones in vehicles while driving only and that illegal use is not undertaken.

- Encouraging better fuel efficiency by:
  - Use of other transport modes or remote conferencing, whenever practical.
  - Providing training on, and circulating information about, travel planning and efficient driving habits.

4.5 Crash or incident Procedure

- Stop your vehicle as close to it as possible to the scene, making sure you are not hindering traffic. Ensure your own safety first, then help any injured people and seek assistance immediately if required.
- Ensure the following information is noted:
  - Details of the other vehicles and registration numbers
  - Names and addresses of the other vehicle drivers
  - Names and addresses of witnesses
  - Insurers details
- Give the following information to the involved parties:
  - Name, address and company details
- If the damaged vehicle is not occupied, provide a note with your contact details for the owner to contact the company.
- Ensure that the police are contacted should the following circumstances occur:
  - If there is a disagreement over the cause of the crash.
  - If there are injuries.
  - If you damage property other than your own.
- As soon as reasonably practical, report all details gathered to your manager.

4.6 Environmental Procedures.

A range of measures — including those detailed in the Environmental and Sedimentation Control Plan (ESCP); Appendix F of the Erosion and Sediment Control Plan — shall be implemented to ensure the following;

- No dirt or debris from the construction vehicles is tracked on to the public road network;
- Reduce the impacts to sensitive receivers, including, where practicable, starting noisy equipment away from sensitive receivers and implementing respite periods;

- Watering of dusty activities will be undertaken, or activities temporarily halted and then resumed once weather conditions have improved;
- 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 Project work areas;
- All vibratory compactors must not be used closer than 30 metres from residential buildings unless vibration monitoring confirms compliance with the vibration criteria, and
- Keep an accurate record which includes the range of measures undertaken to reduce environmental impacts.

5 Transport Impact Assessment

5.1 Construction Traffic Generation

5.1.1 Phase 1 Construction Traffic – Prior to the completion of WNSLR

As discussed above, the construction works are expected to generate up to 600 vehicle movements per day. Vehicle movements will be spread throughout the day and — particularly in the case of access to the southern work area —avoid peak school drop-off periods. Reference is made to the detailed breakdown of vehicle movements which details projected movements during a number of periods:

- Pre-School Zone (7:00 – 8:00AM)
- Morning School Zone (8:00 – 9:30AM)
- Between School Zones (9:30AM – 2:30PM)
- Afternoon School Zone (2:30 – 4:00PM)
- Post-School Zones (4:00 – 6:00PM)

The peak for each of these periods varies for each work area during the life of the construction program.

Works will typically generate peak hourly traffic before and after the School Zone periods, as demonstrated below. This adopts a similar Light Vehicle (LV) and Heavy Vehicle (HV) arrival profile to other construction works in the locality.

Table 4: Daily Construction Traffic Movements – Phase 1 via Bakers Lane

Vehicle Type	Pre-School Zones	Morning School Zone	Between School Zones	Afternoon School Zone	Post School Zones	Daily
LV	120	5	50	5	120	300
HV	106	0	224	0	107	437
TOTAL	226	5	274	5	227	737

Note: 1) Heavy vehicles are not to arrive to site during School Zone periods.

Table 5: Daily Construction Traffic Movements – Phase 1 via Aldington Road

Vehicle Type	Pre-School Zones	Morning School Zone	Between School Zones	Afternoon School Zone	Post School Zones	Daily
LV	10	18	10	17	10	64
HV	1	1	1	1	1	5
TOTAL	11	19	11	18	11	69

Note: 1) Heavy vehicles are not to arrive to site during School Zone periods.

When combined, the daily construction traffic movements are as follows.

Table 6: Daily Construction Traffic Movements – Phase 1

Vehicle Type	Pre-School Zones	Morning School Zone	Between School Zones	Afternoon School Zone	Post School Zones	Daily
LV	130	23	60	22	130	365
HV	107	1	225	1	108	442
TOTAL	237	24	285	23	238	807

Note: 1) Heavy vehicles are not to arrive to site during School Zone periods.

5.1.2 Phase 2 Construction Traffic – Post completion of the WNSLR

Post completion of the WSLNR, the construction works are expected to generate up to 1,522 vehicle movements per day, spread across the day. Construction traffic volumes have been included within the morning and afternoon school zone periods, as access via the WNSLR does not impact the operation of the schools within Bakers Lane.

Table 7: Construction Traffic Movements – Phase 2 via WNSLR to Lenore Lane

Vehicle Type	Pre-School Zones	Morning School Zone	Between School Zones	Afternoon School Zone	Post School Zones	Daily
LV	120	17	48	17	120	322
HV	208	180	430	168	214	1,200
TOTAL	328	197	478	185	334	1,522

Note: 1) Figures in brackets represents hourly flows, averaged across each period.

Volumes of heavy vehicles are to increase as the capacity within the WNSLR exceeds the proposed daily volumes of heavy vehicle movements. It should be noted that OWE – when fully operational – will generate up to 942 vehicles per hour, or 9,041 vehicle movements per day and relies upon similar network (i.e. once WNSLR is operational). Construction traffic is substantially less than this future operational traffic and will therefore not have any unacceptable impacts on the surrounding road network.

5.2 Impacts on Surrounding Network

The impacts of construction traffic and the mitigating measures to be implemented are outlined below.

- **Construction Traffic in Bakers Lane**: Construction traffic will initially use Bakers Lane to access the work area for preliminary works. To ensure the impacts to residents and schools within the area is kept to a minimum, construction traffic will be restricted to a relatively low volume until such time that the WNSLR is operational.
- **Construction Traffic within WNSLR**: Highest construction traffic volumes will occur after completion of the WNSLR, providing an alternative access to OWE. Construction traffic is substantially less than the approved future operational traffic volumes and will therefore not create any unacceptable impacts on the surrounding road network.
- **Management of deliveries**: Construction vehicle access via Bakers Lane shall be restricted to outside school zones to the safety of all patrons arriving and departing school. Ancillary to school zone time restrictions, the Contractor will manage deliveries to shall ensure that constructions vehicles, particularly heavy vehicles, will be minimised during peak periods.

- **Safety During Construction**: Safety to motorists and pedestrians throughout the area will be maintained during construction through the preparation and execution of Traffic Control Plans (TCP's). A range of TCP's will be prepared for each access throughout construction, to identify all reasonably foreseeable hazards, assess the hazards, and manage the hazards as best possible by either eliminating or minimising the risks. TCP's shall be monitored and updated accordingly throughout the project.
- **Reporting**: Reporting and monitoring of movements during key school periods is to be undertaken to ensure that drivers are adhering to restricted times, and to ensure that the approved traffic generation, and subsequent impacts on the road network, are in line with those approved.

In summary, based on the traffic numbers currently envisaged, the traffic impacts are considered acceptable.

5.3 Cumulative Impacts

The above relates to construction traffic associated with Oakdale West estate works in isolation.

Noting that a number of other concurrent works are proposed, the cumulative impact of known construction works (covered by separate CTMPs) is addressed within a Cumulative Construction Traffic Impact Assessment (CCTIA). This CCTIA is prepared separately and shall be updated from time to time should any existing or future CTMPs envisage an increase in the cumulative construction traffic on the surrounding road network. In this regard, the CCTI report shall be subject to ongoing review and will be updated as required.

Further to the above, it is not estimated that any other construction works shall commence until after the completion of the WNSLR.

6 Plan Administration

6.1 Monitoring Program

This CTMP shall be subject to ongoing review and will be updated accordingly. Regular reviews will be undertaken by the on-site coordinator. As a minimum, review of the CTMP shall occur monthly. All and any reviews undertaken should be documented, however key considerations regarding the review of the CTMP shall be:

- Tracking deliveries against the volumes outlined within report. Deliveries will be tracked against approved volumes, and will keep a vehicle log - including rego & time of entry - for the purpose of assessing the effectiveness of these monitoring programs.
- To identify any shortfalls and develop an updated action plan to address issues that may arise during construction (Parking and access issues)
- To ensure TCP's are updated (if necessary) by "Prepare a Work Zone Traffic Management Plan" card holders to ensure they remain consistent with the set-up on-site.
- Regular checks undertaken to ensure all loads are entering and leaving site covered as outlined within this CTMP.
- A Dilapidation report shall be undertaken every periodically to assess the condition of the road, and note whether there has been any reduction in quality of the road as result of construction vehicles.

The development of a program to monitor the effectiveness of this CTMP shall be established by the Contractor. This process is expected to form part of the monitoring plan required to be included as part of the overarching Construction Environmental Management Plan (CEMP), of which this CTMP forms a part.

6.2 Contingency Plan

A contingency plan shall be established by the Contractor and is to be included in the overarching CEMP. Notwithstanding, **Table 8** outlines an indicative plan to be undertaken by the builder in the event that the monitoring program identifies the management plan is not effective in managing the construction impacts.

Table 8: Contingency Plan

Risk		Condition Green	Condition Amber	Condition Red
Construction Movements	Trigger	Construction traffic volume is in accordance with permissible and programmed volume and time constraints	Construction traffic volumes exceeds programmed volume but is within permissible volume constraints	Construction traffic volumes exceeds programmed volume and time constraints
	Response	No response required Continue monitoring program	Review and investigate construction activities, and where appropriate, implement additional remediation measures such as: - Temporary halting of activities and resuming when conditions have improved - Review CTMP and update where necessary - Provide additional training.	Review and investigate construction activities. Where appropriate, implement additional remediation measures such as: - Temporary halting of activities and resuming when conditions have improved - Stop all transportation into and out of the site. - Review CTMP and update where necessary. Provide additional training.
	Trigger	Construction traffic does not utilise Bakers Lane during School Peaks	Construction traffic utilises Bakers Lane close to School Peaks	Construction traffic utilises Bakers Lane during School Peaks
	Response	No response required Continue monitoring program	Review and investigate construction activities, and where appropriate, implement additional remediation measures such as: Review vehicles arriving to site and remind them of the strict exclusion time periods Provide additional training (including toolbox talks and further notification of Driver Code of Conduct)	Review and investigate construction activities. Where appropriate, implement additional remediation measures such as: Stop all transportation into and out of the site. Review CTMP and update where necessary. Provide additional training (including toolbox talks and further notification of Driver Code of Conduct).
Queuing	Trigger	No queuing identified	Queuing identified within site	Queuing identified on the public road
	Response	No response required Continue monitoring program	Review the delivery schedule prepared by the builder. If drivers are not following the correct schedule, then they should be provided with additional training and an extra copy of the Driver Code of Conduct	Review and investigate construction activities. Where appropriate, implement additional remediation measures such as: - Temporary halting of activities and resuming when conditions have improved - Stop all transportation into and out of the site.

Risk		Condition Green	Condition Amber	Condition Red
				- Review CTMP and update where necessary. Provide additional training
Noise	Trigger	Noise levels do not exceed imposed noise constraints	Noise levels in minor excess of imposed noise constraints	Noise levels greatly in excess of imposed noise constraints
	Response	No response required Continue monitoring program.	Undertake all feasible and reasonable mitigation and management measures to minimise noise impacts.	Undertake all feasible and reasonable mitigation and management measures to ensure noise levels are below Highly Noise Affected criteria. If noise levels cannot be kept below applicable limits, then a different construction method or equipment must be utilised.
Traffic Control Plans	Trigger	No observable issues	Minor inconsistencies with TCP to onsite operations	Near miss or incident occurring regardless of / as a result of the TCP being implemented
	Response	No response required Continue monitoring TCPs.	Traffic Controller to amend TCP on site and to keep a log of all changes	Stop work until an investigation has been undertake into the incident. There are to be changes made to the TCP to ensure that the safety of all workers, students and civilians are catered for.
Dust	Trigger	No observable dust	Minor quantities of dust in the air and tracking on to the road	Large quantities of dust in the air and tracking on to the road
	Response	No response required Continue monitoring program	Review and investigate construction activities and respective control measures, where appropriate. Implement additional remedial measures, such as: - Deployment of additional water sprays - Relocation or modification of dust-generating sources - Check condition of vibrating grids to ensure they are functioning correctly - Temporary halting of activities and resuming when conditions have improved	Review and investigate construction activities and respective control measures. If it is concluded that construction activities were directly responsible for the exceedance, submit an incident report to government agencies. Implement relevant responses and undertake immediate review to avoid such occurrence in future.

It is therefore proposed to incorporate the above items within the communications strategy. The contingency plan outlines the most effective methods to ensure that each item identified within the Monitoring Program is adhered to, resulting in the impacts to the wider community being minimised. It also represents the efforts undertaken to continually improve CTMP and ensure that the process being utilised are indeed best practice.

6.3 Communications Strategy

A communications strategy shall be established by the Contractor and is included in the overarching CEMP (refer to the community consultation strategy prepared by SLR). The contractor is to notify the community liaison representative when traffic is expected to exceed the parameters set within "Condition Green" of Table 8. Notwithstanding, **Table 9** outlines an indicative communication strategy to ensure that adequate communication with key stakeholders have been met.

Table 9: Communication Strategy

Risk	Impact	Comms Channel
Wider Traffic Disruption	Wider community and stakeholders informed through local and wider advertising and notification	Stakeholder Meetings Stakeholder email blast Email to local schools & Dept of Education
Construction related traffic	Ensure construction crews use traffic routes identified in the Traffic Management Plan, and Ensure residents in area are notified in advance to any traffic changes that may affect them	

Recently, communication has been undertaken with Penrith City Council, the care home and schools adjacent to the Site. Comments received has generally been accepting of the proposed construction strategy and have been included within **Appendix A**. The responses of the initial communication to the key stakeholders are as follows;

Table 10: Stakeholder Responses

Stakeholder	Response
Catholic Education Diocese of Parramatta	We note and appreciate the restrictions on heavy vehicle movement during peak drop off and peak times. At this point, we have no further comment, but will monitor traffic flow and raise any safety concerns that may arise as the project progresses
The Anglican Schools Corporation	The current designated "peak periods" nominated appear reasonable but should continue to be assessed during the works to identify as to whether these time periods need to be altered. The school is a "live environment" that can change quickly during any day and we feel that on-going effective communication between the school and those responsible for traffic management during the works should be maintained to provide the school with an avenue for raising any concerns. The peak periods identified are typical for a standard operating day. Each of the schools along Bakers Lane will have a number of "special days and activities" during the course of the year such as "grandparents day and carnivals" where peak period shall need to be extended and we request a mechanism be established for allowing effective communication of these requirements by the school.
Catholic Healthcare	No issues

Following consultation with the key stakeholders, construction related traffic issues shall be monitored (as outlined within Section 6.1), be mitigated through the Community Consultation Strategy, and through meetings held throughout the project. Regular meetings shall be undertaken with key stakeholders in order to inform the stakeholders of any upcoming extra-ordinary activities. These meetings shall be utilised from both the OWE works and any additional school activities (such as carnivals or grandparents' day).

This communications strategy outlines the most effective communication methods to ensure adequate information within the community and assist the project team to deliver the traffic changes with minimal disruption to the road network.

Furthermore, ongoing communication is also to be undertaken so that all stakeholders are kept up to date of works and potential impacts.

Appendix A

Correspondence with Stakeholders

From: Matthew Bond
To: Dan Thompson
Subject: Re: FW: Western North-South Link Road/Oakdale West Estate - Construction Traffic Management Plan
Date: Monday, 28 October 2019 12:27:15 PM
Attachments: imagee8db29.PNG
imageaba859.PNG
image44caa0.PNG
image001.jpg
image99b915.JPG
imae1db666.PNG
image9232f2.PNG
imae1ee315.PNG
imagee9eae4.PNG
imagec601fe.PNG
image2cec6e.PNG
image571b86.PNG

Hello Daniel

At this point I have no immediate questions.
I will be at the meeting next week on the 7th November.

Regards
Matthew

On Fri, 25 Oct 2019 at 12:39, Dan Thompson <dthompson@slrconsulting.com> wrote:

> Hi Matt
>
> Thanks for your time on the phone earlier. As discussed the attached Construction Traffic Management Plan (CTMP) documents have been prepared to identify how traffic movements will be managed during the construction phase of the project. Could you please have a look at the documents, with the smaller summary letter providing a good overview, and advise if you have any comments, or aspects you would like to discuss.
>
> Additionally, we have arranged an initial community stakeholder meeting. The initial stakeholder meeting is being held at Goodman's Oakdale South site (refer to the map below showing the location) at 11.30 on 7 November 2019. The intent of this meeting is to establish clear channels of communication moving forward; introduce key project contacts; and provide additional details of the construction program.
>
> Can you please confirm the number of attendees from within your organisation?
>
> Thanks
>
> Dan
>
> Meeting Location
>
> cid:image002.jpg@01D58832.424F6720

Dan Thompson
Principal Planner - Environmental & Social Impact Assessment

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+61 409 226 875
dthompson@slrconsulting.com

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From: Dan Thompson
Sent: Friday, 18 October 2019 2:52 PM
To: 'chey@parra.catholic.edu.au' <chey@parra.catholic.edu.au>
Subject: FW: Western North-South Link Road/Oakdale West Estate - Construction Traffic Management Plan

Hi Cathy

I called earlier and left a message in relation to the below and attached. Can you please advise if you have any comments on the CTMP documentation.

I'm happy to discuss any aspects if you have queries.

Regards

Dan

From: Dan Thompson <dthompson@slrconsulting.com>
Sent: Thursday, 22 August 2019 9:08 AM
To: chey@parra.catholic.edu.au
Cc: marijana.mitrovic@mamre.nsw.edu.au
Subject: Western North-South Link Road/Oakdale West Estate - Construction Traffic Management Plan

Hi Cathy

Thanks for your time on the phone earlier.

As discussed, the attached documents have been prepared to inform traffic management during the construction of the Oakdale West Estate and Western North South Link Road. Can you please review the documents and provide any comments by 30 August 2019. The document comprise:

- Summary Letter identifying truck movements, timing and duration, along with associated impacts
- Construction Traffic Management Plan for the WNSLR
- Construction Traffic Management Plan for the Oakdale West Estate

A key point to note is Bakers Lane will be used initially for construction traffic, with traffic then using the Western North-South Link Road connection northwards to Lenore Drive.

If you have any queries please contact me, with my details below.

Regards

Dan

Dan Thompson
Principal Planner - Environmental & Social Impact Assessment

+61 428 060 995
+61 2 9427 8100
dthompson@slrconsulting.com

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Level 1, The Central Building, Innovation Campus
Squires Way, Wollongong, NSW, 2500

--
Matthew Bond
Assistant Principal
Trinity Catholic Primary School
Kemps Creek
Ph: (02)8856-6200
Mbond@parra.catholic.edu.au

30th August 2019.

SLR Consulting Pty Ltd.
Level 1, The Central Building, Innovation Campus
Squires Way, Wollongong NSW 2500
Attention: Dan Thompson

RE: Western North-South Link Road Oakdale West Estate – Construction Traffic Management Plan

Dear Dan,

We would like to thank you for your recent correspondence regarding proposed construction traffic management for the above mentioned project. We acknowledge that the plan has identified the current schools on Bakers Lane as key stake holders in the area and has attempted to address traffic management during construction and make the following additionally commentary:

- The current designated "peak periods" nominated appear reasonable but should continue to be assessed during the works to identify as to whether these time periods need to be altered.
- The school is a "live environment" that can change quickly during any day and we feel that on-going effective communication between the school and those responsible for traffic management during the works should be maintained to provide the school with an avenue for raising any concerns.
- The peak periods identified are typical for a standard operating day. Each of the schools along Bakers Lane will have a number of "special days and activities" during the course of the year such as "grandparents day and carnivals" where peak period shall need to be extended and we request a mechanism be established for allowing effective communication of these requirements by the school.

Should there be any queries regarding the above please do not hesitate to contact myself 02 8567 4000 or Cathie Graydon (school Principal) on 02 9834 1881

Kind regards

Dennis Macan
Capital Works Manager
The Anglican Schools Corporation

James Laidler

From: James Byrne <jbyrne@chcs.com.au>
Sent: Friday, 30 August 2019 2:40 PM
To: Dan Thompson
Cc: Kate Todd
Subject: Re: Western North-South Link Road/Oakdale West Estate - Construction Traffic Management Plan

Hi Dan,

We have no issues with the process you outline.

Thanks

James

James Byrne | Building Services Manager | Property | Macquarie Park
| M. 0434 604 370 | catholichealthcare.com.au

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==========

From: Dan Thompson <dthompson@slrconsulting.com>
Sent: Friday, August 30, 2019 2:35:06 PM
To: James Byrne <jbyrne@chcs.com.au>
Cc: Kate Todd <ktodd@chcs.com.au>
Subject: RE: Western North-South Link Road/Oakdale West Estate - Construction Traffic Management Plan

Hi James

Could you please let me know if you will be providing a response to the CTMP documents today?

Thanks

Dan Thompson
Principal Planner - Environmental & Social Impact Assessment

+61 428 060 995
+61 2 9427 8100
dthompson@slrconsulting.com

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Level 1, The Central Building, Innovation Campus
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---

From: Dan Thompson
Sent: Wednesday, 28 August 2019 11:52 AM
To: James Byrne <jbyrne@chcs.com.au>
Cc: Kate Todd <ktodd@chcs.com.au>
Subject: RE: Western North-South Link Road/Oakdale West Estate - Construction Traffic Management Plan

Hi James

I'm just following up on the CTMPs sent through last week.

Could you please let me know if you do have any comments by this Friday.

Thanks
Dan

From: James Byrne <jbyrne@chcs.com.au>
Sent: Friday, 23 August 2019 12:52 PM
To: Dan Thompson <dthompson@slrconsulting.com>
Cc: Kate Todd <ktodd@chcs.com.au>
Subject: RE: Western North-South Link Road/Oakdale West Estate - Construction Traffic Management Plan

Thanks Dan,

For us here at Catholic Healthcare, please send to me.

Thanks

James

James Byrne | Building Services Manager | Property | Macquarie Park
| M. 0434 604 370 | catholichealthcare.com.au

==========
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==========

From: Dan Thompson [mailto:dthompson@slrconsulting.com]
Sent: Thursday, 22 August 2019 3:48 PM
To: James Byrne <jbyrne@chcs.com.au>
Cc: Kate Todd <ktodd@chcs.com.au>
Subject: Western North-South Link Road/Oakdale West Estate - Construction Traffic Management Plan

Hi James

Thanks for your time on the phone earlier.

As discussed, the attached documents have been prepared to inform traffic management during the construction of the Oakdale West Estate and Western North South Link Road. Can you please review the documents and provide any comments by 30 August 2019. The document comprise:

1. Summary Letter identifying truck movements, timing and duration, along with associated impacts
2. Construction Traffic Management Plan for the WNSLR
3. Construction Traffic Management Plan for the Oakdale West Estate

A key point to note is Bakers Lane will be used initially for construction traffic, with traffic then using the Western North-South Link Road connection northwards to Lenore Drive.

Can you please let me know who the best contact is for Emmaus Village moving forward, if not you?

If you have any queries please contact me, with my details below.

Regards
Dan

SLR

Dan Thompson
Principal Planner - Environmental & Social Impact Assessment

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dthompson@slrconsulting.com

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James Laidler

From: Dan Thompson <dthompson@slrconsulting.com>
Sent: Wednesday, 28 August 2019 11:53 AM
To: 'mpruscino@parra.catholic.edu.au'
Cc: 'julian.concato@parracatholic.org'
Subject: RE: Western North-South Link Road/Oakdale West Estate - Construction Traffic Management Plan

Hi Michael

I'm just following up on the CTMP sent through last week.

Could you please let me know if you do have any comments by this Friday.

Thanks
Dan

From: Dan Thompson
Sent: Thursday, 22 August 2019 3:50 PM
To: mpruscino@parra.catholic.edu.au
Cc: julian.concato@parracatholic.org
Subject: Western North-South Link Road/Oakdale West Estate - Construction Traffic Management Plan

Hi Michael

Thanks for your time on the phone earlier.

As discussed, the attached documents have been prepared to inform traffic management during the construction of the Oakdale West Estate and Western North South Link Road. Can you please review the documents and provide any comments by 30 August 2019. The document comprise:

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A key point to note is Bakers Lane will be used initially for construction traffic, with traffic then using the Western North-South Link Road connection northwards to Lenore Drive.

Can you please let me know who the best contact is for Emmaus School moving forward, if not you?

If you have any queries please contact me, with my details below.

Regards
Dan

James Laidler

From: Dan Thompson <dthompson@slrconsulting.com>
Sent: Wednesday, 28 August 2019 11:55 AM
To: 'chey@parra.catholic.edu.au'
Subject: RE: Western North-South Link Road/Oakdale West Estate - Construction Traffic Management Plan

Hi Cathy

I'm just following up on the CTMPs sent through last week.

Could you please let me know if you do have any comments by this Friday.

Thanks
Dan

From: Dan Thompson
Sent: Thursday, 22 August 2019 9:08 AM
To: chey@parra.catholic.edu.au
Cc: marijana.mitrovic@mamre.nsw.edu.au
Subject: Western North-South Link Road/Oakdale West Estate - Construction Traffic Management Plan

Hi Cathy

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A key point to note is Bakers Lane will be used initially for construction traffic, with traffic then using the Western North-South Link Road connection northwards to Lenore Drive.

If you have any queries please contact me, with my details below.

Regards
Dan

James Laidler

From: Michael Pruscino <mpruscino@parra.catholic.edu.au>
Sent: Wednesday, 23 October 2019 2:43 PM
To: Dan Thompson
Cc: julian.concato@parracatholic.org; Harvey ANCHIQUE; Kate McKinnon; Bill Togher; David Cosgrove; Robert Nastasi
Subject: Re: FW: Western North-South Link Road/Oakdale West Estate - Construction Traffic Management Plan

Dan
Thank you for the opportunity to review and comment
We note and appreciate the restrictions on heavy vehicle movement during peak drop off and peak times

At this point, we have no further comment, but will monitor traffic flow and raise any safety concerns that may arise as the project progresses
Regards

Michael Pruscino
Schools Development Manager
Catholic Education Diocese of Parramatta
12 Victoria Road (Locked Bag 4) North Parramatta NSW 1740
T-02 9840 5795 F-02 9840 5699 M-0429 982 477
mpruscino@parra.catholic.edu.au
www.parra.catholic.edu.au

On Tue, 22 Oct 2019 at 10:00, Dan Thompson <dthompson@slrconsulting.com> wrote:

> Hi Michael
>
> As per my voice message, I would like to discuss both the CTMP documents provided and an initial community stakeholder meeting being held prior to the commencement of construction.
>
> The CTMP details are attached.
>
> The initial community stakeholder meeting is being held at Goodman's Oakdale South site (refer to the map below showing the location) at 11.30 on 7 November 2019. The intent of this meeting is to establish clear channels of communication moving forward; introduce key project contacts; and provide additional details of the construction program.
>
> Can you please confirm the number of attendees from within your organisation?

Thanks

Dan

Meeting Location

Dan Thompson
Principal Planner - Environmental & Social Impact Assessment

+61 428 060 995
+61 409 226 875
dthompson@slrconsulting.com

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From: Dan Thompson
Sent: Friday, 18 October 2019 2:45 PM
To: 'mpruscino@parra.catholic.edu.au' <mpruscino@parra.catholic.edu.au>
Cc: 'julian.concato@parracatholic.org' <julian.concato@parracatholic.org>
Subject: FW: Western North-South Link Road/Oakdale West Estate - Construction Traffic Management Plan

Hi Michael

I called earlier and left a message in relation to the below and attached. Can you please advise if you have any comments on the CTMP documentation.

I'm happy to discuss any aspects if you have queries.

Regards

Dan

From: Dan Thompson <dthompson@slrconsulting.com>
Sent: Thursday, 22 August 2019 3:50 PM
To: mpruscino@parra.catholic.edu.au
Cc: julian.concato@parracatholic.org
Subject: Western North-South Link Road/Oakdale West Estate - Construction Traffic Management Plan

Hi Michael

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- Summary Letter identifying truck movements, timing and duration, along with associated impacts
- Construction Traffic Management Plan for the WNSLR

- Construction Traffic Management Plan for the Oakdale West Estate

A key point to note is Bakers Lane will be used initially for construction traffic, with traffic then using the Western North-South Link Road connection northwards to Lenore Drive.

Can you please let me know who the best contact is for Emmaus School moving forward, if not you?

If you have any queries please contact me, with my details below.

Regards

Dan

Dan Thompson
Principal Planner - Environmental & Social Impact Assessment

+61 428 060 995
+61 2 9427 8100
dthompson@slrconsulting.com

SLR Consulting Australia Pty Ltd
Level 1, The Central Building, Innovation Campus
Squires Way, Wollongong, NSW, 2500

Meeting at Emmaus College

Minutes 25/02/2020 9:00am Emmaus College

ATTENDEES	Robert Nastasi, Michael Pruscino, Stephanie Partridge, Kym Dracopoulos, Kate McKinnon
APOLOGIES	Nil
MINUTES TAKER	Kate McKinnon

SPEAKER	DISCUSSION
Stephanie Partridge	Meeting's purpose is to provide a progress update and details of future approvals under assessment
Robert Nastasi	School has been experiencing silt flows over pathways and blocking drains, exceeding the off run they would expect from onsite works (Robert acknowledged that there had been significant rainfall which likely contributed to this). Creek line was cleared to the culvert last year. Robert is concerned rectification works undertaken to date are insufficient, inspection of the site required to demonstrate.
Kym Dracopoulos	Prior to works commencing on the Oakdale West site, Goodman's consultant prepared a report on the condition of the creek which identified existing choke points to water flow either side of the culvert within the school. The choked flow was due to existing silt and significant weed infestation.
Stephanie Partridge	Modification 1 involves - Level changes – revised to only involve change to pad 2A - When viewed through the biodiversity area along western boundary – views are not significantly further impacted
Michael Pruscino	The increased pad height is of concern from the Emmaus Village point of view regarding noise
Stephanie Partridge	Acoustic modelling undertaken to support the modification revealed the change in pad height will have a negligible impact on noise at the Village and School Modification 2 involves changes to layout and design in stage 1 Modification 3 involves changes to design and layout of stage 2 New development application lodged for large 4 level facility within stage 2B. Construction program for new facility includes earthworks until June 2020 then building construction from July 2020 to September 2021. Construction hours for the new project are 3am -10pm Monday to Sunday. Works outside of normal construction hours are mainly internal works, including concrete pours. In order to complete the accelerated construction program for the new building and given the large size and quantities of steel and concrete required, Goodman approached DPIE to request use of Aldington Road via Abbotts Road during peak school times (restricted under current approval). This was not supported by the RMS (TfNSW) with Bakers Lane proposed due to the traffic light controlled intersection. Use of Bakers lane will be temporary only – construction of WNSLR is expected to be complete in October 2020 (subject to wet weather), with vehicles then accessing the site from the north via the WNSLR. Worst case forecasting (peak school periods at the peak of construction) identified 25 inward and 25 outward truck movements in a 1.5 hour period (during school drop off/pick up times). Mainly in the AM.

SPEAKER	DISCUSSION
	A range of traffic control/management measures and tools are being considered to assist in the management of school/construction traffic interactions.
Kym Dracopoulos	Measures currently being considered include: - VMS (Variable Message Sign) boards - Additional static signage - Traffic control personnel A traffic management plan is being prepared and will be provided to all affected schools for review and comment
Robert Nastasi	Interactions between kids and traffic is the School's primary concern. The School is accessed using vehicles only – 90% of students arrive via bus (Busway are the bus contractors) with the remaining arriving by private vehicle. The School will need to notify the parents of students with the potential for a backlash to the proposal. A summarised fact sheet drawing details from the traffic management plan should be provided for distribution to the parent community. Busway will need to be notified.
Stephanie Partridge	Goodman will provide: - Traffic Management Plan for review - Summary fact sheet for distribution - Copy of RMS (TfNSW) request
Robert Nastasi	Dust – how is it monitored and dealt with?
Kym Dracopoulos	4 sets of trailer mounted dust monitors which include weather station, dust monitor with some including acoustic recorders Monitoring is provided in real time and instantly notifies of elevated dust levels Elevated dust levels are compared to other local BOM weather stations to determine if dust is site sourced or the result of broader environmental conditions in the region (eg dust storms recently experienced) Where dust is site sourced Goodman have 4x water carts to deploy. These carts are also continuously circulating and operating during works. Water is sourced mainly from dams (not potable water supply) The noise mound constructed along the boundary with the School has been installed for both dust containment and sound suppression When wind is detected blowing from the East (toward the School) works are stopped and monitored to avoid dust issues
Meeting moved to inspect drainage creek located on the northern portion of the School. The meeting participants inspected the creek and surrounds. Goodman advised they will facilitate removal of the central mound of silt approximately 300mm high located just upstream of the culvert. Goodman noted it was apparent that the school had not employed sediment and erosion controls and had contributed to the sediment in the creek.	
Meeting Closed 9:45am	

Trinity and Mamre Consultation Meeting

Minutes 4 March 2020 11:00AM Trinity Primary School

ATTENDEES	Cathy Hey, Cathie Graydon, Mick Morgan, Stephanie Partridge, Kym Dracopoulos, Kate McKinnon
APOLOGIES	Nil
MINUTES TAKER	Kate McKinnon

SPEAKER	DISCUSSION
Stephanie Partridge	Introduced herself and her role with Goodman and the Oakdale West Estate (OWE) Project. Introduced Kym Dracopoulos (Technical contact for the project) and Kate McKinnon (Community Liaison Officer) Outlined currently approved DA for bulk earthworks and Stage 1. Modification 1 (MOD 1) – Revision to Stage 2A pad height
Kym Dracopoulos	There have been some changes to the biodiversity strategy. The removal of trees and habitat requires offsetting – this has been done through a combination of on-site habitat rehabilitation/creation and contributions to the Biodiversity Conservation Trust (BCT). All fauna located during initial clearing has been relocated to biodiversity conservation areas, including turtles, eels and microbats. Kangaroo populations have migrated to the biodiversity conservation area located within the Oakdale South Site. Removal of plant biodiversity has required offsetting by the purchase of credits through various sources including the Biodiversity Conservation Trust.
Cathie Graydon	Snakes have been sighted within the School.
Kym Dracopoulos	Snake fence along western boundary was installed prior to works commencing. Specific habitat for snakes (log piles/rockeries) has been created in appropriate locations to accommodate snake populations
Stephanie Partridge	Modification 2 (MOD 2) relates to Precinct 1 and largely Lot 1A. A 70,000m2 distribution centre is proposed. It will be an automated facility. The site will employ 500 people and operate 24/7. Main modifications involve building height (36m high at highest point, residual building 28m high) and alteration to the road location.
Cathy Hey	How will the new development be accessed?
Stephanie Partridge	A requirement of the approval for the OWE is that no operational traffic shall access the site via Bakers Lane, operations cannot commence until the Western North South Link Road (WNSLR) is open. The opening of the WNSLR is currently targeted for October 2020 subject to wet weather.
Cathy Hey Cathie Graydon	Both noted that traffic related to school activities (pick up and drop off primarily) is currently a significant issue on Bakers Lane.
Stephanie Partridge	New SSDA is currently with DPIE for the construction of a large warehouse and distribution facility on Lot 2B. The facility will be four levels in height, with automated/robotic technology for managing stock. Earthworks are currently being expedited for the 2B pad to facilitate commencement of the project once approval is issued.

SPEAKER	DISCUSSION
	The construction of the project will require the use of large quantities of steel and concrete within a short timeframe. In anticipation of this Goodman requested the use of Aldington Road for construction traffic. TfNSW rejected this request due to the inadequate intersection with Abbots Road at Mamre Rd. TfNSW have advised Bakers Lane is the only road appropriate given its signalised intersection with Mamre Road. Goodman have commenced investigations into projected traffic implications associated with using Bakers Lane during school pick up and drop off times. The investigations identified the worst-case road use would comprise 25 in/25 out traffic movements (50 movements between 8am and 9.30am), during the morning peak. The afternoon peak would be significantly less. Concrete pours would commence internally at 3am – noise is not considered an issue given these works will be internal only during the morning hours (3am-7am).
Cathie Graydon Cathy Hey Mick Morgan	All advised they have concerns relating to the interaction of construction traffic and the existing traffic issues experienced with buses and school parents' vehicles. First bus drop offs occur at 7:50am with the highest level of morning traffic experienced between 8:00am – 8:30am. MM: noted that traffic currently backs up over the crest of the hill on the west of Bakers Lane. CH: traffic issues currently have a significant impact on students and their families and has created issues with timely attendance. CG &CH: complaints have been received from a parent regarding existing traffic issues with these complaints previously forwarded to NSW Police, Penrith City Council (PCC) and Andrew Constance. PCC investigated and found the schools current measures to control traffic in and out (both car and bus) are sufficient and advised the Schools cannot implement traffic measures over the public roads. The schools are concerned this situation may worsen. CH: Complaints have been received regarding mud on Bakers Lane KD: This is unexpected as the contractors have been diligent with street sweepers and liaising with Penrith Council who have not raised this as an issue. CG: Could Aldington Road be utilised for in or out traffic to relieve the pressure on Bakers Lane?
Kym Dracopoulos	This approach has been presented to the TfNSW but was also rejected.
Cathie Graydon	Could traffic control be provided at the three access points to the schools? (2x Mamre 1x Trinity/Emmaus) Could these personnel utilise radio contact to control the flows of traffic and create a safer traffic situation for the Schools and truck drivers? An integrated approach would be required.
Kym Dracopoulos Stephanie Partridge	A Traffic Management Plan is being developed to address this issue. Mitigation measures are being considered, including Variable Message Boards (VMS) and traffic control personnel. These measures will be temporary only (until WNSLR is open- expected December 2020 incl weather allowance) A copy of the TMP will be forwarded to all Schools for review/comment and an information sheet will be provided for provision to parents/carers on the proposed traffic management measures.
Meeting Closed	
KD/SP	Post meeting inspection of Bakers Lane: • identified discolouration of the asphalt pavement adjacent the entry and exit to the site. • Pavement discolouration and silt was identified on the entry/exit to Little Smarties on Bakers Lane as they use an unsealed carpark.

Meeting with School Principals – Traffic and Stage 2B Consultation

Minutes 23 April 2020 10:30am Virtual (Zoom)

ATTENDEES	Robert Nastasi – Principal Emmaus College (RN), Catherine Hey – Principal Trinity Primary School (CH), Cathie Graydon – Principal Mamre Anglican School (CG), Stephanie Partridge - Goodman (SP), Kym Dracopoulos - Goodman (KD), Kate McKinnon – SLR Consulting
APOLOGIES	Nil
MINUTES TAKER	Kate McKinnon

ITEM	DISCUSSION
SP	Purpose of meeting is to provide an update in relation to Construction traffic (with specific reference to the CTMP) and the timing of construction of Building 1A and 2B, Oakdale West; Goodman recently received approval for Building 1A and Building 2B at the site; The Building 2B project remains on track for a 1 June 2020 commencement; Site handover from the earthworks contractor to the building contractor is taking place over a staged process and commenced on the 14th of April through to end of May 2020; Steel deliveries are underway and will continue throughout the coming months; Building 1A will not commence until the Western North South Link Road is completed (expected Jan 21). Construction access to the site will continue along Bakers Lane, with Aldington / Abbotts Road being used during school peak-hour periods; This has been endorsed 'in-principle' by DPIE, PCC, and TrfNSW to determine.
CG	When is the WNSLR due to open?
SP	Opening of WNSLR is targeted for early next year (2021) dependant on weather. Once it is built all traffic will be via that road. We are obviously keen to complete it as soon as possible
SP	The consent granted for Building 2B had several conditions attached to the use of Aldington Road / Abbotts Road This includes and is not limited to consultation with relevant authorities and stakeholders, completion of dilapidation report, completion of Road Safety Audit where recommendations are made to complete minor works on Aldington Road / Abbotts Road to ensure safety along this road noting that it is a rural road; Goodman has completed the dilapidation report and Road Safety Audit; Findings from the Road Safety Audit have been discussed with Penrith City Council; AT&L / ASON are currently preparing a proposed scope of works including line marking, signage, and minor upgrade works to satisfy the requirements of the Penrith City Council and TrfNSW; This will not result in any works out the front of the school; All works will be completed from the site entry through to Mamre Road (via Aldington & Abbotts Road);
CG	What is the timeframe for this to commence?
SP	We want to have everything in place to commence building works on 1 June. The road safety works will take place over the next 6 weeks.

ITEM	DISCUSSION
KD	We are also conscious of the condition of Bakers Lane -potholes present. We are liaising with PCC on how that is best repaired, everyone recognises they are rural roads. There is monitoring and street sweeping currently underway and we are working through the long term process/plan for the road.
CG	Given COVID19 our traffic is well down at the moment. Once school resumes in full (about 6 weeks away) traffic will likely increase. We still have students attending, we had 40 students and 30 staff at end of last term and anticipate the same for the first 2 weeks back. From May 11 approx we are anticipating 200 students on site everyday.
SP	Our contractors have been asking what is the plan moving forward however the current situation is unprecedented. With the lower number of students attending in the next two weeks the contractors are questioning the implications this will have on construction traffic, it's an ongoing discussion we will need to have.
CG	We still have 10 bus services running but parent traffic is well down.
CH	We have had around 20 students in last couple of weeks and the same for staff but I anticipate larger numbers commencing this week from Wednesday onwards
RN	We are in the same situation. Steph and Kym – We are grateful for what you've done in terms of the hours and working outside the peaks, you will be aware of the petitions we put forward, that was done with good will – I agree with both Cath's that we will have greater numbers returning compared to last term. I witnessed a truck using Bakers Lane at 8am in the last week of last term. That is not a criticism but I think a few of them were taking advantage of the low numbers and quietness of Bakers Lane. Would it be worth having someone on the intersection of Bakers Lane and Mamre to deter trucks using Bakers Lane.
SP	We have a solution for traffic coming out of site – someone standing at exit point of site during peak hours in addition we are installing gatehouse to formalise that process also.
CG	We have started a project at Mamre and we have had big trucks coming in. I have asked them not to use Bakers Lane after 8am or peak times. They are trucks and graders because we are putting in a COLA. It may have been one of our trucks
RN	I witnessed it driving to the Goodman site. We would like to see additional calming measures to support everyone. We would also like a fact sheet to distribute to our community. It would appease and allay fears among our community.
CH	Particular information regarding traffic restrictions regarding school hours should be included
SP	Yes we can arrange that for you. Any additional questions please contact myself or Kate, please keep us updated also, I respect it's a constantly changing situation.
RN	Thankyou for the work at the Creek – much appreciated. The creek is looking terrific, thankyou for your support
KD	The works were completed yesterday, the workers are proud of the work and enjoyed working with the School's staff.
CG	Thankyou for responding to concerns, we are the faces of our school in a unique and difficult situation being surrounded by industrial development. Thankyou for being so responsive
SP	Always happy to hear feedback and do right by the community.

ITEM	DISCUSSION
	Regarding the precinct to the South of the School – the rezoning is to go through quite soon (in the next couple of weeks)
CG	I have been working with the Department of Planning on a State level and they were hoping to get that through by the end of April to the Minister. We are well aware of our site being rezoned for Industrial however there are caveats on the land that we can still proceed as a School. It will change a lot in the coming years and working out how to handle that will be tricky
SP	We will continue to keep you posted, thankyou for your time
Meeting Close 10:53am	

APPENDIX F

Environmental Management Policy

HEALTH SAFETY ENVIRONMENT & QUALITY POLICY

Burton Contractors is committed to the sustained improvement of work health and safety, environment and quality performance across the organisation and at every worksite.

Burton is dedicated to consistently providing services that demonstrate an in depth understanding of our clients and stakeholder's quality, safety and environmental objectives, with outcomes that meet and exceed expectations, where the safety of our people and minimisation of environmental impact is of paramount importance.

Burton has established a framework for reporting, analysing trends and root causes of all reported needs for improvement, as well as reviewing the effectiveness of corrective and preventative actions and monitoring performance against measurable objectives.

Our commitment is to deliver sustainable results through:

- Prevention and reduction of **impacts on the environment** through a systematic and integrated approach
- Prevention and reduction, at source, of **risks to the health and safety of employees**
- Protection of employees' health through **continuous health monitoring** and evaluation
- **Properly trained employees** who have the appropriate qualifications and competencies to do the job
- Delivering results by **co-operation, collaboration and partnerships**
- **Early identification** of opportunities for improved performance
- **Respect for traditional values** and cultural of communities and locations in which we work

This policy, endorsed by the Executive Officers of the business, forms a framework for the establishment of objectives and targets through consultative mechanisms designed to promote sustainable improvement and best practice outcomes.

Complying with ISO 9001, 14001 and AS/NZS 4801 has been a joint undertaking and endeavour between the organisation and its interested parties. The policy will be made available to all interested parties.

"Our success is reliant on the enrichment of relationships and the value we bring to our projects".

Paul Burton
Managing Director
Burton Contractors Pty Ltd

Certified System Quality ISO 9001 SAI GLOBAL
Certified System Health & Safety AS 4801 SAI GLOBAL
Certified System Environment ISO 14001 SAI GLOBAL

APPENDIX G

SSD 7348 Conditions

Table A Development Consent SSD 7348

Condition	Where Addressed in CEMP
SCHEDULE B: CONDITIONS OF CONSENT FOR CONCEPT PROPOSAL	
Future Development Applications	
B2. To avoid any doubt, this Concept Proposal consent does not permit the construction or operation of any Development, except for the Stage 1 DA covered by Schedule D.	Noted
B3. This Concept Proposal consent does not approve the building layouts shown on Lots 3A, 3B, 3C, 3D, 3E, 3F, 3G and 4A on Figure 1 in Appendix 1. The location of the buildings on these lots must be assessed by separate DAs, and must satisfy the interface requirements of Conditions C3 and C4.	Noted. No construction works will be undertaken on these Lots.
Statutory Requirements	
B4. 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 Concept Proposal. No condition of this consent removes the obligation for the Applicant to obtain, renew or comply with such licences, permits or approvals/consents.	Noted
Terms of Consent	
B5. The Applicant shall carry out the Concept Proposal in accordance with the: a) EIS and RTS; b) the plans in Appendix 1 and Appendix 2; c) SSD 7348 MOD 1; d) the Applicant's Management and Mitigation Measures in Appendix 7; and e) modifications to this consent.	Noted
B6. 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
B7. The Applicant shall comply with any reasonable requirement(s) of the Planning 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
Limits of Consent	
B8. This consent lapses five (5) years after the date from which it operates, unless any Stage of the Development has physically commenced on the land to which the consent applies before that date.	Noted

<table>
<tr><th>Condition</th><th>Where Addressed in CEMP</th></tr>
<tr><td>B10. The Applicant shall ensure the Concept Proposal is consistent with the development controls in Table 2.
Table 2: Development Controls
<table>
<tr><th>Development Aspect</th><th>Control</th></tr>
<tr><td>Minimum building setbacks from</td><td></td></tr>
<tr><td>• Southern Link Road</td><td>20 m</td></tr>
<tr><td>• West-North-South Link Road</td><td>20 m</td></tr>
<tr><td>• Local estate Roads</td><td>7.5 m</td></tr>
<tr><td>• Western site boundary</td><td>40 m</td></tr>
<tr><td>• Southern site boundary</td><td>20 m (excluding parking areas)</td></tr>
<tr><td>Rear boundary setbacks within the estate</td><td>5 m</td></tr>
<tr><td>Side boundary setbacks within the estate</td><td>0 m subject to compliance with fire rating requirements</td></tr>
<tr><td>Height</td><td>15 m</td></tr>
<tr><td>Height – Building 1A</td><td>39 m</td></tr>
<tr><td>Height – Building 2B</td><td>28 m</td></tr>
<tr><td>Minimum lot size</td><td>5,000 m^2</td></tr>
<tr><td>Minimum frontage</td><td>40 m (excluding cul-de-sacs)
35 m minimum lot width at the building site</td></tr>
<tr><td>Site coverage</td><td>Maximum of 65 per cent (excluding awnings)</td></tr>
</table></td><td>Noted
Engineering design and construction certification will ensure this</td></tr>
<tr><td colspan="2">Staging Plan</td></tr>
<tr><td>B15. Prior to the commencement of construction of any Stage of the Concept Proposal, the Applicant shall prepare a Staging Plan for the Development, to the satisfaction of the Planning Secretary. The plan shall:
a) be prepared in consultation with Council, utility and service providers and other relevant stakeholders;
b) describe how the implementation of the Concept Proposal, would be staged to ensure it is carried out in an orderly and economic way and minimises construction impacts on adjacent sensitive receivers;
c) show the likely sequence of DAs that will be lodged to develop the Site, with the estimated timing for each Stage and identification of any overlapping construction and operational activities;
d) include concept design for the staged delivery of landscaping, focusing on early implementation of screen planting to minimise the visual impact of subsequent development stages; and
e) include conceptual design for the provision of services, utilities and infrastructure to the Site.</td><td>This will be completed by Goodman</td></tr>
<tr><td>B16. The Applicant must
a) not commence construction of any Stage of the Development until the Staging Plan required by Condition B15 is approved by the Planning Secretary; and
b) implement the most recent version of the Staging Plan approved by the Planning Secretary.</td><td>Noted</td></tr>
</table>

Condition	Where Addressed in CEMP
B17. The Planning Secretary may require the Applicant to address certain matters identified in the Staging Plan. The Applicant must comply with any such requirements of the Planning Secretary given as part of the Staging Plan approval. **Notes** • *The Applicant may amend the Staging Plan as desired, with the approval of the Planning Secretary.* • *The Staging Plan is intended to broadly describe the development sequence for the Site and the delivery of infrastructure for all stages. It is not required to provide detailed design for latter Stages.*	Noted
Bushfire Protection	
B20. The Applicant shall ensure the Development complies with: a) the relevant provisions of Planning for Bushfire Protection 2006; b) the construction standards and asset protection zone requirements recommended in the Oakdale Industrial Estate - West Bushfire Protection Assessment, prepared by Australian Bushfire Protection Planners Pty Ltd, dated September 2016 and updated 13 January 2020; and c) AS2419.1 – 2005 Fire Hydrant Installations for fire-fighting water supply.	Section 4.12
TransGrid Easement	
B21. The Applicant must: a) provide safe and unobstructed access for TransGrid plant and personnel to access the transmission towers, lines and easement on the Site, 24 hours a day, 7 days a week; b) comply with the requirements of TransGrid for any works in the TransGrid easement; and c) advise TransGrid of any proposed amended or modified encroachment into the easement.	Section 4.1
Endeavour Energy	
B22. The Applicant must comply with the requirements of Endeavour Energy for the provision of land for a new zone substation as shown on the plans in the RTS.	Section 4.1
Water NSW	
B23. The Applicant must: a) provide safe and unobstructed access for Water NSW plant and personnel to access the water pipelines corridor adjacent the Site, 24 hours a day, 7 days a week; b) comply with the requirements of Water NSW for any works adjacent to or over, the water pipelines corridor; and c) advise Water NSW of any proposed amended or modified encroachment into the water pipelines corridor.	Section 4.1
Amenities Lot	
B24. The amenities lot located north of Estate Road 1, as shown on the plans in Appendix 1, must only provide for small-scale local services such as commercial, retail, community facilities and landscaping that service or support the needs of local employment-generating uses.	Noted

Condition	Where Addressed in CEMP
SCHEDULE D: CONDITIONS FOR STAGE 1	
PART 1 – GENERAL CONDITIONS	
Obligation to Minimise Harm to the Environment	
D1. In addition to meeting the specific performance measures and criteria in this consent, all reasonable and feasible measures must be implemented to prevent, and if prevention is not reasonable and feasible, minimise, any material harm to the environment that may result from the construction and operation of Stage 1 development, and any rehabilitation required under this consent.	Section 4.1
Terms of Consent	
D2. Stage 1 of the Development may only be carried out: a) in compliance with the conditions of this consent; b) in accordance with all written directions of the Planning Secretary; c) in accordance with the EIS and RTS; d) in accordance with the plans in Appendix 2 and Appendix 3; e) in accordance with SSD 7348 MOD 1; f) in accordance with the Applicant's Management and Mitigation Measures in Appendix 7; and g) in accordance with modifications to this consent.	Noted
D4. The conditions of this consent and directions of the Planning Secretary prevail to the extent of any inconsistency, ambiguity or conflict between them and a document listed in Condition D2(c). In the event of an inconsistency, ambiguity or conflict between any of the documents listed in Condition D2(c), the most recent document prevails to the extent of the inconsistency, ambiguity or conflict.	Noted
Limit of Consent	
D5. This consent lapses five (5) years after the date from which it operates, unless Stage 1 has physically commenced on the land to which the consent applies before that date.	Noted
Notification of Commencement	
D8. The date of commencement of each of the following phases of Stage 1 must be notified to the Department in writing, at least one month before that date: a) construction; and b) operation.	Noted
D9. If the construction or operation of Stage 1 is to be delivered in sub-stages, the Department must be notified in writing at least one month before the commencement of each sub-stage, of the date of commencement and the works to be carried out in that sub-stage.	Noted
Evidence of Consultation	
D10. Where conditions of this consent require consultation with an identified party, the Applicant must: a) consult with the relevant party prior to submitting the subject document to the Planning Secretary for approval; and b) provide details of the consultation undertaken including: (i) the outcome of that consultation, matters resolved and unresolved; and (ii) details of any disagreement remaining between the party consulted and the Applicant and how the Applicant has addressed the matters not resolved.	Section 1.2.3

Condition	Where Addressed in CEMP
Protection of Public Infrastructure	
D14. Before the commencement of construction of Stage 1, the Applicant must: a) consult with the relevant owner and provider of services that are likely to be affected, to make suitable arrangements for access to, diversion, protection and support of the affected infrastructure; b) prepare a dilapidation report identifying the condition of all public infrastructure in the vicinity of the Site (including roads, gutters and footpaths); and c) submit a copy of the dilapidation report to the Planning Secretary and Council.	Noted. This will be completed by Goodman.
D15. Unless the Applicant and the applicable authority agree otherwise, the Applicant must: a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by carrying out Stage 1; and b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of Stage 1.	Noted
Protection of Water NSW Infrastructure	
D16. Before the commencement of construction of Stage 1, the Applicant must: a) prepare a dilapidation report identifying the condition of all infrastructure within the water pipelines corridor, in the vicinity of the WNSLR bridge crossing; b) implement all practical measures to protect this infrastructure, as required by Water NSW; and c) repair, or pay the full costs associated with repairing, any water supply infrastructure that is damaged by carrying out Stage 1.	Noted
Demolition	
D17. All demolition must be carried out in accordance *with Australian Standard AS 2601-2001 The Demolition of Structures* (Standards Australia, 2001).	Section 4.1
Structural Adequacy and Certification	
D18. 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 National Construction Code (NCC). **Notes** • *Under Part 6 of the EP&A Act, the Applicant is required to obtain construction and occupation certificates for the proposed building works.* • *Part 8 of the EP&A Regulation sets out the requirements for the certification of the development.*	Noted Engineering design and construction certification will ensure this
Compliance	
D19. The Applicant must ensure that all of its employees, contractors (and their sub-contractors) are made aware of, and are instructed to comply with, the conditions of this consent relevant to activities they carry out in respect of Stage 1.	Section 3.4
Operation of Plant And Equipment	
D21. All plant and equipment used on site, or to monitor the performance of Stage 1 must be: a) maintained in a proper and efficient condition; and b) operated in a proper and efficient manner.	Section 4.1

Condition	Where Addressed in CEMP
TransGrid Easement	
D30. The Applicant must: a) provide safe and unobstructed access for TransGrid plant and personnel to access the transmission towers, lines and easement on the Site, 24 hours a day, 7 days a week; b) comply with the requirements of TransGrid for any works in the TransGrid easement on the Site; and c) advise TransGrid of any proposed amended or modified encroachment into the easement.	Section 4.1
Water NSW	
D31. The Applicant must: a) comply with the requirements of Water NSW for any works adjacent to, or over, the water pipelines corridor; b) consult with Water NSW during detailed design of Stage 1 works near the corridor including: (i) design of drainage upgrade works within the corridor; (ii) batters and access tracks; (iii) final bridge design for the WNSLR; c) obtain from Water NSW, an access consent and construction licence to work within the water pipelines corridor, prior to the commencement of construction; d) consult with Water NSW during preparation of the CEMP, in accordance with Condition D119, and attend a site visit with Water NSW personnel, prior to finalising the CEMP, to mark the exact works area for the WNSLR bridge crossing; and e) notify any incidents that affect or could affect the water pipelines corridor to Water NSW on the 24- hour Incident Notification Number 1800 061 069, as a matter of urgency.	Section 1.2.3
Advisory Notes	
AN1. All licences, permits, approvals and consents as required by law must be obtained and maintained as required for Stage 1. No condition of this consent removes any obligation to obtain, renew or comply with such licences, permits, approvals and consents.	Noted
PART 2 – ENVIRONMENTAL PERFORMANCE CONDITIONS	
Visual Amenity	

Condition	Where Addressed in CEMP
Landscape Management Plan D35. Prior to the commencement of construction of Stage 1, the Applicant must prepare a Landscape Management Plan (LMP), to the satisfaction of the Planning Secretary. The plan must form part of the CEMP in accordance with Condition D119 and the OEMP in accordance with Condition D130 and must: a) be prepared in consultation with Council; b) detail procedures for the retention of existing native vegetation in the north-western corner of the Site and protection of this vegetation from construction impacts; c) include visual impact mitigation measures for construction including but not limited to: (i) the location of site sheds, compounds and machinery parking areas, avoiding the western and southern site boundaries, or other locations highly visible from adjacent residential properties; (ii) procedures for progressive grassing of exposed soil, as soon as reasonably practicable after disturbance, focusing on areas where building construction will occur at a later stage; (iii) the contractor shall employ the use of a dust supressing polymer agent with a green tint to reduce the visual impact of the exposed building pads and to assist in reducing the dust generated on site. d) detail the works required to construct the landscape bund along the western boundary of the Site, as shown on Figure 5 in Appendix 2, including provision for the landscaping to incorporate mature trees (no less than 75 litre pot size); e) include a schedule of works which prioritises the construction of the landscape bund along the western boundary of the Site, as shown on Figure 5 in Appendix 2; f) include a program for implementing the landscape bund as soon as reasonably practicable, and no later than prior to operation of Stage 1; g) describe the integration of landscaping with fixed elements, including retaining walls and noise walls; h) describe the monitoring and maintenance procedures to ensure the success of the landscaping works over the life of the Development; and i) update the LMP to include modifications to the western bund, bio-retention basin 2/3 and the noise wall approved under MOD 3.	Section 4.9 and Appendix D
D36. The Applicant must: a) not commence construction of Stage 1 until the LMP is approved by the Planning Secretary. b) must implement the most recent version of the LMP approved by the Planning Secretary; and c) include the monitoring and maintenance procedures contained within the LMP within the OEMP required in accordance with Condition D130.	Noted
Lighting and Security Cameras D40. The Applicant must ensure the lighting associated with Stage 1: a) complies with the latest version of *AS 4282-1997 - Control of the obtrusive effects of outdoor lighting* (Standards Australia, 1997); 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 4.9 and Appendix D
D41. The Applicant must ensure any security cameras installed as part of Stage 1 are directed away from adjacent private properties.	Section 4.9 and Appendix D

Condition	Where Addressed in CEMP
Signage and Fencing D43. All signage and fencing must be erected in accordance with the plans in the RTS. ***Note:*** *This condition does not apply to temporary construction and safety related signage and fencing.*	Section 4.1
D43A. Prior to construction of any signage for Stage 1, the Applicant must consult with Council on the final signage strategy and obtain approval of the final signage strategy from the Planning Secretary.	
D44. All fencing along building frontages must be located behind the landscape setbacks and not along the front boundary. The fencing must be a maximum height of 2.1 metre and be an open style.	Section 4.1
D45. The Applicant must: a) remove existing rural fencing along the water pipelines corridor adjacent the site and dispose to an appropriate waste facility licensed to accept the waste; b) install and maintain temporary security fencing along the water pipelines corridor adjacent the site, for the duration of construction; c) install permanent 2.4 metre high fencing along the water pipelines corridor adjacent the site, including the approaches to the WNSLR bridge over the water pipelines corridor and above retaining walls, unless otherwise agreed with Water NSW; and d) install concrete barriers or barrier guard rails (including barriers leading up to bridge structure) to the WNSLR where there is potential for large vehicles to drive over retaining walls and into the water pipelines corridor. Barriers must be rated to and withstand impact from B-Double size vehicles; and e) install cranked throw screens on both sides of the WNSLR bridge crossing the Water NSW water pipeline corridor.	Section 4.9
Western North- South Link Road (WNSLR)	
General Requirements D46. The Applicant must design and construct the WNSLR in accordance with the requirements of: a) the Council, the PCA and any approval issued under section 138 of the *Roads Act 1993* including the WAD; b) TfNSW for the bridge crossing of the future WSFL; and c) Water NSW for the bridge crossing of the water pipelines corridor.	This was undertaken as part of the CEMP prepared for the WNSLR.
D47. The Applicant must design and construct the intersections of the WNSLR with Estate Road 1 and Lockwood Road to the satisfaction of the Relevant Roads Authority.	This was undertaken as part of the CEMP prepared for the WNSLR.
Pre-Construction D56. Prior to the commencement of construction of the WNSLR, the Applicant must: a) obtain the written consent of the Minister for Planning and Public Spaces under the Biodiversity Covenant, to construct the WNSLR over the Erskine Park Biodiversity Corridor; and b) provide evidence to the satisfaction of the Planning Secretary, demonstrating the design of the WNSLR and bridge crossings have been agreed with the Relevant Roads Authority, Council, TfNSW and Water NSW.	This was undertaken as part of the CEMP prepared for the WNSLR.

Condition	Where Addressed in CEMP
Consultation D57. The Applicant must develop a schedule for consultation with and approval by TfNSW for the construction of the bridge foundations over the future WSFL, including geotechnical and structural certification as required by TfNSW. The schedule must form part of the CEMP required by Condition D119.	Section 1.2.3 and Appendix S
D58. The Applicant must develop a schedule for consultation with and approval by Water NSW for the construction of the bridge over the water pipelines corridor. This schedule must form part of the CEMP required by Condition D119.	Section 1.2.3 and Appendix S
Dedication of Infrastructure and Land D62. Prior to the completion of construction of the WNSLR, the Applicant must consult with Water NSW regarding land subdivision and stratum arrangements for the acquisition and dedication of Water NSW land to the Council for the WNSLR bridge.	Section 1.2.3 and Appendix T
D63. Following completion of construction of the WNSLR to the satisfaction of the Relevant Roads Authority, the Applicant must dedicate the WNSLR and its associated land owned by Water NSW and BGMG 11 Pty Limited as trustee for the BGMG 1 Oakdale West Trust, to the relevant roads authority in accordance with the requirements of the Planning Agreement.	Noted
D64. The Applicant shall retain care, control and ownership of bio-retention basin no. 1 associated with the WNSLR.	Section 4.6
Transport, Access and Parking	
Construction Traffic Management Plan D65. Prior to the commencement of construction of Stage 1, the Applicant must prepare a Construction Traffic Management Plan (CTMP) to the satisfaction of the Planning Secretary. The CTMP must form part of the CEMP required by Condition D111 and must: a) be prepared by a suitably qualified and experienced person(s); b) be prepared in consultation with Council, Mamre Anglican School, Emmaus Catholic College, Emmaus Catholic Care Village and Trinity Catholic Primary School; c) detail specific measures to manage construction traffic to avoid school drop off and pick up times (Monday to Friday 8 am – 9.30 am and 2.30 pm – 4 pm, and Higher School Certificate exam periods), including any temporary infrastructure arrangements and traffic safety measures; d) detail the measures to be implemented to ensure road safety and network efficiency during construction, including scheduling deliveries of heavy plant and equipment outside of peak periods, or during school holidays where possible; e) detail heavy vehicle routes, access and parking arrangements; f) include a Driver Code of Conduct to: (i) minimise the impacts of construction on the local and regional road network; (ii) minimise conflicts with other road users including the students, staff, visitors and residents of the neighbouring schools and aged care village; (iii) minimise road traffic noise, both on Bakers Lane and from construction vehicles on Site; and (iv) ensure truck drivers use specified routes and adhere to the speed restrictions on Bakers Lane; g) include a program to monitor the effectiveness of these measures; h) detail procedures for early notification to residents and the community (including local schools), of any potential disruptions to routes; and i) update the CTMP to include modifications to construction traffic management approved under MOD 2 and MOD 3.	Section 4.5 and Appendix E

<table>
<tr><th>Condition</th><th>Where Addressed in CEMP</th></tr>
<tr><td>D66. The Applicant must:
a) not commence construction of Stage 1 until the CTMP required by Condition D65 is approved by the Planning Secretary; and
b) implement the most recent version of the CTMP approved by the Planning Secretary for the duration of construction.</td><td>Noted</td></tr>
<tr><td>D67. The Applicant must design and construct the internal estate roads and intersections to accommodate the turning path of a B-Double, to the satisfaction of the Relevant Roads Authority.</td><td>Section 4.5 and Appendix E</td></tr>
<tr><td>Estate Roads and Intersections
D68. Following the issue of a Subdivision Certificate, the estate roads shall be dedicated to the Relevant Roads Authority. Prior to any dedication, the Applicant shall ensure construction of the estate roads has been completed to the satisfaction of the Relevant Roads Authority and measures (such as a performance bond) are in place for any prescribed maintenance period, to the satisfaction of the Relevant Roads Authority.</td><td>Noted</td></tr>
<tr><td colspan="2">Noise</td></tr>
<tr><td>Hours of work
D70. The Applicant must comply with the hours detailed in Table 5, unless otherwise agreed in writing by the Planning Secretary.
Table 5: Hours of Work
<table>
<tr><th>Activity</th><th>Day</th><th>Time</th></tr>
<tr><td>Construction</td><td>Monday – Friday
Saturday</td><td>7 am to 6 pm
8 am to 1 pm</td></tr>
<tr><td>Operation</td><td>Monday – Sunday (including public holidays)</td><td>24 hours</td></tr>
</table></td><td>Section 2.3</td></tr>
<tr><td>D71. Works outside of the hours identified in Condition D70 may be undertaken in the following circumstances:
a) works that are inaudible at the nearest sensitive receivers;
b) works agreed to in writing by the Planning Secretary;
c) for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or
d) where it is required in an emergency to avoid the loss of lives, property or to prevent environmental harm.</td><td>Section 2.3</td></tr>
<tr><td>Construction Noise Limits
D72. Stage 1 must be constructed with the aim of achieving the construction noise management levels detailed in the Interim Construction Noise Guideline (DECC, 2009) (as may be updated or replaced from time to time). All feasible and reasonable noise mitigation measures must be implemented and any activities that could exceed the construction noise management levels must be identified and managed in accordance with the Construction Noise and Vibration Management Plan required by Condition D73.</td><td>Section 4.2 and Appendix K</td></tr>
</table>

Condition	Where Addressed in CEMP
Construction Noise and Vibration Management Plan D73. The Applicant must prepare a Construction Noise and Vibration Management Plan (CNVMP) for Stage 1, to the satisfaction of the Planning Secretary. The CNVMP must form part of a CEMP in accordance with Condition D119 and must a) be prepared by a suitably qualified and experienced noise expert; b) describe procedures for achieving the noise management levels in EPA's *Interim Construction Noise Guideline* (DECC, 2009) (as may be updated or replaced from time to time); c) describe the measures to be implemented to manage high noise generating works such as piling, in close proximity to sensitive receivers; d) include strategies to minimise impacts to sensitive receivers, including, where practicable, starting noisy equipment away from sensitive receivers and implementing respite periods; e) include strategies that have been developed with the sensitive receivers identified in Appendix 5 for managing high noise generating works; f) describe the community consultation undertaken to develop the strategies in Condition D73(e); g) include a monitoring program that: (i) includes a protocol for determining exceedances of the relevant conditions in this approval; (ii) evaluates and reports on the effectiveness of the noise and vibration management measures; (iii) include procedures to relocate, modify, mitigate or stop work to ensure compliance with relevant criteria; and h) include a complaints management system that would be implemented for the duration of Stage 1.	Section 4.2 and Appendix K
D74. The Applicant must: a) not commence construction of Stage 1 until the CNVMP required by Condition on D73 is approved by the Planning Secretary; and b) implement the most recent version of the CNVMP approved by the Planning Secretary for the duration of construction.	Noted
Noise Barrier D75(a). The Applicant must install the noise barrier, as shown on Figure 7 in Appendix 5, within six months of commencing any construction including bulk earthworks, to the satisfaction of the Planning Secretary.	Section 4.2 and Appendix K
The Applicant must install the noise barrier as shown on Figure 7B in Appendix 5, no later than 31 October 2020, unless the noise barrier is installed in accordance with Condition D75(a).	Section 4.2 and Appendix K
Vibration	
Vibration Criteria D76. Vibration caused by construction works on the site, as measured at any residence or structure outside the site, must be limited to: a) for structural damage, the latest version of *DIN 4150-3 (1992-02) Structural vibration - Effects of vibration on structures* (German Institute for Standardisation, 1999); and b) for human exposure, the acceptable vibration values set out in the *Environmental Noise Management Assessing Vibration: a technical guideline* (DEC, 2006) (as may be updated or replaced from time to time).	Section 4.3 and Appendix K

Condition	Where Addressed in CEMP
D77. Vibratory compactors must not be used closer than 30 metres from residential buildings unless vibration monitoring confirms compliance with the vibration criteria specified in Condition D76.	Section 4.3 and Appendix K
D78. The limits in Conditions D76 and D77 apply unless otherwise outlined in a CNVMP, approved as part of the CEMP required by Condition D119 of this consent.	Section 4.3 and Appendix K
Soils and Water	
Imported Soil D79. The Applicant must prepare a Fill Importation Protocol for Stage 1. The protocol must form part of the CEMP required by Condition D119 and must detail the measures to: a) ensure only VENM, ENM, or other material approved in writing by EPA is brought onto the site; b) keep accurate records of the volume and type of fill to be used; and c) make these records available to the Department upon request.	Section 4.6 and Appendix O]N
Erosion and Sediment Control D80. The Applicant must prepare Erosion and Sediment Control Plans for Stage 1, including the WNSLR, to the satisfaction of the Planning Secretary. The Plans must form part of a CEMP in accordance with Condition D119 and must: a) be prepared by a suitably qualified and experienced person(s); b) be generally consistent with the Erosion and Sediment Control Plans in the RTS those prepared by the contractor for each sequence of the works, as approved by the PCA; c) include detailed erosion and sediment controls developed in accordance with the relevant requirements of *Managing Urban Stormwater: Soils and Construction - Volume 1: Blue Book* (Landcom, 2004) guideline; and d) include procedures for maintaining erosion and sediment controls in efficient working order for the duration of construction, to ensure Stage 1 complies with Condition D82.	Section 4.6 and Appendix B
D81. Prior to the commencement of bulk earthworks as part of Stage 1, the Applicant must implement erosion and sediment controls identified by Condition D80 and maintain those controls throughout bulk earthworks and construction, to ensure stormwater flows do not increase in any downstream areas. The Environmental Representative, appointed in accordance with Condition D123, shall make a written statement to the Planning Secretary confirming the erosion and sediment controls are operational, prior to the commencement of bulk earthworks and other construction activities required for Stage 1.	Section 4.6 and Appendix B
Discharge Limits D82. Stage 1 must comply with section 120 of the POEO Act, which prohibits the pollution of waters.	Section 4.6

Condition	Where Addressed in CEMP
Stormwater Management System D83. The Applicant must design, construct and operate a stormwater management system for Stage 1 that: a) is designed by a suitably qualified and experienced person(s); b) is generally in accordance with the conceptual design in the RTS; c) is in accordance with applicable Australian Standards; d) ensures the system capacity is designed in accordance with *Australian Rainfall and Runoff* (Engineers Australia, 2016), *Managing Urban Stormwater: Council Handbook* (EPA, 1997) and *Stormwater Drainage Specifications for Building Development* (Penrith Council, May 2018); e) ensures peak stormwater flows from the Site do not exceed pre-development flows in any downstream areas for all rainfall events up to and including the 1 in 100 year average recurrence interval (ARI); f) ensures peak stormwater flows from the Site do not exceed existing flows in the Water NSW drainage lines and water pipelines corridor; and g) achieves the pollutant reduction targets specified in Council's *Water Sensitive Urban Design (WSUD) Policy* (December 2013).	Section 4.6
D84. All stormwater drainage infrastructure on the Site, including bio-retention basins, shall remain under the care, control and ownership of the registered proprietor of the lots.	Noted
D85. The Applicant shall create a drainage easement for the outlet swales from the bio-retention basins on the site, in accordance with the requirements of Council and Condition D22.	Section 4.6
Groundwater D86. If groundwater is intersected during construction of Stage 1, the Applicant must: a) obtain the necessary water licences or approvals from NRAR; and b) develop a Groundwater Management Plan (GMP) for the testing, dewatering, storage, movement and treatment of groundwater, to the satisfaction of NRAR.	Noted
Waterfront Land D87. The Applicant must carry out all works on or adjacent to waterfront land in accordance with the Department of *Industry Guidelines for Controlled Activities on Waterfront Lands 2012*.	Section 4.1
Biodiversity	
Flora and Fauna Management Plan D88. The Applicant must prepare a Terrestrial and Aquatic Flora and Fauna Management Plan (FFMP) for Stage 1, to the satisfaction of the Planning Secretary. The Plan must form part of a CEMP in accordance with Condition D119 and must: a) be prepared by a suitably qualified and experienced person(s); b) describe procedures to manage impacts on biodiversity values during earthworks, clearing and dam decommissioning; c) include procedures for clearing, marking and protecting the areas of vegetation to be retained on the Site, including the mature vegetation in the north-western corner and the Riparian Corridor adjacent to Ropes Creek in accordance with the Vegetation Management Plan (VMP) prepared under Condition D91; and d) detail the specific erosion and sediment controls to protect the retained vegetation.	Section 4.8 and Appendix C

Condition	Where Addressed in CEMP
D89. The Applicant must: a) not commence bulk earthworks until the FFMP required by Condition D88 is approved by the Planning Secretary; and b) implement the most recent version of the FFMP approved by the Planning Secretary for the duration of bulk earthworks and construction.	Section 4.8
Offsets for the WNSLR D93. Within 12 months of the date of this development consent, or as otherwise agreed with the Planning Secretary, the Applicant must: a) offset 0.42 ha of vegetation lost in the Erskine Park Biodiversity Corridor as a result of the WNSLR by carrying out planting within the area shown in green edging Figure 9 of Appendix 6; and b) plant the area shown in green edging on Figure 9 of Appendix 6 with species similar to those identified for zone 4a, on the south-eastern side of Ropes Creek, in the Biodiversity Management Plan Erskine Park Employment Area (HLA-Envirosciences, 2 May 2006).	Noted
D94. The Applicant shall monitor and maintain the planting for a period of six months to ensure a minimum 85% survival rate of the planting.	Section 5.1
Snake Management Measures D96. Prior to construction of Stage 1, the Applicant must implement snake management measures to limit, to the extent practicable, movement of snakes from the Site into the adjacent school and retirement village on the western boundary of the Site. The measures shall be detailed in the CEMP required by Condition D119 and shall include, but not be limited to, provision of alternative snake habitat on Site, fencing along the western boundary and installation of snake deterrents.	Section 4.8 and Appendix C
Bushfire Protection	
D97. The Applicant shall ensure Stage 1 complies with: a) the relevant provisions of *Planning for Bushfire Protection 2006*; b) the construction standards and asset protection zone requirements recommended in the Oakdale Industrial Estate - West Bushfire Protection Assessment, prepared by Australian Bushfire Protection Planners Pty Ltd, dated September 2016; and c) AS2419.1 – 2005 Fire Hydrant Installations for fire-fighting water supply.	Section 4.12 and Appendix R
Air Quality	
Dust Minimisation D98. The Applicant must take all reasonable steps to minimise dust generated during all works authorised by this consent.	Section 4.4 and Appendix L
D99. During construction of Stage 1, the Applicant must 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 Stage 1 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.	Section 4.4 and Appendix L

Condition	Where Addressed in CEMP
Construction Air Quality Management Plan D100. Prior to the commencement of construction of Stage 1, the Applicant must prepare a Construction Air Quality Management Plan (CAQMP) to the satisfaction of the Planning Secretary. The CAQMP must form part of the CEMP required by Condition D119. The CAQMP must: a) be prepared by a suitably qualified and experienced person(s); b) detail and rank all emissions from all construction activities, including particulate emissions; c) describe a program that is capable of evaluating the performance of the construction and determining compliance with key performance indicators; d) identify the control measures that will be implemented for each emission source; and e) nominate the following for each of the proposed controls: (i) key performance indicator; (ii) monitoring method; (iii) location, frequency and duration of monitoring; (iv) record keeping; (v) complaints register; (vi) response procedures; and (vii) compliance monitoring.	Section 4.4 and Appendix L
D101. The Applicant must: a) not commence construction of Stage 1 until the CAQMP required by Condition D100 is approved by the Planning Secretary; and b) implement the most recent version of the CAQMP approved by the Planning Secretary for the duration of construction.	Noted
Odour Management D102. The Applicant must ensure Stage 1 does not cause or permit the emission of any offensive odour, as defined in the POEO Act.	Section 4.4
Aboriginal Heritage	
Statutory Requirements D103. Prior to the commencement of construction of Stage 1, the Applicant must register identified Aboriginal items or objects on the OEH's Aboriginal Heritage Information Management System (AHIMS) Aboriginal Sites Register.	Section 4.10
Archaeological Test Excavation D104. Prior to the commencement of construction of Stage 1, the Applicant must undertake archaeological test excavation in the identified area of archaeological sensitivity adjacent to Ropes Creek and the ridgeline immediately to the west, that would be impacted by Stage 1. The test excavation must: a) be undertaken in accordance with a methodology developed in consultation with registered Aboriginal parties; b) be undertaken in accordance with the requirements of the Heritage and Community Engagement Department of Premier and Cabinet (former NSW OEH Heritage Division); and c) include a report detailing any further work, including archaeological salvage and monitoring, conducted in the presence of Aboriginal stakeholders.	Noted. This will be completed by Goodman
D105. The Applicant must not commence construction of Stage 1 until the Archaeological Test Excavation Report is provided to the Heritage and Community Engagement. Department of Premier and Cabinet (former NSW OEH Heritage Division) and the Planning Secretary	Noted

<table>
<tr><th>Condition</th><th>Where Addressed in CEMP</th></tr>
<tr><td>Unexpected Finds Protocol
D106. If any item or object of Aboriginal heritage significance is identified on Site:
a) all work in the immediate vicinity of the suspected Aboriginal item or object must cease immediately;
b) a 10 m wide buffer area around the suspected item or object must be cordoned off; and
c) the OEH must be contacted immediately.</td><td>Section 4.10 and Appendix P</td></tr>
<tr><td>D107. Work in the immediate vicinity of the Aboriginal item or object may only recommence in accordance with the provisions of Part 6 of the National Parks and Wildlife Act 1974 (NSW).</td><td>Section 4.10</td></tr>
<tr><td colspan="2">Historic Heritage</td></tr>
<tr><td>Unexpected Finds Protocol
D108. If any archaeological relics are uncovered during construction of Stage 1, then all works in the immediate vicinity of the relic must cease immediately. Unexpected finds must be evaluated and recorded in accordance the requirements of Department of Premier and Cabinet, Heritage (former NSW OEH Heritage Division).</td><td>Section 4.10 and Appendix P</td></tr>
<tr><td colspan="2">Hazards and Risks</td></tr>
<tr><td>Dangerous Goods
D109. The storage of dangerous goods in Building 1A must not exceed the quantities provided in Table 6.
Table 6: Maximum storage quantities of dangerous goods
<table>
<tr><th>Class</th><th>Description</th><th>Packaging Group</th><th>Quantity (kg)</th></tr>
<tr><td>1.4s</td><td>Explosives</td><td>n/a</td><td>20,000</td></tr>
<tr><td>2.1</td><td>Flammable gas (LPG)</td><td>n/a</td><td>7,500L / 4,125</td></tr>
<tr><td>2.1</td><td>Flammable gas (LPG) – kitchen</td><td>n/a</td><td>450L / 247.5</td></tr>
<tr><td>2.1</td><td>Flammable gas (aerosols)</td><td>n/a</td><td>70,000*</td></tr>
<tr><td>2.2</td><td>Non-flammable, non-toxic gas (aerosols)</td><td>n/a</td><td>25,000</td></tr>
<tr><td>3</td><td>Flammable liquids</td><td>II & III</td><td>300,000</td></tr>
<tr><td>4.1</td><td>Flammable solids</td><td>III</td><td>24,000</td></tr>
<tr><td>5.1</td><td>Oxidising agents</td><td>III</td><td>25,000</td></tr>
<tr><td>6.1</td><td>Toxic substances</td><td>III</td><td>45,000</td></tr>
<tr><td>8</td><td>Corrosive substances</td><td>II & III</td><td>45,000</td></tr>
<tr><td>9</td><td>Miscellaneous Dangerous Goods</td><td>III</td><td>105,000</td></tr>
</table>
* This refers to the quantity of LPG within the aerosols and not the total package weight. The LPG content within the cannisters is typically around 25% of product weights.</td><td>This will be addressed in the CEMPs to be prepared for Stage 1.</td></tr>
<tr><td>Pre-construction
D109(a) The Applicant must prepare the studies set out under subsections (b) to (c) below (the preconstruction studies). Construction, other than of preliminary works that are outside the scope of the hazard studies, must not commence until study recommendations have been considered and, where appropriate, acted upon. The Applicant must submit the studies to the Planning Secretary no later than one month prior to the commencement of construction of Building 1A (other than preliminary works), or within such further period as the Planning Secretary may agree.</td><td>This will be addressed in the CEMPs to be prepared for Stage 1.</td></tr>
<tr><td>D109(b) A Fire Safety Study for Building 1A. This study must cover the relevant aspects of the Department of Planning's Hazardous Industry Planning Advisory Paper No. 2, 'Fire Safety Study Guidelines' and the New South Wales Government's 'Best Practice Guidelines for Contaminated Water Retention and Treatment Systems'. The study must meet the requirements of Fire and Rescue NSW.</td><td>This will be addressed in the CEMPs to be prepared for Stage 1.</td></tr>
</table>

Condition	Where Addressed in CEMP
D109 (c) A Final Hazard Analysis (FHA) of Building 1A, consistent with the Department of Planning's *Hazardous Industry Planning Advisory Paper No. 6, 'Hazard Analysis'*. The FHA must report: • Layout of dangerous goods storage area for specific dangerous goods classes; • Firewall and fire safety requirement between the dangerous goods storage and Energy Complex 2 • Implementation of all recommendations of the Preliminary Hazard Analysis prepared by RiskCon Engineering dated 24 October 2019 • Compliance with all relevant standards.	This will be addressed in the CEMPs to be prepared for Stage 1.
Bunding D110. The Applicant must store all chemicals, fuels and oils used on Site in appropriately bunded areas in accordance with the requirements of all relevant Australian Standards, and/or EPA's *Storing and Handling of Liquids: Environmental Protection – Participants Manual* (Department of Environment and Climate Change, 2007).	Section 4.11
Waste Management	
Waste Storage D111. Waste must be secured and maintained within designated waste storage areas at all times and must not leave the Site onto neighbouring public or private properties.	Section 4.7
Waste Management Plan D112. The Applicant must implement the Waste Management Plan (WMP) in the EIS for the duration of construction and operation of Stage 1.	Section 4.7 and Appendix O
Statutory Requirements D113. The Applicant must assess and classify all liquid and non-liquid wastes to be taken off Site in accordance with the latest version of EPA's *Waste Classification Guidelines Part 1: Classifying Waste* (EPA, 2014) and dispose of all wastes to a facility that may lawfully accept the waste.	Section 4.7
D114. Waste generated outside the Site must not be received at the Site for storage, treatment, processing, reprocessing, or disposal.	Section 4.7
Pests, Vermin and Noxious Weed Management D115. The Applicant must: a) implement suitable measures to manage pests, vermin and declared noxious weeds on the Site; and b) inspect the Site on a regular basis to ensure that these measures are working effectively, and that pests, vermin or noxious weeds are not present on Site in sufficient numbers to pose an environmental hazard, or cause the loss of amenity in the surrounding area. ***Note:*** *For the purposes of this condition, noxious weeds are those species subject to an order declared under the Biosecurity Act 2015 (NSW).*	Section 4.8
Contamination	
D116. Prior to the commencement of construction of Stage 1, the Applicant must prepare an unexpected finds protocol to ensure that potentially contaminated material is appropriately managed. The procedure must form part of the CEMP in accordance with Condition D119 and must ensure any material identified as contaminated is disposed off Site, with the disposal location and results of testing submitted to the Planning Secretary, prior to its removal from the Site.	Section 4.11 and Appendix Q

Condition	Where Addressed in CEMP
Community Engagement	
D117. The Applicant must consult with the community regularly throughout Stage 1, including consultation with the nearby sensitive receivers identified in Appendix 5, relevant regulatory authorities, Registered Aboriginal Parties and other interested stakeholders. Community engagement shall be undertaken in accordance with the Community Communication Strategy approved in accordance with Condition C19.	Section 4.13 and Appendix I
PART 3 – ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING	
Management Plan Requirements	
D118. Management plans required under this consent must be prepared in accordance with relevant guidelines, and include: a) details of: (i) the relevant statutory requirements (including any relevant approval, licence or lease conditions); (ii) any relevant limits or performance measures and criteria; and (iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, Stage 1 or any management measures; b) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria; c) a program to monitor and report on the: (i) impacts and environmental performance of Stage 1; and (ii) effectiveness of the management measures set out pursuant to paragraph (b) above; d) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible; e) a program to investigate and implement ways to improve the environmental performance of Stage 1 over time; f) a protocol for managing and reporting any: (i) incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria); (ii) complaint; (iii) failure to comply with statutory requirements; and g) a protocol for periodic review of the plan. ***Note:*** *The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans*	Section 1.2.1
Construction Environmental Management Plan	
D119. The Applicant must prepare a Construction Environmental Management Plan (CEMP) for Stage 1, including the WNSLR, in accordance with the requirements of Condition D118 and to the satisfaction of the Planning Secretary. The Applicant may prepare separate CEMPs for the Stage 1 works and the WNSLR, addressing all relevant requirements of this consent.	This document
D120. Prior to finalising the CEMP, the Applicant must consult with TfNSW (including the former RMS), Council, and Water NSW. The Applicant must also attend a site visit with Water NSW personnel to mark the exact works area for the WNSLR bridge crossing.	Section 1.2.3

Condition	Where Addressed in CEMP
D121. As part of the CEMP required under Condition D119 of this consent, the Applicant must include: a) detailed procedures for managing bulk earthworks to avoid adverse water quality impacts on Ropes Creek, including, but not limited to: (i) any staging of earthworks to minimise disturbed areas; (ii) limits on the areal extent of earthworks; (iii) progressive grassing of exposed areas, as soon as reasonably practicable, focusing on areas where building construction will occur at a later stage; b) Landscape Management Plan (LMP) (see Condition D35); c) Construction Traffic Management Plan (CTMP) (see Condition D65); d) Consultation Schedule for TfNSW and Water NSW (see Conditions D57 and D58); e) Construction Noise and Vibration Management Plan (CNVMP) (see Condition D73); f) Fill Importation Protocol (see Condition D79) and Erosion and Sediment Control Plan (see Condition D80); g) Flora and Fauna Management Plan (FFMP) (see Condition D88); h) Snake Management Measures (see Condition D96); i) Construction Air Quality Management Plan (see Condition D100); j) Unexpected Finds Protocol (see Conditions D106 and D108); k) Unexpected Contamination Protocol (see Condition D116); and l) a Community Consultation and Complaints Handling Procedure.	Section 1.2.1
D122. The Applicant must: a) not commence construction of Stage 1 until the CEMP is approved by the Planning Secretary; and b) carry out the construction of Stage 1 in accordance with the CEMP approved by the Planning Secretary and as revised and approved by the Planning Secretary from time to time.	Noted
Environmental Representative	
D123. The Applicant must engage an Environmental Representative (ER) to oversee construction of Stage 1. Construction of Stage 1 must not commence until an ER has been approved by the Planning Secretary and engaged by the Applicant.	Carl Vincent of ERSED has been engaged as the ER. Carl was endorsed by the DPIE on 30 September 2019.
D124. The Planning Secretary's approval of an ER must be sought no later than one month before the commencement of construction of Stage 1, or within another timeframe agreed with the Planning Secretary.	
D125. The proposed ER must be a suitably qualified and experienced person who was not involved in the preparation of the EIS or RTS, and is independent from the design and construction personnel for Stage 1.	
D126. The Applicant may engage more than one ER for Stage 1, in which case the functions to be exercised by an ER under the terms of this approval may be carried out by any ER that is approved by the Planning Secretary for the purposes of Stage 1.	

Condition	Where Addressed in CEMP
D127. For the duration of construction of Stage 1, or as agreed with the Planning Secretary, the approved ER must: a) receive and respond to communication from the Planning Secretary in relation to the environmental performance of Stage 1; b) consider and inform the Planning Secretary on matters specified in the terms of this consent; c) consider and recommend to the Applicant any improvements that may be made to work practices to avoid or minimise adverse impact to the environment and to the community; d) review the CEMP identified in Condition D119 and any other documents that are identified by the Planning Secretary, to ensure they are consistent with requirements in or under this consent, and if so: (i) make a written statement to this effect before submission of such documents to the Planning Secretary (if those documents are required to be approved by the Planning Secretary); or (ii) make a written statement to this effect before the implementation of such documents (if those documents are required to be submitted to the Planning Secretary/Department for information or are not required to be submitted to the Planning Secretary/Department); e) regularly monitor the implementation of the CEMP, and any other documents identified by the Planning Secretary, to ensure implementation is being carried out in accordance with the document and the terms of this consent; f) as may be requested by the Planning Secretary, help plan, attend or undertake audits of Stage 1 commissioned by the Department including scoping audits, programming audits, briefings, and site visits; g) as may be requested by the Planning Secretary, assist the Department in the resolution of community complaints; h) prepare and submit to the Planning Secretary and other relevant regulatory agencies, for information, an Environmental Representative Monthly Report providing the information set out in the Environmental Representative Protocol under the heading "Environmental Representative Monthly Reports." The Environmental Representative Monthly Report must be submitted within seven calendar days following the end of each month for the duration of the ER's engagement, or as otherwise agreed with the Planning Secretary.	Sections 3.2 and 5
D129. The Applicant must provide the ER with all documentation requested by the ER in order for the ER to perform their functions specified in Condition D142 (including preparation of the ER monthly report), as well as: a) the complaints register; and b) a copy of any assessment carried out by the Applicant of whether proposed work is consistent with the consent (which must be provided to the ER before the commencement of the subject work).	Noted
Revision of Strategies, Plans and Programs	
D133. Within three months of: a) the submission of a Compliance Report under Condition D141; b) the submission of an Environmental Representative Monthly Report under Condition D127; c) the submission of an incident report under Condition D137; d) the approval of any modification of the conditions of this consent; or e) the issue of a direction of the Planning Secretary under Condition D2(b) which requires a review, the strategies, plans and programs required under this consent must be reviewed.	Section 6

Condition	Where Addressed in CEMP
Reporting and Auditing	
Incident Notification, Reporting and Response D135. The Department must be notified in writing to compliance@planning.nsw.gov.au immediately after the Applicant becomes aware of an incident. The notification must identify the development (including the development application number and the name of the development if it has one), and set out the location and nature of the incident. Subsequent notification requirements must be given and reports submitted in accordance with the requirements set out in Appendix 8.	Sections 3.5 and 5.2
Non-Compliance Notification D136. The Department must be notified in writing to compliance@planning.nsw.gov.au within seven (7) days after the Applicant becomes aware of any non-compliance.	Sections 3.5 and 5.2
D137. A non-compliance notification must identify the development and the application number for it, set out the condition of consent that the development is non-compliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.	Noted
D138. A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance	Noted
Compliance Reporting D139. No later than 6 weeks before the date notified for the commencement of construction, a Compliance Monitoring and Reporting Program prepared in accordance with the Compliance Reporting Post Approval Requirements (Department 2018) must be submitted to the Department.	This has been prepared by SLR (2019b).
D140. Compliance Reports of the Development must be carried out in accordance with the Compliance Reporting Post Approval Requirements (Department 2018).	Noted
D141. The Applicant must make each Compliance Report publicly available no later than 60 days after submitting it to the Department and notify the Department in writing at least 7 days before this is done.	Noted
Monitoring and Environmental Audits D142. Any condition of this consent that requires the carrying out of monitoring or an environmental audit, whether directly or by way of a plan, strategy or program, is taken to be a condition requiring monitoring or an environmental audit under Division 9.4 of Part 9 of the EP&A Act. This includes conditions in respect of incident notification, reporting and response, non-compliance notification, compliance reporting and independent auditing. ***Note:*** *For the purposes of this condition, as set out in the EP&A Act, "monitoring" is monitoring of the development to provide data on compliance with the consent or on the environmental impact of the development, and an "environmental audit" is a periodic or particular documented evaluation of the development to provide information on compliance with the consent or the environmental management or impact of the development.*	Section 5

Condition	Where Addressed in CEMP
Access to Information	
D143. At least 48 hours before the commencement of construction until the completion of all works under this consent, the Applicant must: a) make the following information and documents (as they are obtained or approved) publicly available on its website: (i) the documents referred to in Condition D2 of this consent; (ii) all current statutory approvals for the Development; (iii) all approved strategies, plans and programs required under the conditions of this consent; (iv) the proposed staging plans for the Development if the construction, operation or decommissioning of the Development is to be staged; (v) regular reporting on the environmental performance of the Development in accordance with the reporting requirements in any plans or programs approved under the conditions of this consent; (vi) a comprehensive summary of the monitoring results of the Development, reported in accordance with the specifications in any conditions of this consent, or any approved plans and programs; (vii) a summary of the current stage and progress of the Development; (viii) contact details to enquire about the Development or to make a complaint; (ix) a complaints register, updated monthly; (x) the Compliance Report of the Development; (xi) audit reports prepared as part of any monitoring or environmental audit of the Development and the Applicant's response to the recommendations in any audit report; (xii) any other matter required by the Planning Secretary; and b) keep such information up to date, to the satisfaction of the Planning Secretary.	Section 5.2

APPENDIX H

Event Notification Report

EVENT NOTIFICATION

QSE TEAM LEADER AUTHORISE EXTERNAL DISTRIBUTION

Procedure: PR-014 Incident Management

Plant Vehicle Property	Non work Related Motor Vehicle Accident	Service Strike	Environmental	Injury	Break-in Theft	Conduct
☐	☐	☐	☐	☐	☐	☐

Date & Time Event Occurred	Event Reported by	Notification Form Completed by	Date Completed
Project Team	**Names**	**Project Name**	**WHS Site Representative**
Project Manager			
Site Supervisor			
Engineers		**Project No:**	**Enviro Site Representative**
Leading Hand/s			

1 DETAILS

Event Description *(Describe event using key words)*					
Event first reported to		**Date reported**		**Time reported**	
Event details (below) *Detail specific names, dates, times, equipment, organisation/s, etc.)*					
What activity was being undertaken? Who was involved, time & duration of activity in progress					
Location on site					

INSERT OR ATTACH MAP / SKECTH & PHOTOS TO NOTIFICATION

(Show location in relation to site and key areas – roads, intersections, plant, activity, services, pot hole locations, survey pegs, chainages)

2 PERSONS INVOLVED / & or near VICINITY

Names of Directly involved & Witnesses	Organisation	Position Tile	Capacity of involvement *(Direct / in-direct witness)*	Contact No.	Statement Taken
					Y ☐
					Y ☐
					Y ☐
					Y ☐

3 IMMEDIATE ACTION TAKEN

Tick items to signify the action taken immediately following the event occurring

☐	Secure area / isolate	☐	Subcontractor Workers retained on site	☐	Medical Centre Ambulance	Other:
☐	Contacted Emergency services	☐	Photos of scene / area	☐	Spill control	
☐	Notified asset owner	☐	D & A testing	☐	Statements	

4	MATERIAL COLLECTION PROMPTS	Tick items collected for reviews following event notification				
☐	Take 5	☐	Pre-start	☐	Permits	Other Details:
☐	SWMS	☐	VMP	☐	Induction	
☐	DPI	☐	Plant info	☐	Other	
Further info / comments						

5 INTERNAL NOTIFICATIONS

1st Alert Notification

In the event Supervisor or Manager not available notify QSE

Person Involved → Immediate Supervisor → Immediate Manager → QSE Team Leader/ QSE Rep → Prep Alert Notification → Directors

6 EXTERNAL NOTIFICATIONS made at time of Event Occurrence

Agency	Notified	Date / time notified	Agency	Notified	Date / time notified
SafeWork NSW *(QSE TL responsible)*	☐		**Subcontractor** *PM responsible*	☐	
EPA / DoPE *(QSE TL responsible)*	☐		**Police / Fire / Amb**	☐	
Asset Owner *PM responsible*	☐		**Police Event No.** *(if applicable)*		
Client *(Org)* *PM responsible*	☐		**Other** *(Name)*	☐	

7 FACTORS CONTRIBUTING TO THE INCIDENT

Environment				**Equipment/materials**			
☐	Noise	☐	Surface gradient / conditions	☐	Tampering of plant / equipment	☐	Plant or equipment failure
☐	Lighting	☐	Dust / fume	☐	Inadequate maintenance	☐	Material / equipment too heavy / awkward
☐	Vibration	☐	Slip / trip hazard	☐	Inadequate guarding	☐	Plant or equipment unsuitable
☐	Weather	☐	Time / production pressures	☐	Other:		
Work systems				**People**			
☐	Hazard not identified	☐	No / inadequate risk assessment conducted	☐	No / Not followed Procedure	☐	Drugs / alcohol
☐	Hazard not reported	☐	No / inadequate controls implemented	☐	Fatigue	☐	Stress / Pressures
☐	No / inadequate safe work procedure	☐	Inadequate training / supervision	☐	Change of routine	☐	Distraction / personal issues / stress
☐	Inadequate planning	☐	Other:	☐	Lack of communication	☐	Other:

Comment on selection	

8	CORRECTIVE ACTIONS			
Actions	**Assigned to**	**Completion date**	**Date complete**	**Verified by**

9	QSE TEAM LEADER to COMPLETE			
ICAM Investigation	Y ☐	N ☐	**Allocated to**	
QSE TL Comment:				
Event logged into IFS (at time of distribution)	Y ☐ N ☐		**Number assigned** (if known)	

APPENDIX I

Community Communication Strategy

COMMUNITY COMMUNICATION STRATEGY OAKDALE WEST ESTATE - CONCEPT AND STAGE 1

Prepared for:

Goodman Property Services (Australia) Pty Ltd

PREPARED BY

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BASIS OF REPORT

This report has been prepared by SLR Consulting Australia Pty Ltd (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Goodman Property Services (Australia) Pty Ltd (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 the Client. 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
660.20005.00000-R01-v6.0	11 November 2019	Kate McKinnon	Samantha Hayes	Dan Thompson
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CONTENTS

1 INTRODUCTION 5
1.1 Background 5
1.2 Purpose 5
1.3 Community Communications Strategy Scope 15
1.4 Project Description 15
2 STAKEHOLDER IDENTIFICATION 18
2.1 Community Overview 18
2.1.1 Erskine Park 18
2.1.2 Kemps Creek 18
2.2 Key Stakeholders 18
2.2.1 Properties receiving adjustments or architectural treatment and mitigating works 19
3 KEY ISSUES AFFECTING STAKEHOLDERS 20
3.1 Previous Consultation 20
3.2 Potential Issues and Strategies 20
4 COMMUNICATIONS AND COMMUNITY LIAISON REPRESENTATIVE 24
5 COMMUNITY AND STAKEHOLDER ENGAGEMENT 25
5.1 Objectives 25
5.2 Approach 25
5.3 Communication, Management and Mitigation Tools 25
5.3.1 Project Website 30
5.3.2 WNSLR Works Liaison and Notification Requirements 30
5.3.3 Communication with Sensitive Receivers' Procedure 32
5.4 Complaints Procedure 32
5.4.1 Protocol for Receiving and Recording Enquiries and Complaints 34
5.4.2 Protocol for Responding to and Resolving Enquiries and Complaints 35
5.4.3 Unreasonable Complainant Conduct 35
5.4.4 Contingency Management Plan 35
6 MONITORING, REPORTING AND EVALUATION 38
6.1 Monitoring 38
6.2 Reporting 39
6.3 Evaluation 39
7 REFERENCES 40

CONTENTS

DOCUMENT REFERENCES

TABLES

Table 1 Relevant Conditions of Consent 6
Table 2 Relevant RMS Specifications 10
Table 3 Key Stakeholders 19
Table 4 Issue Identification and Mitigation 21
Table 5 Communication Management and Mitigation Tools 26
Table 6 Notification Requirements for Goodman prior to Construction Activities 31
Table 7 Notification Requirements for works 31
Table 8 Sensitive Receiver Procedure 32
Table 9 Enquires and Complaints Facilities 34
Table 10 Contingency Management Plan 36
Table 11 Summary of Monitoring Data 38

FIGURES

Figure 1 Site Layout Inclusive of the WNSLR 17
Figure 2 Complaints Handling Procedure 33

APPENDICES

Appendix A Sensitive Receiver Map
Appendix B Key Stakeholder Contact Details
Appendix C Registered Aboriginal Parties
Appendix D Complaints Register

1 Introduction

1.1 Background

This Community Communication Strategy (CCS) has been prepared on behalf of Goodman Property Services (Australia) Pty Ltd (Goodman) for the Oakdale West Estate (OWE) Concept and Stage 1 development (State Significant Development [SSD] application 7348).

This CCS has been prepared in accordance with Condition C19 and supporting conditions within the Development Consent, identifying relevant stakeholders, key issues and the communication methods. Specifically, it details how Goodman and their contractors will engage with relevant stakeholders and the community. The CCS integrates with the Construction Environmental Management Plan (CEMP) and associated suite of documents to provide a comprehensive guide and benchmark for the construction process that aligns with the Development Consent conditions.

1.2 Purpose

The OWE project has been assessed and determined under Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The CCS includes the following key aspects:

- Identification of stakeholders to be consulted with during the CCS implementation including adjacent landowners and residents, key stakeholders, relevant agencies and the wider community.
- The tools and actions to be undertaken throughout the construction program to disseminate information to the identified stakeholders, providing opportunities for comment.
- Enquiry and Complaint management protocols.
- Monitoring and feedback mechanisms.

The CCS will be updated as the project progresses to account for variations in the construction program and methodology, along with changes in stakeholder situation that impacts on stakeholder interests, with these articulated through the feedback mechanisms.

SSD 7348 contained the following conditions of relevance to this CCS used to benchmark the contents:

- C19 & C20 – Community Communication Strategy
- D37 – Landscaping
- D71 – Hours of Work
- D117 – Ongoing Community Engagement
- D118 - Management Plan Requirements
- D127 & D128 – Environmental Representative
- D133 – Document Review
- D143 – Access to Information

The details of these conditions are identified within **Table 1** below, along with a cross reference to the relevant section of this CCS.

The approved development includes the construction of the Western North-South Link Road (WNSLR). This road is to be constructed to Roads and Maritime Service (RMS) specifications, to the satisfaction of Penrith City Council (as the Nominated Road Authority). Details of these specifications as they relate to community consultation and communication are identified within **Table 2**, including cross reference to the relevant section of this CCS.

Table 1 Relevant Conditions of Consent

Condition Number	Condition Detail	Report Reference
C19 – Community Communication Strategy	No later than one month before the commencement of construction of any stage of the Development, a Community Communication Strategy (CCS) must be prepared and submitted to the Planning Secretary for approval. The CCS is to provide mechanisms to facilitate communication between the Applicant, Council and the community (including adjoining affected landowners, schools, businesses, and others directly impacted by Stage 1), during design, construction and operation. The CCS must: a) assign a central contact person to keep the nearby sensitive receivers regularly informed throughout the Development; b) detail the mechanisms for regularly consulting with the local community throughout the Development, such as holding regular meetings to inform the community of the progress of the development and report on environmental monitoring results; c) detail a procedure for consulting with nearby sensitive receivers to schedule high noise generating works, vibration intensive activities or manage traffic disruptions; d) include contact details for key community groups, relevant regulatory authorities, Registered Aboriginal Parties and other interested stakeholders; and e) include a complaints procedure for recording, responding to and managing complaints, including: i. email, contact telephone number and postal addresses for receiving complaints; ii. advertising the contact details for complaints before and during operation, via the local newspaper and through onsite signage; iii. a complaint register to record the date, time and nature of the complaint, details of the complainant and any actions taken to address the complaint; and iv. procedures for the resolution of any disputes that may arise during the course of the Development.	This CCS Document a) Section 4 b) Section 5 c) Sections 5 & 6 d) Section 2.2 e) Section 5.4
C20 – Community Communication Strategy	The Applicant must: a) not commence construction of the relevant stage of the Concept Proposal until the CCS required under Condition C19 has been approved by the Planning Secretary; and b) implement the CCS for each stage of the Concept Proposal and following the completion of operation of the Development.	a) Section 1.2 b) Sections 5 & 6
D37 – Landscaping	The Applicant must complete the landscape bund along the western boundary of the Site as shown on Figure 5 in Appendix 2 within six months of commencing any construction including bulk earthworks.	Section 2.2.1 Appendix A

Condition Number	Condition Detail	Report Reference
D71 – Hours of Work	Works outside of the hours identified in Condition D70 may be undertaken in the following circumstances: (a) works that are inaudible at the nearest sensitive receivers; (b) works agreed to in writing by the Planning Secretary; (c) for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or (d) where it is required in an emergency to avoid the loss of lives, property or to prevent environmental harm.	Section 5.3.2
D117 – Ongoing Community Engagement	The Applicant must consult with the community regularly throughout Stage 1, including consultation with the nearby sensitive receivers identified in Appendix 5, relevant regulatory authorities, Registered Aboriginal Parties and other interested stakeholders. Community engagement shall be undertaken in accordance with the Community Communication Strategy approved in accordance with Condition C19.	Sections 5 & 6
D118 – Management Plan Requirements	Management plans required under this consent must be prepared in accordance with relevant guidelines, and include: a) details of: i. the relevant statutory requirements (including any relevant approval, licence or lease conditions); ii. any relevant limits or performance measures and criteria; and iii. the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, Stage 1 or any management measures; b) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria; c) a program to monitor and report on the: i. impacts and environmental performance of Stage 1; and ii. effectiveness of the management measures set out pursuant to paragraph (b) above; d) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible; e) a program to investigate and implement ways to improve the environmental performance of Stage 1 over time; f) a protocol for managing and reporting any: i. incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria); ii. complaint; iii. failure to comply with statutory requirements; and g) a protocol for periodic review of the plan. Note: The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.	a) Refer to Project CEMPs (SLR, 2019a & SLR 2019b) b) Sections 3.2, 5.3 and 5.4 c) Section 6 d) Section 5.4.4 e) Section 6 f) Section 5.4 g) Section 6

Condition Number	Condition Detail	Report Reference
D127 - Environmental Representative	For the duration of construction of Stage 1, or as agreed with the Planning Secretary, the approved ER must: (a) receive and respond to communication from the Planning Secretary in relation to the environmental performance of Stage 1; (b) consider and inform the Planning Secretary on matters specified in the terms of this consent; (c) consider and recommend to the Applicant any improvements that may be made to work practices to avoid or minimise adverse impact to the environment and to the community; (d) review the CEMP identified in Condition D119 and any other documents that are identified by the Planning Secretary, to ensure they are consistent with requirements in or under this consent, and if so: (i) make a written statement to this effect before submission of such documents to the Planning Secretary (if those documents are required to be approved by the Planning Secretary); or (ii) make a written statement to this effect before the implementation of such documents (if those documents are required to be submitted to the Planning Secretary/Department for information or are not required to be submitted to the Planning Secretary/Department); (e) regularly monitor the implementation of the CEMP, and any other documents identified by the Planning Secretary, to ensure implementation is being carried out in accordance with the document and the terms of this consent; (f) as may be requested by the Planning Secretary, help plan, attend or undertake audits of Stage 1 commissioned by the Department including scoping audits, programming audits, briefings, and site visits; (g) as may be requested by the Planning Secretary, assist the Department in the resolution of community complaints; (h) prepare and submit to the Planning Secretary and other relevant regulatory agencies, for information, an Environmental Representative Monthly Report providing the information set out in the Environmental Representative Protocol under the heading "Environmental Representative Monthly Reports." The Environmental Representative Monthly Report must be submitted within seven calendar days following the end of each month for the duration of the ER's engagement, or as otherwise agreed with the Planning Secretary.	Section 6.2
D128 - Environmental Representative	The Applicant must provide the ER with all documentation requested by the ER in order for the ER to perform their functions specified in Condition D127 (including preparation of the ER monthly report), as well as: (a) the complaints register; and (b) a copy of any assessment carried out by the Applicant of whether proposed work is consistent with the consent (which must be provided to the ER before the commencement of the subject work).	Section 6.2

Condition Number	Condition Detail	Report Reference
D133 Revision of Strategies, Plans and Programs	Within three months of: (a) the submission of a Compliance Report under Condition D141; (b) the submission of an Environmental Representative Monthly Report under Condition D127; (c) the submission of an incident report under Condition D135; (d) the approval of any modification of the conditions of this consent; or (e) the issue of a direction of the Planning Secretary under Condition D2(b) which requires a review the strategies, plans and programs required under this consent must be reviewed.	Section 6.2
D143 – Access to Information	At least 48 hours before the commencement of construction until the completion of all works under this consent, the Applicant must: a) make the following information and documents (as they are obtained or approved) publicly available on its website: i. the documents referred to in Condition D2 of this consent; ii. all current statutory approvals for the Development; iii. all approved strategies, plans and programs required under the conditions of this consent; iv. the proposed staging plans for the Development if the construction, operation or decommissioning of the Development is to be staged; v. regular reporting on the environmental performance of the Development in accordance with the reporting requirements in any plans or programs approved under the conditions of this consent; vi. a comprehensive summary of the monitoring results of the Development, reported in accordance with the specifications in any conditions of this consent, or any approved plans and programs; vii. a summary of the current stage and progress of the Development; viii. contact details to enquire about the Development or to make a complaint; ix. a complaint register, updated monthly; x. the Compliance Report of the Development; xi. audit reports prepared as part of any monitoring or environmental audit of the Development and the Applicant's response to the recommendations in any audit report; xii. any other matter required by the Planning Secretary; and b) keep such information up to date, to the satisfaction of the Planning Secretary.	Section 5.3.1

It is a requirement of the RMS that communications and community liaison are undertaken in accordance with the RMS QA Specification G36 – Environmental Protection. All relevant requirements within the specification are included in **Table 2** below.

Table 2 Relevant RMS Specifications

Specification Number	Relevant Specification Detail	Report Reference
3.3 - Resources, Responsibilities and Authority	Communications and Community Liaison Representative Appoint a Communications and Community Liaison Representative (CCLR) to lead and manage the community involvement activities, including liaison with property owners and key stakeholders. This person is your representative for the requirements of RMS G36 Clause 3.7. The CCLR must have relevant qualifications with a minimum of 5 years' communications and community liaison experience, preferably in infrastructure development and delivery. The CCLR must be flexible and willing to work outside of normal working hours when required, such as nights and weekends. The CCLR is to be the primary daily contact to the public handling of enquiries/complaints management/interface issues. The CCLR must be available for contact by local residents and the community at all reasonable times to answer any questions and to address any concerns in relation to your construction activities. The CCLR must have up-to-date information on: emerging stakeholders; planned construction activities; planned traffic arrangements, including any temporary traffic switches; current landowner discussions with members of your staff; planned community and stakeholder consultations; complaints or enquiries received; duties and accountabilities of your staff; and, commitments to stakeholders made by you or Goodman. The CCLR is to handle document management administration and systems/contact database management and maintenance. The CCLR is to liaise with property owners to co-ordinate access and to deal with specific property related issues arising from the upgrade works. The CCLR is to lead in the development and delivery of communication and community engagement strategies and plans. The CCLR is to facilitate meetings, forums and arranging interviews to address concerns from community. The CCLR is to provide advice and participate with the project teams to improve and enhance the delivery of communication services to the community. The CCLR is to build, maintain collaborative and consultative working relationships with internal and external stakeholders. The CCLR is to possess excellent writing and digital media skills including writing and editing copy for printed and electronic material, internal and external materials such as letters, web brochures and public facing reports, and video and photography for promotional use, etc. The CCLR is to possess a current motor vehicle driver's licence. The CCLR must be available for contact by local residents, key stakeholders and community representatives to answer queries and provide more information or feedback.	Section 4

Specification Number	Relevant Specification Detail	Report Reference
3.7 - Communications	Describe in the CEMP the processes for external and internal communication in relation to the environmental aspects of the work under the Contract. Make all staff and subcontractors working on the Site aware of these external and internal communications procedures and ensure they are properly trained in their application.	Refer to Project CEMPs (SLR, 2019a & SLR 2019b) Section 5.3
3.7.1 - Liaison with EPA and/ or other Government Agencies	The CEMP must identify at least two persons (together with their contact telephone numbers) who will be available to be contacted by the EPA and/ or Other Government Agencies on a 24 hour basis and who have authority to take immediate action to shut down any activity, or to effect any pollution control measure, as directed by an authorised officer of the EPA and/ or Other Government Agencies. Immediately notify Goodman of any visit to the Site by the EPA and/ or Other Government Agencies. Prepare a report for each occasion when the Site is visited by the EPA and/ or Other Government Agencies, notifying Goodman of the purpose and outcome of the EPA and/ or Other Government Agencies visit, and of all actions taken by you in response to the EPA and/ or Other Government Agencies visit. Submit this report to Goodman within one working day of the EPA and/ or Other Government Agencies site visit.	Section 4
3.7.2 - Community Liaison and/or Notification 3.7.2.1 New or Changed Construction Activities	Notify local residents and other stakeholders about any new or changed construction activities including changes to bus stop locations and / or timetables which will affect access to their properties/ premises at least five 5 working days before commencing work affecting residents. Such notification must state the nature of the work, why it is necessary, the expected duration, details of any changes to the traffic arrangements or property access and the name and 24 hour contact telephone number of your representative who can respond to any resident/stakeholder concerns. Address any concerns raised by residents in accordance with the complaints procedure as required under Clause 3.7.3 and in accordance with any licence or approval held by you.	Section 5.3.2
3.7.2.2 - Extended Working Hours – No Environmental Protection Licence	Following approval from Goodman on each instance to extend working hours, inform affected residents by letter of the location, nature, scope and duration of the proposed work outside normal working hours, not less than 1 week and not more than 2 weeks, before commencing such work. Include the name and contact telephone number of your representative so that residents can contact him over any concerns about extended working hours and any other information required by any licence or approval held by you. Refer to Practice Note vii of RMS publication “Environmental Noise Management Manual” when preparing the letter and notifying the affected residents.	Section 5.3.2

Specification Number	Relevant Specification Detail	Report Reference
3.7.3 - Complaints and Enquiries Management	As part of your CEMP, prepare and implement a Construction Complaints and Enquiries Management procedure prior to the commencement of construction. You must follow the Construction Complaints and Enquiries Management procedure for the duration of construction. You must ensure your Construction Complaints and Enquiries Management procedure is consistent with AS 4269 "Complaints Handling". This must include: a) an advertised 24 hour contact telephone number listed with a telephone company and include a contact name; b) a postal address to which written complaints and enquiries can be sent; c) an email address to which electronic complaints and enquiries can be sent; d) a procedure to receive, record, track and respond to complaints and enquiries within a specified timeframe. When a complaint or enquiry cannot be responded to immediately, a follow-up verbal response on what action is proposed must be provided to the complainant/enquirer within two hours during night-time works and 24 hours at other times; e) a process for the provision of a written response to the complainant/enquirer within ten (10) days, if the complaint or enquiry cannot be resolved by the initial or follow-up verbal response; f) a mediation system for complaints unresolved through the above system. Within one working day of receiving a complaint about any environmental or other issue which has the capacity to damage Goodman's reputation, including any pollution incidents, arising from the Work Under the Contract, submit a written report to Goodman detailing the complaint and the action taken to remedy the problem. A final report together with your proposed measures to prevent the recurrence of such incidents must be submitted to Goodman within 5 working days. Keep a register of all complaints or enquiries, which must include the following details: (a) date and time of complaint or enquiry; (b) method by which the complaint or enquiry was made (telephone, letter, meeting, etc); (c) name, address, contact telephone number of complainant (if no such details were provided, a note to that effect); (d) nature of complaint or enquiry; (e) action taken in response including follow up contact with the complainant.; (f) any monitoring to confirm that the complaint or enquiry has been satisfactorily resolved; (g) if no action was taken, the reasons why no action was taken by you.	Section 5.4

<table>
<tr><th>Specification Number</th><th>Relevant Specification Detail</th><th>Report Reference</th></tr>
<tr><td>3.7.4 - Notification to communities and stakeholders</td><td>Notify Goodman in advance of the following construction activities:
<table>
<tr><th>Activity</th><th>Notification required</th></tr>
<tr><td>Work at night (any time between 6pm and 7am)</td><td>2 weeks where possible, a minimum of 1 week</td></tr>
<tr><td>Work on weekends (including public holidays)</td><td>2 weeks where possible, a minimum of 1 week</td></tr>
<tr><td>Major changes to configuration of road traffic</td><td>At least 4 weeks</td></tr>
<tr><td>Impacts on pedestrians and/or bicyclists</td><td>At least 4 weeks</td></tr>
<tr><td>Commencement, rescheduling or completion of key construction activities</td><td>At least 4 weeks for commencement and completion, 24 hours’ notice for rescheduling</td></tr>
<tr><td>Commencement or rescheduling of property adjustment work</td><td>At least 2 weeks (4 weeks for businesses)</td></tr>
<tr><td>Alteration to property access arrangements</td><td>At least 4 weeks</td></tr>
<tr><td>Other activities not identified above which may impact on the community stakeholders</td><td>At least 24 hours</td></tr>
<tr><td>Any form of community protest on site</td><td>Immediately</td></tr>
</table>
In your communications with the community, you must comply with the requirements of the Privacy and Personal Information Protection Act 1998 (NSW).
You must not make any undertakings on behalf of Goodman without the prior written approval of Goodman. Comply with the distribution for various notification types as follow:
<table>
<tr><th>Notification Type</th><th>Submission to Goodman</th><th>Distribution</th></tr>
<tr><td>Out of Hours Works / Night Works
(refer to clause 3.7.2.3)</td><td>Draft a notification letter at least 24 hours prior to the works being carried out</td><td>2 weeks where possible, a minimum of 1 week prior to the works being carried out</td></tr>
<tr><td>Traffic Conditions</td><td>Draft letter at least 4 weeks prior to the traffic conditions changing</td><td>At least 5 business days prior to the traffic conditions changing if deemed necessary by Goodman</td></tr>
<tr><td>Individual private properties regarding property adjustments or changes to access (refer to clause 3.7.2.1)</td><td>Draft letter at least 4 weeks prior to the works being carried out</td><td>At least 2 weeks prior to the works being carried out of access changes</td></tr>
</table></td><td>Sections 5.3.2</td></tr>
</table>

Specification Number	Relevant Specification Detail			Report Reference
	Access for bridgeworks over the Water NSW pipelines	Final draft of notification at least 4 weeks prior to be works being carried out	At least 4 weeks prior to the works being carried out	
	Individual businesses regarding property adjustments or changes to access (refer to clause 3.7.2.1)	Draft letter at least 4 weeks prior to the works being carried out	At least 4 weeks prior to the works being carried out of access changes	

1.3 Community Communications Strategy Scope

The CCS applies to works undertaken by Goodman and their engaged contractors. The project comprises two components with separate contractors engaged for each:

- Bulk earthworks across the site, civil infrastructure and landscaping; and construction of warehousing within Precinct 1 (Stage 1).
- Construction of the WNSLR including a signalised intersection with Lenore Drive, roundabout with Lockwood Road and roundabout with the new internal Estate Road No. 1, earthworks, civil works, utility works, property adjustments and landscaping. A haul road will be constructed through Oakdale West (referred to as the Construction Access Road) as part of the WNSLR construction to provide access to the WNSLR corridor.

The CCS applies to both components of the project. Separate CEMPs have been prepared to address each component of the project with both CEMPs referencing and this CCS. Both components will be serviced by the same project website and phone number to provide a simplified and consistent communications process across the project.

1.4 Project Description

The project as described by the SSD 7348 consent comprises:

The Staged Development Application for the Oakdale West Estate, comprising:

A Concept Proposal including:

- *Concept layout of 22 warehouse buildings providing 453,000 square metres of gross floor area and ancillary offices, built over five development stages*
- *Concept layout of development lots, internal roads, drainage, landscaping and biodiversity offsets*
- *Development controls*

A Stage 1 Development Application including:

- *Bulk earthworks across all five stages including retaining walls and noise walls*
- *Construction and operation of three warehouse buildings in Precinct 1 (1A, 1B and 1C) providing 111,000 square metres of gross floor area and ancillary offices*
- *West-North-South Link Road and associated subdivision*
- *Estate roads 1, 2, 6 and the eastern part of road 7*
- *Service infrastructure to Precinct 1, including drainage, power, sewer, water and telecommunications*
- *Landscaping of Stage 1, the western site boundary, West-North-South Link Road, estate roads 1, 2, 6 and the eastern part of road 7 and detention basins*
- *Subdivision of Stage 1 lots and road infrastructure*
- *Stormwater drainage infrastructure for Lots 2A and 2B.*

Further project details are located in the Environmental Impact Statement, Oakdale West Estate, State Significant Development Application (EIS) (Urbis, 2017).

The site works will be undertaken by two contractors, with specific areas of responsibility. Areas of responsibility comprise the bulk earth works, civil infrastructure and services, along with the Stage 1 built form development. A second contractor is engaged for the WNSLR connection north to Lenore Drive and haul road civil works through to the south west corner of the site.

Figure 1 below identifies the site layout, inclusive of both the Stage 1 works and WNSLR. Note, the figure is orientated with south upwards to allow the inclusion of a wider extent of the road network.

The project involves construction activities including:

- Site establishment.
- Clearing and stripping.
- Site construction access.
- Demolition of existing buildings.
- Sediment erosion control works.
- Bulk earthworks and haulage of materials.
- Signage and fencing.
- Construction of civil infrastructure including access roads, bridge, drainage, retaining walls and utilities.
- Building construction and landscaping within Stage 1.

Figure 1 Site Layout Inclusive of the WNSLR

Source: SBA Architects

2 Stakeholder Identification

2.1 Community Overview

The site comprises historic agricultural land identified within the Western Sydney Employment Area (WSEA). The site is located across two Australian Bureau of Statistics (ABS) geographical boundaries, with Erskine Park to the north and Kemps Creek to the south. The ABS data below has been used to inform the communications methodology, with appropriate media and language used to reflect the statistical data.

2.1.1 Erskine Park

Erskine Park has a population of 6,436 accommodated in 2,016 dwellings. The median age is 34 compared to a State median of 38. The top ancestry response is Australian, followed by English, Irish, Scottish then Filipino, with languages other than English spoken at home comprising Arabic (2.6%), Tagalog (2.4%), Filipino (1.4%), then Hindi (1.2%).

17.7% of the Erskine Park population completed Year 12 compared to 15.3% for the State, with 66% of the population employed full time compared to a State average of 59.2%. Management comprised the highest percentage of employment, equating to 19.5%, with a median weekly income of $781, compared to $664 for the State.

2.1.2 Kemps Creek

Kemps Creek has a population of 2,268 accommodated in 700 dwellings. The median age is 41 compared to a State median of 38. The top ancestry response is Italian, followed by Australian, English, Lebanese then Maltese, with languages other than English spoken at home comprising Italian (10.1%), Arabic (6.4%), Cantonese (4.3%), then Assyrian Neo-Aramaic (3%).

14.2% of the Kemps Creek population completed Year 12 compared to 15.3% for the State, with 58.4% of the population employed full time compared to a State average of 59.2%. Clerical and Administrative Workers comprised the highest percentage of employment, equating to 20%, with a median weekly income of $588, compared to $664 for the State.

2.2 Key Stakeholders

The site is located in close proximity to sensitive receivers to the west comprising a Catholic School, Anglican School and Age Care facility, along with a number of dwellings to the south. The northern and eastern boundaries comprise environmental corridors and infrastructure. Goodman and their representatives carried out extensive consultation with the community and stakeholders during the development of the EIS (Urbis, 2017). Previously identified stakeholders are categorised in **Table 3** below.

Table 3 Key Stakeholders

Stakeholder Agency/Authority	Interests/Issues
Directly affected stakeholders	Adjacent and directly affected properties, businesses and schools including: • Residential property – 20 Aldington Road • Emmaus Catholic College • Trinity Catholic Primary School • Emmaus Retirement Village • Mamre Anglican School • Catholic Healthcare Emmaus Village • Little Smarties Early Learning Centre
Local Councils	• Penrith City Council
State Government Departments and Offices	• NSW EPA • NSW Heritage Office • NSW Biodiversity and Conservation Division, Department of Planning Industry and Environment • NSW Department of Industry • Roads and Maritime Service • Transport for NSW • NSW Rural Fire Service • WaterNSW • National Resources Asset Regulator
Utility and Service Providers	• TransGrid • Endeavour Energy • WaterNSW • Sydney Water • Jemena • NBN • Telstra
Other Interested Parties	• Registered Aboriginal Parties

Contact details for the key stakeholders listed in **Table 3** above are included in **Appendix B & C**.

2.2.1 Properties receiving adjustments or architectural treatment and mitigating works

It is proposed to provide window glazing treatments to assist in acoustic attenuation to dwellings located at 20 Aldington Road, Kemps Creek.

A landscape bund is to be formed along the Western boundary of the development site to create an acoustic barrier to properties to the West. The location of the landscape bund is shown at **Appendix A**. The landscape bund shall be completed within 6 months of the commencement of any construction work, including bulk earthworks.

3 Key Issues Affecting Stakeholders

3.1 Previous Consultation

Goodman and their representatives have previously undertaken consultation with the community and stakeholders during the development of the project. Details of this consultation were included in the EIS (Urbis, 2017).

A total of 15 submissions were received, including one submission from a Local Council, three submissions from utilities providers, nine submissions from government authorities and two submissions from nearby properties and businesses. In response to the issues raised, Goodman revised several plans and consultant reports, which informed a Response to Submissions Report (Urbis, 2018a).

A further 10 submissions following these revisions were received and further modification to proposed plans and consultant reports were made, with a Supplementary Response to Submissions Report (Supplementary RTS) (Urbis, 2018b) prepared to the satisfaction of the determining authority.

For more information, refer to the Department of Planning and Environment's Major Project Assessments webpage at:

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=7348v

3.2 Potential Issues and Strategies

Goodman are committed to ongoing proactive consultation with the community and stakeholders while understanding the importance of addressing potential issues and minimising construction related impacts. **Table 4** outlines project issues that are likely or known to be of interest or concern to the community and stakeholders. The table also details communications related measures and strategies that Goodman will undertake to manage and mitigate impacts. The CEMP identifies management and mitigation measures to address those matters extending beyond consultation.

Table 4 Issue Identification and Mitigation

Potential Issue	Potential Key Impacts	Mitigation Strategy
Noise, Vibration and Dust	Truck, machinery and light vehicle movements within, to and from the site, along with civil works have potential to result in negative impacts associated with noise, vibration and dust.	Sensitive receivers and affected stakeholders will be consulted prior to actions likely to generate high levels of noise or vibration in accordance with Section 5.4.2 of this strategy. Up to date information on current and proposed works will be accessible to stakeholders and the wider public on the project web page. Additionally, should any works be likely to generate impacts beyond those identified within the approval's documentation consultation would be undertaken with the applicable managing agency. The CEMP, along with the supporting Dust, Noise and Vibration management plans contain specific measures to manage these impacts. These management plans have been informed by commitments contained within the SSD approvals package, EPA standards and guidelines.
Stormwater, Sediment Control, Erosion, Water Quality	High rainfall events could result in localised flooding. Construction could result in impacts to local water quality, associated with sediment laden runoff.	Surrounding sensitive receivers will be consulted with in relation to adjacent works regarding flooding and water quality issues, with these items discussed at regular meetings, or as they arise via the construction hotline, in accordance with Section 5.4.2 of this Strategy. The CEMP, along with the supporting Soil and Water Management Plan and Water Quality Monitoring Program identify specific mechanisms to manage and mitigate these impacts in accordance with the relevant Penrith City Council standards and commitments within the SSD approvals package.
Construction Traffic	A temporary increase in traffic movements may be experienced associated with the import of fill material, the movement of construction machinery to and from the site and the movement of workers light vehicles.	Sensitive receivers will be notified prior to actions likely to cause traffic disruption in accordance with Section 5.4.2 of this strategy. The CEMP and supporting Construction Traffic Management Plan and Fill Importation Plan identify specific mechanisms to manage and mitigate these impacts.

Potential Issue	Potential Key Impacts	Mitigation Strategy
Local Infrastructure, Utilities and Services	Temporary interruption to existing services including surrounding roads may be required to allow for road connections and the extension of services to the site.	Affected receivers would be notified of possible service disruption via letter box drop and regular meetings, with these disruptions minimised where possible through implementation of the designs identified within the SSD approvals package, measures identified within the CEMP and subsequent engagement with utility providers.
Visual Amenity and Privacy	Visual impacts of earthwork and construction activities, along with potential impacts on the privacy of adjacent sensitive receivers.	Potentially affected receivers would be advised of works with the potential for impact via letter box drop and with these items discussed at regular meetings, or as they arise via the construction hotline, in accordance with Section 5.4.2 of this Strategy. The CEMP identifies specific mechanisms to manage and mitigate these impacts.
Removal of Flora and Fauna	The project approval requires the removal of native and exotic flora and fauna to facilitate the development, with the associated potential for impacts on safety of immediately adjacent receivers, along with biodiversity and visual amenity.	Potentially affected receivers are likely to comprise those receivers immediately adjacent, who are to be advised of works with the potential for impact via letter box drop and regular meetings, or as they arise via the construction hotline, in accordance with Section 5.4.2 of this Strategy. The CEMP, along with the supporting Flora and Fauna Management Plan identify specific mechanisms to manage and mitigate these impacts.
Out of Hours Work	The identified impacts could be magnified due to the works being carried out while surrounding receivers are more likely to be home in the early morning/evening, or asleep, with correspondingly lower background noise levels.	Out of hours works to only be undertaken where necessary and subject to endorsement from the applicable managing agency. Should out of hours work with the potential for impact be proposed the potentially affected receivers would be advised via letter box drop and/ or regular meetings in accordance with Section 5.4.2 of this Strategy.
Aboriginal Heritage	There is the potential for encountering items of Aboriginal Heritage during excavation.	Monitoring of works by appropriately qualified personnel, along with the implementation of an unexpected finds protocol in consultation with Aboriginal Stakeholders and Heritage Division of the Department of Planning, Industry and Environment would be put in place, as discussed within Section 5.4.2 of this document. The CEMP, along with the supporting Unexpected Finds Protocol (Heritage) identify specific mechanisms to manage and mitigate these impacts. .

Potential Issue	Potential Key Impacts	Mitigation Strategy
Misinformation and Misunderstanding	Lack of project awareness within the wider community may result in complaints being raised by those unaware of the extent of the approval, with these complaints not directed through the appropriate project hotline. Unauthorised release of project information by the project team to the media, stakeholders or the community has potential to impact on project perception in the community.	The CCS includes measures at Section 5.4.2 to provide regular updates in plain language, supported by imagery to stakeholders and the wider community through public and private media. Contact details including the hotline details will be provided on site, the project web page and in all information issued.
Emergency Event	Unforeseen emergency with the potential to impact on the community either directly, or indirectly through out of hours activities that may generate additional traffic or noise.	The CCS includes measures at Section 5.4.2 to provide updates in emergency events, with the CEMP and Emergency Management Plan identifying specific mechanisms to manage and mitigate these impacts.

4 Communications and Community Liaison Representative

Goodman have appointed a Communications and Community Liaison Representative (CCLR) who will provide the community and stakeholders with a single point of contact for both components of the project, responsible for receiving and disseminating information requests and complaints, along with addressing any interface issues. The CCLR will also facilitate property access should it be required.

The CCLR will be available for contact by local residents and the community at all reasonable times to answer any questions and address any concerns relating to the project. The CCLR will have up-to-date information on:

- Emerging stakeholders
- Planned construction activities
- Planned traffic arrangements, including any temporary traffic switches
- Current landowner discussions with members of staff
- Planned community and stakeholder consultation
- Complaints or enquiries received
- Duties and accountabilities of staff
- Commitments to stakeholders made by Goodman.

The CCLR will be supported by a community consultation team with the following responsibilities:

- Development and delivery of communications strategies, including meeting/workshop facilitation.
- Maintenance of the community and stakeholder consultation register.
- Property owner liaison to address property specific issues.
- Preparation of material and facilitating group and public meetings, workshops and forums for the works.
- Liaison with the construction team to identify items of potential community interest within the upcoming construction program.
- Identifying opportunities for improvement, monitoring community feedback and reporting back to the community via updates to the project web page and at regular community meetings.

The CCLR details are:

- Dan Thompson – Principal Planner – SLR

  dthompson@slrconsulting.com; 1300 002 887
- Kate McKinnon – Associate – SLR

  kmckinnon@slrconsulting.com; 1300 002 887

5 Community and Stakeholder Engagement

5.1 Objectives

The key objectives of the strategy are to meet the requirements of condition C19 of SSD7348 and:

- Keep the local community and key stakeholders informed of the commencement and progress of works relating to the OWE project.
- Ensure that enquires and complaints received from the community or key stakeholders are addressed and responded to in a timely and effective manner.
- Inform nearby sensitive receivers in advance of potential disturbances and events likely to cause impact.
- Be good neighbours and members of the local community throughout the duration of the project's lifespan.
- Providing an open two communications channel to allow ongoing, iterative engagement.
- Seek opportunities for improvement throughout the project.

5.2 Approach

Goodman are committed to delivering Community and Stakeholder Engagement outcomes utilising the following principles at the core of their approach:

- **Clarity –** Communication and engagement will be delivered in a clear and easy to understand manner to ensure the project and all associated works are fully understood by the community and stakeholders.
- **Proactivity –** Consultation and notice shall be given prior to the commencement of works or the undertaking of potentially impactful activities.
- **Transparency –** Communication and engagement will be undertaken in an open and transparent fashion, with information shared between the community and the project team.
- **Accessibility –** Information relating to the project will be accessible via a broad range of mediums and will be made readily available to the community and stakeholders. Several avenues of contact shall be provided for the purposes of enquiry or complaint.

In their communications and consultation with the community and key stakeholders, Goodman and their representatives will comply at all times with the requirements of the *Privacy and Personal Information Protection Act 1998 (NSW)* and the *Privacy Act 1988 (Cth)*.

5.3 Communication, Management and Mitigation Tools

A range of tools and techniques will be used to inform and engage with the community and stakeholders regarding the project. **Table 5** below provides an overview of the mechanisms to be utilised to regularly inform and consult with the local community and key stakeholders and measures to mitigate potential issues throughout the development.

Table 5 Communication Management and Mitigation Tools

Tool/ Technique	Description	Person Responsible	Audience	Frequency/timing	Specifications
Community Consultation Meetings	Informal meetings, providing a project update and opportunity for the community and stakeholders to discuss recent experiences and upcoming construction activities.	CCLR and Community Consultation Team	The wider community and key stakeholders.	Meetings would initially be held quarterly, with the frequency then subject to the level of interest and the construction program.	Project updated including a review of any complaints received and remedial actions, followed by informal discussion with stakeholders and the community.
Community Workshops/Forums	An initial community workshop/forum to be held to identify the overarching construction program and communications protocols, with the event advertised via local newspaper and letter box drop.	CCLR and Community Consultation Team	The wider community and key stakeholders.	Prior to commencement of construction.	The first portion of the workshop is formal, identifying the project program, key personnel and the communications protocol. The second portion is informal with time for stakeholders and the community to ask questions and discuss any concerns.
Consultation Register	Recording community and stakeholder interactions, along with associated remedial actions as required.	CCLR and Community Consultation Team	The wider community and key stakeholders.	Project duration.	The consultation register satisfies the requirements of Condition C19 of SSD7348, and Specification 3.7.3 of the RMS G36 Specifications requiring a Complaints Register. The register will be continually updated to record community engagement, including information provided by Goodman, feedback received, and remedial action undertaken where required.

Tool/ Technique	Description	Person Responsible	Audience	Frequency/timing	Specifications
Environmental Review Group Meeting	Meeting of key environmental stakeholders	Environmental Representative	All environmental stakeholders	As required for the project duration	The Environmental Review Group will be briefed on upcoming project tasks with key environmental implications, along with complaints and enquiries received
Individual Community Meetings	Meetings with stakeholders as required to discuss a specific item.	CCLR and Community Consultation Team	The wider community and key stakeholders.	As required.	Details and format subject to the meetings context, with a record of the discussion included in the consultation register and actioned as required.
Newspaper Advertisement	Newspaper Advertisement(s) to be published in The Western Weekender and Mt Druitt – St Marys Standard identifying the project hotline number and web page address.	CCLR and Community Consultation Team	The wider community and key stakeholders.	Prior to the commencement of the initial construction activities on the site and throughout the project prior to known key intrusive events.	An advertisement will be published advising of the commencement date of construction, a brief overview of the project and key contact details for enquires and complaints including the hotline, webpage and email address. Further advertisements will be published where intrusive events are scheduled advising of the nature and date(s) and time(s) of the event and key contact details for enquiries and complaints.
Notification Letterbox Drop	Letters would be provided to specific receivers identified as being potentially affected by construction. This could be undertaken in tandem with door knocking.	CCLR and Community Consultation Team	Residents of the immediate area.	As required for the project duration.	Letter box drop details to be recorded in the consultation register. Timing of construction activity to be identified along with relevant contact details.
On Site Signage	Project information details.	CCLR and Community Consultation Team	Visitors to the site and residents of the immediate area.	Project duration.	Contain key project contact details including the hotline and web page, along with relevant project and safety information.

Tool/ Technique	Description	Person Responsible	Audience	Frequency/timing	Specifications
Online Feedback Forms	Simple form allowing rapid ad hoc feedback.	CCLR and Community Consultation Team	The wider community and key stakeholders.	Project duration.	Form available on the Oakdale project web page, with feedback provided to be incorporated into the consultation register and actioned as required.
Project Information and Complaints Number	Project hotline available for 24 hours recording of project feedback.	CCLR and Community Consultation Team	The wider community and key stakeholders.	Project duration.	Hotline number located on site signage, the web page and all project information material. Feedback provided to be incorporated into the consultation register and actioned as required.
Staff and Visitor Induction and Training	Project information details.	Site Forman and Management Staff	Staff and visitors to the site.	Project duration.	Key project safety information, contact details, emergency procedures and site information.
Toolbox and Prestart Meetings for WNSLR and Stage 1 Infrastructure Works	Project information details.	Site Forman and Management Staff	Staff and visitors to the site.	Project duration.	Task specific safety information, emergency procedures and relevant project updates. All staff and subcontractors to be made aware of external and internal communications procedures
Text Message and Email Alerts	Text messages providing prompt updates	CCLR and Community Consultation Team	Residents of the immediate area.	As required for the project duration.	Text Messages and email alerts will provide important information at short notice to potentially affected receivers. Text message and email details to be recorded in the consultation register.

Tool/ Technique	Description	Person Responsible	Audience	Frequency/timing	Specifications
Website	A web page is established at: oakdaleopportunities.com	CCLR and Community Consultation Team	The wider community and key stakeholders.	Project duration.	Website address and phone number located on site signage and all project information material. Web page to provide contact details including hotline, email address and enquiry form, as well as project updates, along with environmental performance monitoring. Refer to Section 5.3.1 below for further details.

5.3.1 Project Website

Goodman has established a website for the project (oakdaleopportunities.com). The website was established prior to the commencement of works and will be maintained during the delivery of the project until the completion of all works.

The following information will be updated monthly or more frequently when necessary and made available on the website as required by SSD 7348 Condition D143:

- A copy of the documents listed in Condition D2 of the SSD Consent (SSD 7348).
- All current statutory approvals for the Development.
- All approved strategies, plans and programs required under conditions of the SSD Consent (SSD 7348).
- The proposed staging plans for the Development if the construction, operation or decommissioning of the Development is to be staged.
- A comprehensive summary of the monitoring results of the Development, reported in accordance with the specifications in any conditions of the SSD Consent (SSD 7348), or any approved plans and programs.
- A summary of the current stage and progress of the Development.
- Contact details (including email address, phone number and postal address) to enquire about the Development or to make a complaint.
- A complaints register, updated monthly and details of the complaints handling protocol for the project.
- The Compliance Report of the Development.
- Audit reports prepared as part of any monitoring or environmental audit of the Development and the Applicant's response to the recommendations in any audit report.
- Any other matter required by the Planning Secretary.

5.3.2 WNSLR Works Liaison and Notification Requirements

Where works relate to the construction of the WNSLR, the RMS QA Specification G36 – Environmental Protection sets out a number of specifications and measures addressing notification to the community and affected stakeholders. In order to comply with these requirements, Goodman shall undertake the following activities:

- Goodman shall notify local residents and other stakeholders about any new or changed construction activities including changes to bus stop locations and / or timetables, which will affect access to their properties/ premises at least five 5 working days before commencing work affecting residents.
- Such notification will state the nature of the work, why it is necessary, the expected duration, details of any changes to the traffic arrangements or property access and the name and 24-hour contact telephone number of the CCLR who can respond to any resident/stakeholder concerns.
- Any complaints shall be addressed in accordance with the complaint's procedure outlined in Section 5.4 of this strategy.
- Where extended working hours are proposed, the contractor shall inform Goodman who will subsequently inform residents of the proposed work outside normal working hours in accordance with the requirements outlined in this strategy. Written approval from the Planning Secretary will be sought for out of hours work.

- Within one working day of receiving a complaint about any environmental or other issue which has the capacity to damage Goodman's reputation, including any pollution incidents, arising from the Work Under the Contract, a written report to Goodman shall be submitted detailing the complaint and the action taken to remedy the problem. A final report together with proposed measures to prevent the recurrence of such incidents shall be submitted to the Goodman within 5 working days.

The contractor shall adhere to set timeframes for notification of Goodman and distribution of notice to the community and stakeholders for activities related to the WNSLR. This commitment is outlined in **Tables 6** and **7** below:

Table 6 Notification Requirements for Goodman prior to Construction Activities

Activity	Notification required
Work at night (any time between 6pm and 7am)	2 weeks where possible, a minimum of 1 week
Work on weekends (including public holidays)	2 weeks where possible, a minimum of 1 week
Major changes to configuration of road traffic	At least 4 weeks
Impacts on pedestrians and/or bicyclists	At least 4 weeks
Commencement, rescheduling or completion of key construction activities	At least 4 weeks for commencement and completion, 24 hours' notice for rescheduling
Commencement or rescheduling of property adjustment work	At least 2 weeks (four weeks for businesses)
Alteration to property access arrangements	At least 4 weeks
Other activities not identified above which may impact on the community stakeholders	At least 24 hours
Any form of community protest on site	Immediately

Table 7 Notification Requirements for works

Notification Type	Submission to Goodman	Distribution to Community and Stakeholders
Out of Hours Works / Night Works	Draft a notification letter at least 24 hours prior to the works being carried out	2 weeks where possible, a minimum of 1 week prior to the works being carried out
Traffic Conditions	Draft letter at least 4 weeks prior to the traffic conditions changing	At least 5 business days prior to the traffic conditions changing if deemed necessary by Goodman
Individual private properties regarding property adjustments or changes to access	Draft letter at least 4 weeks prior to the works being carried out	At least 2 weeks prior to the works being carried out of access changes
Access for bridgeworks over the Water NSW pipelines	Final draft of notification at least 4 weeks prior to be works being carried out	At least 4 weeks prior to the works being carried out
Individual businesses regarding property adjustments or changes to access	Draft letter at least 4 weeks prior to the works being carried out	At least 4 weeks prior to the works being carried out of access changes

5.3.3 Communication with Sensitive Receivers' Procedure

During the course of works the CCLR will consult with nearby sensitive receivers listed below when necessary to advise of and/or schedule events and activities with the potential to cause impact such as high noise generating works, vibration intensive activities or traffic management disruptions.

The CCLR shall also consult with sensitive receivers to arrange respite period offerings where high-noise works are predicted to exceed 75dBA for residential receivers and 65dBA for schools and the retirement village. Respite offers will also be considered for high vibration works where the works are undertaken within the human comfort minimum working distances for all sensitive receivers.

Sensitive receivers are considered to include adjacent and directly affected properties, businesses and schools including:

- Residential properties located along Aldington Road (As shown in **Appendix A)**.
- Emmaus Catholic Primary School and High School and Retirement Village on Bakers Lane.

Where development works have the potential to impact on sensitive receivers or respite offerings are proposed the CCLR will implement the sensitive receiver procedure outlined in **Table 8** below:

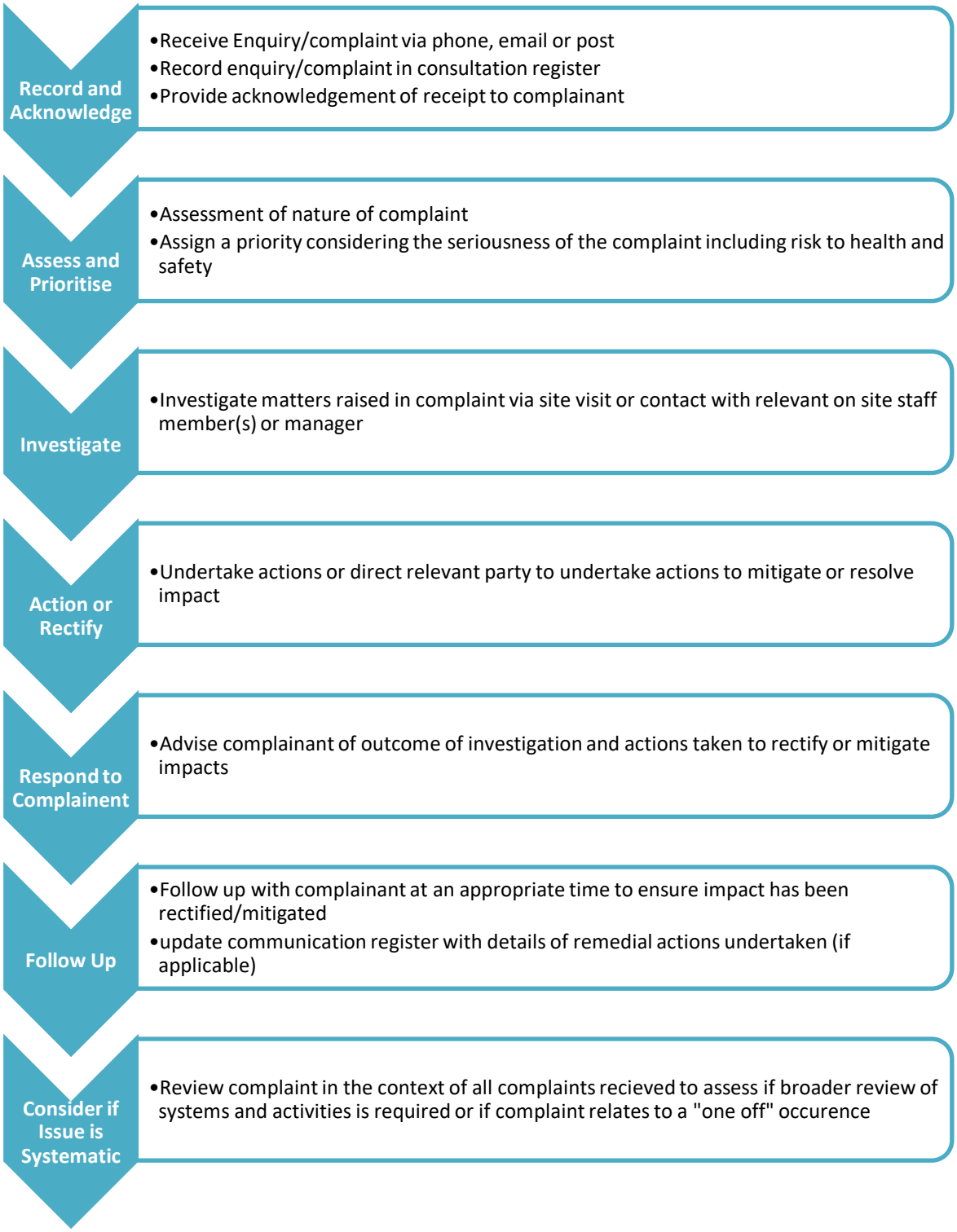
Table 8 Sensitive Receiver Procedure

Potential Impact or Issue	Method of Contact/Consultation	Timeframe
High noise generating work	Email, Text Message or Letterbox drop – notifying of expected commencement, duration and affected hours	No less than 24 hours prior to the activity
Vibration intensive activity	Email, Text Message or Letterbox drop – notifying of expected commencement, duration and affected hours	No less than 24 hours prior to the activity
Traffic management disruption	Email, Text Message or Letterbox drop – notifying of expected commencement, duration and affected hours Variable Message Signs	No less than 24 hours prior to the activity
Respite offerings	Email or phone calls will be undertaken to determine whether respite is required and appropriate scheduling and duration for respite periods	No less than 24 hours prior to the activity

5.4 Complaints Procedure

Goodman are committed to the timely and effective management of enquiries and complaints relating to construction activities for the OWE. To this end, the following complaints procedure shown in **Figure 2** will be adhered to, enabling the receipt and recording of enquiries and complaints, along with the methods of response and resolution of issues raised.

Figure 2 Complaints Handling Procedure



5.4.1 Protocol for Receiving and Recording Enquiries and Complaints

Goodman have established a project email and postal address for the receipt of enquiries and complaints relating to the development. The email and postal accounts will be regularly monitored to receive and respond to customer feedback and enquiries. The community information line (1300002887) is to be established from the commencement of works. The CCLR and community consultation team will manage the information line from the commencement of the project until the completion of works. Where calls are received during hours of construction work (including out of hours works) all calls will be answered by the CCLR. Where calls are received outside of hours of construction works the caller will be invited to leave a message. All approaches from the community and stakeholders will be registered in the project's consultation register. The facilities established for receiving enquiries and complaints about the project during construction are shown in **Table 9**.

Table 9 Enquires and Complaints Facilities

Facility	Purpose	Detail
Community Information Line	A contact phone number and associated contact name for questions/enquiries and the lodgement of complaints relating to the development.	1300 002 887
Email Address	An email address accessible via email and online enquiry form for questions/enquiries and the lodgement of complaints relating to the development.	community.oakdalewest@goodman.com
Postal Address	A postal address for the receipt of questions/enquiries and the lodgement of complaints relating to the development.	Level 17, 60 Castlereagh Street, Sydney, NSW 2000
In person verbal	Verbal enquiries and complaints can be made formally during community meetings or may be made informally where staff interact with members of the public in informal settings.	Verbal in person comments and submissions

Goodman have established a consultation register to record all complaints and enquiries received by the above means. The consultation register will be maintained on a regular basis and used to inform discussion at monthly community consultation and project team meetings. The consultation register shall include the following details for all complaints or enquiries received:

- Date and time of complaint or enquiry.
- Method by which the complaint or enquiry was made.
- Name, address, contact telephone number of complainant (if no such details were provided, a note to that effect).
- Nature of complaint or enquiry.
- Action taken in response including follow up contact with the complainant.
- Any monitoring to confirm that the complaint or enquiry has been satisfactorily resolved.
- If no action was taken, the reasons why no action was taken by you.

An excerpt of the consultation register is included at **Appendix B**.

5.4.2 Protocol for Responding to and Resolving Enquiries and Complaints

Where a complaint or enquiry is received the CCLR will attempt to provide an immediate response if possible via phone or email. Where a complaint or enquiry cannot be responded to immediately the CCLR will assess and prioritise the submission and provide the complainant or enquirer with a follow up verbal response on what action is proposed within two hours during construction works (including night and weekend works)and 24 hours at other times. Where a complaint or enquiry cannot be resolved by the initial or follow-up verbal response, a written response will be provided to the complainant or enquirer within ten days.

In the event of a complaint, the CCLR will assess whether the complaint is founded or unfounded and if necessary delegate the remediation of the issue to the project manager for action or to the relevant project engineer. The CCLR will oversee the rectification of the issue and respond to the complainant once the issue has been resolved.

In the event of an enquiry, the CCLR will endeavour to provide an immediate response where they are in possession of the relevant information. Where more specific or detailed information is required, the CCLR will liaise with the project manager or relevant project engineer to obtain the information required to respond to the enquiry and provide this information to the enquiring party once in hand.

Where the above protocol is unsuccessful in resolving complaints, mediation may be undertaken at the discretion of Goodman to facilitate negotiation between affected parties. This shall be performed by an independent person (mediator) appointed by Goodman.

5.4.3 Unreasonable Complainant Conduct

The NSW Ombudsman provides guidelines which define unreasonable complaint conduct as:

"…any behaviour by a current or former complainant which, because of its nature or frequency, raises substantial health, safety, resource or equity issues for the parties to a complaint."

Whilst it is not envisioned that the project will attract complainants that exhibit this behaviour, where a complainant is seen to potentially have a negative impact on the CCLR or support team's health, safety, resourcing or equity of service, Goodman shall adhere to the procedures and practices outlined within the NSW Ombudsman's "*Managing Unreasonable Complainant Conduct Practice Manual 2nd Edition"*.

5.4.4 Contingency Management Plan

In accordance with Condition D118(d) of the SSD 7348 consent, a contingency management plan has been developed to outline the management of unpredicted impacts and their consequences. Details of these events, their severity and response are detailed in **Table 10** below:

Table 10 Contingency Management Plan

Key Element	Trigger/ Response	Condition Green	Condition Amber	Condition Red
Submission	Trigger	General feedback/comment (no complaint or query).	Enquiry made by formal or informal channels.	Complaint made by formal or informal channels.
	Response	Acknowledge receipt and record in consultation register. No further response required.	Acknowledge receipt and record in consultation register. Direct enquiry to relevant person for actioning and response within 5 days.	Acknowledge receipt and record in consultation register. Respond to complaint immediately if possible, if not direct enquiry to relevant person for actioning and provide complainant with a follow up verbal response on what action is proposed within two hours during construction works (including night and weekend works) and 24 hours at other times.
Media	Trigger	Positive story in print, online, radio or television.	Neutral or advisory story in print, online, radio or television.	Negative story in print, online, radio or television.
	Response	Record in consultation register and advise Goodman media/marketing team. No further response required.	Record in consultation register and advise Goodman media/marketing team. No further response required.	Record in consultation register and advise Goodman Project Team for further action and response. Contact relevant person for actioning and response within 48 hours
Unscheduled Event	Trigger	Event occurring outside of plan or schedule without impact or potential impact.	Event occurring outside of plan or schedule with minor impact or potential impact.	Event occurring outside of plan or schedule with major impact or potential impact.

Key Element	Trigger/ Response	Condition Green	Condition Amber	Condition Red
	Response	No response required. Identify opportunities for improvement to manage potential future events.	Contact relevant person for actioning and response within 48 hours. Acknowledge in consultation register. Identify opportunities for improvement to manage potential future events.	Contact relevant person for actioning and response immediately. Acknowledge in consultation register. Identify opportunities for improvement to manage potential future events.
Political Interest	Trigger	General or non-specific enquiry by Local, State or Federal political representative.	Enquiry or complaint relating to minor issue by Local, State or Federal political representative.	Enquiry or complaint relating to major issue by Local, State or Federal political representative.
	Response	Community consultation team in conjunction with Goodman Project Team to prepare and provide response or assign response task to relevant staff member for comment. Record in consultation register.	Community consultation team in conjunction with Goodman Project Team to prepare and provide response within 48 hours. Record in consultation register.	Community consultation team in conjunction with Goodman Project Team to prepare and provide response within 24 hours. Record in consultation register.

6 Monitoring, Reporting and Evaluation

Monitoring, Reporting and Evaluation will be undertaken to measure the effectiveness of community consultation, stakeholder engagement and responses to complaints and enquiries. Opportunities for improvement will be sought on a continuous basis, with an annual review of the CCS undertaken to formalise these incremental improvements.

6.1 Monitoring

The performance of this strategy will be monitored monthly based upon an assessment of the following data:

- Total number of monthly complaints.
- Review of number of monthly complaints relating to lack of consultation/misinformation/confusion.
- Review of number of monthly enquiries relating to information previously disseminated to the community through other channels.
- Monthly review of enquiries or complaints of a similar nature or theme indicative of underlying systematic issues with the project or communication strategy.
- Response timeframes, including initial acknowledgement and the response to enquiries or remediation of issue(s).

The parameters of monitoring and performance criteria are outlined in **Table 11** below.

Table 11 Summary of Monitoring Data

Monitoring Parameter	Rationale	Performance Criteria	Monitoring Frequency
Total number of complaints	The number of complaints received in total is indicative of the community's satisfaction with the project.	A reduction in number of complaints, baseline determined by number of complaints received in preceding months.	Monthly
Number of complaints relating to lack of consultation/misinformation/ confusion	Number of complaints relating to lack of consultation/ misinformation/ confusion is indicative of the effectiveness and clarity of communication tools utilized.	A reduction in number of complaints, baseline determined by number of complaints received in preceding month.	Monthly
Number of enquiries relating to information previously disseminated	Number of enquiries relating to information previously disseminated is indicative to the effectiveness of the delivery of information.	A reduction in number of enquiries, baseline determined by number of enquiries received in preceding month.	Monthly
Number of complaints/enquiries within defined categories based on theme or subject	A large number of complaints or enquiries relating to a single issue may be indicative of a systematic issue to be addressed as a priority.	A reduction in number of complaints, baseline determined by number of complaints received in preceding month.	Monthly

Monitoring Parameter	Rationale	Performance Criteria	Monitoring Frequency
Response timeframes	Response to enquiries and complaints should be timely to ensure effective responsiveness and rectification of issues and to encourage trust within the community.	Enquiries and complaints acknowledged within 48 hours. Urgent enquiries and complaints responded to within 48 hours of receipt, non-urgent enquiries and complaints responded to within 5 days.	Monthly

6.2 Reporting

Reporting shall be undertaken annually, with a monthly summary of results provided to the approved Environmental Representative (ER) in accordance with Conditions D127(e) and D128 of SSD77348 and the broader project team during monthly project team meetings. The monthly community consultation summary will be made publicly available on the project web page and shall include:

- A summary of community consultation activities undertaken within the preceding month
- A summary of community consultation activities proposed within the following month
- A summary of all enquiries and complaints received within the preceding month, including details of response and/or remediation activities.

Within three months of the submission of documentation identified by Condition D133 this CCS would be reviewed for compatibility.

6.3 Evaluation

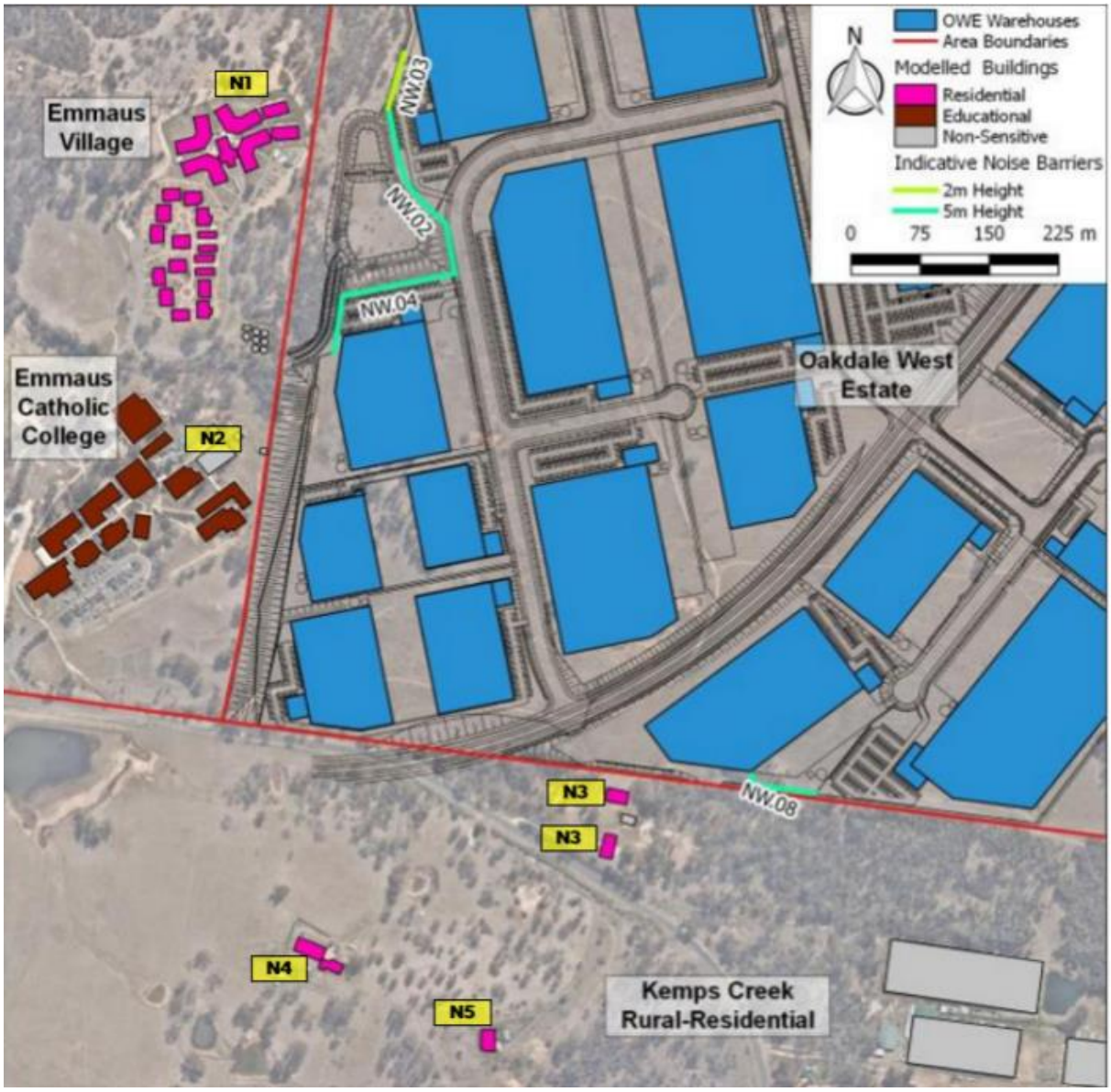
Where performance criteria are not being satisfied, review of this strategy and its implementation will be undertaken by the Community Consultation Team and changes to the strategy may be made to rectify the short fall. Where systematic issues are identified associated with construction activities, the project manager will be advised and immediate rectification of the issue will be requested.

7 References

- NSW Ombudsman (2012) *Managing Unreasonable Complainant Conduct Practice Manual 2nd Edition*
- SLR Consulting Australia (2019) *Construction Environmental Management Plan*
- Urbis (2017) *Environmental Impact Statement – Oakdale West Estate (State Significant Development Application Ref 7348)*
- Urbis (2018) *Response to Submissions (A)*
- Urbis (2018) *Response to Submissions (B)*

APPENDIX A

Sensitive Receiver Map


N
OWE Warehouses
Area Boundaries
Modelled Buildings
Residential
Educational
Non-Sensitive
Indicative Noise Barriers
2m Height
5m Height
0
75
150
225 m
N1
N2
N3
N3
N4
N5
NW.02
NW.03
NW.04
NW.08
Emmaus Village
Emmaus Catholic College
Oakdale West Estate
Kemps Creek Rural-Residential

APPENDIX B

Key Stakeholder Contact Details

Contact Name/Organisation	Contact Details
The Residents – 20 Aldington Road	
Emmaus Catholic College	Harvey Anchique - Business Manager P: (02) 9670 8300 F: (02) 9834 3403 M: 0428 063 119 E: hanchique@parra.catholic.edu.au
Trinity Catholic Primary School	Catherine Hey - Principal, chey@parra.catholic.edu.au, 02 8856 6200
Mamre Anglican School	Cathie Graydon – Principal (02)98341881, cathie.graydon@mamre.nsw.edu.au Marijana Motrivic, Business Manager 02, 8073 6908 marijana.mitrovic@mamre.nsw.edu.au,
Catholic Healthcare Emmaus Village	James Byrne Building Services Manager, M. 0434604370, jbyrne@chcs.com.au Kate Todd, Emmaus Village, ktodd@chcs.com.au, Home, 02 8804 0200
Little Smarties Learning Centre	61 2 9834 2155 kempscreek@littlesmarties.com.au
Penrith City Council	61 2 4732 7777 council@penrith.city
NSW EPA	131 555 info@epa.nsw.gov.au
NSW Biodiversity and Conservation Division, Department of Planning Industry and Environment	61 2 9995 5000 info@environment.nsw.gov.au
NSW Department of Industry	61 2 9338 6600
Roads and Maritime Service	13 22 13
Transport for NSW	61 2 8202 2200
NSW Rural Fire Service	61 2 8741 5555 webmaster@rfs.nsw.gov.au
WaterNSW	1300 662 077 Customer.Helpdesk@waternsw.com.au
National Resources Asset Regulator	61 2 9338 6600
TransGrid	61 2 9284 3000
Endeavour Energy	131 081
Sydney water	13 20 92
Jemena	1300 536 362
NBN	1300 687 626
Telstra	13 22 00
Registered Aboriginal Parties	See Appendix C

APPENDIX C

Registered Aboriginal Parties

Name	Organisation	Address	Suburb	State	Postcode	Email	Phone	Notes
							Mobile: 0411 650 057	
Caroline Hickey	A1 Indigenous Services					cazadirect@live.com		
Andrew Williams	Aboriginal Archaeology Service Inc.	PO Box 6283	Rouse Hill	NSW	2155	AAS.info@bigpond.com	Mobile: 0490 126 040	
Amanda Hickey	Amanda Hickey Cultural Services	41 Dempsey St	Emu Heights	NSW	2750	amandahickey@live.com.au	Mobile: 0434 480 588	
Karia Lea Bond	Badu	11 Jeffery Pl	Morya	NSW	2537	baduchts@gmail.com	Mobile: 0476 381 207	
Seli Storer	Biamanga					biamangachts@gmail.com		
Richard Andy	Bidawal CHTS					bidawalchts@gmail.com		
Simalene Cariage	Bilinga					bilingachts@gmail.com		
								OR Wandai Kirkbright??? Website: http://www.butucarbin.org.au/, postal address: PO Box E18 Emerton
Jennifer Beale	Butucarbin Aboriginal Corporation	28 - 30 Pringle Road	Hebersham	NSW	2770	koori@ozemail.com.au	Office: (02) 9832 7167, Mobile: 0409 924 409	NSW 2770
Marylin Carroll-Johnson	Corroborree Aboriginal Corporation	PO Box 3340	Rouse Hill	NSW	2155	corroboreecorp@bigpond.com.au	Mobile: 0415 911 159	Contact details for Steve Johnson
Corey Smith	Cullendulla					cullendullachts@gmail.com		
Gordon Morton	Darug Aboriginal Cultural Heritage Assessments	Unit 9, 6 Chapman Ave	Chatswood	NSW	2067		Office: (02) 9410 3665, Mobile: 0422 865 831	
Des Dyer	Darug Aboriginal Landcare	18A Perigee Close	Doonside	NSW	2767	desmond4552@hotmail.com	Mobile: 0408 360 814	Site officer: 0402 942 572
Justine Coplin	Darug Custodian Aboriginal Corporation	PO Box 81	WINDSOR	NSW	2756	justinecoplin@optusnet.com.au	(02) 4577 5181	
Leanne Watson	Darug Custodian Aboriginal Corporation	PO Box 81	Windsor	NSW	2758	mulgokiwi@bigpond.com	Office: (02) 4577 5181, Mobile: 0415 770 163	
Jamie Workman	Darug Land Observations PTY LTD	PO Box 571	Plumpton	NSW	2761	daruglandobservations@gmail.com	Mobile: 0420 591 138	
Gordon Workman	Darug Land Observations PTY LTD	PO Box 571	Plumpton	NSW	2761	gordow51@bigpond.net.au	Mobile: 0415 663 763	Deceased
John Reilly	Darug Tribal Aboriginal Corporation	PO Box 441	Blacktown	NSW	2148	Jmreilly228@gmail.com	Office: (02) 9622 4081	
Steve Randall	Deerubbin Local Aboriginal Land Council	2/9 Tindale St	Penrith	NSW	2750	SRandall@deerubbin.org.au	Office: (02) 4724 5600	
Andrew Bond	Dharug CHTS					dharugchts@gmail.com		
Ricky Fields	Dhinawan-Dhigaraa Culture and Heritage PTY LTD	19 Moomi St	Lalor Park	NSW	2147	Dhinawan2@yahoo.com.au	Mobile: 0402 942 572	
Athol Smith	Dhinawan-Dhigaraa Culture and Heritage PTY LTD	16 Yantara Place	Woodcroft	NSW	2767	Dhinawan2@yahoo.com.au	Mobile: 0499 665 715	
Lilly Carroll	Didge Ngunawal					didgengunawalclan@yahoo.com.au	Mobile: 0450 616 404	
Paul Boyd	Didge Ngunawal					didgengunawalclan@yahoo.com.au	Mobile: 0426 823 944	
Keith Nye	Djiringanj CHTS					djiringanjchts@gmail.com		
Lenard Nye	Elouera CHTS					elouerachts@gmail.com		
Kahu Brennan	Eora					eorachts@gmail.com		
Kim Carriage	Gangangarra					gangangarra@gmail.com		
Basil Smith	Goobah Developments	66 Grantham Rd	Batehaven	NSW	2536	goobahchts@gmail.com	Mobile: 0405 995 725	
Wendy Smith	Gulaga					gulagachts@gmail.com		
Christopher Payne	Gundungurra Tribal Technical Services	9/15/22 Burns Rd	Leumeah	NSW	2560	chrispayne776@gmail.com	Mobile: 0466 975 437	
David Bell	Gundungurra Tribal Technical Services	67 Dickens Rd	Ambarvale	NSW	2560	gundungurratectribsevices@gmail.com	Mobile: 0450 124 891	
Larry Hoskins	Gundungurra Tribal Technical Services	2/3 Colville Pl	Rosemeadow	NSW	2560	gundungurratectribsevices@gmail.com	Mobile: 0478 009 879	
Pimmy Johnson Bell	Gundungurra Tribal Technical Services	67 Dickens Rd	Ambarvale	NSW	2560	gundungurratectribsevices@gmail.com	Mobile: 0425 066 100	
Sam Wickman	Gundungurra Tribal Technical Services					gundungurratectribsevices@gmail.com		
Teangi Mereki Foster	Gundungurra Tribal Technical Services	1/6 Central Ave	Oak Flats	NSW	2529	gundungurratectribsevices@gmail.com	Mobile: 0420 978 969	
Cherie Carroll Turrise	Gunjeewong Cultural Heritage Aboriginal Corporation	1 Bellvue Place	Portland	NSW	2847	julieschroder5@live.com.au	Office: (02) 6355 4110	
Lisa Green	Gunninderra Aboriginal Corporation	PO Box 3340	Rouse Hill	NSW	2155	ginninderra.corp@gmail.com	Mobile: 0404 297 224	Contact: Krystle Carroll
Darlene Hoskins-McKenzie	Gunyuu CHTS					gunyuuchts@gmail.com		
Patricia Hampton	HSB Consultants	62 Ropes Crossing Boulevard	Ropes Crossing	NSW	2760	hsb_heritageconsultants@mail.com	Mobile: 0424 142 216	

Joanne Anne Stewart	Jerringong					jerringong@gmail.com	Mobile: 0422 800 184	
Phil Kahn	Kamilaroi-Yankuntjatjara Working Group	78 Forbes St	Emu Plains	NSW	2750	philipkhan.acn@live.com.au	Mobile: 0434 545 982	
Vicki Slater	Kawul Cultural Services	89 Pyramid St	Emu Plains	NSW	2750	vicki.slater@hotmail.com		
	Kuringgai CHTS					kuringgaichts@gmail.com		
Shaun Carroll	Merrigarn Indigenous Corporation	GPO Box 158	Canberra City	ACT	2601	merrigarn@yahoo.com.au	Mobile: 0435 040 842	
Aaron Broad	Minnamunnung	1 Waratah Ave	Albion Park	NSW	2527	nundagurri@gmail.com	Mobile: 0402 526 888	
Kaya Dawn Bell	Munyunga					munyungachts@gmail.com		
Roxanne Smith	Murramarang					murramarangchts@gmail.com		
Darleen Johnson	Murri Bidgee Mullangari Aboriginal Corporation	PO Box 246	Seven Hills	NSW	2147	murrabidgeemullangari@yahoo.com.au	Mobile: 0490 051 102	
	Murrin CHTS					murrinchts@gmail.com		
levi McKenzie-Kirkbright	Murrumbul					murrumbul@gmail.com		Or Levi McKenzie-Kirkbright?????
Newton Bond	Ngarigo CHTS					ngarigochts@gmail.com		
Edward Stewart	Ngunawal					ngunawalchts@gmail.com		
Newton Carriage	Nundagurri					nundagurri@gmail.com		
Pemulwuy Johnson	Pemulwuy CHTS	14 Top Place	Mount Annan	NSW	2567	pemulwuyd@gmail.com	Mobile: 0425 066 100	
Tony Williams	Rane Consulting	1 Pyrenees Way	Beaumont Hills	NSW	2155	ajw1901@bigpond.com	Office: (02) 8824 6991	
	Thaiaira CHTS					thauairachts@gmail.com		
John Carriage	Tharawal CHTS					tharawalchts@gmail.com		Changed Violet to John as he was elected chairman in May 2018
Danny Franks	Tocomwall	PO Box 76	Caringbah	NSW	1495	danny@tocomwall.com.au	Mobile: 0415 226 725	
Hika Te Kowhai	Walbunja					walbunja@gmail.com	Mobile: 0402 730 612	
	Walgalu CHTS					walgaluchts@gmail.com		
William Bond	Wandandian					wandandianchts@gmail.com		
Aaron Slater	Warrigal Cultural Services					Warrigal_c.s@hotmail.com	Mobile: 0421 355 890	Changed William to Aaron
Steven Hickey	Widescope Indigenous Group	73 Russell St	Emu Plains	NSW	2750	widescope.group@live.com	Mobile: 0425 230 693	
Hayley Bell	Wingikara					wingikarachts@gmail.com		
Lee-Roy James Boota	Wullung	54 Blackwood St	Gerringong	NSW	2534	wullunglb@gmail.com	Mobile: 0403 703 942	
Kerrie Slater	Wurrumay Consultant					wurrumay@hotmail.com		
Robert ParsonS	Yerramurra					yerramurra@gmail.com		

APPENDIX D

Complaints Register

Date	Time	Responsible Party	In/Out	Initial Communication Method/Tool	Contact Name/ Organisation	Contact Details	Documentation Location (if applicable)	Communication Type: Complaint/ Enquiry/ Communication	Summary of Issues/ Details	Action Taken	Further Action/ Monitoring to Confirm Resolution

ASIA PACIFIC OFFICES

BRISBANE
Level 2, 15 Astor Terrace
Spring Hill QLD 4000
Australia
T: +61 7 3858 4800
F: +61 7 3858 4801

CANBERRA
GPO 410
Canberra ACT 2600
Australia
T: +61 2 6287 0800
F: +61 2 9427 8200

DARWIN
5 Foelsche Street
Darwin NT 0800
Australia
T: +61 8 8998 0100
F: +61 2 9427 8200

GOLD COAST
Level 2, 194 Varsity Parade
Varsity Lakes QLD 4227
Australia
M: +61 438 763 516

MACKAY
21 River Street
Mackay QLD 4740
Australia
T: +61 7 3181 3300

MELBOURNE
Suite 2, 2 Domville Avenue
Hawthorn VIC 3122
Australia
T: +61 3 9249 9400
F: +61 3 9249 9499

NEWCASTLE
10 Kings Road
New Lambton NSW 2305
Australia
T: +61 2 4037 3200
F: +61 2 4037 3201

PERTH
Ground Floor, 503 Murray Street
Perth WA 6000
Australia
T: +61 8 9422 5900
F: +61 8 9422 5901

SYDNEY
2 Lincoln Street
Lane Cove NSW 2066
Australia
T: +61 2 9427 8100
F: +61 2 9427 8200

TOWNSVILLE
Level 1, 514 Sturt Street
Townsville QLD 4810
Australia
T: +61 7 4722 8000
F: +61 7 4722 8001

TOWNSVILLE SOUTH
12 Cannan Street
Townsville South QLD 4810
Australia
T: +61 7 4772 6500

WOLLONGONG
Level 1, The Central Building
UoW Innovation Campus
North Wollongong NSW 2500
Australia
T: +61 404 939 922

AUCKLAND
68 Beach Road
Auckland 1010
New Zealand
T: +64 27 441 7849

NELSON
6/A Cambridge Street
Richmond, Nelson 7020
New Zealand
T: +64 274 898 628

APPENDIX J

Community Correspondence Register

COMMUNITY CORRESPONDENCE REGISTER

BURTON Civil Engineering Contractors

Procedure: PR-016 Communication and Consultation

Project: _____ **Project No.:** _____

ID No.	Date	Time	Propoerty Address	Contact	Correspondence Type	Complaint/ Enquiry/ Notification	Burton Rep	Description of Communication	Contact Details	Reported to Client (Y/N)	Action Taken	Comments

APPENDIX K

Construction Noise and Vibration Management Plan

OAKDALE WEST INDUSTRIAL ESTATE

Construction Noise and Vibration Management Plan
SSD 7348

Prepared for:

Goodman Property Services (Aust) Pty Ltd
Level 17
60 Castlereagh Street
Sydney NSW 2000

SLR Ref: 610.17948-R05
Version No: -v1.9
May 2020

PREPARED BY

SLR Consulting Australia Pty Ltd
ABN 29 001 584 612
Tenancy 202 Submarine School, Sub Base Platypus, 120 High Street
North Sydney NSW 2060 Australia

T: +61 2 9427 8100
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BASIS OF REPORT

This report has been prepared by SLR Consulting Australia Pty Ltd (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Goodman Property Services (Aust) Pty Ltd (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 the Client. 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

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610.17948-R05-v1.9	6 May 2020	Joshua Ridgway	Antony Williams	Antony Williams
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CONTENTS

1 INTRODUCTION 6
1.1 Development Overview 6
1.2 Objectives of the CNVMP 7
1.3 Terminology 7
2 STATUTORY REQUIREMENTS 8
2.1 Development Consent 8
2.2 Relevant Guidelines 11
3 PROJECT OVERVIEW 12
3.1 Description 12
3.2 Location 12
3.3 Surrounding Land Uses 12
3.4 Construction Staging and Activities 13
3.5 Construction Hours 14
3.6 Construction Site Access 15
4 CONSTRUCTION NOISE AND VIBRATION CRITERIA AND GUIDELINES 18
4.1 Construction Noise Criteria 18
4.1.1 Interim Construction Noise Guideline 18
4.1.2 Project Specific NML Summary 20
4.2 Construction Vibration Criteria 21
4.2.1 Cosmetic Damage Vibration Thresholds 21
4.2.1.1 WaterNSW Pipelines 22
4.2.2 Human Exposure Vibration Thresholds 22
4.2.3 Minimum Working Distances 23
5 CONSTRUCTION NOISE AND VIBRATION IMPACTS 25
5.1 Construction Noise Impacts 25
5.2 Construction Vibration Impacts 26
6 MITIGATION AND MANAGEMENT MEASURES 27
7 COMPLAINTS HANDLING AND RESPONSE PROCEDURE 32
7.1 Performance Objective 32
7.2 Responsibility 32
7.3 Complaints Handling Procedure 32
7.4 Complaints Register 33
8 MONITORING 34

CONTENTS

8.1 Construction Noise Monitoring 34
8.2 Construction Vibration Monitoring 34
8.2.1 Sensitive Receivers and Structures 34
8.2.2 WaterNSW Pipelines 35
9 CONTINGENCY MANAGEMENT PLAN 36
10 ROLES AND RESPONSIBILITIES 38
10.1 Contractor's Project Manager 38
10.2 Environmental Coordinator 38
10.3 All Workers on Site 38
11 REVIEW AND IMPROVEMENT OF THE CNVMP 39
12 REFERENCES 40

CONTENTS

DOCUMENT REFERENCES

TABLES

Table 1 Development Consent Conditions 8
Table 2 Construction Noise and Vibration Guidelines 11
Table 3 Surrounding Sensitive Receivers 12
Table 4 Determination of NMLs for Residential Receivers 18
Table 5 Construction Noise Management Levels at Other Sensitive Land Uses 19
Table 6 Project Specific Noise Management Levels 20
Table 7 Transient Vibration Guide Values for Minimal Risk of Cosmetic Damage (BS 7385) 21
Table 8 Guideline Values for Short-term Vibration on Structures (DIN 4150) 22
Table 9 Acceptable Vibration Dose Values for Intermittent Vibration ($m/s^{1.75}$) (*Assessing Vibration: a technical guideline)* 23
Table 10 Recommended Minimum Working Distances for Vibration Intensive Equipment 24
Table 11 Construction Scenarios 25
Table 12 Predicted NML Exceedances 25
Table 13 Environmental Management Controls for Construction Noise and Vibration 27
Table 14 Contingency Management Plan 36

FIGURES

Figure 1 Oakdale West Precinct Plan 7
Figure 2 Sensitive Receiver Areas 13
Figure 3 Site Access 16
Figure 4 Bakers Lane Access Routes 17

APPENDICES

Appendix A Acoustic Terminology
Appendix B Author CV
Appendix C PSM Consult Letter, dated 10 April 2019 – *WNSLR Bridge, Review and Recommendation for Allowable Vibration from Piling and Earthworks*
Appendix D Correspondance with WaterNSW

1 Introduction

SLR Consulting Australia Pty Ltd (SLR) has been engaged by Goodman Property Services (Aust) Pty Limited (Goodman) to prepare a Construction Noise and Vibration Management Plan (CNVMP) for construction works associated with the development of the Oakdale West Industrial Estate (Oakdale West), located in Kemps Creek.

The CNVMP addresses the potential noise and vibration impacts associated with the construction of the development and details the mitigation and management procedures for dealing with potential impacts. Construction noise and vibration impacts were previously assessed for Oakdale West as part of the *Oakdale West Estate DA Noise Impact Assessment* prepared by SLR in June 2017 (the NIA).

1.1 Development Overview

Oakdale West is a regional warehouse and distribution hub located at Kemps Creek within the Penrith local government area (LGA) and forms part of the broader Oakdale Industrial Precinct located within the Western Sydney Employment Area (WSEA) (see **Figure 1**).

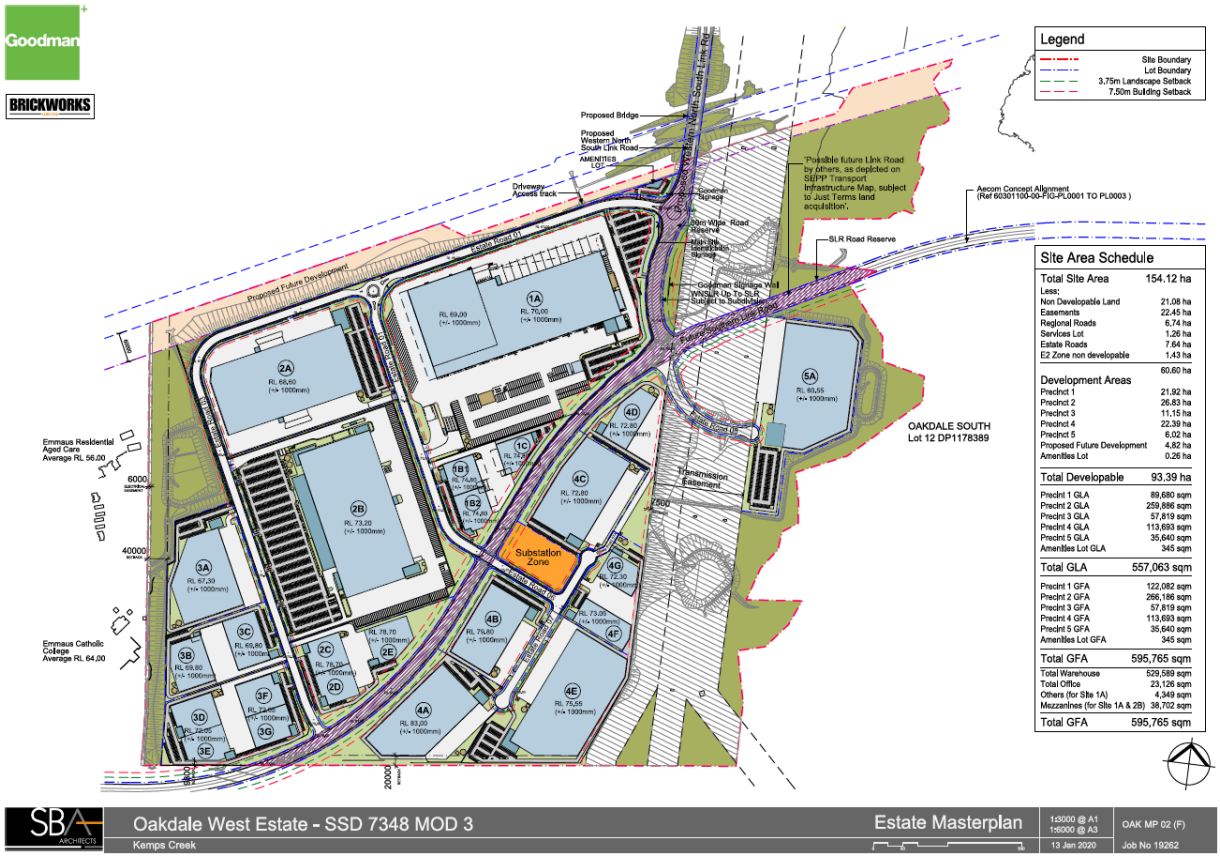
Goodman Property Services (Aust) Pty Ltd (Goodman) obtained Development Consent SSD 7348 on 13 September 2019 from the Department of Planning, Industry and Environment (DPIE) for the Oakdale West 'Concept Proposal' and 'Stage 1 Development'. The Concept Proposal essentially comprises a 'Master Plan' to guide the staged development of Oakdale West and core development controls that will form the basis for design and assessment of future development applications for the site. It includes:

- Establishing primary site access, road layouts (including internal road network and connections to the external road network), developable and non-developable lands, biodiversity offsets, indicative development stages and development controls for the future development of the site;
- Stage 1 Development of the Estate including:
  - Estate Works, including site preparation, bulk earthworks and retaining walls, catchment level stormwater infrastructure, trunk services connections and utility infrastructure, roads and access infrastructure associated with Stage 1 and subdivision in Stage 1 development works;
  - Precinct Development, including construction, fit out and use of warehouse buildings within Precinct 1, detailed earthworks, on lot stormwater, services and utility infrastructure and construction of industrial/warehouse buildings;
  - Construction of a new regional road known as the Western North South Link Road (WNSLR) connecting to Lenore Drive to provide the primary access to the site; and
  - Western boundary landscaping.

This CNVMP has been prepared to cover the earthworks and civil construction across Oakdale West (see **Figure 1**) being undertaken by Burton Civil Engineering Contractors (Burton). A separate CNVMP has been prepared to cover the construction of the WNSLR which will be undertaken by Robson Civil Projects (Robson). AT&L Associates (AT&L) will act as the Project Manager and Contract Superintendent overseeing the construction of both the WNSLR and Oakdale West. Note: Where Goodman is nominated as having responsibility as the Applicant, this may be delegated to their specialist consultants.

For the purposes of this document, the development is described in *Environmental Impact Statement, Oakdale West Estate - State Significant Development Application* (EIS) prepared by Urbis (2017), including all specialist assessments and other appendices, and subsequent modification reports.

Figure 1 Oakdale West Precinct Plan



1.2 Objectives of the CNVMP

The objectives of this CNVMP are as follows:

- Document the statutory requirements applicable to construction noise and vibration emissions;
- Detail the mitigation and management measures required achieve compliance with relevant noise and vibration criteria for surrounding sensitive receivers;
- Outline the roles and responsibilities in relation to the management of noise and vibration emissions during construction; and
- Promote environmental awareness among employees and subcontractors.

This CNVMP covers construction of the Oakdale West. Construction of the WNSLR is covered in a separate CNVMP.

1.3 Terminology

Specific acoustic terminology is used in this report. An explanation of common acoustic terms is provided in **Appendix A**.

2 Statutory Requirements

This CNVMP has been prepared to accompany the Construction Environmental Management Plan (CEMP) for Oakdale West. The conditions relevant to this CNVMP are outlined in the following sections.

2.1 Development Consent

Conditions for Oakdale West and the WNSLR are specified in Department of Planning, Industry and Environment (DPIE) Development Consent SSD 7348, dated 13 September 2019, and subsequent modifications. The conditions relevant to this CNVMP are reproduced in **Table 1**.

Table 1 Development Consent Conditions

<table>
<tr><th>Development Consent Conditions</th><th>Section / Comment</th></tr>
<tr><td colspan="2">Operation of Plant and Equipment</td></tr>
<tr><td>D21. All plant and equipment used on site, or to monitor the performance of Stage 1 must be:
a) maintained in a proper and efficient condition; and
b) operated in a proper and efficient manner.</td><td>Section 6 / Table 13</td></tr>
<tr><td colspan="2">Hours of Work</td></tr>
<tr><td>D70. The Applicant must comply with the hours detailed in Table 5, unless otherwise agreed in writing by the Planning Secretary.
Table 5: Hours of Works
<table>
<tr><th>Activity</th><th>Day</th><th>Time</th></tr>
<tr><td>Construction</td><td>Monday – Friday
Saturday</td><td>7 am to 6 pm
8 am to 1 pm</td></tr>
<tr><td>Operation</td><td>Monday – Sunday (including public holidays)</td><td>24 hours</td></tr>
</table></td><td>Section 3.5</td></tr>
<tr><td>D71. Works outside the hours identified in Condition D70 may be undertaken in the following circumstances:
a) works that are inaudible at the nearest sensitive receivers;
b) works agreed to in writing by the Planning Secretary;
c) for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or
d) where it is required in an emergency to avoid the loss of lives, property or to prevent environmental harm.</td><td>Section 3.5</td></tr>
<tr><td colspan="2">Construction Noise Limits</td></tr>
<tr><td>D72. Stage 1 must be constructed with the aim of achieving the construction noise management levels detailed in the Interim Construction Noise Guideline (DECC, 2009) (as may be updated or replaced from time to time). All feasible and reasonable noise mitigation measures must be implemented and any activities that could exceed the construction noise management levels must be identified and managed in accordance with the Construction Noise and Vibration Management Plan required by Condition D73.</td><td>Section 4.1, Section 5.1 and Section 6 / Table 13</td></tr>
</table>

Development Consent Conditions	Section / Comment
Construction Noise and Vibration Management Plan	
D73. The Applicant must prepare a Construction Noise and Vibration Management Plan (CNVMP) for Stage 1, to the satisfaction of the Planning Secretary. The CNVMP must form part of a CEMP in accordance with Condition D119 and must:	This document
a) be prepared by a suitably qualified and experienced noise expert;	Prepared by SLR – Author CV in **Appendix B**
b) describe procedures for achieving the noise management levels in the EPA's *Interim Construction Noise Guideline* (DECC, 2009) (as may be updated or replaced from time to time);	**Section 4.1**, **Section 5.1** and **Section 6 / Table 13**
c) describe the measures to be implemented to manage high noise generating works such as piling, in close proximity to sensitive receivers;	**Section 6 / Table 13**
d) include strategies to minimise impacts to sensitive receivers, including, where practicable, starting noisy equipment away from sensitive receivers and implementing respite periods;	**Section 6 / Table 13** and **Section 8**
e) include strategies that have been developed with the sensitive receivers identified in Appendix 5 for managing high noise generating works;	**Section 6 / Table 13** and **Section 8**
f) describe the community consultation undertaken to develop the strategies in Condition D73(e);	**Section 6** / **Table 13**, **Section 8** and the Community Communication Strategy (CCS)
g) include a monitoring program that: i) includes a protocol for determining exceedances of the relevant conditions in this approval; ii) evaluates and reports on the effectiveness of the noise and vibration management measures; iii) include procedures to relocate, modify, mitigate or stop work to ensure compliance with the relevant criteria; and	**Section 6 / Table 13**, **Section 8**, **Section 9** and the Compliance Monitoring and Reporting Program (CMRP)
h) include a complaints management system that would be implemented for the duration Stage 1.	**Section 7**
D74. The Applicant must: a) not commence construction of Stage 1 until the CNVMP required by Condition D73 is approved by the Planning Secretary; and; b) implement the most recent version of the CNVMP approved by the Planning Secretary for the duration of construction.	**Section 3.4** This document
Noise Barrier	
D75(a). The Applicant must install the noise barrier located on the western boundary, as shown on Figure 7 in Appendix 5, to the satisfaction of the Planning Secretary. The noise barrier must be completed no later than 31 October 2020, unless otherwise agreed by the Planning Secretary.	**Section 6 / Table 13**

Development Consent Conditions	Section / Comment
Vibration Criteria	
D76. Vibration caused by construction works on the site, as measured at any residence or structure outside the site, must be limited to: a) for structural damage, the latest version of *DIN 4150-3 (1992-02) Structural vibration - Effects of vibration on structures* (German Institute for Standardisation, 1999); and b) for human exposure, the acceptable vibration values set out in the *Environmental Noise Management Assessing Vibration: a technical guideline* (DEC, 2006) (as may be updated or replaced from time to time).	**Section 4.2**, **Section 5.2** and **Section 6 / Table 13**
D77. Vibratory compactors must not be used closer than 30 metres from residential buildings unless vibration monitoring confirms compliance with the vibration criteria specified in Condition D76.	**Section 4.2.3**, **Section 5.2** and **Section 6 / Table 13**
D78. The limits in Conditions D76 and D77 apply unless otherwise outlined in a CNVMP, approved as part of the CEMP required by Condition D119 of this consent.	Noted – D76 and D77 apply
Management Plan Requirements	
D118. Management plans required under this consent must be prepared in accordance with relevant guidelines, and include:	Noted
a) details of: i) the relevant statutory requirements (including any relevant approval, licence or lease conditions); ii) any relevant limits or performance measures and criteria; and iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, Stage 1 or any management measures;	i) **Section 2** ii) **Section 4** iii) **Section 4**, **Section 6 / Table 13** and **Section 8**
b) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	**Section 5** and **Section 6 / Table 13**
c) a program to monitor and report on the: i) impacts and environmental performance of Stage 1; and ii) effectiveness of the management measures set out pursuant to paragraph (b) above;	**Section 8**
d) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	**Section 6** and **Section 9**
e) a program to investigate and implement ways to improve the environmental performance of Stage 1 over time;	**Section 11**, and Section 6 of the CEMP
f) a protocol for managing and reporting any: i) incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria); ii) complaint; iii) failure to comply with statutory requirements; and	i) **Section 9** ii) **Section 7** iii) **Section 9**
g) a protocol for periodic review of the plan.	**Section 11**, and Section 6 of the CEMP

2.2 Relevant Guidelines

The guidelines used to assess the construction impacts from the development are listed in **Table 2**. The guidelines aim to protect the community and environment from excessive noise and vibration impacts that may result from construction of the development.

Table 2 Construction Noise and Vibration Guidelines

Guideline/Policy Name	Where Used
Environment Protection Authority (EPA) (2009) *Interim Construction Noise Guideline* (ICNG)	Assessment of noise impacts on sensitive receivers.
Roads and Maritime Services (2016) *Construction Noise and Vibration Guideline* (CNVG)	Assessment and management protocols for noise and vibration impacts.
Environment Protection Authority (EPA) (2006) *Assessing Vibration: a technical guideline*	Assessment of vibration impacts on sensitive receivers.
British Standard Institution (BSI) (1993) *BS 7385 Part 2-1993 Evaluation and measurement for vibration in buildings Part 2* (BS 7385)	Assessment of vibration impacts (structural damage) to sensitive structures.
German Institute for Standardisation (Deutsches Institut für Normung) (1999) *DIN 4150 – Structural vibration - Effects of vibration on structures* (DIN 4150)	Assessment of vibration impacts (structural damage) to sensitive structures.

3 Project Overview

3.1 Description

The Oakdale West site is bound to the north by the WaterNSW Pipeline and to the east by the Ropes Creek riparian corridor. Land along the eastern boundary of the site is also affected by a transmission easement associated with Transgrid infrastructure. To the east of the site is Goodman's Oakdale South Estate. Emmaus Catholic College and Emmaus Retirement Village are located to the west of the site. Other boundaries interface with adjoining rural lands used for a mix of rural-residential and agricultural.

3.2 Location

Located in the Penrith local government area (LGA) at the far south western extent of the WSEA, Oakdale West is made up of the land parcel legally described as Lot 11 DP 1178389, owned by Goodman.

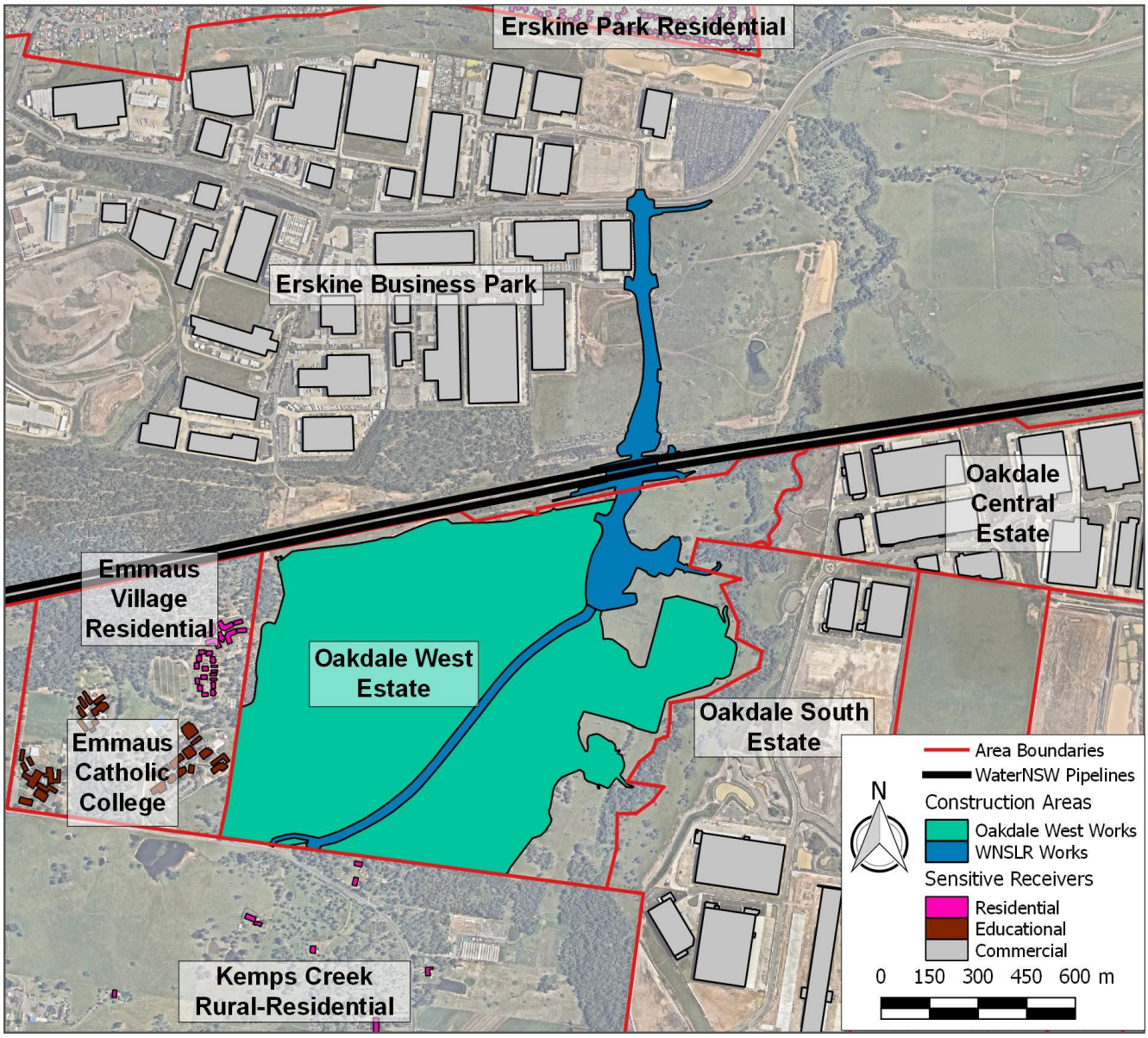
3.3 Surrounding Land Uses

The noise and vibration assessment locations representative of the nearest sensitive receiver areas surrounding Oakdale West were identified in the NIA for the project and are shown in **Figure 2**. Details of the nearest potentially affected sensitive receivers are provided in **Table 3**.

Table 3 Surrounding Sensitive Receivers

Sensitive Receivers	Receiver Type	Distance & Direction from Nearest Point of Works
Kemps Creek	Residential	20 m south
Emmaus Village	Residential	40 m west
Erskine Park	Residential	1,400 m north
Emmaus Catholic College	Educational	10 m west
Erskine Business Park	Commercial	280 m north
WaterNSW Pipeline	Structure	20 m north

Figure 2 Sensitive Receiver Areas



3.4 Construction Staging and Activities

In accordance with Condition D74 construction of Stage 1 must not commence until this CNVMP has been approved by the Planning Secretary.

Stage 1 development of the Oakdale West Concept Proposal includes the site preparation and infrastructure works required to facilitate further development of the estate in line with the Concept Proposal. This includes the construction of the WNSLR and connection to the estate road network along with the development of Precinct 1 for warehousing and distribution.

The remainder of the Oakdale West is expected to be developed over four further stages with Stage 2 being the development of Precinct 2, Stage 3 being Precinct 3, Stage 4 being Precinct 4 and Stage 5 being Precinct 5.

Construction of Stage 1 is scheduled to commence in the last quarter of 2019.

The works that will be constructed by Burtons include:

- Bulk earthworks across the entire site (with the exception to the WNSLR works area which covers the Construction Access Road and Basin 1);
- Construction of the retaining and noise walls across the site;
- Construction of the western bund;
- Construction of lead in services infrastructure, including potable water, sewer, telecommunications and electrical;
- Construction of Roads 1, 2, 6 and part of Road 7;
- Construction of Basins 2, 3, 4, and 5; and
- Landscaping across the site.

No on-lot warehouse construction will be undertaken by Burtons. Burtons work will not be staged, however the Western Bund works, which includes the installation of a new snake proof fence along the Western Boundary, will be prioritised to occur as part of the first works activities.

The earthworks require the importation of approximately 500,000 – 600,000 m^3 of material. Due the limitations to the import of general fill by Bakers Lane, the importation process cannot commence until the WNSLR is available for use.

3.5 Construction Hours

Construction hours will be in accordance with Conditions D70 and D71 of Development Consent SSD 7348, which are reproduced below:

D70. The Applicant must comply with the hours detailed in Table 5, unless otherwise agreed in writing by the Planning Secretary.

***Table 5**: Hours of Work*

Activity	Day	Time
Construction	Monday – Friday Saturday	7 am to 6 pm 8 am to 1 pm

D71. Works outside of the hours identified in Condition D70 may be undertaken in the following circumstances:

a) works that are inaudible at the nearest sensitive receivers;

b) works agreed to in writing by the Planning Secretary;

c) for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or

d) where it is required in an emergency to avoid the loss of lives, property or to prevent environmental harm.

Condition D71(a) of Development Consent SSD 7348 notes that works may be undertaken outside of standard construction hours where the works are inaudible at the nearest sensitive receivers. Out of hours works can be undertaken without requiring approval from the Planning Secretary where it can be demonstrated that works will not be audible at any sensitive receivers.

The potential for audible impacts can be assessed by calculating predicted noise levels with a construction noise model, or by undertaking test measurements during a period with similar background noise levels to the proposed works period (noting that audibility is subjective and dependent on the background noise level at the time of the works). The predictions/measurements must be confirmed at the commencement of works with attended noise monitoring at the nearest sensitive receivers. These predictions and measurements will be undertaken by a suitably qualified acoustic consultant.

In accordance with Condition D71(b) of Development Consent SSD 7348, where works are required out of hours and noise is predicted to be audible at the nearest receivers, then written approval from the Planning Secretary must be received prior to commencement of works, except where the works fall under Conditions D71(c) or D71(d).

3.6 Construction Site Access

Access to Oakdale West will initially be via Bakers Lane and Aldington Lane. Upon completion of the WNSLR, such that access to the work area from the north becomes available, all vehicular access shall be restricted to the northern access routes, via Lenore Drive and WNSLR. This is discussed in further detail below.

Bakers Lane is the initial primary access point for these works with vehicles arriving to site from Mamre Road to the west. All construction vehicles are to use the primary access from Bakers Lane. A secondary access route is proposed from Aldington Road (to the south-west of the access gate), however the proposed alternative route will be restricted for use only when Bakers Lane is unavailable.

Every effort shall be made to plan deliveries outside of school zone hours along Bakers Lane. The traffic monitoring strategies outlined in the Construction Traffic Management Plan (CTMP) (Ason 2020) shall ensure that deliveries are scheduled outside of the school zone hours in order to avoid any additional conflicts between construction vehicles and the school. During school zones, Aldington Road shall be used for deliveries to and from the Site.

Furthermore, any construction traffic crossing the WNSLR Construction Access Road will do so via designated crossing points which will be determined in consultation between Burton and Robson.

In accordance with the CTMP, **Figure 3** and **Figure 4** detail the site access arrangements for the construction of Oakdale West.

Figure 3 Site Access

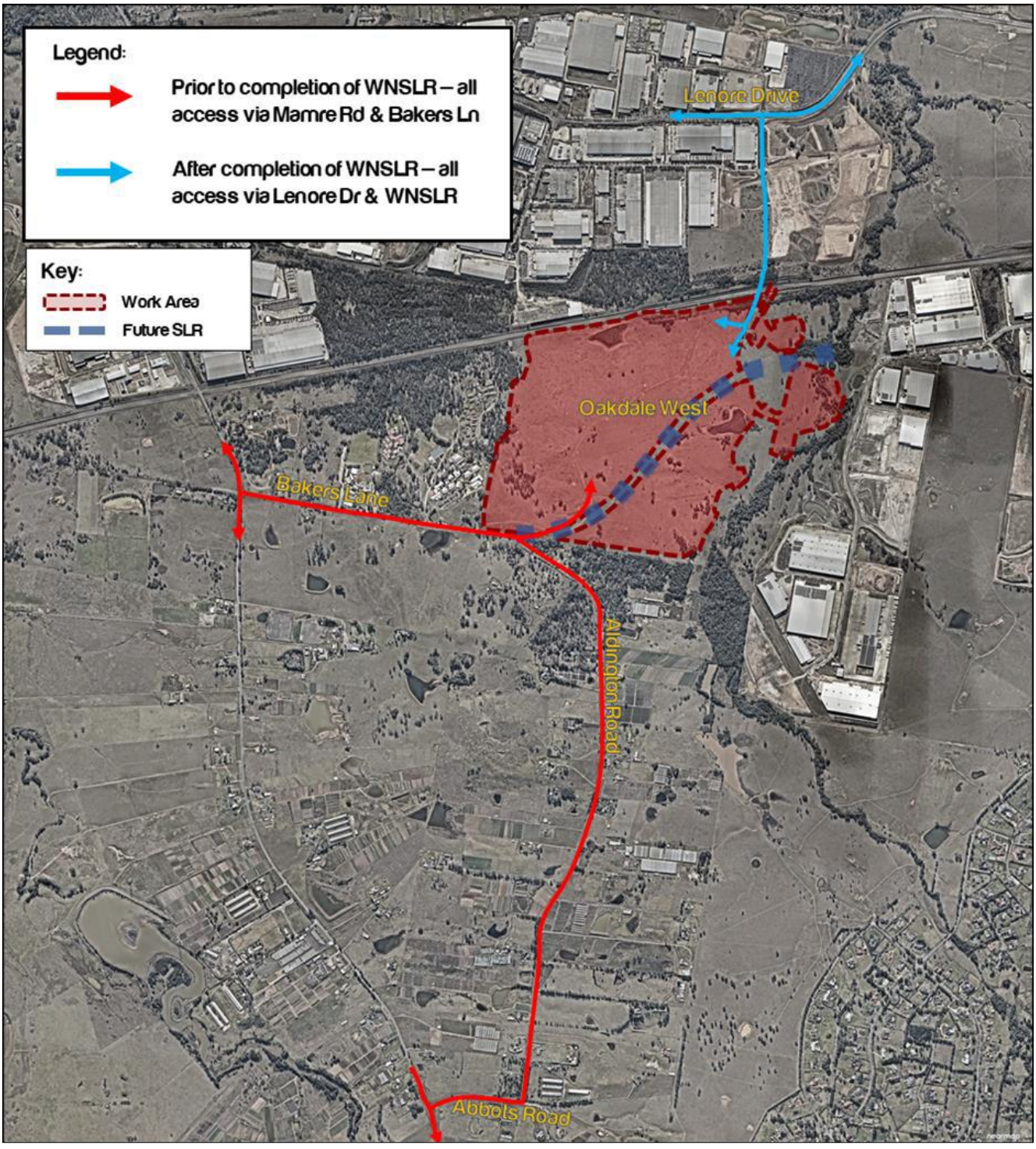
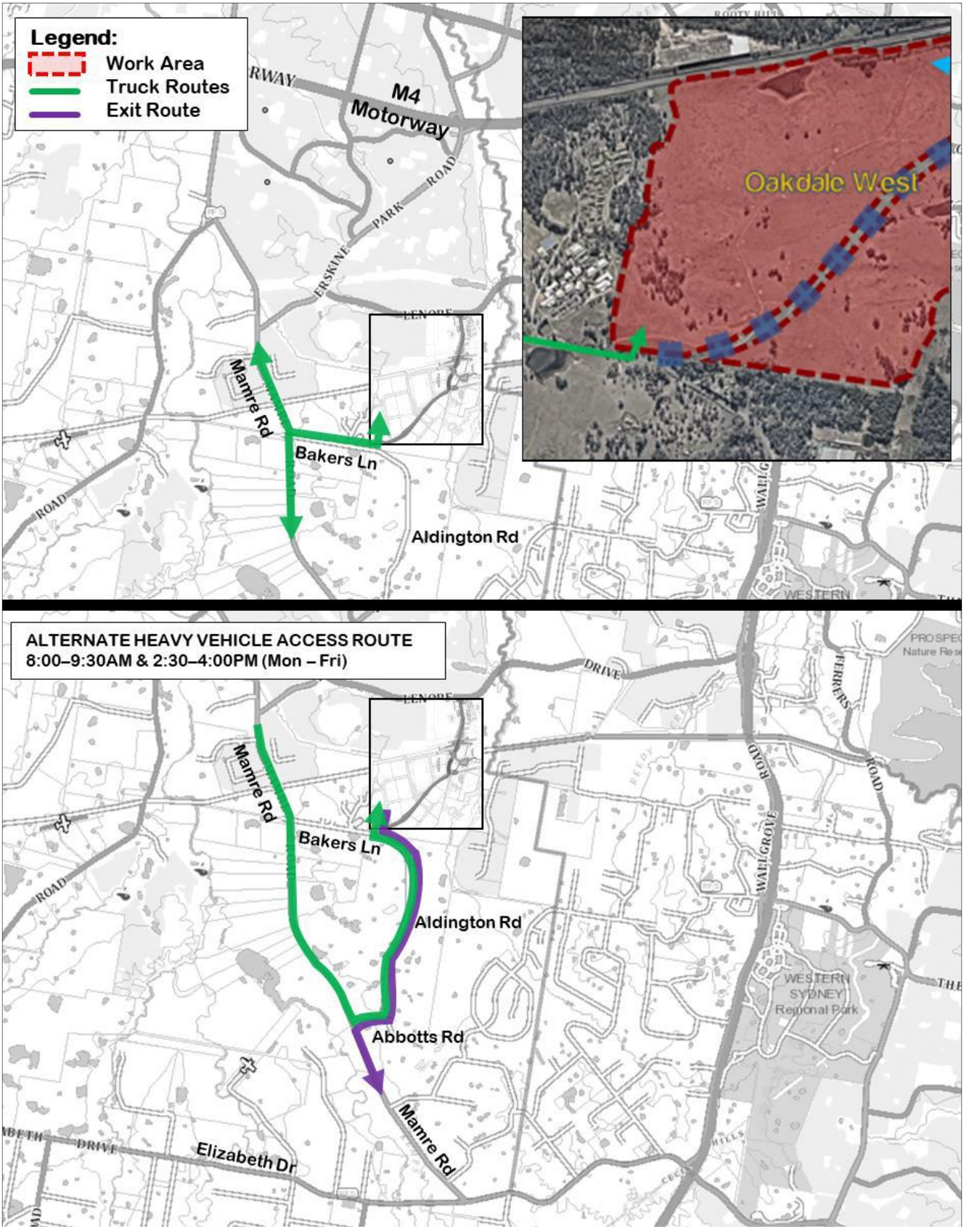


Figure 4 Bakers Lane Access Routes



4 Construction Noise and Vibration Criteria and Guidelines

4.1 Construction Noise Criteria

In accordance with Condition D72 of the Development Consent SSD 7348, Oakdale West must be constructed with the aim of achieving the construction noise management levels (NMLs) detailed in the NSW *Interim Construction Noise Guideline* (ICNG). Explanation of what constitutes feasible and reasonable is outlined in Section 1.4 of the ICNG.

The ICNG process to determine NMLs is detailed in **Section 4.1.1**. The project specific noise criteria is summarised in **Section 4.1.2**.

4.1.1 Interim Construction Noise Guideline

The ICNG requires project specific NMLs to be established for noise affected receivers. The NMLs are not mandatory limits, however in the event construction noise levels are predicted to be above the NMLs, feasible and reasonable work practices are to be investigated to minimise noise emissions.

The ICNG provides an approach for determining NMLs at residential receivers based on Rating Background Level (RBL) for the area, as described in **Table 4**.

Table 4 Determination of NMLs for Residential Receivers

Time of Day	NML LAeq(15minute)	How to Apply
ICNG Standard construction hours Monday to Friday 7:00 am to 6:00 pm Saturday 8:00 am to 1:00 pm No work on Sundays or public holidays	RBL + 10 dBA	• The noise affected level represents the point above which there may be some community reaction to noise. • Where the predicted or measured LAeq(15minute) is greater than the noise affected level, the proponent should apply all feasible and reasonable work practises to meet the noise affected level. • The proponent should also inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details.

	Highly Noise Affected
	75 dBA
		• The Highly Noise Affected (HNA) level represents the point above which there may be strong community reaction to noise.
		• Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restructuring the hours that the very noisy activities can occur, taking into account:
		  ◦ Times identified by the community when they are less sensitive to noise (such as before and after school for works near schools or mid-morning or mid-afternoon for works near residences.
		  ◦ If the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.

Time of Day	NML LAeq(15minute)	How to Apply
Outside recommended standard construction hours	RBL + 5 dBA	• A strong justification would typically be required for works outside the recommended standard hours. • The proponent should apply all feasible and reasonable work practices to meet the noise affected level. • Where all feasible and reasonable practises have been applied and noise is more than 5 dBA above the noise affected level, the proponent should negotiate with the community.

Note 1 The RBL is the overall single-figure background noise level measured in each relevant assessment period (during or outside the recommended standard hours). The term RBL is described in detail in the NSW *Noise Policy for Industry*.

Works are recommended to be completed during Standard Construction Hours where possible. More stringent requirements are placed on works that are required to be completed outside of Standard Construction Hours (ie during the evening or night-time) which reflects the greater sensitivity of communities to noise impacts during these periods.

The ICNG also recognises other kinds of noise sensitive receivers and provides recommended NMLs for them. Those specific receivers and their recommended noise levels are presented in **Table 5**.

Table 5 Construction Noise Management Levels at Other Sensitive Land Uses

Land use	NML $L_{Aeq(15minute)}$
Classrooms at schools and other educational institutions	Internal noise level 45 dBA
Hospital wards and operating theatres	Internal noise level 45 dBA
Places of worship	Internal noise level 45 dBA
Active recreation areas (characterised by sporting activities and activities which generate their own noise or focus for participants, making them less sensitive to external noise intrusion)	External noise level 65 dBA
Passive recreation areas (characterised by contemplative activities that generate little noise and where benefits are compromised by external noise intrusion, for example, reading, meditation)	External noise level 60 dBA
Community centres	Depends on the intended use of the centre

The ICNG notes that due to the broad range of sensitivities that commercial or industrial land can have to noise from construction, the process of defining management levels is separated into three categories:

- Industrial premises: external 75 dBA $L_{Aeq(15minute)}$
- Offices, retail outlets: external 70 dBA $L_{Aeq(15minute)}$
- For other businesses that may be very sensitive to noise, appropriate goals should be determined on a case by case basis with reference to Australian/New Zealand Standard *AS/NZS 2107:2016 Acoustics – Recommended design sound levels and reverberation times for building interiors* (AS2107).

4.1.2 Project Specific NML Summary

The NIA defined the airborne NMLs for the various surrounding receivers. The NMLs applicable for the receivers surrounding Oakdale West are outlined in **Table 6**.

Table 6 Project Specific Noise Management Levels

Location	Receiver Type	RBL[1]			Construction NMLs $L_{Aeq(15minute)}$ (dBA)				
		Day	Evening	Night	Standard Construction Hours[2]	Day Out of Hours[2]	Evening Out of Hours[2]	Night Out of Hours[2]	Highly Noise Affected
Erskine Park Residential[3]	Residential	37	40	39	47	42	42[5]	42[5]	75
Emmaus Village Residential	Residential	39	38	36	49	44	43	41	
Kemps Creek Residential	Residential	34	35	32	44	39	39[5]	37	
Any	Industrial	n/a			External 75 when in use				n/a
Any	Commercial	n/a			External 70 when in use				
Any	School[4]	n/a			External 55 when in use				

Note 1: RBL Periods – Day: 7:00 am to 6:00 pm Monday to Saturday, 8:00 am to 6:00 pm Sunday; Evening: 6:00 pm to 10:00 pm; Night: 10:00 pm to 7:00 am Monday to Saturday, 10:00 pm to 8:00 am Sunday.

Note 2: Standard construction hours: 7:00 am to 6:00 pm Monday to Friday, 8:00 am to 1:00 pm Saturday (refer to **Section 3.5**).
Day out of hours: 1:00 pm to 6:00 pm Saturday, 8:00 am to 7:00 pm Sunday and Public Holidays.
Evening out of hours: 6:00 pm to 10:00 pm Monday to Sunday.
Night out of hours: 10:00 pm to 7:00 am Monday to Saturday, 10:00 pm to 8:00 am Sunday and Public Holidays.

Note 3: RBL for Erskine Park Residential taken from *Western North-South Link Road DA Noise Impact Assessment* prepared by SLR in September 2016.

Note 4: External criteria equivalent to internal criteria plus 10 dB.

Note 5: RBL reduced to be equal to Daytime RBL in accordance with the ICNG and NPfI.

As noted in **Table 4**, where the predicted or measured $L_{Aeq(15minute)}$ construction noise levels exceed the NMLs in **Table 6**, all feasible and reasonable work practises will be applied with the aim of meeting the NMLs.

Where the predicted or measured construction noise levels are above the highly noise affected criteria (i.e. 75 dBA), the DPIE may require respite periods by restructuring the hours that the noisy activities can occur.

Predicted construction noise levels are discussed in **Section 5.1**.

4.2 Construction Vibration Criteria

In accordance with Condition D76 of the Development Consent SSD 7348, vibration from construction works on the site, as measured at any residence or sensitive structure, must be limited to the criteria outlined in:

- For structural damage – German Standard *DIN 4150-3 (1992-02) Structural vibration - Effects of vibration on structures* (DIN 4150); and
- For human exposure, the EPA's *Assessing Vibration: a technical guideline*.

British Standard *BS 7385 Part 2-1993 Evaluation and measurement for vibration in buildings Part 2* (BS 7385) provides further guidance with regards to reducing the potential for structural damage.

Structural damage criteria is detailed in **Section 4.2.1** and human exposure criteria is detailed in **Section 4.2.2**.

Minimum working distances based on these criteria are summarised in **Section 4.2.3**.

4.2.1 Cosmetic Damage Vibration Thresholds

British Standard BS 7385

The recommended vibration limits from BS 7385 for transient vibration for minimal risk of cosmetic damage to residential and industrial buildings are shown in **Table 7**. These levels are judged to give a minimum risk of vibration-induced damage, where minimal risk is usually taken as a 95% probability of no effect.

Table 7 Transient Vibration Guide Values for Minimal Risk of Cosmetic Damage (BS 7385)

Line	Type of Building	Peak Component Particle Velocity in Frequency Range of Predominant Pulse	
		4 Hz to 15 Hz	15 Hz and above
1	Reinforced or framed structures Industrial and heavy commercial buildings	50 mm/s at 4 Hz and above	50 mm/s at 4 Hz and above
2	Unreinforced or light framed structures	15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz	20 mm/s at 15 Hz increasing to 50 mm/s at 40 Hz and above

German Standard DIN 4150-3

For continuous long-term vibration or repetitive vibration with the potential to cause fatigue effects, DIN 4150 provides the following Peak Particle Velocity (PPV) values as safe limits, below which even superficial cosmetic damage is not to be expected:

- 10 mm/s for commercial buildings and buildings of similar design.
- 5 mm/s for dwellings and buildings or similar design.
- 2.5 mm/s for buildings of great intrinsic value (eg heritage listed buildings).

For short-term vibration events (ie those unlikely to cause resonance or fatigue), DIN 4150 offers the criteria shown in **Table 8**. These are maximum levels measured in any direction at the foundation or in the horizontal axes in the plane of the uppermost floor.

Table 8 Guideline Values for Short-term Vibration on Structures (DIN 4150)

Group	Type of Structure	Guideline Values Vibration Velocity (mm/s)				
		Foundation, All Directions at a Frequency of			Topmost Floor, Horizontal	Floor Slabs, Vertical
		1 to 10 Hz	10 to 50 Hz	50 to 100 Hz	All frequencies	All frequencies
1	Buildings used for commercial purposes, industrial buildings and buildings of similar design	20	20 to 40	40 to 50	40	20
2	Residential buildings and buildings of similar design and/or occupancy	5	5 to 15	15 to 20	15	20
3	Structures that, because of their particular sensitivity to vibration, cannot be classified as Group 1 or 2 **and** are of great intrinsic value (e.g. listed buildings)	3	3 to 8	8 to 10	8	20[1]

Note 1: It may be necessary to lower the relevant guideline value markedly to prevent minor damage.

The "*safe limits*" given in DIN 4150 are the levels up to which no damage due to vibration effects has been observed for the particular class of building. "*Damage*" is defined by DIN 4150 to include even minor non-structural effects such as superficial cracking in cement render, the enlargement of cracks already present, and the separation of partitions or intermediate walls from load bearing walls.

4.2.1.1 WaterNSW Pipelines

WaterNSW pipelines are located adjacent to the northern boundary of the Oakdale West site, around 20 m from the closest point of the works. The pipelines are installed above ground and are supported on reinforced concrete saddles. The standards for vibration damage (refer to **Section 4.2.1**) do not cater for structures similar to the pipelines construction.

PSM Consult Pty Ltd have completed an assessment of the WNSLR bridge (letter report PSM1541-381L, dated April 2019, refer to **Appendix C**), which recommends a criteria of 15 mm/s PPV for the pipelines during construction of the bridge. While the PSM1541-381L assessment was prepared for the WNSLR works, it is considered to be suitable for Oakdale West when vibration intensive works are being undertaken in the vicinity of the WaterNSW pipelines. This approach has been confirmed in correspondence with WaterNSW (refer to **Appendix D**).

4.2.2 Human Exposure Vibration Thresholds

The EPA's *Assessing Vibration: a technical guideline* provides guideline values for continuous, transient and intermittent events that are based on a Vibration Dose Value (VDV) rather than a continuous vibration level. The VDV is dependent upon the level and duration of the short-term vibration event, as well as the number of events occurring during the daytime or night-time period.

The VDVs recommended in the document for vibration of an intermittent nature (i.e. construction works where more than three distinct vibration events occur) are presented in **Table 9**.

Table 9 Acceptable Vibration Dose Values for Intermittent Vibration (m/s$^{1.75}$) (*Assessing Vibration: a technical guideline)*

Location	Daytime[1]		Night-time[1]	
	Preferred Value	Maximum Value	Preferred Value	Maximum Value
Residences	0.20	0.40	0.13	0.26
Offices, schools, educational institutions and places of worship	0.40	0.80	0.40	0.80
Workshops	0.80	1.60	0.80	1.60

Note 1: Daytime is 7:00 am to 10:00 pm and night-time is 10:00 pm to 7:00 am.

4.2.3 Minimum Working Distances

Recommended minimum working distances for vibration intensive construction plant based on the BS 7385, DIN 4150 and *Assessing Vibration: a technical guideline* are referenced from the Roads and Maritime *Construction Noise and Vibration Guideline* (CNVG). Theses minimum working distances are summarised in **Table 10**.

The minimum working distances are based on empirical data which suggests that where works are further from receivers than the quoted minimum distances then impacts are not considered likely.

The minimum working distances are indicative and will vary depending on the particular item of equipment and local geotechnical conditions. The distances apply to cosmetic damage of typical building under typical geotechnical conditions.

Table 10 Recommended Minimum Working Distances for Vibration Intensive Equipment

Plant Item	Rating / Description	Minimum Distance		
		Cosmetic Damage		Human Response (NSW EPA Guideline)[1]
		Residential and Light Commercial (BS 7385)[1]	Heritage Items (DIN 4150 Group 3)[2]	
Vibratory Roller	< 50 kN (Typically 1-2t)	5 m	11 m	15 m to 20 m
	< 100 kN (Typically 2-4t)	6 m	13 m	20 m
	< 200 kN (Typically 4-6t)	12 m	15 m	40 m
	< 300 kN (Typically 7-13t)	15 m	31 m	100 m
	> 300 kN (Typically 13-18t)	20 m	40 m	100 m
	> 300 kN (Typically > 18t)	25 m	50 m	100 m
Small Hydraulic Hammer	300 kg – 5 to 12t excavator	2 m	5 m	7 m
Medium Hydraulic Hammer	900 kg – 12 to 18t excavator	7 m	15 m	23 m
Large Hydraulic Hammer	1600 kg – 18 to 34t excavator	22 m	44 m	73 m
Vibratory Pile Driver	Sheet piles	2 m to 20 m	5 m to 40 m	20 m
Pile Boring	≤ 800 mm	2 m (nominal)	5 m	4 m
Jackhammer	Hand held	1 m (nominal)	3 m	2 m

Note 1: Criteria reference from Roads and Maritime CNVG.

Note 2: Criteria reference from DIN 4150.

In addition to the above minimum working distances, Condition D77 of the Development Consent SSD 7348 specifies that vibratory compactors must not be used closer than 30 metres from residential buildings unless vibration monitoring confirms compliance with the vibration criteria specified in Condition D76. This may include the nearest residences in Kemps Creek to the South, and potentially the nearest residences in the Emmaus Village, depending on the exact location of vibration intensive works. While this condition specifies residential buildings, it is considered that this is also applicable to vibration intensive works adjacent to the nearest buildings at Emmaus Catholic College.

5 Construction Noise and Vibration Impacts

5.1 Construction Noise Impacts

The Oakdale West NIA presented construction noise predictions from a number of construction scenarios likely to occur on site. These construction scenarios are representative of a number of activities which will be required during the construction of the site.

Table 11 details the construction scenarios assessed in the NIA together with a list of activities considered to be represented by those scenarios.

Table 11 Construction Scenarios

NIA Construction Scenario	Relevant Activities
Site Clearing and Earthworks	Site set up including environmental controls Bulk earthworks Spoil removal/import
Paving Works including concrete pours	Construction of retaining walls and noise barriers. Installation of services infrastructure (potable water, sewer, telecommunications and electrical etc)
Construction of Roadways	Laying of road surface Roadway compacting and smoothing Line marking and finishing works
Landscaping and finishing works	Landscaping

The predicted worst-case noise levels and the exceedances of the NMLs from the various construction works at Oakdale West are presented in **Table 12**.

Table 12 Predicted NML Exceedances

Receiver	$L_{Aeq(15minute)}$ Construction Noise Levels (dBA)					
	Worst-case Predicted (any scenario)	NML (Standard Construction Hours)	NML Exceedance (Standard Construction Hours)[1]			
			Site Clearing and Earthworks	Paving Works	Roadway Construction	Landscaping
Erskine Park Residential	41	47	-	-	-	-
Emmaus Village Residential	71	49	22	10	8	8
Kemps Creek Residential	70	44	26	20	16	12
School Classrooms	70	55	15	7	-	3
Commercial Premises	58	70	-	-	-	-

Note 1: Refer to **Table 11** for which construction activities are covered by each scenario.

As detailed in the NIA and shown in **Table 12** above, the construction noise impacts for the scenarios in **Table 11** are predicted to exceed the NMLs at Emmaus Catholic College, Emmaus Village residential and Kemps Creek residential receivers for some construction works during standard construction hours. The highest exceedances of the NMLs are generally when earthworks are adjacent to the nearest receivers. Exceedances would generally reduce in magnitude as construction works move away from the nearest receivers.

No exceedance of the standard construction hours NMLs are predicted at commercial or Erskine Park residential receivers.

Best practise noise management measures will be undertaken for all construction works. Additional feasible and reasonable noise mitigation and management measures will be applied for works where an exceedance of the NMLs is identified, with the aim of achieving the applicable NMLs.

Mitigation and management measures are outlined in **Section 6**.

5.2 Construction Vibration Impacts

Vibration intensive items of plant proposed for use during the construction of the development would include plate compactors and vibratory rollers. These items of equipment are proposed to be used during various stages of works across the project.

During construction of Oakdale West, vibratory rollers and plate compactors have the potential to be operated within the recommended minimum working distances of the nearest receivers in Emmaus Catholic College, Kemps Creek, and Emmaus Village, which are located around 10 m, 20 m and 45 m respectively from the nearest point of works.

The separation distance from these buildings will be maximised and all feasible and reasonable mitigation and management measures undertaken. Mitigation and management measures are outlined in **Section 6**.

Vibration at the nearest receivers is likely to be perceptible at times during the works when vibration intensive activities are being carried out nearby.

WaterNSW pipelines are located adjacent to the northern boundary of the Oakdale West site, around 20 m from the closest point of the works. The PSM Consult assessment (PSM1541-381L) considers that excavation and compaction works in the vicinity of the pipelines have the potential to exceed the applicable vibration limits. PSM1541-381L recommends various management measures for works adjacent to the pipelines. These measures are detailed in **Section 6**.

6 Mitigation and Management Measures

In order to minimise noise impacts during works, the construction contractor will take all reasonable and feasible measures to mitigate noise effects. Impacts from the works will be minimised and managed in accordance with the procedures detailed below in **Table 13**.

Note: **Table 13** is replicated as Table 9 and Table 12 in the CEMP.

Table 13 Environmental Management Controls for Construction Noise and Vibration

Measure	Person Responsible	Timing / Frequency	Reference / Notes
Project Planning			
Less noise and vibration intensive construction techniques for rock breaking and concrete sawing will be used.	Burton	Ongoing	Best practice
Works will be completed during standard daytime construction hours outlined in **Section 3.5**.			
Truck routes to site will be in accordance with the approved Construction Traffic Management Plan.			
Scheduling			
Respite offers will be considered where high-noise works are predicted to exceed 75 dBA for residential receivers. For schools and retirement villages (Emmaus Village) a lower level of 65 dBA will be used to account for the sensitive daytime uses of these receivers. Respite offers will be considered for high-vibration works where the works are undertaken within the human comfort minimum working distances for all receiver types. Consultation with these receivers will be undertaken to determine appropriate respite periods, such as exam periods for schools.	Communications and Community Liaison Representative	Ongoing	SSD 7348 Condition D73
High-noise or vibration generating works will be carried out in continuous blocks no longer than three hours in length, with a minimum respite period of one hour between each block. 'Continuous' includes any period during which there is less than a one hour respite between ceasing and recommencing these works. High-noise or vibration generating works conducted outside standard construction hours (where approved) will be limited to no more than two consecutive nights except where there is a Duration Respite (see below). For night-works these periods will be separated by no less than one week, and limited to six nights per month. Where possible, high-noise and vibration generating works will be completed before 11 pm.			

Measure	Person Responsible	Timing / Frequency	Reference / Notes
Duration Respite will be considered where it may be beneficial to the sensitive receivers to increase the duration of blocks of work or number of consecutive periods in order to complete the works more quickly. The project team will engage with the community where Duration Respite is considered in accordance with the CCS.	Communications and Community Liaison Representative	Ongoing	SSD 7348 Condition D73
Notification detailing work activities, dates and hours, impacts and mitigation measures, indication of work schedule over the night time period, any operational noise benefits from the works (where applicable) and contact telephone numbers will be undertaken in accordance with the CCS.			
Site Layout			
Compounds and worksites will be designed to promote one-way traffic and minimise the need for vehicle reversing.	Burton	Ongoing	Best practice
Where practicable, work compounds, parking areas, and equipment and material stockpiles will be positioned away from noise-sensitive locations and take advantage of existing screening from local topography.			
Equipment that is noisy will be started away from sensitive receivers			
Training			
Training will be provided to all personnel on noise and vibration requirements for the project. Inductions and toolbox talks to be used to inform personnel of the location and sensitivity of surrounding receivers.	Burton	Ongoing	Best practice
Plant and Equipment Source Mitigation			
All construction plant and equipment used on Site must be, in addition to other requirements: a) regularly inspected and maintained in an efficient condition; b) operated in a proper and efficient manner.	Burton	Ongoing	SSD 7348 Condition D21
Where practicable, tonal reversing alarms (beepers) will be replaced with non-tonal alarms (squawkers) on all equipment in use (subject to occupational health and safety requirements).			Best practice
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 achieve the maximum attenuation of noise.			

Measure	Person Responsible	Timing / Frequency	Reference / Notes
Noise generating equipment will be regularly checked and effectively maintained, including checking of hatches/enclosures regularly to ensure that seals are in good condition and doors close properly against seals.	Burton	Ongoing	Best practice
Dropping materials from a height will be avoided.			
Loading and unloading will be carried out away from noise sensitive areas, where practicable.			
Trucks will not queue outside residential properties. Truck drivers will avoid compression braking as far as practicable.			
Truck movements will be kept to a minimum, ie trucks are fully loaded on each trip.			
Screening			
Purpose-built acoustic screening or enclosures will be installed around long-term fixed plant such as generators in site compounds.	Burton	Ongoing	Best practice
The MOD 3 noise barriers located on the western boundary (refer to Appendix 5 of SSD 7348 MOD 3 Development Consent) must be completed no later than 31 October 2020, to the satisfaction of the Planning Secretary.		Within six months of construction commencing	SSD 7348 Condition D75(a)
Community Consultation			
Notifications will be provided to the affected community where high impacts are anticipated or where out of hours works are required. Notification will be a minimum of 24 hours. Refer to the CCS.	Communications and Community Liaison Representative	Ongoing	Best practice
Where complaints are received, work practices will be reviewed and feasible and reasonable practices implemented to minimise any further impacts. Refer to **Section 7**.			
Monitoring			
Noise and/or vibration monitoring will be conducted (as appropriate) when noise/vibration intensive works are being undertaken in close proximity to sensitive receivers.	Burton	Ongoing	Best practice
Noise and/or vibration monitoring will be conducted (as appropriate) in response to any complaints received to verify that levels are not substantially above the predicted levels.			
Refer to **Section 8** for full details of monitoring requirements.			
Vibration			
Where works are required within the minimum working distances, vibration monitoring will be undertaken to confirm that vibration is within acceptable levels.	Burton	Ongoing	Best practice

Measure	Person Responsible	Timing / Frequency	Reference / Notes
Where works are required within the cosmetic damage minimum working distances, building condition surveys will be completed before and after the works to ensure no cosmetic damage has occurred.	Burton	Ongoing	Best practice
Vibratory compactors will not be used closer than 30 m from residential and educational buildings unless vibration monitoring confirms compliance with the vibration criteria.			SSD 7348 Condition D77
A vibration limit of 15 mm/s PPV will be applied to the WaterNSW pipelines located adjacent to the northern site boundary.			PSM Vibration Assessment PSM1541-381L (and/or approved by WaterNSW)
Dilapidation surveys of the WaterNSW pipelines will be carried out prior to the commencement and after completion of any vibration intensive work within 50 m of the pipelines, at a minimum. This will include as a minimum, collecting photos of the conditions of the site and existing pipeline and foundations, and mapping/identifying any existing issues or cracks, etc, prior to, during, and after the works.			
During vibration intensive construction works within 50 m of the WaterNSW pipelines, vibration will be monitored in accordance with the procedures outlined in **Section 8.2.2**.			
WaterNSW will be immediately notified in the event of any impact to the pipeline so that they can inspect the pipes prior to confirming whether any remedial work is required.			
Where there is a risk that vibration activities may cause damage to nearby structures and buildings or if these are located within the minimum working distance from the construction activity, a building condition inspection will be undertaken at least three weeks before the construction activity commences.		Before and after any vibration activities within minimum distances	Best practice
The Building Condition Inspection Reports will contain photographs of the inspected properties and include details of the inspectors' qualification and expertise, together with a list of any identified defects, where relevant. The reports will be submitted to the owner of each property and to AT&L and Goodman before the commencement of any vibration intensive activities.			
A copy of the Building Condition Inspection Reports and CNVMP will be submitted to AT&L and Goodman at least 10 working days prior to commencement of piling, excavation by hammering or ripping, compaction, demolition operations, or any activity which may cause damage through vibration.			

Measure	Person Responsible	Timing / Frequency	Reference / Notes
EIS Measures			
Construction hours will be limited to 7:00 am - 6:00 pm Monday to Friday and 8:00 am - 1:00 pm Saturdays (refer to **Section 3.5**).	Burton	Ongoing	EIS mitigation commitment
Where construction noise levels are predicted to be above the NMLs, all feasible and reasonable work practices will be investigated to minimise noise emissions, as detailed in this CNVMP.			
Construction works will be conducted during Standard Construction Hours, with out of hours work minimised as far as feasible and reasonable, and undertaken in accordance with Condition D71 (refer to **Section 3.5**).			
Locations for vibration intensive equipment will be reviewed during the planning of construction works adjacent to the most affected receivers.			

Initial consultation has been established with all potentially affected community groups and sensitive receivers (refer to the CCS). The mitigation and management measures detailed in **Table 13** are considered to be appropriate to minimise impacts on the potentially affected receivers.

These measures will be implemented and refined as informed by the results of monitoring and ongoing community consultation.

Specific consultation with the potentially affected receivers to determine suitable respite periods and management measures will be undertaken during the planning stage of high-noise generating works once specific details of the works have been identified, such as the location of the works, activities proposed to be undertaken and required equipment.

7 Complaints Handling and Response Procedure

All complaints will be handled in accordance with the sections below and the *Community Communication Strategy* (CCS) (SLR 2020a) (see Appendix I of the CEMP).

7.1 Performance Objective

To ensure that all environmental complaints in relation to the construction of the Stage 1 at Oakdale West are promptly and effectively received, handled and addressed.

7.2 Responsibility

The Communications and Community Liaison Representative is 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 3.4 of the CEMP will be used to ensure all site employees are aware of and understand their obligations for complaints response.

All employees who take receipt of a complaint, either verbal or written, are to immediately notify the Contractor's Project Manager, who will then contact the Communications and Community Liaison Representative.

7.3 Complaints Handling Procedure

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

1. Record and Acknowledge

Any employee who takes receipt of a complaint, either verbal or written, are to immediately notify the Contractor's Project Manager who will then contact the Communications and Community Liaison Representative. The Contractor's Project Manager will be available 24 hours a day, seven days a week and have the authority to stop or direct works. All relevant contact details are available in Table 4 of the CEMP.

In the normal course of events, the first contact for complaints will usually be made in person or by telephone.

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

2. Assess and Prioritise

The Communications and Community Liaison Representative will prioritise all complaints by considering the seriousness of the complaint including risk to health and safety and will attempt to provide an immediate response via phone or email. This will be undertaken in accordance with the CCS (SLR 2020a).

3. Investigate

A field investigation will be initiated in an attempt to confirm details relevant to the complaint and the cause of the problem. Any monitoring information and/or records at and around the time of the complaint will 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 3.5.3 and 3.5.4 of the CEMP respectively will be followed.

4. Action or Rectify

Once the cause of the complaint has been established, every possible effort will be made to undertake appropriate action to rectify the cause of the complaint and mitigate any further impact. The Communications and Community Liaison Representative will assess whether the complaint is founded or unfounded and delegate the remediation of the issue to the Contractor's Project Manager for action, as required.

5. Respond to Complainant

The Communications and Community Liaison Representative will oversee the rectification of the issue and respond to the complainant once the issue has been resolved. The complainant will be provided with a follow up verbal response on what action is proposed within two hours during night-time works (between the hours of 6:00 pm and 10:00 pm) and 24 hours at other times. Where a complaint cannot be resolved by the initial or follow-up verbal response, a written response will be provided to the complainant within ten days.

6. Record

It is imperative that an 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 Qanstruct's Complaint Form (Appendix J of the CEMP). A copy of the completed form will be maintained for at least five years. The complaint will also be recorded in the Complaints Register, as per Section 3.6.4 of the CEMP.

7. Preventative Action

Once the complaint has been suitably handled, appropriate measures will be identified and implemented to negate the possibility of re-occurrence. The Community Correspondence Register is not finalised until the preventative actions are completed and recorded on the form.

7.4 Complaints Register

A Complaints Register will be maintained during construction and will contain the following:

- A copy of the environmental complaint handling procedure contained in Section 3.6.3 of the CEMP;
- A separate reference sheet containing the contact details listed in Table 4 of the CEMP;
- Blank hard copies of the Qanstruct's Complaint Form (see Appendix J of the CEMP); and
- Copies of all completed Complaint Forms which are to be maintained for at least five years after the event to which they relate.

8 Monitoring

8.1 Construction Noise Monitoring

Attended noise measurements will be undertaken at the start of noise intensive works in the vicinity of sensitive receivers to verify the levels are as predicted and to check the effectiveness of mitigation and management measures used to minimise the impacts. This includes where works are adjacent to Emmaus Catholic College and the nearest residences in Kemps Creek and Emmaus Village.

Attended monitoring will also be undertaken in response to any complaints regarding construction noise. The location and extent of monitoring would be determined in consultation with AT&L, Goodman, and an acoustic consultant and would be dependent on the activities taking place.

The monitoring will take place during the expected noisiest construction periods and be representative / indicative of any impact across all potentially affected sensitive receivers.

Monitoring reports will be produced following each monitoring survey and provided to AT&L and Goodman for review. In the event that an exceedance of the applicable NMLs is measured (refer to **Section 4.1**), actions to be carried out are detailed in **Section 9**.

All items of acoustic instrumentation utilised will be designed to comply with applicable guidelines and carry current calibration certificates.

8.2 Construction Vibration Monitoring

8.2.1 Sensitive Receivers and Structures

Where vibration intensive works (such as vibratory rolling and plate compacting) are proposed to be undertaken within the minimum working distances of sensitive receivers or structures (refer to **Section 4.2.3**), vibration will be monitored continuously for the duration of works within the minimum working distances. This may be applicable to Emmaus Catholic College and the nearest residences in Kemps Creek (on Aldington Road) and Emmaus Village.

Attended vibration measurements will be undertaken at the commencement of vibration intensive works within the minimum working distances to confirm the levels of vibration are below the applicable vibration limits (refer to **Section 4.2**).

Geophones will be installed by an acoustic consultant at the closest points of the sensitive structure to the vibration intensive works to continuously monitor vibration for the duration of the works. Should the works location change, the geophones will be relocated to remain at the closest point of the structure to the works.

The vibration monitoring equipment will have visible and audible alarms installed where operators of equipment can see/hear them:

- A warning vibration level of 2/3 of the applicable vibration limit will set off the visual alarm if exceeded – the equipment operator must take care to limit vibration emissions when the warning level is exceeded.
- An exceedance vibration level equal to the applicable vibration limit will set off both the visual and audible alarms. Actions to be carried out if the exceedance alarm is set off are detailed in **Section 9**.

Monitoring data will be downloaded and reported monthly, at a minimum. Vibration monitoring reports will be prepared and provided to AT&L and Goodman for review at the following stages:

- Monthly during works (at a minimum)
- Within one week of an exceedance of the vibration limit alarm level (15 mm/s PPV)
- Upon completion of construction.

All items of vibration instrumentation utilised will be designed to comply with applicable guidelines and carry current calibration certificates.

8.2.2 WaterNSW Pipelines

The PSM Consult assessment (PSM1541-381L) recommends the following vibration monitoring for the WaterNSW pipelines. This approach has been confirmed in correspondence with WaterNSW (refer to **Appendix D**).

Vibrations impacts on the WaterNSW pipelines due to construction activities will be monitored continuously for the duration of earthworks and compaction works within 50 m of the WaterNSW pipeline to ensure vibration levels do not exceed the applicable limits (refer to **Section 4.2.1.1**).

Geophones will be installed by an acoustic consultant on top of each pipeline at the centre point between two saddles closest to the works. Baseline vibration measurements will be recorded for at least one week to determine background levels of vibration at the site prior to commencement of any works.

The vibration monitoring equipment will have visible and audible alarms installed where operators of equipment can see/hear them:

- A warning vibration level of 10 mm/s PPV will set off the visual alarm if exceeded.
- An exceedance vibration level of 15 mm/s PPV will set off both the visual and audible alarms.
- Actions to be carried out at each alarm level are detailed in **Section 9**.

Monitoring data will be downloaded and reported monthly, at a minimum. Vibration monitoring reports will be prepared and provided to AT&L and Goodman to review at the following stages:

- Prior to commencement of works (baseline report)
- Monthly during works (at a minimum)
- Within one week of an exceedance of the vibration limit alarm level (15 mm/s PPV)
- Upon completion of construction.

All items of vibration instrumentation utilised will be designed to comply with applicable guidelines and carry current calibration certificates.

9 Contingency Management Plan

The following contingency management plan, shown in **Table 14**, would be used to manage any unpredicted noise and vibration impacts and their consequences.

In the event of an incident, response will be carried out in accordance with the procedures detailed in Section 3.5 of the overarching CEMP. As detailed in Section 5.4 of the overarching CEMP, all Condition Amber and Condition Red occurrences will be recorded in the Environmental Representative Monthly Report and discussed during the toolbox talks.

The following events constitute an incident in terms of noise and vibration:

- Trigger of Condition Red for noise impacts during the standard construction hours detailed in Condition D70.
- Any works occurring outside the standard construction hours detailed in Condition D70, where those works do not meet the allowable circumstances defined in Condition D71.
- Trigger of Condition Red for vibration impacts (either at sensitive receivers locations or on WaterNSW pipelines).

Table 14 Contingency Management Plan

Key Element	Trigger / Response	Condition Green	Condition Amber	Condition Red
Noise impacts at sensitive receiver locations	Trigger	Noise levels do not exceed applicable NMLs	Noise levels exceed applicable NMLs	Noise levels exceed Highly Noise Affected criteria (75 dBA)
	Response	On-going best practice management measures to minimise noise emissions	Undertake all feasible and reasonable mitigation and management measures to minimise noise impacts (aiming to achieve NMLs)	Undertake all feasible and reasonable mitigation and management measures to ensure noise levels are below Highly Noise Affected criteria. If noise levels cannot be kept below Highly Noise Affected criteria then a different construction method or equipment must be utilised.
Vibration impacts at sensitive receiver locations	Trigger	Vibration intensive works undertaken outside minimum working distance for the specific equipment in use	Vibration intensive works undertaken within minimum working distance for the specific equipment in use	Vibration levels exceed applicable vibration limits
	Response	On-going best practice management measures to minimise vibration emissions	Undertake vibration monitoring for the duration of the works to confirm vibration levels.	Stop work. Undertake all feasible and reasonable mitigation and management measures to ensure vibration levels are below applicable limits. If vibration levels cannot be kept below applicable limits then a different construction method or equipment must be utilised.

Key Element	Trigger / Response	Condition Green	Condition Amber	Condition Red
Vibration impacts on WaterNSW pipelines	Trigger	Vibration intensive works undertaken more than 50 m from the closest point of the pipeline	Vibration intensive works undertaken within 50 m of the closest point of the pipeline	Monitored vibration levels on pipeline exceed 15 mm/s PPV
	Response	On-going best practice management measures to minimise vibration emissions	Undertake vibration monitoring for the duration of the works to confirm vibration levels.	Stop work. Undertake all feasible and reasonable mitigation and management measures to ensure vibration levels are below 15 mm/s PPV. If vibration levels cannot be kept below 15 mm/s PPV then a different construction method or equipment must be utilised.

10 Roles and Responsibilities

Overall roles and responsibilities relating to the project are outlined in Section 3.2 of the overarching CEMP.

The key responsibilities specifically for noise and vibration management are as follows:

10.1 Contractor's Project Manager

- Ensuring appropriate resources are available for the implementation of this CNVMP;
- Assessing data from inspections and providing project-wide advice to ensure consistent approach and outcomes are achieved;
- Providing necessary training for project personnel to cover noise and vibration management;
- Reviewing and update of this CNVMP;
- Commissioning a suitably qualified consultant to install and maintain noise and vibration monitors and ensuring that the environmental coordinator undertakes any attended noise and vibration measurements required by this Plan;
- Assessing and (as required) mitigating risks of elevated noise and vibration levels before commencing works each day and ensuring that the appropriate controls are implemented and effective;
- Reviewing weather forecasts and current observations of meteorological conditions (as recorded at Horsley Park AWS);
- Throughout the day, visually assessing the dust levels and the effectiveness of any dust controls implemented, making adjustments accordingly;
- Ceasing works in the event of excessive noise and vibration generation due to noise enhancing weather conditions or inadequately controlled construction activities (e.g. strong winds blowing from the noise source to nearby receivers, temperature inversions, etc.); and
- In the event that a noise or vibration complaint is received, the procedure in Section 3.6 of the CEMP will be implemented (see **Section 7**).

10.2 Environmental Coordinator

- Undertaking noise monitoring program;
- Review that control measures are working in accordance with the CNVMP; and
- Identifying and reporting noise and vibration emissions incidents.

10.3 All Workers on Site

- Observing any noise and vibration emission control instructions and procedures that apply to their work;
- Taking action to prevent or minimise noise and vibration emission incidents; and
- Identifying and reporting noise and vibration emission incidents.

11 Review and Improvement of the CNVMP

Details on review and improvement are outlined in Section 6 of the overarching CEMP.

12 References

British Standard Institution (BSI) (1993) *BS 7385 Part 2-1993 Evaluation and measurement for vibration in buildings Part 2* (BS 7385)

German Institute for Standardisation (Deutsches Institut für Normung) (1999) *DIN 4150 – Structural vibration - Effects of vibration on structures* (DIN 4150)

Environment Protection Authority (EPA) (2006) *Assessing Vibration: a technical guideline*

Environment Protection Authority (EPA) (2009) *Interim Construction Noise Guideline* (ICNG)

PSM Consult Pty Ltd (2019) *WNSLR Bridge, Review and Recommendation for Allowable Vibration from Piling and Earthworks* (PSM1541-381L)

Roads and Maritime Services (2016) *Construction Noise and Vibration Guideline* (CNVG)

Roads and Traffic Authority (2001) *Environmental Noise Management Manual* (ENMM)

SLR Consulting Australia Pty Ltd (SLR) (2017) *Oakdale West Estate DA Noise Impact Assessment* (NIA)

SLR Consulting Australia Pty Ltd (SLR) (2016) *Western North-South Link Road DA Noise Impact Assessment*

Standards Australia (2004) Australian Standard *AS IEC 61672.1—2004 – Electroacoustics—Sound level meters, Part 1: Specifications*

Standards Australia (2016) *Australian/New Zealand Standard AS/NZS 2107:2016 Acoustics – Recommended design sound levels and reverberation times for building interiors* (AS 2107)

Urbis (2017) *Environmental Impact Statement, Oakdale West Estate – State Significant Development Application* (EIS)

APPENDIX A

Acoustic Terminology

1. Sound Level or Noise Level

The terms 'sound' and 'noise' are almost interchangeable, except that 'noise' often refers to unwanted sound.

Sound (or noise) consists of minute fluctuations in atmospheric pressure. The human ear responds to changes in sound pressure over a very wide range with the loudest sound pressure to which the human ear can respond being 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 2×10^{-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 4,000 Hz), and less sensitive at lower and higher frequencies. Different sources having the same dBA level generally sound about equally loud.

A change of 1 dB or 2 dB in the level of a sound is difficult for most people to detect, whilst a 3 dB to 5 dB change corresponds to a small but noticeable change in loudness. A 10 dB 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

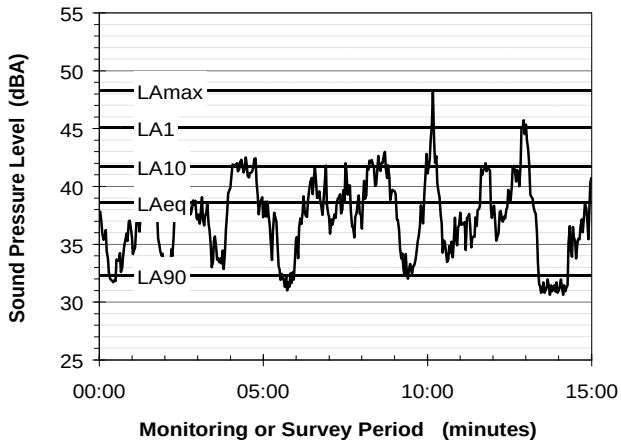
The Sound Power of a source is the rate at which it emits acoustic energy. As with Sound Pressure Levels, Sound Power Levels are expressed in decibel units (dB or dBA), but may be identified by the symbols SWL or LW, or by the reference unit 10^{-12} W.

The relationship between Sound Power and Sound Pressure is similar to the effect of 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 L_{AN}, where L_{AN} is the A-weighted sound pressure level exceeded for N% of a given measurement period. For example, the L_{A1} is the noise level exceeded for 1% of the time, L_{A10} 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:

L_{A1} The noise level exceeded for 1% of the 15 minute interval.

L_{A10} The noise level exceeded for 10% of the 15 minute interval. This is commonly referred to as the average maximum noise level.

L_{A90} 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.

L_{Aeq} 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.

5. Frequency Analysis

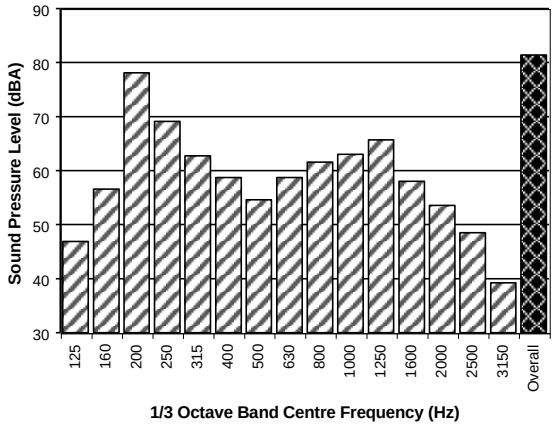
Frequency analysis is the process used to examine the tones (or frequency components) which make up the overall noise or vibration signal.

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 (three 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.



6. Annoying Noise (Special Audible Characteristics)

A louder noise will generally be more annoying to nearby receivers than a quieter one. However, noise is often also found to be more annoying and result in larger impacts where the following characteristics are apparent:

- **Tonality** - tonal noise contains one or more prominent tones (ie differences in distinct frequency components between adjoining octave or 1/3 octave bands), and is normally regarded as more annoying than 'broad band' noise.
- **Impulsiveness** - an impulsive noise is characterised by one or more short sharp peaks in the time domain, such as occurs during hammering.
- **Intermittency** - intermittent noise varies in level with the change in level being clearly audible. An example would include mechanical plant cycling on and off.
- **Low Frequency Noise** - low frequency noise contains significant energy in the lower frequency bands, which are typically taken to be in the 10 to 160 Hz region.

7. 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 (ie vertical, longitudinal 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/Vo), where Vo is the reference level (10^{-9} m/s). Care is required in this regard, as other reference levels may be used.

8. Human Perception of Vibration

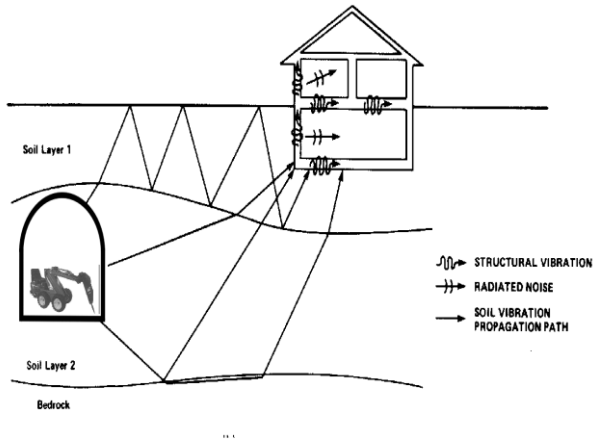
People are able to 'feel' vibration at levels lower than those required to cause even superficial damage to the most susceptible classes of building (even though they may not be disturbed by the motion). An individual's perception of motion or response to vibration depends very strongly on previous experience 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.

9. 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 an example of 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 B

SLR Author CV

CURRICULUM VITAE

JOSHUA RIDGWAY

SENIOR PROJECT CONSULTANT

Acoustics & Vibration, Asia-Pacific

QUALIFICATIONS

MDesSc	2008	Master of Design Science (Audio and Acoustics), University of Sydney, NSW
DipPM	2018	Diploma of Project Management, Charter Australia Education and Training, NSW

EXPERTISE

- Transport (Rail, Road and Air) Noise and Vibration
- Construction Noise and Vibration
- Infrastructure and Industrial Noise and Vibration
- Noise and Vibration Measurement Systems

Joshua Ridgway completed his Master of Design Science (Audio and Acoustics) at University of Sydney in 2008, specialising in acoustic measurement, signal analysis and digital signal processing.

Joshua started his career in acoustics and vibration at SLR as a project consultant in the Acoustics and Vibration team in 2011, working on a broad range of projects involving field measurements, analysis, modelling, assessment and reporting.

Joshua's consulting experience has included measurement, analysis, modelling and control of noise and vibration from railways, roads, construction works, mining operations, infrastructure and industrial projects.

Joshua is experienced in the use of SoundPLAN predictive modelling software for a range of modelling applications including industrial noise, construction noise, road operational noise and rail operational noise.

PROJECTS

	Transport Noise and Vibration Projects
M12 Motorway EIS, NSW	Ambient noise monitoring, construction noise and vibration assessment, lead modeller for operational noise impacts and assessment.
WestConnex M4-M5 Link EIS, NSW	Ambient noise monitoring, construction noise and vibration assessment, lead modeller for operational noise impacts and assessment.
M4 Smart Motorways EIS, M4 Widening EIS and WestConnex M4 East EIS, NSW	Ambient noise monitoring, operational noise assessment and modelling.
Northern Beaches Hospital Road Network Upgrade EIS, NSW	Ambient noise monitoring, operational noise assessment and modelling.
CBD and South East Light Rail EIS, NSW	Noise and vibration environmental impact assessment.
North West Rail Link EIS, NSW	Ambient noise monitoring, operational and construction noise assessments and modelling.

Northern Sydney Freight Corridor, NSW	Operational noise assessment and modelling.
Sydney Light Rail, NSW	Operational noise and vibration measurements and compliance assessment.
Parramatta Rail Turnback Project, NSW	Ambient noise monitoring, operational and construction noise assessment.
	Industrial/Construction Projects
Oakdale Central, South and West Industrial Developments, NSW	Project manager and lead modeller for noise impact assessments for State Significant Development applications for large multi-stage industrial developments from DA stage to occupation and compliance stage, and preparation of construction and operational noise and vibration management plans.
Enfield Intermodal Logistics Centre, NSW	Preparation of construction and operational noise and vibration management plans.
Metropolitan Colliery, NSW	Ambient noise monitoring, operational noise measurements, risk assessment and noise mitigation strategy.
M2 Upgrade Project, NSW	OOHWs construction noise and vibration modelling and assessment.
	Built Environment Projects
Marsden Park North Precinct, NSW	Road traffic and ambient noise monitoring, assessment of noise impacts associated with the Precinct.
The Sheffield, Thornton, NSW	Acoustic assessment and advice for DA stage to CC stage mixed-use development.
Saint Mary Mackillop Catholic Church, Oran Park, NSW	Acoustic assessment and advice for CC to OC stage place of worship development.
Various Residential Developments, Epping, NSW	Acoustic assessment for DA stage residential developments.

MEMBERSHIPS

Member	Australian Acoustical Society

APPENDIX C

PSM Consult Letter, dated 10 April 2019 – *WNSLR Bridge, Review and Recommendation for Allowable Vibration from Piling and Earthworks*

Our Ref: PSM1541-381L

10 April 2019

AT&L
Level 7, 153 Walker Street
NORTH SYDNEY NSW 2060

Attention: Alex Lohrisch
By email: alexl@atl.net.au

G3 56 Delhi Road
North Ryde NSW 2113
P +61-2 9812 5000
F +61-2 9812 5001
E mailbox@psm.com.au
www.psm.com.au

Dear Alex

RE: WNSLR BRIDGE, REVIEW AND RECOMMENDATION FOR ALLOWABLE VIBRATION FROM PILING AND EARTHWORKS

1. Introduction

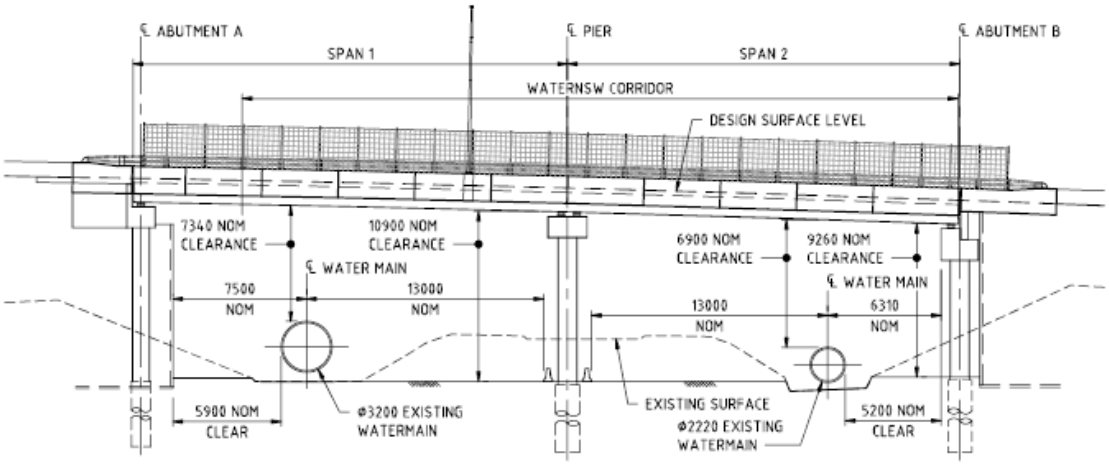
This letter provides advice on vibration for the proposed development of the bridge over the WaterNSW pipelines on the Western North-South Link Road (WNSlR).

We have been provided with the following documents:

- BG&E structural drawings "Bridge Over WaterNSW Pipelines" – Sheet 1 to 7 dated 17/12/2018.
- SLR "WNSLR Construction Noise and Vibration Management Plan" dated 8/11/2018.

We understand that as part of the proposed WNSLR development, a bridge will be constructed over the WaterNSW pipeline. The bridge will be supported on piles.

Insert 1 presents WaterNSW clearance diagram taken from BG&E drawing.



WATERNSW CLEARANCE DIAGRAM
NOT TO SCALE
DIMENSIONS SHOWN ARE NORMAL TO THE WATERMAIN, UNLESS NOTED OTHERWISE.
CLEARANCE DIMENSIONS SHOWN ARE SUBJECT TO FINIAL LOCATION AND LEVELS OF DESIGN SURFACES.

Inset 1: WaterNSW Clearance Diagram

Insert 2 presents selected site photos of the pipeline. The pipelines are above ground and are supported on saddles. We assume the pipe is welded.

Inset 2: WaterNSW pipeline

The horizontal distance between the proposed bridge piles and existing pipeline is at least 5.2 m.

The bored pile design requires the piles to be up to 17 m below surface. The pile excavation will be in soil units, eg. fill and residual soil (up to 3 m thick), very low to low strength shale (14 m thick) and founded on medium strength bedrock unit. The pile diameter will be between 1.2 m and 1.5 m.

2. Standards and Guidelines

We have reviewed the following documents regarding damage to structures due to vibration:

- BS 5228-2:2009 – Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration
- BS 7385-2:1993 – Evaluation and measurement for vibration in buildings – Part 2: Guide to damage levels from groundborne vibration
- DIN 4150-3:1999 – Structural Vibration - Part 3: Effects of vibration on structures
- AS 2187.2:2006 – Explosives - Storage and use - Part 2: Use of explosives
- Construction Noise and Vibration guideline – Road & Maritime Services

We note that experienced contractors should make their own assessment of the appropriate piling and earthworks equipment. The contractor should recognise that there is a potential for damage to the existing pipeline and consider this in planning and executing its work.

3. Vibration

3.1 Reference

The following sections provide a discussion of references we have considered when advising on appropriate vibration limits.

AS2187.2 - *Explosives - Storage and use Part 2 - Use of explosives* (2006) of contains vibration damage limits for structures, the limits are informative (rather than normative) and although it has been written for blasting, it is still considered applicable to other sources of vibrations.

Table J4.4.2.1 of the standard presents "*transient vibration guide values for the prevention of minor or cosmetic damage occurring in structures*", for "*Unreinforced or light framed structure. Residential or light commercial type buildings*". The suggested vibration limit applicable is 15 mm/s or 50 mm/s depending on the type of building. The term cosmetic damage is described in Table J4.4.2.2.

TABLE J4.4.2.1 of AS2187.2: 2001

TABLE J4.4.2.1

TRANSIENT VIBRATION GUIDE VALUES FOR COSMETIC DAMAGE (BS 7385-2)

Line	Type of building	Peak component particle velocity in frequency range of predominant pulse	
		4 Hz to 15 Hz	15 Hz and above
1	Reinforced or framed structures. Industrial and heavy commercial buildings	50 mm/s at 4 Hz and above	
2	Unreinforced or light framed structure. Residential or light commercial type buildings	15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz	20 mm/s at 15 Hz increasing to 50 mm/s at 40 Hz and above

NOTES:

1 Values referred to are at the base of the building.

2 For line 2, at frequencies below 4 Hz, a maximum displacement of 0.6 mm (zero to peak) should not be exceeded.

TABLE J4.4.2.2 of AS2187.2: 2001

TABLE J4.4.2.2

BS 7385-1:1990—DAMAGE CLASSIFICATION

Damage classification	Description
Cosmetic	The formation of hairline cracks on drywall surfaces or the growth of existing cracks in plaster or drywall surfaces; in addition, the formation of hairline cracks in the mortar joints of brick/concrete block construction
Minor	The formation of cracks or loosening and falling of plaster or drywall surfaces, or cracks through bricks/concrete blocks
Major	Damage to structural elements of the building, cracks in support columns, loosening of joints, splaying of masonry cracks etc.

We also note that Table 1 of the German Standard DIN 4150 *Structural Vibration Part 3, Effects of vibration on structures* (1999) suggests vibration limit for buildings based on the type of building.

TABLE 1 of DIN4150-3:1999

Table 1: Guideline values for vibration velocity to be used when evaluating the effects of short-term vibration on structures

Line	Type of structure	Guideline values for velocity, v_i, in mm/s			
		Vibration at the foundation at a frequency of			Vibration at horizontal plane of highest floor
		1 Hz to 10 Hz	10 Hz to 50 Hz	50 Hz to 100 Hz *)	at all frequencies
1	Buildings used for commercial purposes, industrial buildings, and buildings of similar design	20	20 to 40	40 to 50	40
2	Dwellings and buildings of similar design and/or occupancy	5	5 to 15	15 to 20	15
3	Structures that, because of their particular sensitivity to vibration, cannot be classified under lines 1 and 2 and are of great intrinsic value (e.g. listed buildings under preservation order)	3	3 to 8	8 to 10	8

*) At frequencies above 100 Hz, the values given in this column may be used as minimum values.

Section 5.3 of DIN 4150: Part 3 also sets out guideline values for vibration on buried pipework.

Table 2: Guideline values for vibration velocity to be used when evaluating the effects of short-term vibration on buried pipework

Line	Pipe material	Guideline values for velocity measured on the pipe, v_i, in mm/s
1	Steel (including welded pipes)	100
2	Clay, concrete, reinforced concrete, pre-stressed concrete, metal (with or without flange)	80
3	Masonry, plastic	50

3.2 Vibration Limit

Section 5.2.1.1 “Sydney Catchment Authority Pipelines” of SLR *Construction and Management Plan* dated November 2018 states:

> *The WNSLR passes over the SCA pipelines. The pipelines are installed above ground and are supported on saddles.*
>
> *The standards for vibration damage (Section 5.2.1* [BS 7385]*) do not cater for structures similar to the pipelines construction. For the purpose of protecting the pipelines from vibration associated with the proposed works a vibration criterion of 30 mm/s PPV has been adopted. This value applies at the top of the pipelines between saddles to capture vibration amplification effects.*
>
> *The proposed vibration threshold does not address settlement of the saddles and associated changes in static bending stresses of the pipelines.*

We note details of the pipeline footings, including saddles are not known to PSM.

Based on our review on the references in Section 3.1, we recommend a maximum peak particle velocity (PPV) of 15 mm/s be adopted as a vibration limit at the pipeline for the construction of the bridge. We note the recommended limit is less than that proposed by SLR in their monitoring plan, and that provided in the DIN guideline for buried steel pipes; thus it is more stringent. We consider the limit is very conservative but appropriate in the circumstances.

We consider the vibration from the construction work can be relatively easily controlled to be less than the recommended vibration limit.

We understand the following activities are the potential sources of vibration during bridge construction:

- Earthworks. We assume this relates mainly to the piling rig platform construction.
- Piling works. This comprises drilling of the bored piles into medium strength bedrock at 17 m below the surface.

We refer to Table 2 of RMS Construction Noise and Vibration Guideline regarding the minimum work distance from intensive plant.

Table 2: Recommended minimum working distances from vibration intensive plant of Construction Noise and Vibration Guideline – Road & Maritime Services NSW

Plant item	Rating / Description	Minimum working distance	
		Cosmetic damage (BS 7385)	Human response (OH&E Vibration guideline)
Vibratory Roller	< 50 kN (Typically 1-2 tonnes)	5 m	15 m to 20 m
	< 100 kN (Typically 2-4 tonnes)	6 m	20 m
	< 200 kN (Typically 4-6 tonnes)	12 m	40 m
	< 300 kN (Typically 7-13 tonnes)	15 m	100 m
	> 300 kN (Typically 13-18 tonnes)	20 m	100 m
	> 300 kN (> 18 tonnes)	25 m	100 m
Small Hydraulic Hammer	(300 kg - 5 to 12t excavator)	2 m	7 m
Medium Hydraulic Hammer	(900 kg – 12 to 18t excavator)	7 m	23 m
Large Hydraulic Hammer	(1600 kg – 18 to 34t excavator)	22 m	73 m
Vibratory Pile Driver	Sheet piles	2 m to 20 m	20 m
Pile Boring	≤ 800 mm	2 m (nominal)	4 m
Jackhammer	Hand held	1 m (nominal)	2 m

With regards to the earthworks, we advise the following:

- Any fill should be placed and compacted using a static roller with no vibration.
- While excavation in bedrock is not expected during earthworks in the proposed bridge area, we consider that excavation in very low to low strength shale should be achievable using a conventional earthmoving equipment.

With regards to the piling works, based on our experience drilling bored piles in the inferred ground conditions within the bridge area is unlikely to trigger the recommended vibration limit, i.e. PPV of 15 mm/s.

4. Vibration Monitoring

Vibrations due to construction activities should be monitored by geophones with the measurement of peak particle velocity recorded by a data logger. Vibrations will be monitored continuously for the duration of earthworks and piling works.

Geophones shall be installed by an acoustic consultant on top of pipe between saddles to monitor the vibration due to the works. We suggest the geophones be located at permanent spots as such that they do not require to be relocated during the works.

Baseline readings should be undertaken for geophones. We recommend at least a week before any work starts. This is to allow monitoring of background vibration levels around the site. The acoustic consultant and the Contractor must provide results of the baseline vibration monitoring including details of the construction activities and monitoring locations to Goodman. Prior to work commencing, the monitoring locations and vibration baseline survey with respect to background vibration levels should be approved.

A vibration monitoring plan shall be prepared for the proposed work and shall include the following items as a minimum:

- Vibration trigger levels. We recommend a three-tier traffic-light system (levels) with a list of actions for each level to be adopted.
- Monitoring frequency. We recommend the data to be downloaded and reported every month.
- Reporting requirements. We recommend the report to be issued to Goodman for review at the following stages:
  - prior to the work (baseline report),
  - every month during construction,
  - any times that a trigger level is reached
  - upon completion of construction

If required, PSM can prepare a vibration monitoring plan for the proposed work.

5. Dilapidation Survey

With regards to dilapidation survey of the pipes, we suggest the dilapidation surveys be undertaken at least for the following stages:

- Prior to commencement of any work on site
- After completion of the work

As a minimum the survey for each stage shall involve:

- Collecting photos of the conditions of the site and existing pipeline and the foundations.
- Mapping / Identifying any existing issues or cracks, etc. prior to, during and after the work.

Should you have any queries regarding this letter, please do not hesitate to contact the undersigned.

For and on behalf of
PELLS SULLIVAN MEYNINK

JOSSELIN RIBOT
GEOTECHNICAL ENGINEER

AGUSTRIA SALIM
PRINCIPAL

APPENDIX D

Correspondance with WaterNSW

Consultation

Water NSW

From: Justine Clarke <Justine.Clarke@waternsw.com.au>
Sent: Wednesday, 11 September 2019 9:25 AM
To: Alex Lohrisch <Alex.L@atl.net.au>
Cc: Stephanie Partridge <Stephanie.Partridge@goodman.com>; Alison Kniha <Alison.Kniha@waternsw.com.au>; Kym Dracopoulos <Kym.Dracopoulos@goodman.com>; Luke Ridley <Luke.Ridley@goodman.com>
Subject: WaterNSW Response - Oakdale West Estate - STAGE 1 CEMP

Hi Alex

Thank you for allowing WaterNSW the opportunity to comment on the Construction Environmental Management Plan (CEMP) for stage 1 of the Oakdale West Estate as per draft consent condition D111.

WaterNSW understands the works covered by the CEMP will be completed by Burtons and include;

- Bulk earthworks across the entire site (with the exception to the WNSLR works area which covers the Construction Access Road and Basin 1);
- Construction of the retaining and noise walls across the site;
- Construction of the western bund;
- Construction of lead in services infrastructure, including potable water, sewer, telecommunications and electrical;
- Construction of Roads 1, 2, 6 and part of Road 7;
- Construction of Basins 2, 3, 4, and 5; and
- Landscaping across the site.

WaterNSW notes that no works are planned within our lands and no access consent is requested for this stage of works. Nevertheless, works will be occurring directly adjacent to the Pipelines corridor.

WaterNSW acknowledges that controls adopted for the North South Link Road (NSLR) where relevant are included within this CEMP including vibration controls and monitoring, fencing arrangements, erosion and sediment controls, incident reporting, dilapidation surveying, ongoing consultation, and traffic controls. The implementation of these controls is essential for the protection of Sydney's critical water supply infrastructure.

In general WaterNSW supports the implementation of this plan and makes the following additional comments;

- To manage any unpredicted impacts to water quality on Ropes Creek and protect WaterNSW stormwater drainage infrastructure, controls for monitoring water quality and discharge risk should be included in the contingency plan at section 5.1 (Table 30).
- Include an item within section 3.4 'Inductions and Environmental Training' to notify workers and visitors that *'Access into the WaterNSW pipeline corridor is prohibited unless written access consent has been obtained from WaterNSW'*.

If you have any questions please do not hesitate to contact me.

Regards

Justine Clarke
Catchment and Asset Protection Adviser

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APPENDIX L

Construction Air Quality Management Plan

OAKDALE WEST ESTATE

Construction Air Quality Management Plan
SSD 7348

Prepared for:

Goodman Property Services (Aust) Pty Ltd
Level 17
60 Castlereagh Street
Sydney NSW 2000

SLR Ref: 610.17948-R06
Version No: -v1.6
January 2020

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BASIS OF REPORT

This report has been prepared by SLR Consulting Australia Pty Ltd (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Goodman Property Services (Aust) Pty Ltd (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 the Client. 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.

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CONTENTS

1 INTRODUCTION 5
1.1 Development Overview 5
1.2 Objectives of the CAQMP 7
2 STATUTORY REQUIREMENTS 8
2.1 Development Consent 8
3 PROJECT OVERVIEW 10
3.1 Location 10
3.2 Surrounding Land Uses 10
3.3 Construction Staging and Activities 10
3.4 Construction Hours 11
3.5 Construction Site Access 11
3.6 Construction Contact Details 13
4 POTENTIAL SOURCES OF AIR EMISSIONS 14
5 RELEVANT POLLUTANTS AND AIR QUALITY CRITERIA 15
5.1 Pollutants of Concern 15
5.1.1 Suspended Particulate Matter 15
5.1.2 Deposited Dust 15
5.2 Ambient Air Quality Criteria 16
5.2.1 Suspended Particulate Matter 16
5.2.2 Deposited Dust 16
5.3 Local Government Air Quality Toolkit 16
6 EXISTING ENVIRONMENT 17
6.1 Local Meteorology 17
6.2 Background Air Quality 17
7 ASSESSMENT OF DUST EMISSIONS DURING CONSTRUCTION 19
7.1 Construction Impact Assessment Methodology 19
7.2 Risk Assessment 19
8 MITIGATION MEASURES 21
9 COMPLAINTS HANDLING AND RESPONSE PROCEDURE 25
9.1.1 Performance Objective 25
9.1.2 Responsibility 25
9.1.3 Complaints Handling Procedure 25
9.1.4 Complaints Register 26
10 AIR QUALITY MONITORING PROGRAM 27

CONTENTS

11 CONTINGENCY MANAGEMENT PLAN 31

12 ROLES AND RESPONSIBILITIES 34

12.1 Contractor's Project Manager 34

12.2 Environmental Coordinator 34

12.3 All Workers on Site 34

13 REVIEW AND IMPROVEMENT OF THE CAQMP 35

14 REFERENCES 36

TABLES

Table 1 Assessment against Development Consent Conditions 8
Table 2 Site Access 11
Table 3 Construction Contact List 13
Table 4 NSW EPA Criterion for Particulate Matter 16
Table 5 NSW EPA Criterion of Nuisance Dust Deposition 16
Table 6 Summary of PM_{10} Monitoring Data at St Marys AQMS (2014 – 2018) 17
Table 7 Preliminary Risk of Air Quality Impacts from Construction Activities (Uncontrolled) 20
Table 8 Dust Mitigation Measures 21
Table 9 Summary of the Parameters to Assess the Effectiveness of Control Measures 24
Table 10 Air Quality Monitoring Program 28
Table 11 Air Quality Management – Visual Inspections 30
Table 12 Air Quality Contingency Management Plan for the OWE 31

FIGURES

Figure 1 Regional Locality 6
Figure 2 Oakdale West Layout 7
Figure 3 Site Access 12
Figure 4 Measured 24-Hour Average PM_{10} Concentrations at St Marys AQMS (2014 – 2018) 18
Figure 5 Dust Monitoring Locations for the OWE Construction Project 29

APPENDICES

Appendix A Wind Roses And Rainfall Data Analysis
Appendix B Curricullum Vitae of Author
Appendix C Construction Phase Risk Assessment Methodology
Appendix D Air Quality Notification Form

1 Introduction

SLR Consulting Australia Pty Ltd (SLR) has been commissioned by Goodman Property Services (Aust) Pty Ltd (Goodman) to prepare a Construction Air Quality Management Plan (CAQMP) for the construction of Oakdale West Industrial Estate (Oakdale West) located in western Sydney area of Erskine Park, New South Wales (NSW).

The CAQMP is required under Condition D92 of Development Consent for State Significant Development 7348 (SSD 7348), granted in 2019 by the Department of Planning, Industry and Environment (DPIE) for the Oakdale West 'Concept Proposal' and 'Stage 1 Development'.

Whilst development consent has been granted for Oakdale West 'Concept Proposal' and 'Stage 1 Development', this CAQMP is specifically for the construction of Oakdale West only. The construction of Western North South Link Road (WNSLR) is covered in a separate CAQMP.

1.1 Development Overview

Oakdale West is a regional warehouse and distribution hub, is located at Kemps Creek within the Penrith Local Government Area (LGA) and forms part of the broader Oakdale Industrial Precinct located within the Western Sydney Employment Area (WSEA) (see **Figure 1**).

Goodman obtained Development Consent SSD 7348 on 13 September 2019 from the DPIE for the Oakdale West 'Concept Proposal' and 'Stage 1 Development'. The Concept Proposal essentially comprises a 'Master Plan' to guide the staged development of Oakdale West and core development controls that will form the basis for design and assessment of future development applications for the site. It includes:

- Establishing primary site access, road layouts (including internal road network and connections to the external road network), developable and non-developable lands, biodiversity offsets, indicative development stages and development controls for the future development of the site;
- Stage 1 Development of the Estate including:
  - Estate Works, including site preparation, bulk earthworks and retaining walls, catchment level stormwater infrastructure, trunk services connections and utility infrastructure, roads and access infrastructure associated with Stage 1 and subdivision in Stage 1 development works;
  - Precinct Development, including construction, fit out and use of warehouse buildings within Precinct 1, detailed earthworks, on lot stormwater, services and utility infrastructure and construction of industrial/warehouse buildings;
  - Construction of a new regional road known as the WNSLR connecting to Lenore Drive to provide the primary access to the site; and
  - Western boundary landscaping.

This CAQMP has been prepared to cover the earthworks and civil construction to be undertaken by Burton Civil Engineering Contractors (Burton) across Oakdale West (see **Figure 2**). A separate CAQMP has been prepared to cover the construction of the WNSLR which will be undertaken by Robson Civil Projects (Robson). AT&L Associates (AT&L) will act as the Project Manager and Contract Superintendent overseeing both the construction of the Oakdale West and WNSLR.

Note: Where Goodman is nominated as having responsibility as the Applicant, this may be delegated to their specialist consultants.

For the purposes of this document, the development is described in *Environmental Impact Statement, Oakdale West Estate - State Significant Development Application* (EIS) prepared by Urbis (2017), including all specialist assessments and other appendices.

Figure 1 Regional Locality

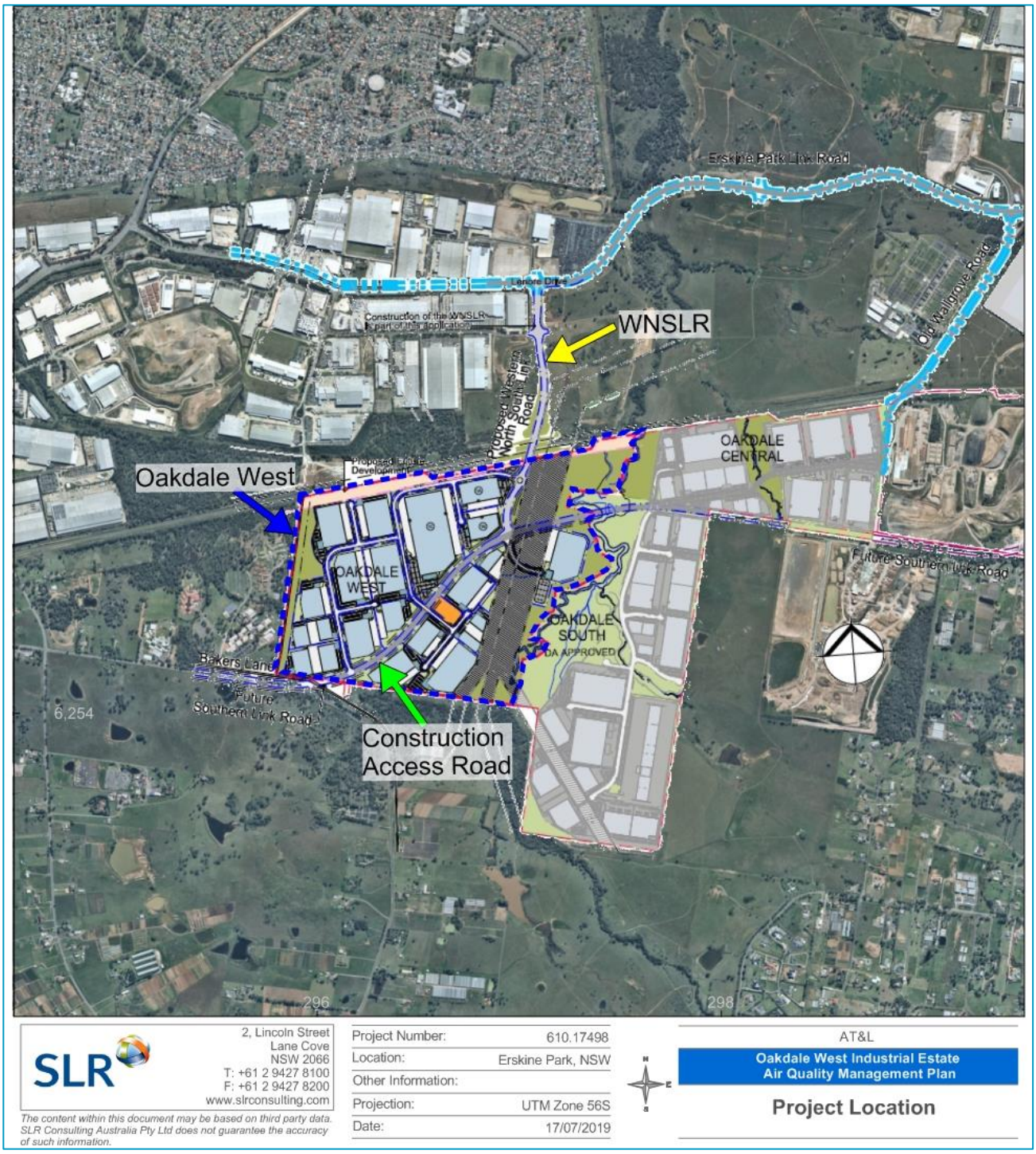
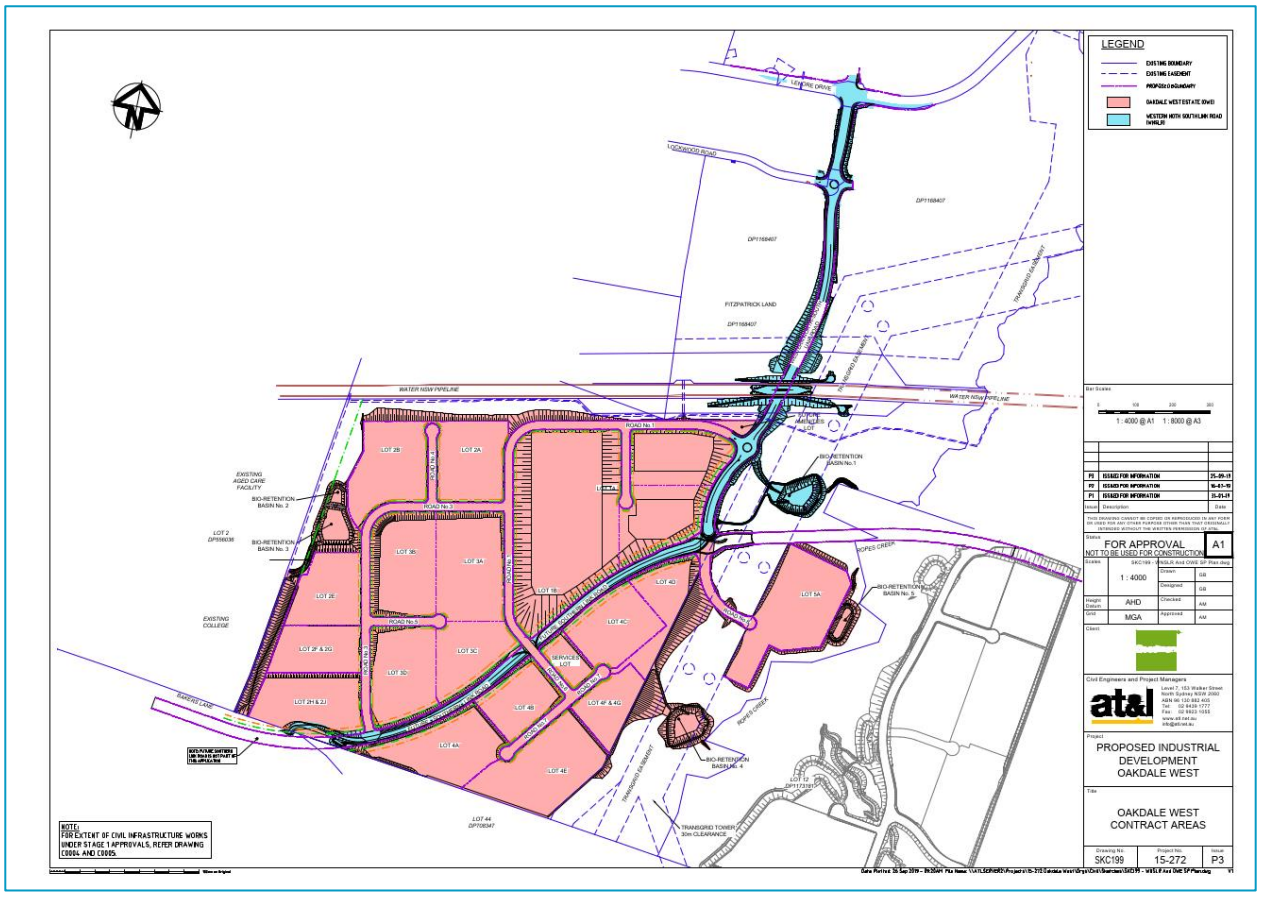


Figure 2 Oakdale West Layout



1.2 Objectives of the CAQMP

The objectives of the CAQMP are as follows:

- Maintain acceptable levels of amenity for surrounding residents;
- Ensure compliance with relevant ambient air quality criteria for particulate matter at surrounding receptor locations;
- Maintain an effective response mechanism to deal with issues and complaints relating to dust emissions from the construction works;
- Outline roles and responsibilities in relation to the management of dust emissions during construction; and
- Promote environmental awareness among employees and subcontractors.

2 Statutory Requirements

2.1 Development Consent

The Development Consent (SSD 7348) requirements stipulated for the construction of Oakdale West and where they have been addressed in this CAQMP are shown in **Table 1**.

Table 1 Assessment against Development Consent Conditions

Conditions	Response/Section Reference
Condition D98 of SSD 7348	
The Applicant must take all reasonable steps to minimise dust generated during all works authorised by this consent	**Section 8**
Condition D99 of SSD 7348	
During construction of Stage 1, the Applicant must ensure that: (a) exposed surfaces and stockpiles are suppressed by regular watering and or other dust suppression methods; (b) all trucks entering or leaving the Site with loads have their loads covered; (c) trucks associated with Stage 1 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.	**Section 8**
Condition D100 of SSD 7348	
(a) be prepared by a suitably qualified and experienced person(s)	2-page CV of the author is attached in **Appendix B**
(b) detail and rank all emissions from all construction activities, including particulate emissions	**Section 4**
(c) describe a program that is capable of evaluating the performance of the construction and determining compliance with key performance indicators	**Section 10**
(d) identify the control measures that will be implemented for each emission source	**Section 8**
(e) nominate the following for each of the proposed controls: - key performance indicator - monitoring method - location, frequency and duration of monitoring - record keeping - complaints register - response procedures - compliance monitoring	**Section 8 &** **Section 10**
Condition D118 of SSD 7348	

Conditions	Response/Section Reference
(a) details of: (i) the relevant statutory requirements (including any relevant approval, licence or lease conditions); (ii) any relevant limits or performance measures and criteria; and (iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, Stage 1 or any management measures;	**Section 5.2**
(b) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	**Section 8**
(c) a program to monitor and report on the: (i) impacts and environmental performance of Stage 1; and (ii) effectiveness of the management measures set out pursuant to paragraph (b) above;	**Section 10**
(d) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	**Section 11**
(e) a program to investigate and implement ways to improve the environmental performance of Stage 1 over time;	**Section 13**
(f) a protocol for managing and reporting any: (i) incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria); (ii) complaint; (iii) failure to comply with statutory requirements; and	**Section 9 &** **Section 10** See overarching CEMP
(g) a protocol for periodic review of the plan.	**Section 13**

3 Project Overview

3.1 Location

Oakdale West is legally described as Lot 11 DP 1178389 at the far south-western extent of the WSEA.

The site is bound to the north by the Water NSW Pipeline and to the east by the Ropes Creek riparian corridor. Land along the eastern boundary of the site is also affected by a transmission easement associated with the Transgrid infrastructure. To the east of the site is Goodman's Oakdale South estate. Emmaus Catholic College and Emmaus Retirement Village is located to the west of the site. Other boundaries interface with adjoining rural lands used for a mix of rural-residential, agricultural.

3.2 Surrounding Land Uses

The area surrounding Oakdale West includes land uses such as industrial warehouses and factories, several of which have been identified as having the potential to be considered sources of air emissions. The nearest residential receptors to Oakdale West boundary is located approximately 50 m south on Aldington Road, Erskine Park.

3.3 Construction Staging and Activities

Stage 1 development of the Oakdale West Concept Proposal includes the site preparation and infrastructure works required to facilitate further development of the estate in line with the Concept Proposal, along with the development of Precinct 1 for warehousing and distribution.

The remainder of the Oakdale West is expected to be developed over four further stages with Stage 2 being the development of Precinct 2, Stage 3 being Precinct 3, Stage 4 being Precinct 4 and Stage 5 being Precinct 5.

Construction is scheduled to commence prior to the WNSLR. This is estimated to occur during October 2019 and will take approximately 120 weeks.

The works that will be constructed by Burtons include:

- Bulk earthworks across the entire site (with the exception to the WNSLR works area which covers the Construction Access Road and Basin 1);
- Construction of the retaining and noise walls across the site;
- Construction of the western visual mound;
- Construction of lead in services infrastructure, including potable water, sewer, telecommunications and electrical;
- Construction of Roads 1, 2, 6 and part of Road 7;
- Construction of Basins 2, 3, 4, and 5; and
- Landscaping across the site.

No on-lot warehouse construction will be undertaken by Burtons. Burtons work will not be staged, however the Western visual mound , which includes the installation of a new snake proof barrier fence along the Western Boundary, will be programmed to occur as part of the works activities to be undertaken first.

The earthworks require the importation of approximately 500,000 – 600,000m^3 of material. Due to the limitations to the import of general fill via the Bakers Lane site entry, the importation process cannot commence until the WNSLR is completed and available for use.

3.4 Construction Hours

Construction hours for the Oakdale West will be in accordance with Condition D70 and D71 of Development Consent SSD 7348, which are reproduced below:

> ***D70**. The Applicant must comply with the hours detailed in Table 5, unless otherwise agreed in writing by the Planning Secretary.*
>
> ***Table 5**: Hours of Work*

Activity	Day	Time
Construction	Monday – Friday Saturday	7 am to 6 pm 8 am to 1 pm
Operation	Monday – Sunday (including public holidays)	24 hours

> ***D71**. Works outside of the hours identified in Condition D62 may be undertaken in the following circumstances:*
>
> *a) works that are inaudible at the nearest sensitive receivers;*
>
> *b) works agreed to in writing by the Planning Secretary;*
>
> *c) for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or*
>
> *d) where it is required in an emergency to avoid the loss of lives, property or to prevent environmental harm.*

3.5 Construction Site Access

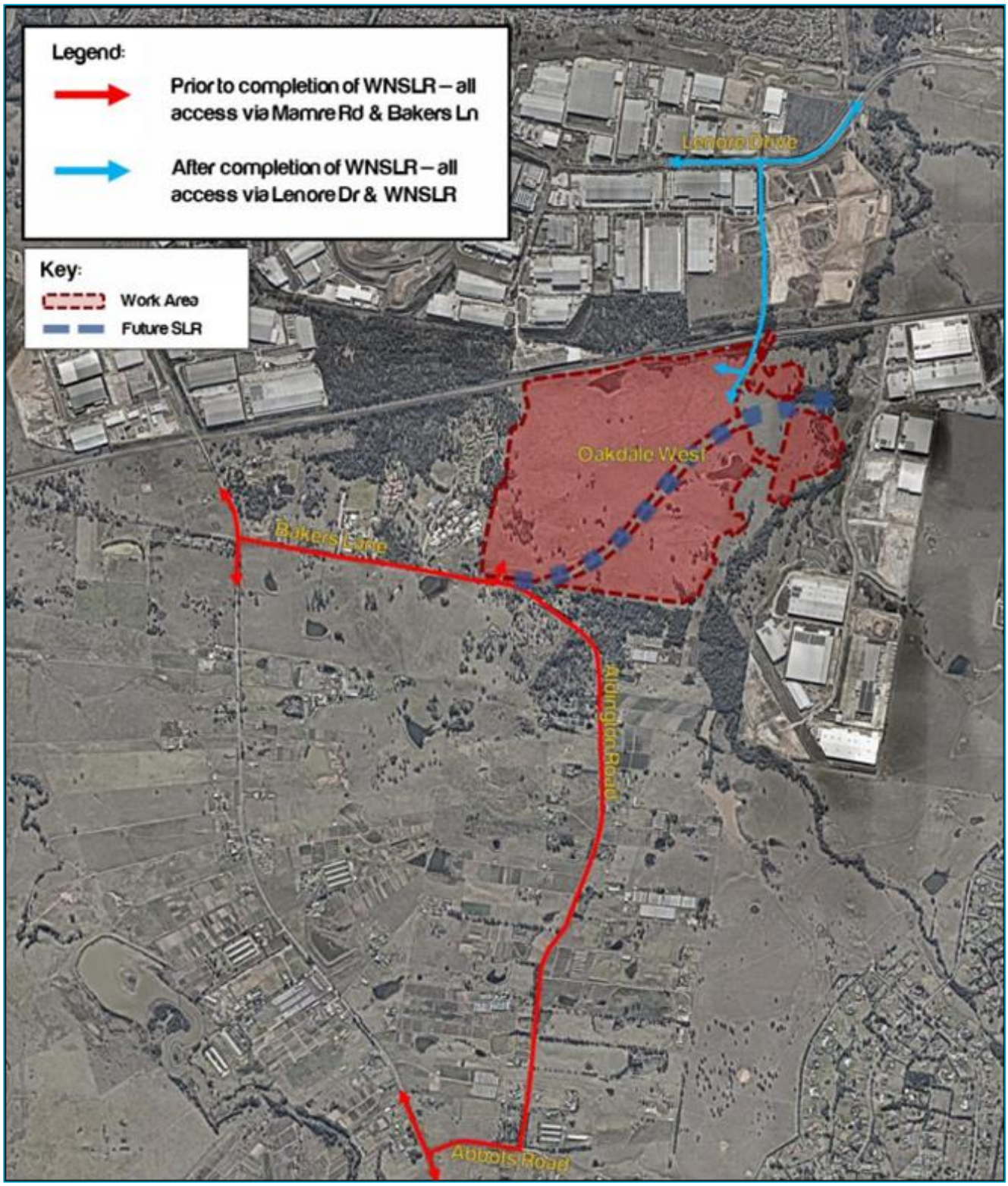
Access to Oakdale West will be separate from the construction access associated with the WNSLR works which will be constructed along the future Southern Link Road (SLR) alignment. The Oakdale West construction access will be located to the west of the SLR access off Bakers Lane.

Any construction traffic crossing the Robson Civil (contractor constructing the WNSLR) temporary Construction Access Road will do so via designated crossing points which will be determined in consultation between Burton and Robson. In accordance with the Construction Traffic Management Plan (CTMP) (Ason 2019), **Table 2** and **Figure 3** detail the site access arrangements for the construction of Oakdale west.

Table 2 Site Access

Work Zones	Access Arrangement
Prior to the completion of the WNSLR	All vehicles will access via Baker Lane
Post completion of the WNSLR	All vehicles will access via the WNSLR.

Figure 3 Site Access



3.6 Construction Contact Details

Table 3 lists the key contacts during the construction of Oakdale West.

Table 3 Construction Contact List

Role	Name	Company	Contact Details
Project Principal	Kym Dracopoulos	Goodman	0411 511 431 kym.dracopoulos@goodman.com
Project Manager	Alasdair Cameron	Goodman	0402 458226 Alasdair .cameron@goodman.com
Principal's Superintendent	Mark Ward	AT&L	0408 699 026 mark.w@atl.net.au
Contract Superintendent	AT&L	AT&L	02 9437 1777 info@atl.net.au
Project Manager	Alex Lohrisch	AT&L	0415 398 014 alexl@atl.net.au
Contractor's Project Manager	David Claxton Dermot Walsh	Burton	0418 286 093 david.claxton@burtoncontractors.com.au 0457 406609 Dermot.walsh@burtoncontractors.com.au
Environmental Coordinator	Luke Slechta	Burton	0429 771 070 luke.slechta@burtoncontractors.com.au
Work Health and Safety (WHS) Coordinator	Andre Van Gelder	Burton	0412 173 573 Andre.VanGelder@burtoncontractors.com.au
Environmental Representative	Carl Vincent	ERSED	0424 203 046 carl.vincent@ersed.com.au
Communications and Community Liaison Representative	Dan Thompson	SLR	0428 060 995 dthompson@slrconsulting.com

4 Potential Sources of Air Emissions

During the construction works, fugitive dust emissions are considered to be the primary emission type, which could give rise to nuisance and/or health impacts for the surrounding sensitive areas. The key potential sources of dust associated with construction of the OWE have been identified as:

- Dust emissions from earthworks activities (eg excavation and loading of soils to trucks);
- Wind-generated dust from disturbed surfaces and stockpiles;
- Wheel-generated dust and particulate matter emissions in diesel exhaust emissions from on-site plant and equipment and construction traffic movements; and
- Particulate matter associated with exhaust emissions from increased/congested traffic emissions due to road closures or diversions.

In addition to the construction activities being carried out at any point in time, a number of other environmental factors may also affect the generation and dispersion of dust emissions, including:

- Wind direction - determines whether dust and suspended particles are transported in the direction of the sensitive receptors;
- Wind speed - governs the potential suspension and drift resistance of particles;
- Surface type - more erodible surface material types have an increased soil or dust erosion potential;
- Surface material moisture - increased surface material moisture reduces soil or dust erosion potential;
- Other external factors such as current works being undertaken by others outside of the defined Project boundaries and current climatic (dry) weather conditions;
- Rainfall or dew - rainfall or heavy dew that wets the surface of the soil reduces the risk of dust generation.

The Environmental Impact Statement (EIS) for the construction and operation of OWE was prepared by URBIS in November 2017 (URBIS 2017). Appendix U (Air Quality Impact Assessment) of the EIS states that the main emissions to air during the construction phase will be emissions of particulate matter (as TSP, PM_{10} and $PM_{2.5}$) and nuisance dust from the movement of vehicles and construction equipment, excavation and rehabilitation, demolition, clearing and grading, truck loading and unloading and wind erosion.

The construction activities are broadly divided into four categories, ie demolition, earthworks, construction (building) and trackout. Potential air quality impacts associated with the construction of the OWE and the relative risk ratings are addressed in **Section 7**.

5 Relevant Pollutants and Air Quality Criteria

5.1 Pollutants of Concern

As identified in **Section 4**, potential air pollutants of interest for the construction of Oakdale West are considered to be both:

- Suspended particulate matter; and
- Deposited dust.

The following sections outline the potential health and amenity issues associated with the above pollutants, while **Section 5.2** outlines relevant air quality assessment criteria.

5.1.1 Suspended Particulate Matter

Airborne contaminants that can be inhaled directly into the lungs can be classified on the basis of their physical properties as gases, vapours or particulate matter. In common usage, the terms "dust" and "particulates" are often used interchangeably. The health effects of particulate matter are strongly influenced by the size of the airborne particles. Smaller particles can penetrate further into the respiratory tract, with the smallest particles having a greater impact on human health as they penetrate to the gas exchange areas of the lungs. Larger particles primarily cause nuisance associated with coarse particles settling on surfaces.

The term "total particulate matter" (TSP) refers to a category of airborne particles, typically less than 30 microns (µm) in diameter. Particulate matter with an aerodynamic diameter of 10 microns or less is referred to as PM_{10}. The PM_{10} size fraction is sufficiently small to penetrate the large airways of the lungs, while $PM_{2.5}$ (2.5 microns or less) particulates are generally small enough to be drawn in and deposited into the deepest portions of the lungs. Potential adverse health impacts associated with exposure to PM_{10} and $PM_{2.5}$ include increased mortality from cardiovascular and respiratory diseases, chronic obstructive pulmonary disease and heart disease, and reduced lung capacity in asthmatic children. In an urban setting, the emission of $PM_{2.5}$ is primarily associated with vehicles exhausts resulting from the incomplete combustion of diesel.

For the purposes of this CAQMP, suspended particulate matter refers to PM_{10} only.

5.1.2 Deposited Dust

Section 5.1.1 is concerned in large part with the health impacts of particulate matter. Nuisance impacts need also to be considered, mainly in relation to deposited dust. Dust can cause nuisance by settling on surfaces and possessions, affecting visibility and contaminating tank water supplies. High rates of dust deposition can also adversely affect vegetation by blanketing leaf surfaces.

5.2 Ambient Air Quality Criteria

There are no air quality criteria outlined within the Development Consent SSD 7348, therefore the NSW EPA criteria have been adopted in **Table 4** and **Table 5**.

5.2.1 Suspended Particulate Matter

State air quality guidelines specified by the NSW Environmental Protection Agency (EPA) for the pollutants identified in **Section 5.1** are published in the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (EPA 2017a) (hereafter 'Approved Methods'). The ground level air quality impact assessment criteria listed in Section 7 of the Approved Methods have been established by NSW EPA to achieve appropriate environmental outcomes and to minimise associated risks to human health as published in the Approved Methods. They have been derived from a range of sources and are the defining ambient air quality criteria for NSW, and are considered to be appropriate for use in this assessment.

A summary of the relevant impact assessment criteria for particulate matter is provided in **Table 4**.

Table 4 NSW EPA Criterion for Particulate Matter

Pollutant	Averaging Period	Concentration
PM_{10}	24 Hours	50 µg/m^3
	Annual	25 µg/m^3

Source: EPA 2017a

5.2.2 Deposited Dust

The relevant criterion for nuisance dust deposition is provided in **Table 5**. The rate of dust deposition is measured by means of a collection gauge, which catches the dust settling over a fixed surface area and over a period of about 30 days.

Table 5 NSW EPA Criterion of Nuisance Dust Deposition

Pollutant	Averaging Period	Assessment Criteria (g/m^2/month)
Deposited dust	Annual	2 (maximum increase in deposited dust level) 4 (maximum total deposited dust level)

5.3 Local Government Air Quality Toolkit

The NSW EPA has developed the Local Government Air Quality Toolkit (EPA 2018), in response to requests from local Council officers for information and guidance on the common air quality issues they manage. Guidance is available under Part 3 of the Local Government Air Quality Toolkit for Construction Sites.

This document lists the common sources of emissions and mitigation and management measures to control airborne dust levels from construction sites and has been consulted in the development of this CAQMP.

6 Existing Environment

6.1 Local Meteorology

The Bureau of Meteorology (BoM) maintains and publishes data from weather stations across Australia. The closest such station recording wind speed and wind direction data is the Horsley Park Automatic Weather Station (AWS) (Station ID 67119), located approximately 5.5 kilometres (km) southeast of the Oakdale West. The long term and short term seasonal wind roses and long term rainfall patterns observed at the Horsley Park AWS indicate that:

- Winds that would blow fugitive dust emissions from the demolition/construction works towards the nearest sensitive receptors located to the west and south of the proposed construction activities occur rarely during autumn and winter, and are more likely to occur during summer and spring.
- The long term wind and rainfall patterns suggest that the construction at the Development Site have the greatest potential to impact on surrounding sensitive receptors during the months of May (autumn), and July (winter) to October (spring).

Full analysis of the wind roses and rainfall can be found in **Appendix A**.

6.2 Background Air Quality

The NSW OEH maintains a network of Air Quality Monitoring Stations (AQMSs) across NSW. The nearest such station is located at St Marys, approximately 4.5 km northwest of Oakdale West. The St Marys AQMS was commissioned in 1992 and is located on a residential property off Mamre Road, St Marys. It is situated in the centre of the Hawkesbury Basin and is at an elevation of 29 m.

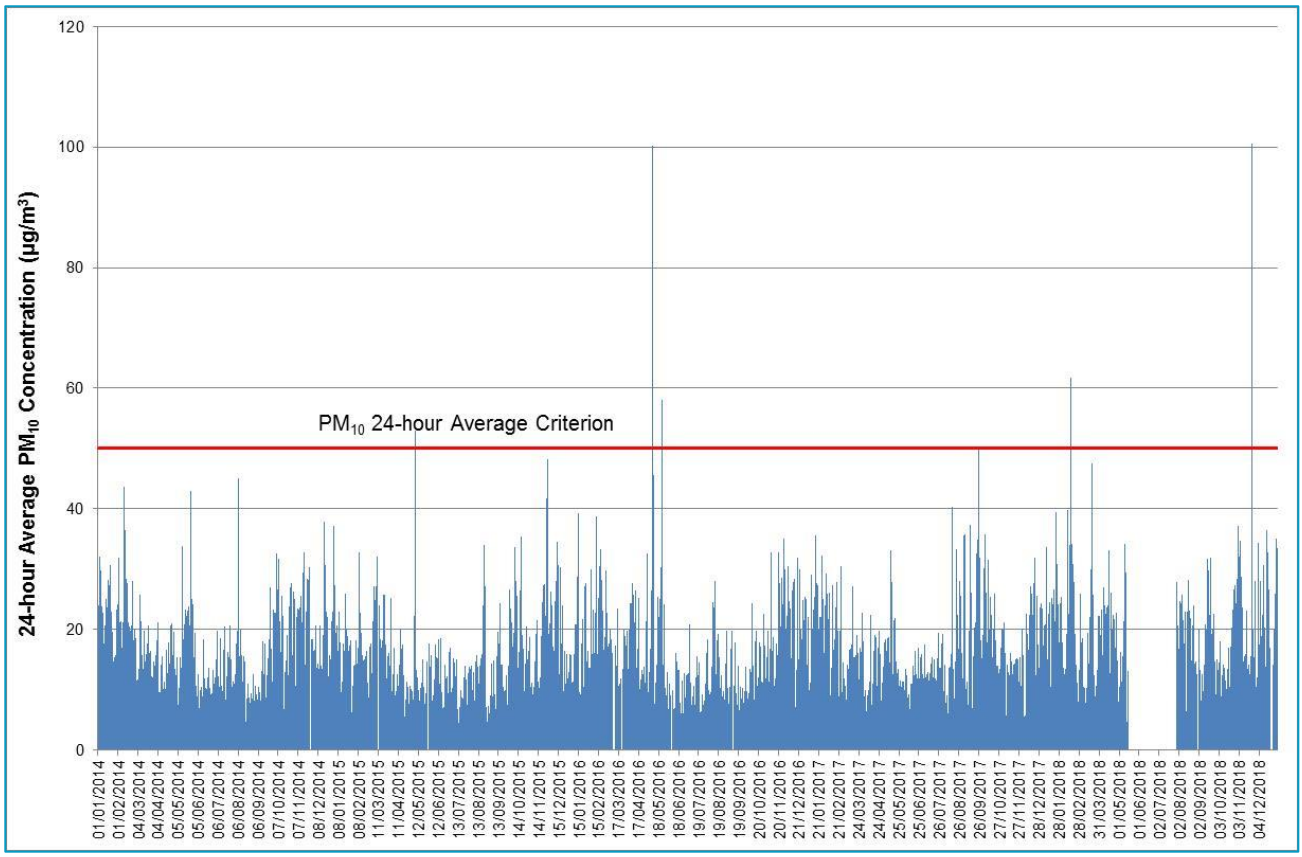
There were no exceedances of the 24 hour average criterion in 2014 and 2017, one exceedance in 2015 and three exceedances in 2016 and two exceedances in 2018. A summary of the PM_{10} concentrations for the last five years (2014-2018) is tabulated in **Table 6** and presented graphically in **Figure 4**.

Table 6 Summary of PM_{10} Monitoring Data at St Marys AQMS (2014 – 2018)

Averaging Period	Maximum 24-hour Average	Annual
	µg/m^3	µg/m^3
2014	45.0	16.7
2015	53.0[a]	15.0
2016	100.2[b]	16.1
2017	49.8	16.2
2018	100.5c	19.4
Criterion	50	25

[a] Recorded on 6 May 2015
[b] Recorded on 8 May 2016
[c] Recorded on 22 November 2018

Figure 4 Measured 24-Hour Average PM_{10} Concentrations at St Marys AQMS (2014 – 2018)



A review of the exceedances recorded during 2015 (OEH 2017a), 2016 (OEH 2018a), 2017 (OEH 2018b) and 2018 (OEH 2019) indicates that they were associated with natural events such as bushfires or dust storms, or hazard reduction burns.

It has been noted the NSW EPA in their publication – NSW Annual Air Quality Statement 2018 (OEH 2019) state that air quality is generally good in New South Wales based on information from the 43 station NSW Air Quality Monitoring Network. For 2018, the air quality was generally 'good', and air quality standards were met for 98% of the days in Sydney. During this time, exceedances of the national air quality standards for particle pollution have usually been associated with regional dust storms and vegetation fires.

PM_{10} concentrations vary across years with higher levels and more exceedances occurring in bushfire and dust storm affected years. Dry El Niño years (2002–2007) have been associated with a greater frequency of bushfires and dust storms and therefore higher particle pollution levels. Lower particle pollution levels have occurred during wetter La Niña years (2010–2012).

7 Assessment of Dust Emissions During Construction

The key potential health and amenity issues associated with construction of the OWE are, respectively:

- Elevated suspended particulate concentrations (PM_{10}); and
- Nuisance due to dust deposition (soiling of surfaces) and visible dust plumes that may potentially be observed to be leaving the site.

7.1 Construction Impact Assessment Methodology

Quantitatively assessing impacts of fugitive dust emissions from construction projects using predictive modelling is seldom considered appropriate, primarily due to the uncertainty in the details of the construction activities, including equipment type, number, location and scheduling, which are unlikely to be available at the time of the assessment. Furthermore, they are also likely to change as construction progresses. In comparison, the equipment and operations of a mine or quarry are determined during the planning stages and more likely to remain consistent for long periods (several months or years).

Instead, it is considered appropriate to conduct a qualitative assessment. Potential impacts of dust emissions associated with proposed demolition and construction activities at the Development Site has been performed based on the methodology outlined in the Institute of Air Quality Management (UK) (IAQM) document, "*Assessment of dust from demolition and construction*" (Holman et al 2014). This guidance document provides a structured approach for classifying construction sites according to the risk of air quality impacts, to identify relevant mitigation measures appropriate to the risk (see **Appendix C** for full methodology).

The IAQM approach has been used widely in Australia for the assessment of air quality impacts from construction projects and the identification of appropriate mitigation measures, which has been accepted by regulators across all states and territories for a variety of construction projects.

The IAQM method uses a four-step process for assessing dust impacts from construction activities:

- **Step 1**: Screening based on distance to the nearest sensitive receptor; whereby the sensitivity to dust deposition and human health impacts of the identified sensitive receptors is determined.
- **Step 2**: Assess risk of dust effects from activities based on:
  - the scale and nature of the works, which determines the potential dust emission magnitude; and
  - the sensitivity of the area surrounding dust-generating activities.
- **Step 3**: Determine site-specific mitigation for remaining activities with greater than negligible effects.
- **Step 4**: Assess significance of remaining activities after management measures have been considered.

7.2 Risk Assessment

Table 7 presents the preliminary risk of air quality impacts from uncontrolled construction activities determined using the risk matrix provided in (**Table C4** in **Appendix C**), based on the identified receptor sensitivity and sensitivity of the area.

Table 7 Preliminary Risk of Air Quality Impacts from Construction Activities (Uncontrolled)

Impact	Sensitivity of Area	Dust Emission Magnitude				Preliminary Risk			
		Demolition	Earthworks	Construction	Trackout	Demolition	Earthworks	Construction	Trackout
Dust Soiling	Low	Small	Large	Large	Medium	Negligible	Low Risk	Low Risk	Low Risk
Human Health	Low					Negligible	Low Risk	Low Risk	Low Risk

The results indicate that there is a low risk of adverse dust soiling and a low risk of human health impacts occurring at the off-site sensitive receptor locations if no mitigation measures were to be applied to control emissions during the works.

Based on the dust emission magnitudes and the preliminary risk from these activities, the activities are ranked as (highest risk to lowest risk):

1. Earthworks
2. Construction
3. Track out
4. Demolition

For almost all construction activity, the IAQM Methods notes that the aim should be to prevent significant effects on receptors through the use of effective mitigation and experience shows that this is generally possible.

8 Mitigation Measures

The potential for dust emissions during construction works at Oakdale West and the potential impact (as discussed in **Section 4**) on surrounding sensitive receptors are anticipated to be largely controllable through a range of mitigation measures, including good site management, good housekeeping measures, appropriate vehicle maintenance and applying appropriate dust mitigation measures where required. The dust mitigation measures to be implemented during the construction of Oakdale West are detailed in **Table 8**. The dust mitigation measures specific to the key emission activities (i.e. earthworks, construction, track out and demolition) are also provided in **Table 8.**

Note: **Table 8** is replicated as Table 13 in the CEMP.

Table 8 Dust Mitigation Measures

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Communications			
The Community Communications Strategy will be implemented.	Communications and Community Liaison Representative	Prior to commencing construction and ongoing	Best practice
The name and contact details of person(s) accountable for air quality and dust issues will be displayed on the site boundary. This may be the Contractor's Project Manager.	Burton		
The head or regional office contact information will be displayed on site signage.			
Site Management			
All dust and air quality incidents will be undertaken as per Section 3.5 of the CEMP.	Burton	Ongoing	CEMP Section 3.5
All dust and air quality complaints will be undertaken as per Section 3.6 of the CEMP.			CEMP Section 3.6
Where excessive dust events occur (i.e. prolonged visual dust in a particular area), additional watering of dust producing activities will be undertaken or activities temporarily halted until such times that the dust source is under control.		During excessive dust events	Best practice
Horsley Park Bureau of Meteorology station weather forecast will be reviewed daily (i.e. wind, rain) to inform site dust management procedures for the day.		Daily	
Preparing and Maintaining the Site			
All reasonable steps to minimise dust generated will be undertaken during construction.	Burton	Ongoing	SSD 7348 Condition D90
Exposed surfaces and stockpile will be suppressed by regular watering or use of approved dust suppressants.			SSD 7348 Condition D91a
Land stabilisation works will be carried out in such a way on site to minimise exposed surfaces.			SSD 7348 Condition D91e

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Construction of Oakdale West will not cause or permit the emission of any offensive odour, as defined in the POEO Act.	Burton	Ongoing	SSD 7348 Condition D94
Dust generating activities in areas close to receptors will be closely monitored and additional mitigation applied as required to best manage potential dust emissions			Best practice
Stockpiles that will be in place for more than 20 days and are not actively used as well as any stockpiles that are susceptible to wind or water erosion will be suitably protected from erosion within 10 days of the establishment of each stockpile. Temporary stabilisation of disturbed surfaces will be undertaken within two weeks of the stockpile being established.			
Site fencing and barriers will be kept clean using wet methods.			
Operating Vehicle/Machinery and Sustainable Travel			
Trucks associated with Stage 1 will not track dirt off site and onto Bakers Lane	Burton	Ongoing	SSD 7348 Condition D91c
Project access roads used by delivery trucks will be kept clean.			SSD 7348 Condition D91d
All on-road vehicles will comply with relevant vehicle emission standards (prescribed by the NSW RMS), where applicable, and will be maintained in good condition, in accordance with manufacturer's specifications and POEO Act.			Best practice
Delivery trucks will switch off engines whilst undertaking a delivery on-site, if idling time is likely to exceed 5 minutes.			
Vehicle speed limit restrictions are implemented on site, including: • General - 20km/h • High risk area - 10km/h • Haul routes – 50 km/h			
Truck queuing and unnecessary trips will be minimised through logistical planning and by the identification and use of specific park up/hold areas away from the Project and Bakers Lane			
Operations			
Only cutting, grinding or sawing equipment fitted with suitable dust suppression systems, such as water sprays will be used.	Burton	Ongoing	Best practice
Adequate water supply will be available on the site for effective dust/particulate matter suppression/ mitigation using a combination of potable and non-potable water sources.			

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Water carts will be used on all denuded or exposed surfaces and unsealed roads to minimise dust emissions.	Burton	Ongoing	Best practice
Equipment, inclusive of, but not limited to Environmental spill kits will be readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.			
Works will be assessed during strong winds or in weather conditions where high levels of airborne particulates may potentially impact the sensitive receivers. Continual monitoring of wind speed and direction will be undertaken to guide this decision and ensure that adequate mitigation measures are undertaken		Continuously and during high winds	
Waste Management			
All trucks entering or leaving the Site will have their loads covered.	Burton	Ongoing	SSD 7348 Condition D91b
No waste materials, timbers or any other combustible materials will be burnt on site.			Best practice
Earthworks			
Scopes of work will be planned in such a way to assist in minimising the duration that surfaces are left denuded	Burton	Ongoing	Best practice
Rehabilitation of disturbed surfaces will be undertaken within 20 days of final construction levels.		Within 20 days of final construction levels	
If unanticipated strong odours or significant visual dust emissions are noted or observed on site, an investigation will be undertaken by the Burton Project Manager to identify the scope of work or source of the emission prior to undertaking and applying any additional mitigation measures.		Ongoing	
Construction			
Sand and other aggregates will not be allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.	Burton	Ongoing	Best practice
Trackout			
Water-assisted road sweeper(s) will be used on an as required basis on Bakers Lane should any material be tracked out of the site.	Burton	Ongoing	Best practice
Record all regular inspections and maintenance undertaken of site haul routes and project related access roads (Bakers Lane) in a site log book.			
A wheel washing system and/or cattle grid system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site) will be implemented.			
Demolition			

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Ensure effective water suppression of dust is used during demolition operations.	Burton	Ongoing	Best practice
Bag and remove any biological debris or damp down such material before demolition.			

As required by condition D100 (e), **Table 9** summarises the parameters identified to assess the effectiveness of the control measures shown in **Table 8**.

Table 9 Summary of the Parameters to Assess the Effectiveness of Control Measures

Parameter	Visible Dust	Dust Deposition	Complaints	PM_{10}
Key performance indicator	No visible dust leaving the site boundary	<4 g/m^2/month	No complaints related to nuisance dust	<50 $\mu g/m^3$ as a 24-hour average
Monitoring method	Visual inspection/observations	Dust deposition gauges	-	See note
Location, frequency and duration of monitoring	Daily onsite inspection	Section 10	-	See note
Record keeping	Section 9	Section 11	Section 9	See note
Response procedures	Section 11	Section 11	Section 9	See note
Compliance monitoring	-	Section 10	-	See note

Note: Real-time suspended particulate monitors are installed at the site to assist with dust management (see **Section 9**). The monitoring system used however, does not meet the requirements of a compliance instrument. Should compliance-level monitoring be required as per **Table 10**, then this table will be updated to reflect the expanded monitoring programme.

9 Complaints Handling and Response Procedure

All complaints will be handled in accordance with the sections below and the OWE *Community Communication Strategy* (CCS) (SLR 2019).

9.1.1 Performance Objective

To ensure that all environmental complaints in relation to the air emissions from construction of the OWE are promptly and effectively received, handled and addressed.

9.1.2 Responsibility

The Communications and Community Liaison Representative is 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 the CEMP will be used to ensure all site employees are aware of and understand their obligations for complaints response.

All employees who take receipt of a complaint, either verbal or written, are to immediately notify the Contractor's Project Manager, who will then contact the Communications and Community Liaison Representative.

9.1.3 Complaints Handling Procedure

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

1. Record and Acknowledge

Any employee who take receipt of a complaint, either verbal or written, is to immediately notify the Contractor's Project Manager who will then contact the Communications and Community Liaison Representative. The Contractor's Project Manager will be available 24 hours a day, seven days a week and have the authority to stop or direct works.

In the normal course of events, the first contact for complaints will usually be made in person or by telephone.

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 will be made on the form and complainant advised of this.

2. Assess and Prioritise

The Communications and Community Liaison Representative will prioritise all complaints by considering the seriousness of the complaint including risk to health and safety and will attempt to provide an immediate response via phone or email. This will be undertaken in accordance with the CCS (SLR 2019).

3. Investigate

A field investigation will be initiated in an attempt to confirm details relevant to the complaint and the cause of the problem. Any air quality monitoring information and/or site records at and around the time of the complaint will 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 CEMP will be followed.

4. Action or Rectify

Once the cause of the complaint has been established, every possible effort will be made to undertake appropriate action to rectify the cause of the complaint and mitigate any further impact. The Communications and Community Liaison Representative will assess whether the complaint is founded or unfounded and delegate the remediation of the issue to the Contractor's Project Manager for action, as required.

As outlined in **Section 11**, if a complaint regarding air quality impacts is concluded to be substantiated, the need for any changes to the air quality mitigation measures identified for the Project in **Section 8** and/or the air quality monitoring programme outlined in **Section 10** is to be reviewed and, the AQMP updated as appropriate.

5. Respond to Complainant

The Communications and Community Liaison Representative and the Contract Superintendent will oversee the rectification of the issue. The Communications and Community Liaison representative will then respond to the complainant once the issue has been resolved. The complainant will be provided with a follow up verbal response on what action is proposed within two hours during night-time works (between the hours of 6:00 pm and 10:00 pm) and 24 hours at other times. Where a complaint cannot be resolved by the initial or follow-up verbal response, a written response will be provided to the complainant within ten days.

6. Record

It is imperative that an investigation of the situation is carried out and proposed improvements 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 Complaint Enquiry Form. A copy of the completed form will be maintained for at least five years. The complaint will also be recorded in the Complaints Register.

7. Preventative Action

Once the complaint has been suitably handled, proposed improvements will be investigated and implemented to minimise the potential of re-occurrence. The Complaint Enquiry Form will not be closed out until the preventative actions are completed and recorded on the form.

9.1.4 Complaints Register

A Complaints Register will be maintained during construction and will contain the following:

- A copy of the environmental complaint handling procedure;

- A separate reference sheet containing the contact details;
- Blank hard copies of the Complaint Enquiry Form; and
- Copies of all completed Complaint Enquiry Forms, which are to be maintained for at least five years after the event to which they relate.

10 Air Quality Monitoring Program

As discussed in **Section 7**, the risk of construction dust emissions causing nuisance impacts at off-site sensitive receptor locations is concluded to be low. It is also noted that any impacts will be temporary and managed through the implementation of appropriate mitigation measures (see **Section 8**).

It is noted that there is no stipulated requirement for air quality monitoring for Oakdale West within SSD 7348. Considering the low risk of the construction dust emissions causing nuisance at off-site sensitive receptor locations, dust monitoring at the nearest sensitive receptors is not considered to be warranted[1]. However, due to the possibility of concurrent construction of the OWE and the WNSLR, dust deposition monitoring at the nearest sensitive receptors, in conjunction with routine daily onsite visual inspections is deemed to be appropriate for this Project.

In addition, Goodman have installed three continuous particulate (TSP & PM_{10}) monitors along the western and southern OWE boundary. It is noted that while the samplers are installed in accordance with Australian Standard AS/NZS 3580.9.9, they are laser photometer instruments (aerosol samplers) and do not comply with the requirements of the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales* (DEC, 2006). They are therefore to be used as a daily management tool to warn of increasing ambient dust levels and the need to implement additional dust mitigation measures as required, but cannot be used as a compliance instrument to demonstrate compliance with the ambient air quality criteria.

The following monitoring will therefore be implemented for the Project:

- Dust deposition rates will be monitored using static dust gauges be conducted for the duration of this Project and started at six (6) locations around the WNSLR and OWE boundaries, plus one dust gauge as a background dust monitor.
- Dust deposition monitoring is to commence at least one month before commencement of construction work on site, to provide 'before construction' dust deposition levels.
- Real-time TSP and PM_{10} sampling at three (3) locations along the OWE site boundary.

The background dust monitor will be located upwind and further away from the construction works, closer to the nearby sensitive receptors towards the northwest. As there is a possibility of concurrent construction of the OWE, dust gauges within the OWE area are not proposed due to the inherent risk of equipment safety (e.g. heavy machinery knocking down the dust gauge).

[1] Note that dust monitoring/recording at any of the sensitive receptors may be an appropriate action in response to a potential complaint.

Indicative locations of the dust deposition gauges are shown in **Figure 5**. The exact locations of the gauges will depend on a number of factors, such as site accessibility, safety risk to equipment, distance from the construction works etc, and will need to be finalised by the dust monitoring contractor.

A summary of the proposed air quality monitoring program is shown in **Table 10**.

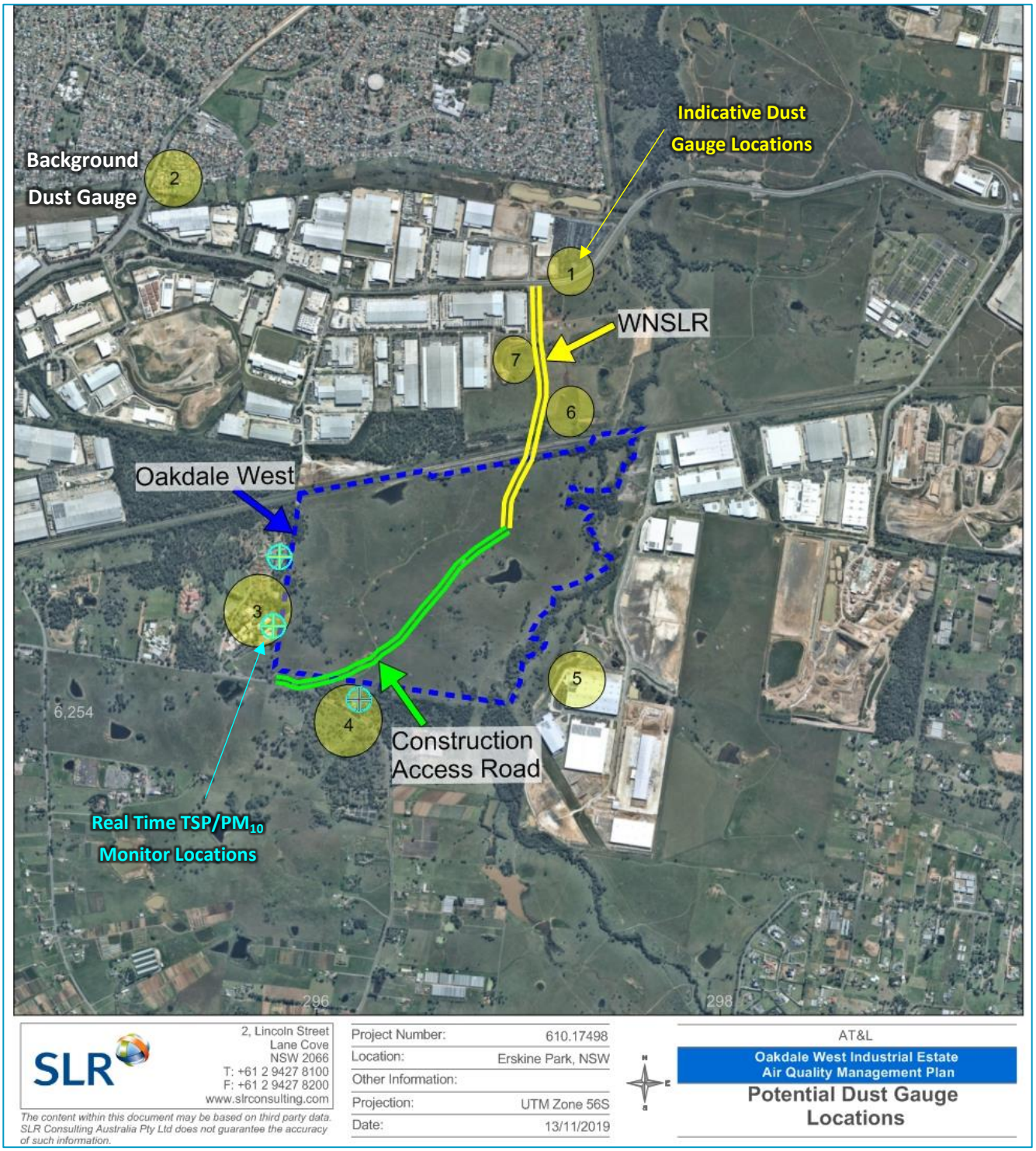
Table 10 Air Quality Monitoring Program

Description	Parameter	Methodology	Duration	Location	Frequency
Nuisance dust monitoring	Deposited dust in g/m^2/month	AS/NZS 3580.1.1:2016 - *Methods for sampling and analysis of ambient air – Guide to siting air monitoring equipment*	During site preparation, earthworks, construction	Indicative locations shown in **Figure 5**	Monthly
Suspended Particulate Monitoring	TSP and PM_{10} concentrations in $\mu g/m^3$	Real-time monitoring using a light-scattering laser photometer (aerosol monitor). The monitors are to be calibrated every 6 months by co-locating a Low Volume Air Sampler (LVAS) at each monitoring location to derive a site-specific correction factor. LVAS calibration monitoring will be performed in accordance with: AS/NZS 3580.9.9 *Methods for Sampling and Analysis of Ambient Air – Determination of suspended particulate matter – PM_{10} low volume sampler – Gravimetric Method*	During site preparation, earthworks, construction	Current locations shown in **Figure 5**	Continuous with 6-monthly calibration

The background dust monitor will be located upwind and further away from the construction works, closer to the nearby sensitive receptors towards the northwest. As there is a possibility of concurrent construction of the OWE and WNSLR, dust gauges within the OWE area are not proposed due to the inherent risk of equipment safety (eg heavy machinery knocking down the dust gauge).

During the earthworks phase Burton shall undertake monitoring at locations 1-5. Following the handover of the WNSLR, Burton shall continue monitoring in locations 6 and 7 during the fill importation works.

Figure 5 Dust Monitoring Locations for the OWE Construction Project



In addition to the dust deposition monitoring, the contractor will:

- Perform daily on-site site observations and inspections, to visually assess dust levels at individual scopes of work. The inspection results are to be recorded in a daily log book, with the log to be available to the DPE when requested. The daily environmental inspections will include, but not be limited to:
  - Visual inspection of any airborne dust being generated on-site or being observed to be potentially blowing off-site;
  - Ensure the road leaving the site is free of soil, and that there is no observable soil tracking onto the road network;
  - Inspection of the erosion and sediment control systems for silt build-up; and
  - Inspection of stockpiles and waste storage areas to ensure no significant wind erosion is observable.
- Review Horsley Park Bureau of Meteorology (BoM) station daily weather forecast each working day (ie wind, rain etc) to assess and apply the appropriate site dust management procedures.
- Carry out weekly site inspections to monitor compliance with this CAQMP, record inspection results, and make an inspection log available to the DPE when requested; and
- Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.

A summary of the requirements of the site dust inspection programme is provided in **Table 11**.

Table 11 Air Quality Management – Visual Inspections

Description	Parameter	Methodology	Duration	Location	Frequency
Daily visual inspections	On-site dust generation, vehicle exhaust emissions and compliance with mitigation measures	Visual inspection of dust-generating activities to: - identify if any dust clouds can be seen leaving site etc; - check for smoky exhausts on vehicles and equipment operating on site; and - confirm compliance with air quality mitigation measures specified in this CAQMP. - where excessive dust events occur (i.e. prolonged visual dust in a particular area), investigate/identify the scope(s) of work responsible for dust generation and apply additional mitigation measures until such times as the dust is not observed to be leaving the site - record inspection results and make an inspection log available to the DPE when asked.	During site preparation, earthworks, construction	On-site within boundaries of the Oakdale West Estate	Daily

11 Contingency Management Plan

The air quality contingency management plan for the OWE Project is shown in **Table 12**.

Table 12 Air Quality Contingency Management Plan for the OWE

Key Element	Trigger / Response	Condition Green	Condition Amber	Condition Red
Visible dust leaving the site	Trigger	Daily inspections show that there is no visible dust leaving the site.	Daily inspections show that there is visible dust leaving the site.	Daily inspections show that there is visible dust leaving the site multiple times during a day OR from multiple locations within the site.
	Response	Continue monitoring program as normal.	Review and investigate construction activities and respective control measures. Where appropriate, implement additional remedial measures, such as: • *Deployment of additional water sprays, water trucks etc*	Undertake an investigation of the dust generating activities, and if necessary, temporarily halt the dust generating activities

Key Element	Trigger / Response	Condition Green	Condition Amber	Condition Red
Dust deposition reading of >4g/m^2/month	Trigger	Dust deposition rates are less than 4 g/m^2/month at all the dust gauges.	Dust deposition rate greater than 4 g/m^2/month is recorded by any of the dust gauges	Dust deposition rates greater than 4 g/m^2/month are recorded by two or more dust gauges for two months in a row.
	Response	Continue monitoring program as normal.	• Analyse data to try to identify the source(s) of dust. • Review operations to reduce dust emissions from the identified key source(s). Implement any additional mitigation measures as required, such as additional watering.	• Review and investigate construction activities and respective control measures for the monitoring period. • If it is concluded that construction activities were directly responsible for the exceedance (ie the exceedance event was not caused due to high regional dust levels or local non-project dust source), submit an incident report to government agencies. **Note**: Real time suspended particulate monitoring is also to be undertaken, to assist in managing dust from onsite activities (see **Section 10**).
Complaints received regarding nuisance dust	Trigger	There are no complaints received during the construction	An air-quality related complaint is received from a nearby resident	Further complaints are received from the same complainant after the additional mitigation measures have been implemented
	Response	Continue monitoring program as normal.	• Report the complaint to the regulator, in line with complaints handling procedure (See **Section 9**). • Review and investigate construction activities and increase dust suppression measures (additional watering, covering stockpiles etc), where appropriate.	• Review real-time monitoring data at the existing continuous monitors to investigate the likelihood of onsite activities contributing (see **Appendix D**).

Key Element	Trigger / Response	Condition Green	Condition Amber	Condition Red
Real-time suspended particulate matter monitoring (TSP and PM_{10})	Trigger	Running 24-hour average PM_{10} concentrations < 40 µg/m^3	Running 24-hour average PM_{10} concentrations >40 µg/m^3 but <50 µg/m^3	Running 24-hour average PM_{10} concentrations >50 µg/m^3
	Response	Continue monitoring program as normal.	Review and investigate construction activities and respective control measures. Where appropriate, implement additional remedial measures, such as: • Deployment of additional water sprays, water trucks etc • Relocation or modification of dust-generating sources • Record findings of investigations and actions taken to reduce dust levels • Continue to closely monitor dust levels to ensure they are decreasing If elevated dust levels are due to regional dust event (fire, dust storm etc) – still take action to minimise dust from the site to minimise cumulative impacts, but also record details of the cause of the elevated background levels.	• Review and investigate construction activities and respective control measures for the monitoring period, in an air pollution incident report (see **Appendix D**). • If it is concluded that construction activities were directly responsible for the exceedance (ie the exceedance event was not caused due to high regional dust levels or local non-project dust source), submit an incident report to government agencies.

12 Roles and Responsibilities

Overall roles and responsibilities relating to the project are outlined in Section 3.2 of the overarching CEMP.

The key responsibilities specifically for dust management are as follows:

12.1 Contractor's Project Manager

- Ensuring appropriate resources/plant/personnel are available for the implementation of this CAQMP;
- Assessing data from inspections and providing project-wide advice to ensure consistent approach and outcomes are achieved;
- Providing necessary training for project personnel to cover air quality management;
- Reviewing and update of this CAQMP;
- Ensuring that the Environmental Coordinator monitors the PM_{10} data being supplied by the onsite Senitex system, and any other dust monitoring systems identified as being required;
- Assessing and engaging (as required) additional mitigation controls to best manage the risks of elevated dust levels before commencing works each day and ensuring that the appropriate controls are implemented and effective;
- Reviewing weather forecasts daily and current observations of meteorological conditions (as recorded at Horsley Park AWS);
- Throughout the day, visually assessing the dust levels and the effectiveness of any dust controls that have been implemented, which may include engaging additional resources to reduce or mitigate the risk of dust leaving the site;
- Ceasing particular scopes of works as required in the event of excessive dust generation due to extreme weather conditions or inadequately controlled construction activities (eg high winds, surface dirt accumulation, etc.); and
- In the event that an air quality complaint is received, the procedure in Section 3.6 of the CEMP will be implemented (see **Section 9**).

12.2 Environmental Coordinator

- Undertaking dust monitoring program; and
- Review that control measures are working in accordance with the CAQMP.

12.3 All Workers on Site

- Observing any dust emission control instructions and procedures that apply to their work;
- Taking action to prevent or minimise dust emission incidents; and
- Identifying and reporting dust emission incidents.

13 Review and Improvement of the CAQMP

The review of the CAQMP will be undertaken at least quarterly and will include participation by Goodman. The review will comprise, as a minimum, the following:

- Identification of areas of opportunity for ongoing improved environmental performance;
- Analysis of the causes of any recorded non-compliances, including those identified in environment inspections and audits;
- Verification of the effectiveness of corrective and preventative actions; and
- Highlighting any changes in procedures resulting from process improvement.

This CAQMP will also be reviewed and, if necessary, revised in the following circumstances:

- Where there is any change to the scope of the construction activities and/or disturbance footprint;
- Where it is identified that the environmental performance is not meeting the objectives of the CAQMP;
- In the event of a substantiated complaint being received regarding air quality impacts; and/or
- At the request of a relevant regulatory authority.

14 References

- DEC 2006, Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales, Department of Environment and Conservation NSW, December 2006.
- EPA 2017, Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales, Environment Protection Authority NSW, January 2017.
- EPA 2018, Local Government Air Quality Toolkit, Module 3 – Guidelines for Managing Air Pollution, Part 3 – Guidance Notes for Construction Sites, available online at https://www.epa.nsw.gov.au/your-environment/air/air-nsw-overview/local-government-air-quality-toolkit, accessed on 17 July 2018.
- OEH 2017a, NSW Annual Compliance Report 2015, National Environment Protection (Ambient Air Quality) Measure, published by Office of Environment and Heritage, OEH 2017/0211, May 2017.
- OEH 2017b, NSW Air Quality Statement 2016 – Towards Cleaner Air, published by Office of Environment and Heritage, OEH 2017/0013, January 2017.
- OEH 2018, NSW Air Quality Statement 2017 – Clearing the Air, published by Office of Environment and Heritage, OEH 2018/0044, January 2018.
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- SLR Consulting (2019b) Community Communications Strategy
- URBIS 2017, Environmental Impact Statement Oakdale West Estate, State Significant Development Application, prepare for: Goodman Limited, SA6642, 1 November 2017.
- USEPA 2006, AP42 Fifth Edition, Volume I, Chapter 13: Miscellaneous Sources, 13.2.5 – Industrial Wind Erosion, November 2006.

APPENDIX A

WIND ROSES AND RAINFALL DATA ANALYSIS

Wind Conditions

Local wind speed and direction influence the dispersion of air pollutants. Wind speed determines both the distance of downwind transport and the rate of dilution as a result of 'plume' stretching. Wind direction, and the variability in wind direction, determines the general path pollutants will follow and the extent of crosswind spreading. Surface roughness (characterised by features such as the topography of the land and the presence of buildings, structures and trees) will also influence dispersion.

The Bureau of Meteorology (BoM) maintains and publishes data from weather stations across Australia. The closest such station recording wind speed and wind direction data is the Horsley Park Automatic Weather Station (AWS) (Station ID 67119), located approximately 5.5 kilometres (km) southeast of the Oakdale West. Considering the relatively flat terrain between Oakdale West and Horsley Park AWS, it is considered reasonable to assume that the wind conditions recorded at the Horsley Park AWS are representative of the wind conditions experienced at the Oakdale West.

Annual wind roses for the years 2014 to 2018 compiled from data recorded by the Horsley Park AWS are presented in **Figure A1**, with seasonal wind roses for 2018 presented in **Figure A2**. Wind roses show the frequency of occurrence of winds by direction and strength. The bars correspond to the 16 compass points (degrees from North). The bar at the top of each wind rose diagram represents winds blowing from the north (i.e. northerly winds), and so on. The length of the bar represents the frequency of occurrence of winds from that direction, and the widths of the bar sections correspond to wind speed categories, the narrowest representing the lightest winds. Thus it is possible to visualise how often winds of a certain direction and strength occur over a long period, either for all hours of the day, or for particular periods during the day.

The 'Beaufort Wind Scale' (consistent with terminology used by the BoM) presented in **Table A1** was used to describe the wind speeds experienced at Oakdale West.

Table A1 Beaufort Wind Scale

Beaufort Scale #	Description	m/s	Description on land
0	Calm	0-0.5	Smoke rises vertically
1	Light air	0.5-1.5	Smoke drift indicates wind direction
2-3	Light/gentle breeze	1.5-5.3	Wind felt on face, leaves rustle, light flags extended, ordinary vanes moved by wind
4	Moderate winds	5.3-8.0	Raises dust and loose paper, small branches are moved
5	Fresh winds	8.0-10.8	Small trees in leaf begin to sway, crested wavelets form on inland waters
6	Strong winds	>10.8	Large branches in motion, whistling heard in telephone wires; umbrellas used with difficulty

Source: http://www.bom.gov.au/lam/glossary/beaufort.shtml

The annual wind roses for the years 2014 to 2018 (**Figure A1**) indicate that predominant wind directions in the area are consistently from the southwest quadrant. Very low frequencies of winds from the north-eastern quadrant were recorded across all years. The annual frequency of calm wind conditions was recorded to be approximately 12%-14.5% for all the years between 2014 and 2018.

A review of the annual wind roses (**Figure A1**) indicates that:

- Winds that would blow fugitive dust emissions from the demolition/construction works towards the nearest sensitive receptors located to the north and northwest of the proposed construction activities occur approximately 15-20% of the time.

The seasonal wind roses for the year 2018 (**Figure A2**) indicate that:

- In summer, wind speeds ranged from calm to fresh winds (between 0.5 m/s and 9.8 m/s). The majority of winds originated from eastern and south eastern quadrants, with very few winds from western directions. Calm wind conditions were recorded approximately 13% of the time during summer.
- In autumn, wind speeds ranged from calm to fresh winds (between 0.5 m/s and 8.9 m/s). The majority of winds originated from southwest quadrant, with very few winds from north eastern directions. Calm wind conditions were observed to occur approximately 16% of the time during autumn.
- In winter, wind speeds ranged from calm to fresh winds (between 0.5 m/s and 8.6 m/s). The majority of winds originated from southwest quadrant, with very few winds from northeast and east directions. Calm wind conditions were observed to occur approximately 16% of the time during winter.
- In spring, wind speeds ranged from calm to fresh winds (between 0.5 m/s and 9.8 m/s). The frequency of winds are mostly even in each directions, with relatively low frequency of winds originating from northwest quadrant. Calm wind conditions were observed to occur approximately 14% of the time during spring.

Wind erosion of dust from exposed surfaces (ie, during the construction phase of the development) is usually initiated when wind speeds exceed the threshold friction velocity for a given surface or material, however a general rule of thumb is that wind erosion can be expected to occur above 5 m/s (USEPA 2006). The frequency of wind speeds for the period of 2014-2018 is presented in **Figure A3**. The plot showed that the frequency of wind speeds exceeding 5 m/s for the period 2014-2018 at Horsley Park AWS was approximately 6%.

Figure A1 Annual Wind Roses for Horsley Park (2014 to 2018)

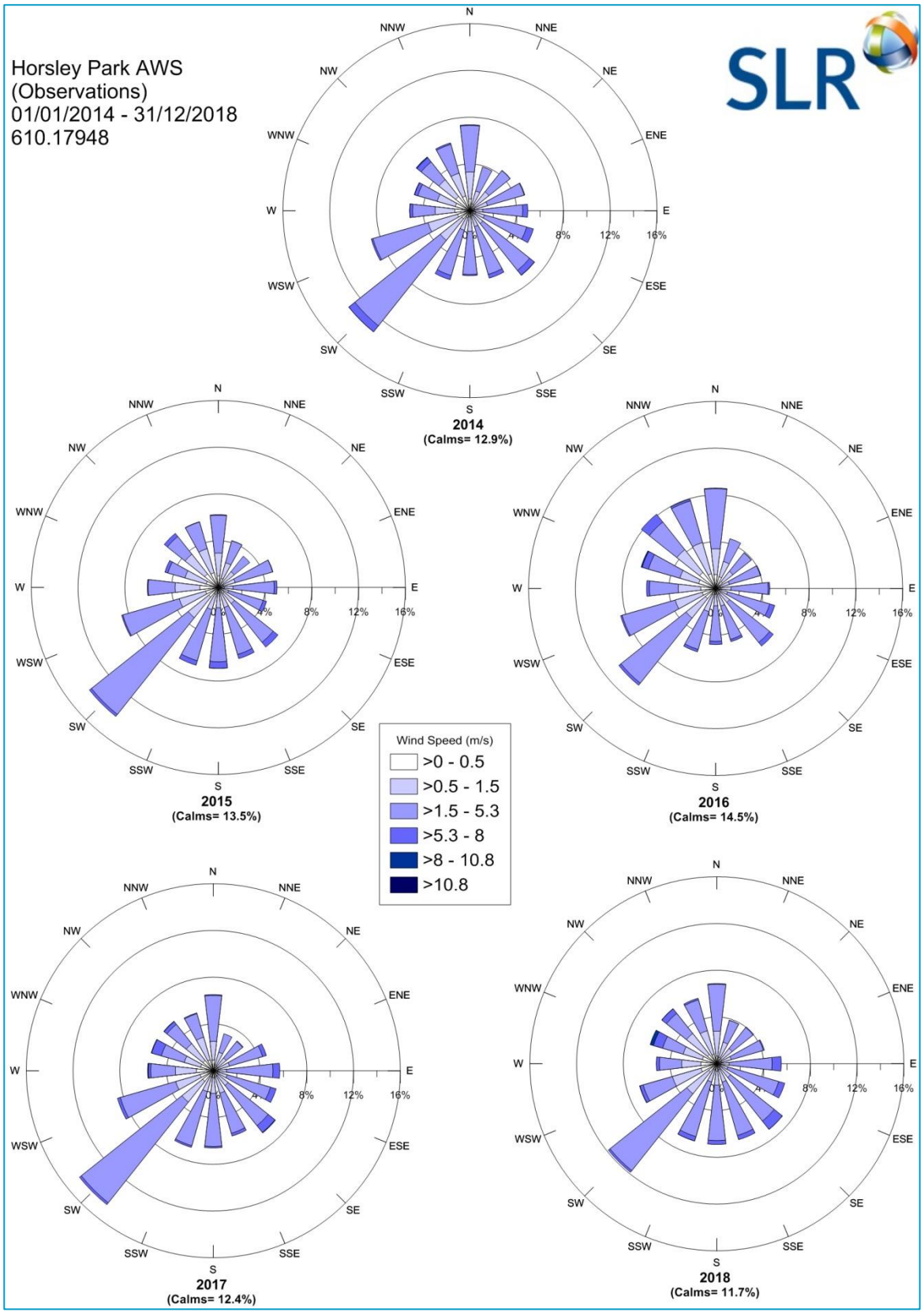


Figure A2 Annual and Seasonal Wind Roses for Horsley Park (2018)

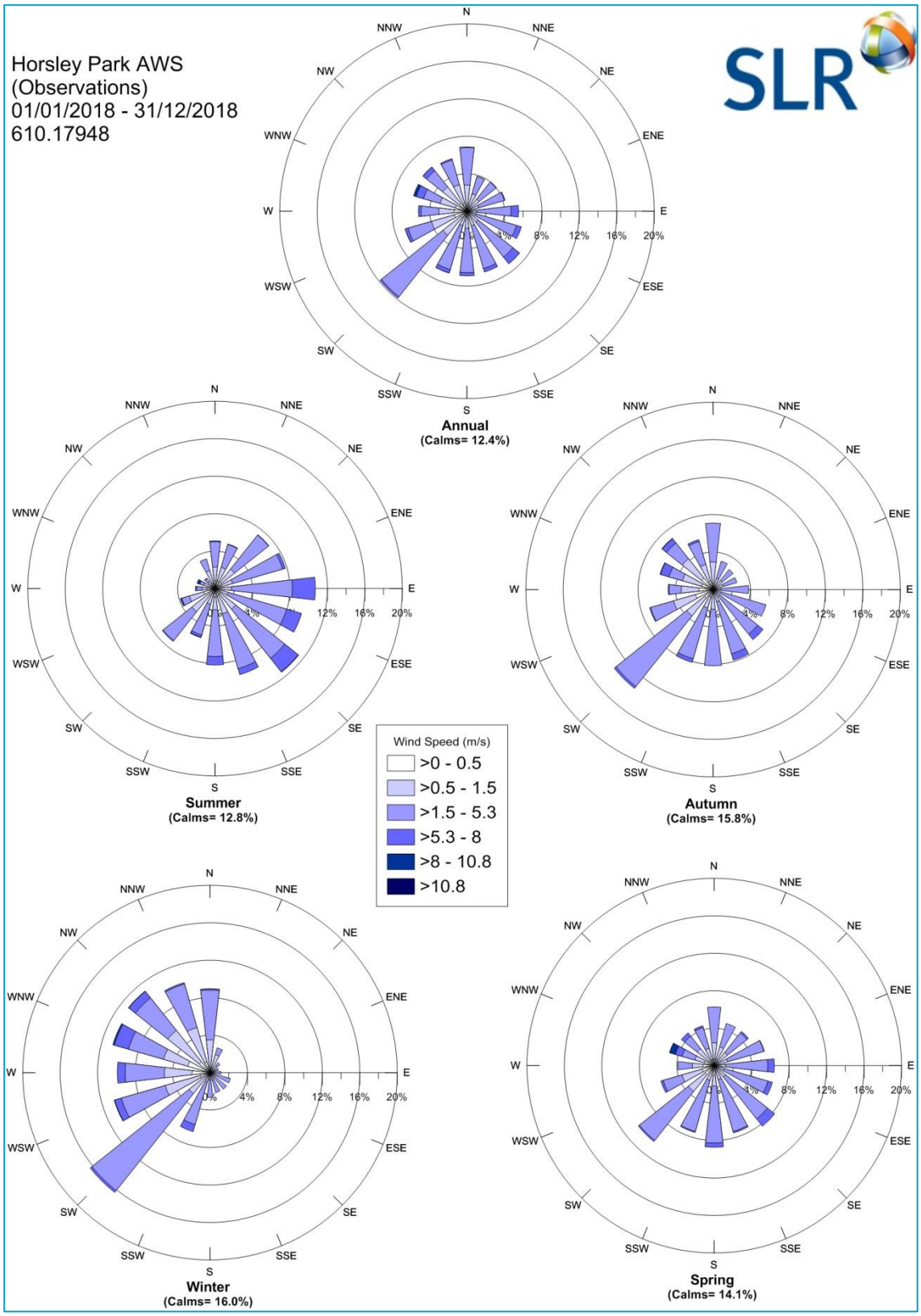
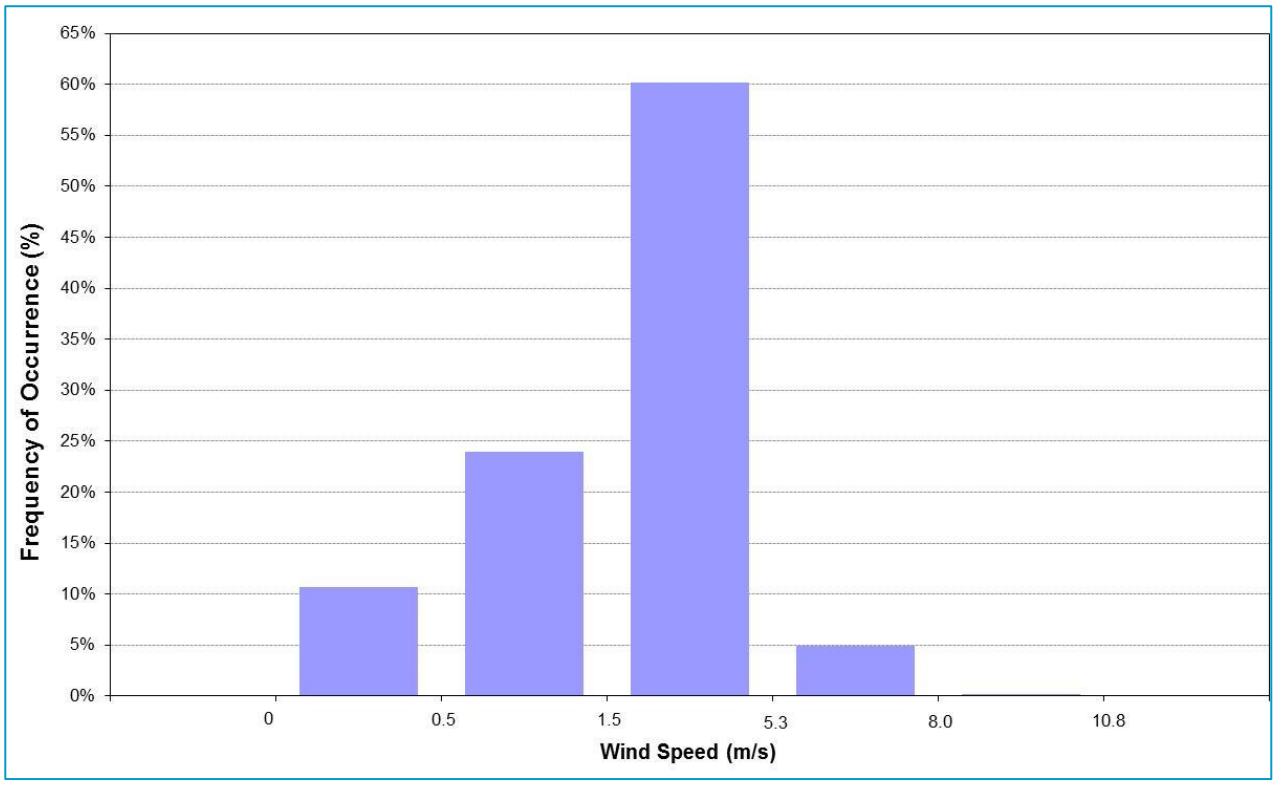


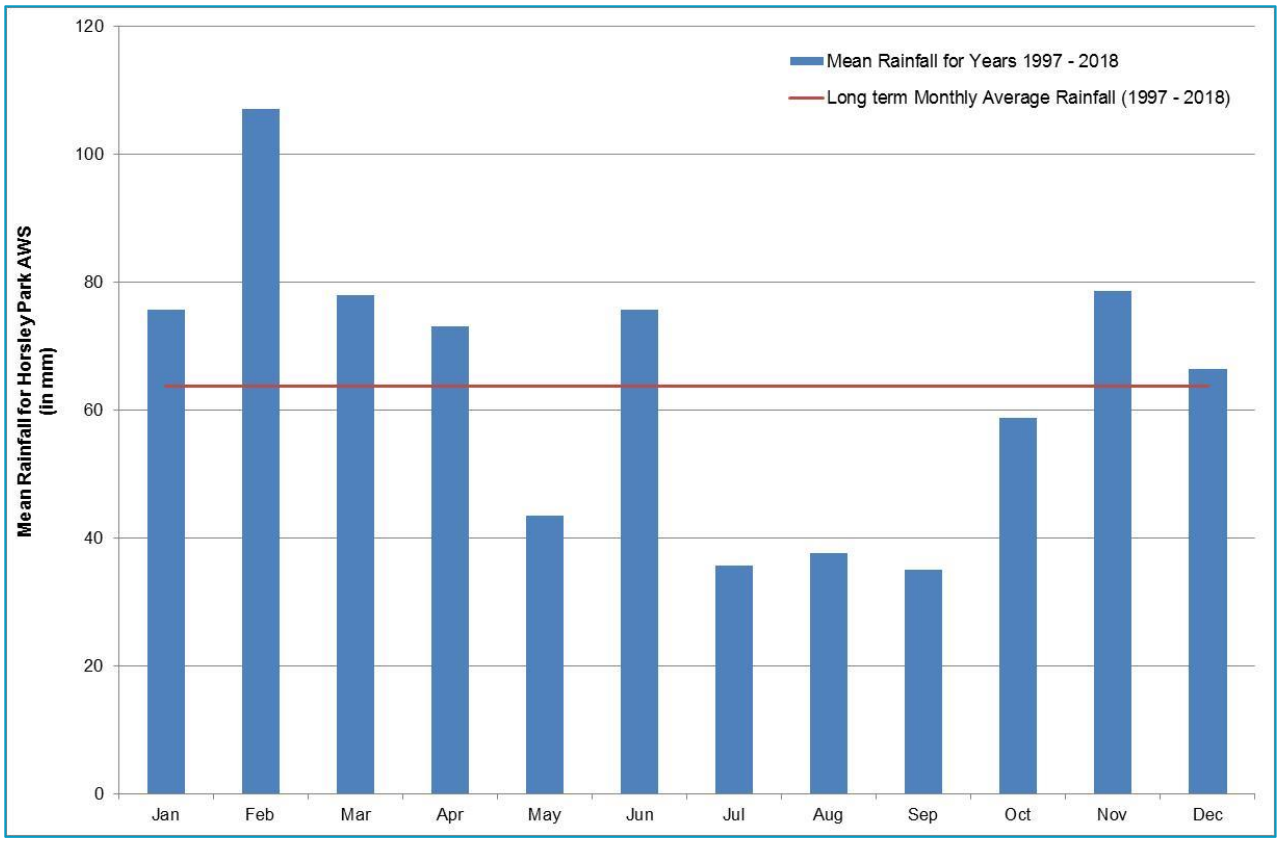
Figure A3 Wind Speed Frequency Chart for Horsley Park AWS – 2014-2018



Rainfall

Dry periods (no rainfall) have the greatest potential for fugitive dust emissions during construction. The long term monthly rainfall averages recorded at Horsley Park AWS rain gauge are shown in **Figure A4**. It is noted that generally rainfall is relatively low in mid-winter to mid spring periods. This rainfall pattern suggests that dust emissions from the demolition/construction activities at Oakdale West have the greatest potential to impact on receptors for the period of late autumn to early spring.

Figure A4 Long term Mean Rainfall for Horsley Park AWS – 1997 to 2018



APPENDIX B

CURRICULUM VITAE OF AUTHOR

APPENDIX C

CONSTRUCTION PHASE RISK ASSESSMENT METHODOLOGY

Step 1 – Screening Based on Separation Distance

The Step 1 screening criteria provided by the IAQM guidance suggests screening out any assessment of impacts from construction activities where sensitive receptors are located more than 350 m from the boundary of the site, more than 50 m from the route used by construction vehicles on public roads and more than 500 m from the site entrance. This step is noted as having deliberately been chosen to be conservative, and will require assessments for most projects.

As noted in **Section 3.1**, the nearest sensitive receptor is located approximately 100 m from the nearest OWE boundary.

The screening criteria for detailed assessment are:

- a 'human receptor' within:
  - 350 m of the boundary of the site; or
  - 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the site entrance(s).
- an 'ecological receptor' within:
  - 50 m of the boundary of the site; or
  - 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the site entrance(s).

Sensitive receptors (residences) are located within 350 m of the OWE boundary, therefore further assessment is required.

Step 2a – Assessment of Scale and Nature of the Works

Step 2a of the assessment provides "dust emissions magnitudes" for each of four dust generating activities; demolition, earthworks, construction, and track-out (the movement of site material onto public roads by vehicles). The magnitudes are: *Large*; *Medium*; or *Small*, with suggested definitions for each category. The definitions given in the IAQM guidance for earthworks, construction activities and track-out, which are most relevant to this Development, are as follows:

Demolition *(Any activity involved with the removal of an existing structure [or structures]. This may also be referred to as de-construction, specifically when a building is to be removed a small part at a time)*:

- ***Large***: Total building volume >50,000 m^3, potentially dusty construction material (e.g. concrete), on-site crushing and screening, demolition activities >20 m above ground level;
- ***Medium***: Total building volume 20,000 m^3 – 50,000 m^3, potentially dusty construction material, demolition activities 10-20 m above ground level; and

- ***Small***: Total building volume <20,000 m^3, construction material with low potential for dust release (e.g. metal cladding or timber), demolition activities <10m above ground, demolition during wetter months.

Earthworks *(Covers the processes of soil-stripping, ground-levelling, excavation and landscaping)*:

- ***Large***: Total site area greater than 10,000 m^2, potentially dusty soil type (eg clay, which will be prone to suspension when dry due to small particle size), more than 10 heavy earth moving vehicles active at any one time, formation of bunds greater than 8 m in height, total material moved more than 100,000 t.
- ***Medium***: Total site area 2,500 m^2 to 10,000 m^2, moderately dusty soil type (eg silt), 5 to 10 heavy earth moving vehicles active at any one time, formation of bunds 4 m to 8 m in height, total material moved 20,000 t to 100,000 t.
- ***Small***: Total site area less than 2,500 m^2, soil type with large grain size (eg sand), less than five heavy earth moving vehicles active at any one time, formation of bunds less than 4 m in height, total material moved less than 20,000 t, earthworks during wetter months.

Construction *(Any activity involved with the provision of a new structure (or structures), its modification or refurbishment. A structure will include a residential dwelling, office building, retail outlet, road, etc)*:

- ***Large***: Total building volume greater than 100,000 m^3, piling, on site concrete batching; sandblasting.
- ***Medium***: Total building volume 25,000 m^3 to 100,000 m^3, potentially dusty construction material (eg concrete), piling, on site concrete batching.
- ***Small***: Total building volume less than 25,000 m^3, construction material with low potential for dust release (eg metal cladding or timber).

Track-out *(The transport of dust and dirt from the construction / demolition site onto the public road network, where it may be deposited and then re-suspended by vehicles using the network)*:

- ***Large***: More than 50 heavy vehicle movements per day, surface materials with a high potential for dust generation, greater than 100 m of unpaved road length.
- ***Medium***: Between 10 and 50 heavy vehicle movements per day, surface materials with a moderate potential for dust generation, between 50 m and 100 m of unpaved road length.
- ***Small***: Less than 10 heavy vehicle movements per day, surface materials with a low potential for dust generation, less than 50 m of unpaved road length.

Note: Demolition of existing structures will be performed as part of this Development.

In order to provide a conservative assessment of potential impacts, it has been assumed that if at least one of the parameters specified in the 'large' definition is satisfied, the works are classified as large, and so on.

Based on the above, dust emission magnitudes have been categorised as presented in **Table C1**.

Table C1 Categorisation of Dust Emission Magnitude

Activity	Dust Emission Magnitude	Basis
Demolition	Small	**IAQM Definition:** Total building volume <20,000 m^3, construction material with low potential for dust release (e.g. metal cladding or timber), demolition activities <10m above ground,

Activity	Dust Emission Magnitude	Basis
		demolition during wetter months. **Relevance to this Project:** Demolition activities will predominantly be limited to removal of structures associated with the one old house within the site boundary.
Earthworks	Large	**IAQM Definition:** Total site area greater than 10,000 m^2, potentially dusty soil type (eg clay, which will be prone to suspension when dry due to small particle size), more than 10 heavy earth moving vehicles active at any one time, formation of bunds greater than 8 m in height, total material moved more than 100,000 t. **Relevance to this Project:** The footprint of the site is approximately 154 ha and the Development site involves construction of twenty two new buildings (total volume of approximately 4.6 Mm^3).
Construction	Large	**IAQM Definition:** Total building volume greater than 100,000 m^3, piling, on site concrete batching; sandblasting. **Relevance to this Project:** The footprint of the site is approximately 154 ha and the Development site involves construction of twenty two new buildings (total volume of approximately 4.6 Mm^3).
Trackout	Medium	**IAQM Definition:** Between 10 and 50 heavy vehicle movements per day, surface materials with a moderate potential for dust generation, between 50 m and 100 m of unpaved road length. **Relevance to this Project:** *The traffic volume during construction is estimated to be 20 vehicle movements per hour.*

Step 2b – Risk Assessment

Assessment of the Sensitivity of the Area

Step 2b of the assessment process requires the sensitivity of the area to be defined. The sensitivity of the area takes into account:

- The specific sensitivities that identified sensitive receptors have to dust deposition and human health impacts;
- The proximity and number of those receptors;
- In the case of PM_{10}, the local background concentration; and
- Other site-specific factors, such as whether there are natural shelters such as trees to reduce the risk of wind-blown dust.

Individual receptors are classified as having *high*, *medium* or *low* sensitivity to dust deposition and human health impacts (ecological receptors are not addressed using this approach). The IAQM method provides guidance on the sensitivity of different receptor types to dust soiling and health effects as summarised in **Table C1**. It is noted that user expectations of amenity levels (dust soiling) is dependent on existing deposition levels.

Table C2 IAQM Guidance for Categorising Receptor Sensitivity

Value	High Sensitivity Receptor	Medium Sensitivity Receptor	Low Sensitivity Receptor
Dust soiling	Users can reasonably expect a high level of amenity; or The appearance, aesthetics or value of their property would be diminished by soiling, and the people or property would reasonably be expected to be present continuously, or at least regularly for extended periods as part of the normal pattern of use of the land.	Users would expect to enjoy a reasonable level of amenity, but would not reasonably expect to enjoy the same level of amenity as in their home; or The appearance, aesthetics or value of their property could be diminished by soiling; or The people or property wouldn't reasonably be expected to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land.	The enjoyment of amenity would not reasonably be expected; or Property would not reasonably be expected to be diminished in appearance, aesthetics or value by soiling; or There is transient exposure, where the people or property would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land.
	Examples: Dwellings, museums, medium and long term car parks and car showrooms.	*Examples: Parks and places of work.*	*Examples: Playing fields, farmland (unless commercially-sensitive horticultural), footpaths, short term car parks and roads.*
Health effects	Locations where the public are exposed over a time period relevant to the air quality objective for PM_{10} (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day).	Locations where the people exposed are workers, and exposure is over a time period relevant to the air quality objective for PM_{10} (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day).	Locations where human exposure is transient.
	Examples: Residential properties, hospitals, schools and residential care homes.	*Examples: Office and shop workers, but will generally not include workers occupationally exposed to PM10.*	*Examples: Public footpaths, playing fields, parks and shopping street.*

According to the IAQM methods, the sensitivity of the identified individual receptors (as described above) is then used to assess the *sensitivity of the area* surrounding the active construction area, taking into account the proximity and number of those receptors, and the local background PM_{10} concentration (in the case of potential health impacts) and other site-specific factors. Additional factors to consider when determining the sensitivity of the area include:

- any history of dust generating activities in the area;
- the likelihood of concurrent dust generating activity on nearby sites;
- any pre-existing screening between the source and the receptors;
- any conclusions drawn from analysing local meteorological data which accurately represent the area and if relevant, the season during which the works will take place;

- any conclusions drawn from local topography;
- the duration of the potential impact (as a receptor may be willing to accept elevated dust levels for a known short duration, or may become more sensitive or less sensitive (acclimatised) over time for long-term impacts); and
- any known specific receptor sensitivities which go beyond the classifications given in the IAQM document.

Based on the criteria listed in **Table C2**, the sensitivity of the identified receptors in this study is concluded to be *high* for health impacts and *high* for dust soiling, as they include residential areas where people may be reasonably expected to be present continuously as part of the normal pattern of land use.

The IAQM guidance for assessing the sensitivity of an area to dust soiling is shown in **Table C3**. The sensitivity of the area should be derived for each of activity relevant to the project (ie construction and earthworks).

Table C3 IAQM Guidance for Categorising the Sensitivity of an Area to Dust Soiling Effects

Receptor Sensitivity	Number of receptors	Distance from the source (m)			
		<20	<50	<100	<350
High	>100	High	High	Medium	Low
	10-100	High	Medium	Low	Low
	1-10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

Note: Estimate the total number of receptors within the stated distance. Only the *highest level* of area sensitivity from the table needs to be considered. For example, if there are 7 high sensitivity receptors < 20m of the source and 95 high sensitivity receptors between 20 and 50 m, then the total of number of receptors < 50 m is 102. The sensitivity of the area in this case would be high.

A modified version of the IAQM guidance for assessing the *sensitivity of an area* to health impacts is shown in **Table C4**. For high sensitivity receptors, the IAQM methods takes the existing background concentrations of PM_{10} (as an annual average) experienced in the area of interest into account and is based on the air quality objectives for PM_{10} in the UK. As these objectives differ from the ambient air quality criteria adopted for use in this assessment (ie an annual average of 19.4 $\mu g/m^3$ for PM_{10}) the IAQM method has been modified slightly.

This approach is consistent with the IAQM guidance, which notes that in using the tables to define the *sensitivity of an area*, professional judgement may be used to determine alternative sensitivity categories, taking into account the following factors:

- any history of dust generating activities in the area;
- the likelihood of concurrent dust generating activity on nearby sites;
- any pre-existing screening between the source and the receptors;
- any conclusions drawn from analysing local meteorological data which accurately represent the area, and if relevant the season during which the works will take place;
- any conclusions drawn from local topography;
- duration of the potential impact; and
- any known specific receptor sensitivities which go beyond the classifications given in this document.

Table C4 IAQM Guidance for Categorising the Sensitivity of an Area to Dust Health Effects

Receptor sensitivity	Annual mean PM_{10} conc.	Number of receptors [a,b]	Distance from the source (m)				
			<20	<50	<100	<200	<350
High	>25 µg/m^3	>100	High	High	High	Medium	Low
		10-100	High	High	Medium	Low	Low
		1-10	High	Medium	Low	Low	Low
	21-25 µg/m^3	>100	High	High	Medium	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	High	Medium	Low	Low	Low
	17-21 µg/m^3	>100	High	Medium	Low	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	<17 µg/m^3	>100	Medium	Low	Low	Low	Low
		10-100	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Medium	>25 µg/m^3	>10	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	21-25 µg/m^3	>10	Medium	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	17-21 µg/m^3	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	<17 µg/m^3	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Low	-	>1	Low	Low	Low	Low	Low

Notes:

(a) Estimate the total within the stated distance (e.g. the total within 350 m and not the number between 200 and 350 m); noting that only the highest level of area sensitivity from the table needs to be considered.

(b) In the case of high sensitivity receptors with high occupancy (such as schools or hospitals) approximate the number of people likely to be present. In the case of residential dwellings, just include the number of properties.

As noted in **Section 3.2** , the nearest sensitive receptor is located within 350 m from the nearest OWE boundary. Based on the classifications shown in **Table C3** and **Table C4**, the sensitivity of the area to dust soiling and to health effects may both be classified as '*low*'. This categorisation has been made considering the individual receptor sensitivities derived above, the annual mean background PM_{10} concentration of 19.4 µg/m^3 recorded at St Marys AQMS (see **Section 6.2**) and the anticipated number of sensitive receptors present in the vicinity of the OWE.

Risk Assessment

The dust emission magnitude from Step 2a and the receptor sensitivity from Step 2b are then used in the matrices shown in **Table C5** (earthworks and construction), **Table C6** (track-out) and **Table C7** (demolition) to determine the risk category with no mitigation applied.

Table C5 Risk Category from Earthworks and Construction Activities

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

Table C6 Risk Category from Track-out Activities

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Low Risk	Negligible
Low	Low Risk	Low Risk	Negligible

Table C7 Risk Category from Demolition Activities

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Medium Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Negligible

APPENDIX D

AIR QUALITY NOTIFICATION FORM

WESTERN NORTH SOUTH LINK ROAD	
Air Quality Notification Form ➢ This form to be completed within 24hrs of an exceedance of PM10 dust >50 µg/m^3 (24hr average) on site (CAQMP Sect 5.2.1 Table 4 – 24hr average) ➢ This form to be completed by the Contractor PM, PE or Environmental Representative ➢ Please attach site observation photographs as required	
Contract	
Prepared by (Print Name)	
Position (Project PM, Engineer etc)	
Time/Day/Date of notification	
What were the PM_{10} levels recorded at the start of the shift?	
Condition Red Notification Summary Provide PM_{10} level data for the three Sentinex units located on site Ref: CAQMP Sect 11 Table 12.	South µg/m^3(24hr) North µg/m^3(24hr) West µg/m^3(24hr)
Was there scope of work specific dust generation observed during the reporting period? (If yes, please provide site specific area)	

WESTERN NORTH SOUTH LINK ROAD	
Was the measured dust level influenced by dust from external sources? (yes/no/possible)	
Dust generating construction related activities at the time of the notification (1) Provide a brief description of works being undertaken at the time of the dust being observed	
Background levels for PM10 recorded for the reporting period (St Mary's dust gauges) (2)	St Mary's AQMS µg/m^3(24hr)
Wind direction and speed relating to the reporting period (show variable wind directions and speed throughout the notification period. Attach wind charts if applicable) (3)	
Were additional dust mitigation resources implemented during the reporting period? (if yes, provide a brief description)	
Sign/Date	
OWE Contract Superintendent to Complete	
Notified ER Time/Day/Date	
Follow up required (yes/no)	
Is this notification issued as a result of an external complaint? If so, provide reference to CCCS report	
Sign/Date	

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APPENDIX M

Salinity Management Plan

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Our Ref: PSM1541-125L

18 November 2015

Goodman Property Services (Aust) Pty Ltd
Level 17, 60 Castlereagh Street
SYDNEY NSW 2000

ATTENTION: KYM DRACOPOULOS
kym.dracopoulos@goodman.com

Dear Kym

RE: OAKDALE WEST PRECINCT – SALINITY MANAGEMENT PLAN

1 INTRODUCTION

This letter presents a Salinity Management Plan (SMP) prepared by Pells Sullivan Meynink (PSM) for Oakdale West Precinct. This was prepared to accompany our salinity investigation in accordance with our proposal (ref. PSM1541-116L Rev1 dated 9 October 2015).

The aim of the SMP is to provide controls for the potential impacts of the proposed development on site salinity and has been prepared in accordance with WSROC Salinity Code of Practice (2004) salinity management guidelines.

2 DOCUMENTS RELIED UPON

In preparing the SMP, we have taken into consideration:

1. The results of the salinity assessment completed by PSM and presented in our letter (Ref. PSM 1541-125L).
2. Details of the proposed developments as presented in the "*Oakdale West Optimised Masterplan Cut/Fill Plan"* by AT&L (ref. SKC051 15-272 issue P1 dated 2 June 2015).
3. WSROC Salinity Code of Practice (2004) salinity management guidelines.

3 OBJECTIVE OF SMP

The objective of this SMP is to effectively manage site salinity, to minimise the effect of the proposed development on the salinity processes and to protect the proposed development from salinity damage.

4 SALINITY ASSESSMENT

The PSM salinity assessment noted that:

1. The soils present on site are sodic to highly sodic.
2. The soils present on site are non-saline to slightly saline.

5 RECOMMENDATIONS

5.1 Development components

This SMP addresses the components of the proposed development at both the construction stage and for the permanent works. Recommendations regarding the following development components are provided in the following sections:

1. Earthworks
2. Gardens and landscaped areas
3. Roads, footpaths and hardstand areas
4. Surface water, stormwater and drainage
5. Detention basins
6. Durability of concrete structures in contact with the ground
7. Masonry structures
8. Groundwater management.

5.2 Earthworks

We understand that the development will be sympathetic to the site topography and the environment and thus aim to minimise the cut and fill. The design and construction of the earthworks should consider the following recommendations:

1. Vegetation cover should be established and maintained on permanent batters as soon as practical upon completion to control erosion.
2. The final surface of all areas of the development should be graded to prevent the ponding of surface water.
3. Subsoil drainage should be considered for areas where the designer considers accumulation of groundwater may occur. We do not consider that any significant such areas are likely at this site.
4. Erosion control of temporary batters, stockpiles and disturbed areas should be planned prior to undertaking the earthworks and implemented during the earthworks. Consideration should be given to:
    a. Grading and sealing partially completed surfaces.
    b. Installation of clearly visible fencing and traffic control measures to prevent unnecessary trafficking of areas and ensuing site disturbance.
    c. Establishing set vehicular access points and roads.
    d. Protecting stockpiles (temporary vegetation or mulching) where these are to be left in place for long durations.
5. Sediment control shall be implemented by means of sediment traps and silt fencing where considered necessary.
6. Where for landscaping purposes or erosion control the designer requires gypsum or lime stabilisation, these should be planned to be undertaken as part of the initial earthworks.

5.3 Gardens and landscaped areas

The proposed development will result in the majority of the site comprising roads, footpaths, and hardstand areas. Garden and landscaped areas are likely to be of limited extent. The design and construction of the gardens and landscaped areas should consider the following recommendations:

1. Where possible areas of established vegetation, particularly large trees, should be retained.
2. Selection of plant species should consider the soil conditions, including moderate salinity, relatively poor fertility and clayey low permeability soil profiles. Promotion of successful revegetation is likely to require use of nutrient rich topsoil. Saline topsoils should not be imported to site.

3. Recharge of groundwater and potential for water logging should be minimised by:
    a. Adopting plant species with minimal watering requirements.
    b. Adopting ‘waterwise’ gardening principles.
    c. Minimising use of potable water in landscaped areas.
    d. Properly designed and implemented irrigation systems.
    e. Establishment of perennial species and deep rooted trees.

5.4 Roads, footpaths and hardstand areas

As stated, the proposed development will result in the majority of the site comprising roads, footpaths, and hardstand areas. The design and construction of roads, footpaths and hardstand areas should consider the following recommendations:

1. Roads, footpath and hardstand surfaces should be graded and the grades maintained at all times to prevent ponding of surface water at locations where this can result in infiltration into the underlying soils (e.g. pavement joints).
2. Connections between the roads, footpath and hardstand surfaces and the surface water and stormwater drainage infrastructure should be designed, constructed and maintained to restrict infiltration into underlying soils.
3. Services that are to be located below the roads, footpath and hardstand surfaces should be installed, where practical, at the time of construction.

5.5 Surface water, stormwater and drainage

Surface water, stormwater and drainage design should aim at restricting infiltration into the ground resulting in groundwater recharge. The design and construction of surface water, stormwater and drainage measures should thus consider the following recommendations:

1. Disturbance of natural drainage patterns should be reduced. Where these are disturbed or altered appropriate artificial drainage should be installed.
2. Stormwater and surface water should be managed to restrict infiltration.
3. Temporary water retaining structures used during construction should be managed to restrict infiltration.
4. Stormwater and surface water infrastructure should be designed and constructed to minimise the likelihood of leakage.
5. Guttering and down pipes should be connected and maintained.
6. Surface water runoff should be directed around all exposed surfaces, temporary stockpiles and landscaped areas.

5.6 Detention basins

Detention basins should be designed such that recharge into the groundwater system is controlled. On this basis, the design of temporary and permanent on site detention will need to consider the requirement to line the basin with an impermeable liner (clay layer or synthetic liner) or simply vegetate the exposed base.

In assessing the above requirement the design will need to consider the proposed basin location, the subsurface conditions at the basin, the proximity of the basin to other structures, the proposed storage volume and storage depth and the likely duration of water storage.

In saline environments reducing the water infiltration into the soil and groundwater recharge is considered desirable. On this site, the majority of the site is to be developed with roads and paved areas thus significantly reducing surface water infiltration. The amount of infiltration that can be tolerated at the detention basins will need to be assessed in terms of the overall water balance on site.

Where ponds intended to be permanently full are proposed, such as recreational or aesthetic ponds or fountains, it is recommended that the base of the permanent pond be lined with an impermeable liner. The liner to be adopted (clay or synthetic) shall be a matter of design.

5.7 Durability of concrete structures in contact with the ground

In designing structural concrete elements in contact with the ground the design should consider the results of the salinity, sulphate, chloride and pH testing on the soil and groundwater and the durability requirements in AS2159:2009 and AS3600:2009.

Both these standards provide guidance on minimum concrete grade/strength and minimum cover requirements.

Based on the results of the salinity assessments it is recommended that:

1. The design of structural concrete members in contact with the ground (excluding piles) adopt an A2 exposure classification as defined in AS3600:2009.
2. The design of concrete cast in situ piles adopt a mild classification as defined in AS2159:2009.

5.8 Masonry structures

Having given consideration to the very low to moderate soil salinity on site, the relatively deep water table, and the low permeability soils present on site it is considered that the design and construction of masonry structures including damp proof courses, moisture barriers and selection of brick and construction materials should be undertaken in accordance with the relevant building industry standard. We do not expect special attention to salinity will be required.

5.9 Groundwater management

The intention of groundwater maintenance at this site is to reduce the likelihood of recharge of the groundwater resulting in rising of the groundwater table to near the ground surface.

The very low to moderate soil salinity on site, the relatively deep water table, and the low permeability soils combine to reduce the likelihood of a rising groundwater table. Further, the development involves a very significant reduction in infiltration over the site.

Furthermore, the recommendations is Section 5.3 to 5.6 regarding gardens and landscaped areas, roads, footpaths and hardstand areas, surface water, stormwater and drainage and detention basins are aimed at reducing the potential for groundwater recharge.

In addition to these recommendations, use of infiltration pits to disperse surface water should be avoided.

5.10 Importation of soil

It may be required to import topsoil or other soil onto site. Materials to be imported to site should be assessed for suitability for the intended use. Saline or contaminated soils should not be imported to site.

6 SIGN OFF

We recommend the following:

The designer and contractor responsible for construction of the various development components be required to sign-off their design and the as built, certifying that:

> "*The works have been designed/constructed having given appropriate consideration to the recommendations in the SMP (Ref. PSM1541-125L dated xxx)*".

The designer and contractors should contact PSM during the works if they have any queries with regards to the requirements in the SMP or if conditions significantly differ from those described in this SMP.

Please do not hesitate to contact the undersigned if you have any queries.

For and on behalf of
PELLS SULLIVAN MEYNINK

CHRISTOPHER FERNANDEZ
Geotechnical Engineer

GARRY MOSTYN
Chief Engineer

APPENDIX N

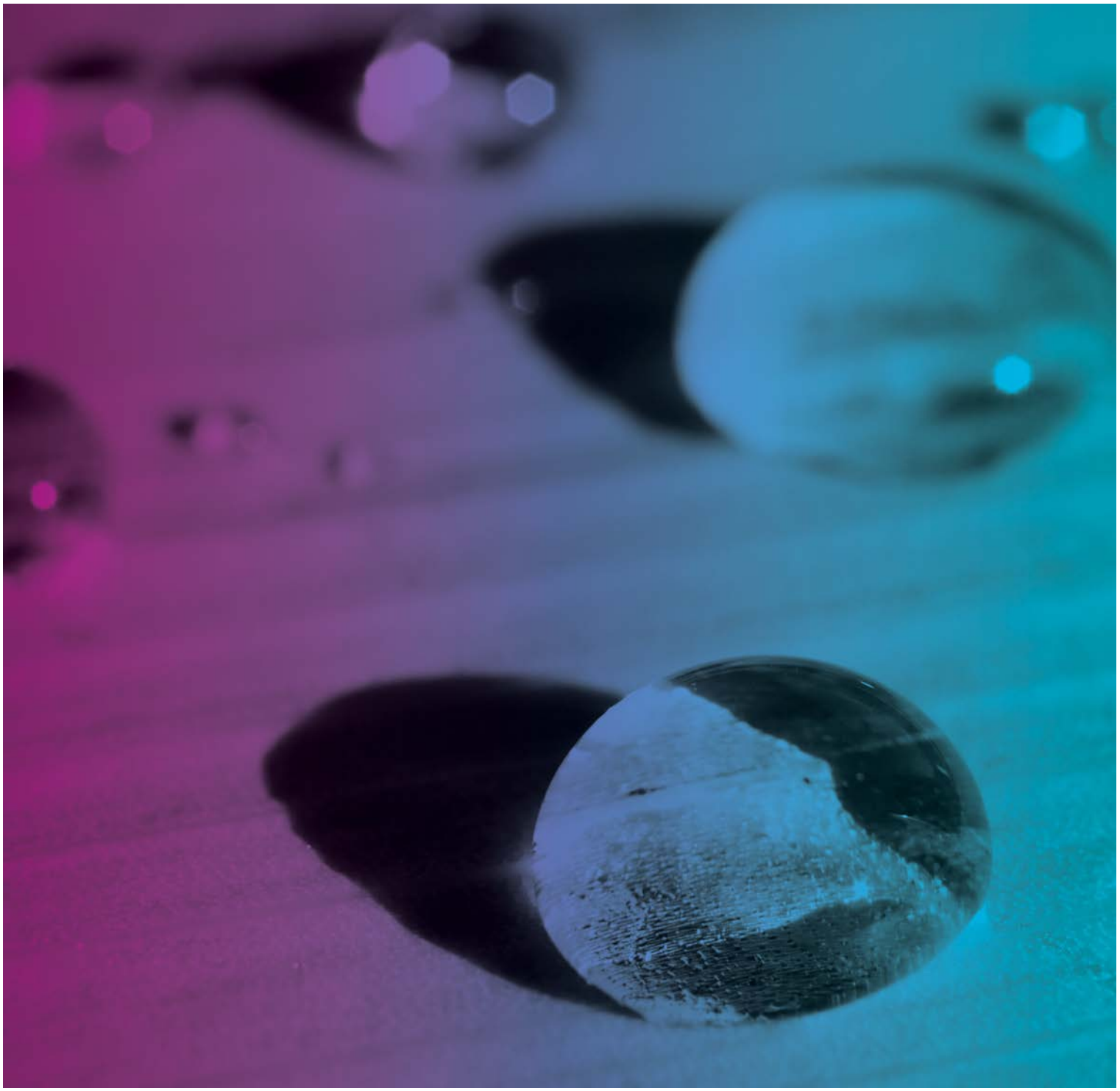
Fill Importation Protocol

AECOM Imagine it Delivered

Goodman Property Services (Aust) Pty Ltd
31-Oct-2019
Doc No. 60599325-OWE-FIP(CEMP)-20191031_2

Fill Importation Protocol

Oakdale West Estate



Fill Importation Protocol

Oakdale West Estate

Client: Goodman Property Services (Aust) Pty Ltd

ABN: 40 088 981 793

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Job No.: 60599325

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Quality Information

Document Fill Importation Protocol

Ref 60599325

Date 31-Oct-2019

Prepared by Alex Latham

Reviewed by Clayton Cowper & Brad Eismen

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Rev	Revision Date	Details	Authorised	
			Name/Position	Signature
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Table of Contents

Glossary i
1.0 Introduction 1
1.1 SSD Conditions of Consent 1
1.2 ENM 2
1.3 VENM 3
1.4 Recovered Aggregate Order 3
1.5 Basalt Fines Order 3
1.6 Glass Sand Order 3
2.0 Assessment Requirements 4
2.1 ENM 4
2.1.1 Sampling Requirements 5
2.1.2 Compliance Sampling Assessment Requirements 6
2.2 VENM 7
2.2.1 VENM Sampling Rates 8
2.2.2 VENM Assessment Criteria 8
2.2.3 Residential Source Sites 8
2.3 Recovered Aggregates 8
2.4 Basalt Fines 9
2.5 Glass Sand 10
2.6 Consultants' Assessment Reports 11
2.7 PFAS 12
2.8 Review of Consultants' Assessment Reports 13
2.9 POEO (Waste) Regulation 2014 Documentation 13
2.10 On-Site Inspections 13
3.0 Materials Tracking Register 14

Appendix A
POEO (Waste) Regulation, Orders & Exemptions A

Appendix B
Materials Tracking Register Proforma B

List of Tables

Table 1 Consent Requirements 1
Table 2 Chemicals and Concentrations 4
Table 3 Sampling Stockpiled Soils 5
Table 4 In-Situ Sampling at Surface 5
Table 5 In-Situ Sampling at Depth 6
Table 6 VENM Assessment 7
Table 7 Recovered Aggregates, Chemicals & Concentrations 9
Table 8 Basalt Fines, Chemicals & Concentrations 10
Table 9 Recovered Glass Sand, Contaminants and Concentrations 11

Glossary

General Terms	
ACM	Asbestos Containing Material
ASC NEPM	Assessment of Site Contamination National Environment Protection Measure (2013)
ASS	Acid Sulfate Soil
BTEXN	Benzene, toluene, ethylbenzene, xylenes and naphthalene
CoPC	Contaminants of Potential Concern
CSM	Conceptual Site Model
DQI	Data Quality Indicators
DQO	Data Quality Objectives
ENM	Excavated Natural Material
EPA	Environment Protection Authority
FIP	Fill Importation Protocol
HIL	Health Investigation Level
HSL	Health Screening Level
LOR	Limit of Reporting
LNAPL	Light Non-Aqueous Phase Liquid
m bgs	Metres below ground surface
mg/kg	milligrams/kilogram
NATA	National Association of Testing Authorities
NEPM	National Environment Protection Measure
OCP	Organochlorine Pesticides
OPP	Organophosphorus Pesticides
PAH	Polycyclic Aromatic Hydrocarbons
PASS	Potential Acid Sulfate Soil
PCB	Polychlorinated Biphenyls
PID	Photoionisation detector
POEO	Protection of the Environment Operations (Regulation)
Priority metals	Arsenic, cadmium, copper, chromium, lead, mercury, nickel, zinc
QA/QC	Quality Assurance/Quality Control
RRO	Resource Recovery Order
TPH / TRH	Total Petroleum Hydrocarbons / Total Recoverable Hydrocarbons
UST / UPSS	Underground Storage Tank / Underground Petroleum Storage System
VENM	Virgin Excavated Natural Material
VHC	Volatile Halogenated Compound (or Chlorinated Hydrocarbons [CHC])
VOC	Volatile Organic Compound

1.0 Introduction

AECOM Australia Pty Ltd (AECOM) was engaged by Goodman Property Services (Aust) Pty Ltd (Goodman) to prepare this Fill Importation Protocol (FIP) for the bulk earthworks associated with the development of the Oakdale West Estate (OWE), Kemps Creek, NSW (the Site).

The Site is approximately 154 hectares (Ha). Goodman propose to develop approximately 90 Ha of the Site into a warehouse-style estate and distribution centre, under State Significant Development Application 7348 (SSDA 7348).

This FIP only relates to the contamination status of fill materials to be imported to the Site. Geotechnical suitability and stakeholder requirements (e.g. Sydney Water, Roads and Maritime etc) have not been considered.

Goodman has appointed a NSW EPA (land contamination) Auditor, Tom Onus of Ramboll Australia Pty Ltd (the Auditor) to the project.

1.1 SSD Conditions of Consent

The SSD Conditions of Development Consent were issued to Goodman on 13 September 2019. With respect to soil contamination, these are summarised in the following table:

Table 1 Consent Requirements

Condition Requirement	Section / Comment
D79. The Applicant must prepare a Fill Importation Protocol for Stage 1. The protocol must form part of the CEMP required by condition D119 and must detail the measures to:	
a) Ensure only VENM, ENM, or other material approved in writing by EPA is brought onto the site;	Sections 1.2 to 1.6. Sections 2.1 to 2.10
b) Keep accurate records of the volume and type of fill to be used; and	Section 3.0 and completed in CEMP
c) make these records available to the Department on request	Section 3.0
Management Plan Requirement	Section / Comment
D118. Management plans required under this consent must be prepared in accordance with relevant guidelines and include:	
a) details of: i. the relevant statutory requirements (including any relevant approval, licence or lease conditions); ii. any relevant limits or performance measures and criteria; and iii. the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, Stage 1 or any management measures;	Sections 1.2 to 1.6. Sections 2.1 to 2.10
b) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	Sections 2.1 to 2.10
c) a program to monitor and report on the: i. impacts and environmental performance of Stage 1; and ii. effectiveness of the management	Section 2.8 and Section 3

Condition Requirement	Section / Comment
measures set out pursuant to paragraph (b) above;	
d) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	The protocols in this FIP apply. Should compliance testing data indicate that any materials that are imported to Site are not suitable for use, the Earthworks Contractor (or entity responsible for the importation) will be responsible for the removal of the material from site.
e) a program to investigate and implement ways to improve the environmental performance of Stage 1 over time;	Completed in CEMP
f) a protocol for managing and reporting any: i. incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria); ii. complaint; iii. failure to comply with statutory requirements; and	Completed in CEMP
g) a protocol for periodic review of the plan.	Completed in CEMP
D111. The Applicant must prepare a CEMP for Stage 1, including the WNSLR, in accordance with the requirements of Condition D118 and to the satisfaction of the Planning Secretary	This FIP will be incorporated into the Construction Environmental Management Plan prepared by SLR Consulting Australia Pty Ltd.

Goodman requires the implementation of this FIP to comply with the Conditions of Development Consent to ensure that materials imported to the Site are suitable for commercial/industrial land use. Condition of Consent D79 states that materials imported to Site must be any of the following:

- Excavated Natural Material (ENM). This applies to imported material contemplated for use in the bulk earthworks.
- Virgin Excavated Natural Material (VENM). This applies to imported material contemplated for use in the bulk earthworks.
- Other material approved in writing by EPA. AECOM note that this may include:
  - Recycled concrete aggregate that meet the requirements of the NSW EPA Resource Recovery Order under part 9, clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014 – the Recovered Aggregate Order 2014.
  - Basalt fines (maximum particle size of 9.5 mm) that meet the requirements of the NSW EPA Resource Recovery Order under part 9, clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014 – the Basalt Fines Order 2014.
  - Recycled glass sands that meet the requirements of the NSW EPA Resource Recovery Order under part 9, clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014 – the Recovered Glass Sand Order 2014.

1.2 ENM

ENM is defined in the Resource Recovery Order under Part 9, Clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014 – The excavated natural material order 2014 - as naturally occurring rock and soil that has:

- Been excavated from the ground.

- Contains at least 98% (by weight) natural material.
- Does not meet the definition of Virgin Excavated Natural Material in the Act.

ENM **does not include**:

- Material located in a hotspot.
- Material that has been processed.
- Material that contains asbestos, acid sulfate soil (ASS), potential acid sulfate soil (PASS) or sulfidic ores.

The ENM Order is provided in **Appendix A**.

1.3 VENM

The Protection of the Environment Operations Act 1997 (POEO Act) defines VENM as natural material that:

- Has been excavated or quarried from areas that are not contaminated with manufactured chemicals, or with process residues, as a result of industrial, commercial, mining or agricultural activities.
- Does not contain any sulfidic ores or soils or any other waste.
- Includes excavated natural material that meets such criteria for virgin excavated natural material as may be approved for the time being pursuant to an EPA Gazettal notice.

To be classified as VENM, materials must satisfy all aspects of the above definition.

1.4 Recovered Aggregate Order

The requirements of the Recovered Aggregate Order 2014 apply to the supply of recovered aggregate (i.e. recycled) for application to land as road making material, or in building, landscaping or construction works.

In the Recovered Aggregate Order 2014, recovered aggregate means material comprising of concrete, brick, ceramics, natural rock and asphalt processed into an engineered material. This does not include refractory materials, or asphalt that contains coal tar.

The Recovered Aggregate Order 2014 is provided in **Appendix A**.

1.5 Basalt Fines Order

The requirements of the Basalt Fines Order 2014 apply to the supply of basalt fines for application to land for building or maintaining railway infrastructure, for road making activities, or as a soil amendment.

In the Basalt Fines Order 2014, basalt fines means a material comprising of naturally excavated basalt with a maximum particle size of 9.5 mm, that is derived from the processing of basalt or the recycling of railway ballast.

The Basalt Fines Order 2014 is provided in **Appendix A**.

1.6 Glass Sand Order

The requirements of the Recovered Glass Sand Order 2014 apply to the supply of recovered glass sand for application to land for the purpose of pipe bedding, drainage or for road making activities.

In the Recovered Glass Sand Order 2014, recovered glass sand means recovered glass that has been processed to produce a ‘sand-like’ glass material with a particle size diameter generally less than 5 mm and that contains at least 98% recovered glass.

The Recovered Glass Sand Order 2014 is provided in **Appendix A**.

2.0 Assessment Requirements

The assessment requirements relate to the Goodman appointed earthworks contractor (EC) and the environmental consultant (AECOM).

This FIP recognises that the EC may:

- Appoint their own environmental consultant(s) to pre-assess the suitability of ENM and/or VENM materials proposed for importation to the Site, and/or
- Be provided with ENM and/or VENM assessment reports prepared by other consultants for potential source sites.

Where ENM and/or VENM assessment reports have been prepared by other consultants, the EC must supply the reports to Goodman and AECOM for review, prior to materials being imported to Site. These reports shall include but not be limited to the following information:

- Location of source site, proposed quantity and type of material(s).
- Clear statement(s) on what materials are excluded from the assessment and why, as applicable.
- Clear conclusion on classification as either ENM or VENM (refer to following sections).
- Collection and analysis of field quality control (QC) samples. Field QC samples should be collected and analysed, including rinsates (where sampling tools have been utilised), inter and intra-laboratory duplicates and trip blanks.
- Assessment of data useability and reliability.

Any materials imported to Site will require compliance sampling by AECOM, to confirm suitability for use. The minimum sampling rates (refer following sections) exclude field QC samples. Field QC samples, as noted above, will be collected and analysed. The sampling rates may be subject to revision, based on the Auditors' review of this FIP.

2.1 ENM

To assess that materials meet the ENM classification, the requirements presented in **Appendix A** shall apply. In summary, the following are applicable.

Table 2 Chemicals and Concentrations

Attributes	Maximum Average Concentration (mg/kg)	Absolute Maximum Concentration (mg/kg)
1. Mercury	0.5	1
2. Cadmium	0.5	1
3. Lead	50	100
4. Arsenic	20	40
5. Chromium (total)	75	150
6. Copper	100	200
7. Nickel	30	60
8. Zinc	150	300
9. Electrical conductivity	1.5 dS/m	3 dS/m
10. pH	5 to 9	4.5 to 10
11. Total Polycyclic aromatic hydrocarbons (PAH)	20	40
12. Benzo(a)pyrene	0.5	1
13. Benzene	NA	0.5

Attributes	Maximum Average Concentration (mg/kg)	Absolute Maximum Concentration (mg/kg)
14. Toluene	NA	65
15. Ethylbenzene	NA	25
16. Xylene	NA	15
17. Total petroleum hydrocarbons C10-C36	250	500
18. Rubber, plastic, bitumen, paper, cloth, paint and wood	0.05 %	0.1 %
19. Asbestos	Not detected	Not detected

Notes:

Items 1 to 18 sourced from **Table 4** in the **ENM Order** (refer Appendix A).
Item 19 added by AECOM.
Tests must be undertaken by NATA accredited methods and as specified in Table 4 in the ENM Order.
An assessment for ASS/PASS is also required, refer to Table 5 (second line item).

2.1.1 Sampling Requirements

The following sections relate to the assessment of ENM by other consultants at the source site(s). If the ENM is contemplated for use at OWE, these requirements must be met.

Stockpiled excavated natural materials must be sampled as per the requirements in **Table 3**. The following also applies:

- Composite sampling must be undertaken for analysis of Attributes 1 to 10 and 18 in **Table 2** above. Discrete sampling must be undertaken for analysis of Attributes 11 to 17 and 19.
- One composite sample comprises 5 sub-samples of equal size.
- Sampling must be undertaken in a manner that ensures representative materials of the whole stockpile are assessed.
- For stockpiles greater than 4000 tons, the number of samples in **Table 3** (below) must be repeated.

Table 3 Sampling Stockpiled Soils

Quantity (tons)	Number samples	Validation
<500	3	Required (test results comply with the conditions of the ENM exemption prior to the material being supplied to Site)
500-1000	4	
1000-2000	5	
2000-3000	7	
3000-4000	10	

In-situ material must be sampled by collecting discrete samples as per **Table 4** and **5** below. For source sites larger than 50 000 m^2, these should be subdivided into smaller areas and sampled as per **Table 3** (below).

Table 4 In-Situ Sampling at Surface

Size of In-Situ area (m^2)	Number of Systematic sampling points	Validation
500	5	Required (test results comply with the conditions of the ENM exemption prior to the material being supplied to Site)
1000	6	
2000	7	
3000	9	

Size of In-Situ area (m^2)	Number of Systematic sampling points	Validation
4000	11	
5000	13	
6000	15	
7000	17	
8000	19	
9000	20	
10 000	21	
15 000	25	
20 000	30	
25 000	35	
30 000	40	
35 000	45	
40 000	50	
45 000	52	
50 000	55	

Table 5 In-Situ Sampling at Depth

Sampling Requirements	Validation
1 soil sample at 1 m below ground level from each surface sampling point followed by 1 soil sample for every metre thereafter. From 1 m below ground level, sample at 1 m intervals until the proposed depth of excavation of the material is reached (refer Appendix A for further detail).	Required if the depth of excavation is equal to or greater than 1 m below ground level.

2.1.2 Compliance Sampling Assessment Requirements

To confirm suitability for use at Site, compliance sampling will be undertaken, as summarised below:

- A minimum of 3 samples per source site will be required.
- Source site volumes are less than 1000 m^3: 1 sample per 200 m^3.
- Source site volumes between 1000 m^3 and 10 000 m^3: 1 sample per 1000 m^3.
- Source site volume greater than 10 000 m^3: 1 sample per 2000 m^3.
- Samples are to be analysed for Items 1 to 8, 11 to 17 and 19 in **Table 1** plus PAH, TRH C6-C40, OCP, OPP and PCB.
- Analysis results must meet the ENM absolute maximum concentrations shown in **Table 1** and the Health Investigation Level (HIL) and Health Screening Level (HSL) for commercial/industrial land use (HIL D and HSL D) for PAH, TRH C6-C40, OCP, OPP and PCB.

Note: Lower rates may be applicable subject to Auditor concurrence.

2.2 VENM

The definition of VENM is provided in **Section 1.2**. The following must be undertaken:

Table 6 VENM Assessment

Item / Consideration	VENM	Course of Action
Are manufactured chemicals or process residues present	A material can only be VENM if it has been excavated from an area that is not contaminated with manufactured chemicals or process residues as a result of industrial, commercial, mining or agricultural activities	Undertake land-use history appraisal of proposed source site. This must include at a minimum: • Review of current and historical aerial photographs, to confirm no previous industrial land uses • Review of historical certificates of title, to assess previous owners and potential land use • Review NSW EPA website to assess if the source site and/or nearby properties have been notified under section 58 of the Contaminated land Management Act 1997 • Review the NSW EPA website to assess if the source site and/or nearby properties are listed on the NSW Government PFAS [per- and poly-fluoroalkyl substances] Investigation Program. • Review the Department of Defence website for Unexploded Ordnance records • Review geological and soil maps to evaluate anticipated subsurface conditions • Inspection of the source site to ascertain current conditions, with photographic records to be provided as a line of evidence
Are sulfidic ores or soils present	VENM cannot contain sulfidic ores or soils	• Review acid sulfate soil risk maps • Material cannot be classified as VENM if the acid sulfate soil risk maps identify a high probability of occurrence of ASS or PASS. • If the acid sulfate soil risk maps identify a high probability of ASS or PASS, chemical assessment will be required as per the Acid Sulfate Soils Assessment Guidelines and up-dated ASS laboratory method Guidelines Version 2.1 (June 2004)
Are naturally occurring asbestos soils present	VENM cannot contain naturally occurring asbestos	• Review the naturally occurring asbestos risk maps available on SafeWork NSW website • If the maps indicate a medium/high probability of naturally occurring asbestos, sampling and analysis would be required to demonstrate that the material does not contain asbestos[1]
Is there any other waste present	VENM cannot contain any waste	• Inspection of source site • Interviews with personnel at source site • Supplier to provide VENM certificate (refer **Appendix A**)

[1] It is recommended that these potential source sites are not considered further. If assessment and analysis is contemplated, the requirements of the ASC NEPM 2013 and Guidelines for the Assessment, Remediation and Management of Asbestos-contaminated Sites in Western Australia (May 2009) would apply.

Item / Consideration	VENM	Course of Action
Is chemical assessment necessary	Yes, if material is potentially contaminated with manufactured chemicals or process residues and/or if ASS/PASS may be present	• Analysis for chemicals or process residues will depend on the potential contaminant sources. If uncertainty exists, all samples should be analysed for the contaminants noted in **Table 1 and** TRH C6-C40, OCP, OPP, PCB and VHC (refer to Glossary for definitions) • Analysis for PFAS if background data (refer Section 2.7) indicate it is a contaminant of concern. • Analysis for ASS/PASS

2.2.1 VENM Sampling Rates

To confirm suitability for use at Site, compliance sampling will be undertaken, as summarised below:

- A minimum of 3 samples per source site will be required.
- Source site volumes are less than 1000 m^3: 1 sample per 100 m^3.
- Source site volumes between 1000 m^3 and 10 000 m^3: 1 sample per 1000 m^3.
- Source site volumes exceed 10 000 m^3: 1 sample per 2500 m^3.

Lower rates may be applicable on a case-by-case basis however, this will require Auditor concurrence.

2.2.2 VENM Assessment Criteria

The results must be compared to:

- The HIL and HSL presented in the ASC NEPM 2013. Exposure scenario A applicable to residential with garden accessible soil land use should be utilised.
- Analysis results for organics (i.e. TRH, BTEX, PAH, OCP, OPP, PCB) should be below the laboratory limit of reporting (LOR). Any results above LOR should be assessed on a case by case basis before allowing material on Site.
- Analysis results for metals should indicate background concentrations.

If asbestos is identified, materials will not be acceptable for use at the Site.

2.2.3 Residential Source Sites

Material can only be VENM if it has been excavated from an area that is not contaminated with manufactured chemicals or process residues as a result of industrial, commercial, mining or agricultural activities. AECOM notes that residential properties may have potential contamination sources (e.g. demolition spoil, application of pesticides beneath buildings, fuel storage, workshops/garages) or be affected by contaminants derived from off-site sources.

Residential source sites will therefore require the same level of assessment noted in **Table 5**.

Where residential redevelopment sites have been assessed to be an ENM or VENM source site and the consultant's report identifies that waste materials (i.e. overburden) will be stripped and disposed to landfill separately, the subject site must be inspected by a Goodman representative or appointed representative. The inspection must prove that waste material (or overburden) has been completely removed prior to importation of underlying materials to the subject Site.

2.3 Recovered Aggregates

To assess that materials meet the Recovered Aggregate classification, the requirements presented in **Appendix A** shall apply, plus sampling and analysis, as noted below. In summary, Recovered Aggregates must meet the following.

Table 7 Recovered Aggregates, Chemicals & Concentrations

Column 1	Column 2	Column 3	Column 4
Chemicals/Attributes	Max' Average Concentration for Characterisation(1)	Max' Average Concentration for Routine Testing(1)	Absolute Maximum Concentration(1)
1. Mercury	0.5	Not required	1
2. Cadmium	0.5	0.5	1.5
3. Lead	75	75	150
4. Arsenic	20	Not required	40
5. Chromium (total)	60	60	120
6. Copper	60	60	150
7. Nickel	40	Not required	80
8. Zinc	200	200	350
9. Electrical conductivity	1.5 dS/m	1.5 dS/m	3 dS/m
10. Metal	1 %	1 %	2 %
11. Plaster	0.25 %	0.25 %	0.5 %
12. Rubber, plastic, paper, cloth, paint, wood and other vegetable matter	0.2 %	0.2 %	0.3 %
13. Asbestos(2)	Not detected	Not detected	Not detected

Notes:

(1) = mg/kg 'dry weight'. (2) = added by AECOM. The absolute maximum concentration or other value of that attribute in any recovered aggregate supplied under this order must not exceed the absolute maximum concentration or other value listed in Column 4.

Assessment Requirements

Assessment of the suitability of Recovered Aggregates for commercial/industrial land use will include:

- Principal Contractor to source documentation from the commercial supplier (refer **Section 2.8**).
- Principal Contractor to advise the AECOM of the total expected net import quantity (in m^3).
- AECOM to undertake compliance sampling and analysis. This will entail:
  - Collection of representative samples of each type of recovered aggregate imported to Site
  - Samples to be collected and analysed at a rate of 1 per 500 m^3
  - Each sample to be analysed for TRH, BTEXN, PAH, OCP, OPP, PCB, M8 and asbestos
  - Comparison of results to the ASC NEPM HIL D and HSL D. Analysis results must be below these criteria. Asbestos must not be present. Note: It is expected that these materials will be utilised in temporary haul roads, retaining walls, road pavement sub-grade and stormwater trenches and as such, assessment for ecological parameters (environmental investigation and/or screening levels) is not considered necessary.

2.4 Basalt Fines

To assess that materials meet the Basalt Fines classification, the requirements presented in **Appendix A** shall apply, plus sampling and analysis, as noted below. In summary, Basalt Fines must meet the following:

Table 8 Basalt Fines, Chemicals & Concentrations

Column 1	Column 2	Column 3	Column 4
Chemicals/Attributes	Max' Average Concentration for Characterisation(1)	Max' Average Concentration for Routine Testing(1)	Absolute Maximum Concentration(1)
1. Mercury	0.5	Not required	1
2. Cadmium	0.5	0.5	1
3. Lead	50	50	100
4. Arsenic	15	15	30
5. Chromium (total)	25	Not required	50
6. Copper	25	Not required	50
7. Nickel	25	Not required	50
8. Zinc	75	75	150
9. Electrical conductivity	1 dS/m	1 dS/m	2 dS/m
10. Metal, glass, asphalt, ceramics and slag	2.5 %	Not required	5 %
11. Plaster, clay lumps and other friable materials	0.25 %	Not required	0.5 %
12. Rubber, plastic, bitumen, paper, cloth, paint, wood and other vegetable matter	0.05 %	Not required	0.1 %
13. Asbestos(2)	Not detected	Not detected	Not detected

Notes:

(1) = mg/kg 'dry weight'. (2) = added by AECOM. The absolute maximum concentration or other value of that attribute in any recovered aggregate supplied under this order must not exceed the absolute maximum concentration or other value listed in Column 4.

Assessment Requirements

Assessment of the suitability of Basalt Fines for commercial/industrial land use will include:

- Principal Contractor to source documentation from the commercial supplier (refer **Section 2.8**).
- Principal Contractor to advise AECOM of the total expected net import quantity (in m^3).
- AECOM to undertake compliance sampling and analysis. This will entail:
  - Collection of representative samples of the material(s) imported to Site
  - Samples to be collected at a rate of 1 per 1000 m^3
  - Each sample to be analysed for TRH, BTEXN, PAH, OCP, OPP, PCB, M8 and asbestos
  - Comparison of results to the ASC NEPM HIL D and HSL D. Analysis results must be below these criteria. Asbestos must not be present. Note: It is expected that this material will be utilised as sewerage pipe trench backfill and as such, assessment for ecological parameters (environmental investigation and/or screening levels) is not considered necessary.

2.5 Glass Sand

To assess that materials meet the Recovered Glass Sand classification, the requirements presented in **Appendix A** shall apply, plus sampling and analysis, as noted below. In summary, Glass Sand must meet the following:

Table 9 Recovered Glass Sand, Contaminants and Concentrations

Column 1	Column 2	Column 3	Column 4
Chemicals/Attributes	Max' Average Concentration for Characterisation(1)	Max' Average Concentration for Routine Testing(1)	Absolute Maximum Concentration(1)
1. Mercury	0.5	Not required	1
2. Cadmium	0.5	0.5	1.5
3. Lead	50	50	100
4. Arsenic	10	Not required	20
5. Chromium (total)	20	Not required	40
6. Copper	40	Not required	120
7. Molybdenum	5	Not required	10
8. Nickel	10	Not required	20
9. Zinc	100	100	300
10. Total Organic Carbon	1 %	Not required	2 %
11. Electrical conductivity	1 dS/m	1 dS/m	2 dS/m
12. Metals	0.25 %	0.25 %	0.5 %
13. Plaster, clay lumps and other friable materials	0.25 %	0.25 %	0.5 %
14. Rubber, plastic, bitumen, paper, cloth, paint, wood and other vegetable matter	0.3 %	0.3 %	0.5 %
15. Asbestos(2)	Not detected	Not detected	Not detected

Notes:

(1) = mg/kg 'dry weight'. (2) = added by AECOM. The absolute maximum concentration or other value of that attribute in any recovered aggregate supplied under this order must not exceed the absolute maximum concentration or other value listed in Column 4.

Assessment Requirements

Assessment of the suitability of Glass Sand for commercial/industrial land use will include:

- Principal Contractor to source documentation from the commercial supplier (refer **Section 2.8**).
- Principal Contractor to advise AECOM of the total expected net import quantity (in m^3).
- AECOM to undertake compliance sampling and analysis. This will entail:
  - Collection of representative samples of the material(s) imported to Site
  - Samples to be collected at a rate of 1 per 500 m^3
  - Each sample to be analysed for TRH, BTEXN, PAH, OCP, OPP, PCB, M8 and asbestos
  - Comparison of results to the ASC NEPM HIL D and HSL D. Analysis results must be below these criteria. Asbestos must not be present. Note: It is not expected that this material will be utilised. The potential for widespread use external to pavement areas is considered to be low and as such, assessment for ecological parameters (environmental investigation and/or screening levels) is not considered necessary.

2.6 Consultants' Assessment Reports

A report will be required for each potential VENM or ENM source site. Each report must be prepared by an appropriately qualified consultant and include:

- All applicable ENM and/or VENM assessment requirements noted in this document.
- Identifiers for the source site (i.e. street address and suburb and Lot and Deposited Plan numbers).
- A Figure showing the location of the source site.
- The anticipated volume of material to be imported to the subject site.
- A description of the material to be imported to the subject site.
- Site inspection observations, including neighbouring properties.
- Photographs showing site conditions.
- Consideration of the likelihood of PFAS to be present (refer **Section 2.7**).
- Analysis for PFAS if it is identified as a contaminant of concern.
- Copies of NATA stamped laboratory analysis certificates, including chain of custody documentation, sample receipt acknowledgement forms, quality assurance/quality control (QA/QC) data.
- Analysis results for field QA/QC samples (e.g. equipment rinsate blanks, field duplicates etc). AECOM recommends that split field duplicate samples are analysed by a secondary laboratory, so that an assessment of the precision of the primary laboratory data can be made. QA/QC evaluation should be undertaken with reference to the ASC NEPM 2013.
- Evaluation of the analysis data reliability and useability.
- A conclusion (i.e. does the material meet the classification of either ENM or VENM).

2.7 PFAS

PFAS means per- and poly-fluoroalkyl substances, which can be associated with aqueous film forming foams (AFFF, used in firefighting), Teflon coatings, fabric protectors, electroplating, a range of industrial processes and landfills.

Soil and/or bedrock materials (i.e. VENM or ENM) proposed to be imported to the Site must be assessed for PFAS if background/history data for the source site indicates that it is a potential source of PFAS, or located near a potential PFAS source site. The indicators would include but not be limited to:

- Listing on the NSW EPA website.
- Previous or current use of the source site as a fire station or fire training ground.
- Department of Defence properties, including adjacent lands.
- Electroplating facilities.
- Industrial facilities or other lands that have had fires attended to by the NSW Fire Brigade.

No soil and/or bedrock materials will be imported to Site if:

- Background data for the source site indicates a potential for PFAS and no PFAS analyses have been undertaken.
- PFAS concentrations in soil and/or bedrock materials exceed the ‘residential and garden accessible soil’ land use criteria provided in the draft PFAS National Environmental Management Plan March 2019 (PFAS NEMP 2.0).

The draft PFAS NEMP 2.0 ‘residential and garden accessible soil’ land use criteria are:

- PFOS + PFHxS: 0.01 mg/kg
- PFOA: 0.3 mg/kg.

In the event that the draft PFAS NEMP 2.0 criteria are not adopted by the Regulators, the assessment criteria shall be consistent with the PFAS NEMP January 2018, which are:

- PFOS + PFHxS: 0.009 mg/kg
- PFOA: 0.1 mg/kg.

2.8 Review of Consultants' Assessment Reports

AECOM should be provided a copy of each Assessment Report of ENM and/or VENM for review purposes. An appropriate report, addressing all items in **Section 2.6**, must be sighted prior to the importation of material to the Site.

In the event that the review indicates insufficient assessment data, no materials shall be imported to the Site until the Consultant has satisfactorily addressed the identified data gaps.

Goodman or Goodman's' appointed representative(s) should retain a copy of each Assessment Report. This includes source sites not deemed to be an acceptable source of ENM or VENM or reports lacking sufficient data, so that an "Exclusion Register" can be maintained and tracked.

Any materials that are considered acceptable for import, based on review of the Consultants' report, will require compliance sampling and analysis to ensure suitability for use (per this FIP).

2.9 POEO (Waste) Regulation 2014 Documentation

For any materials imported to Site under the applicable Resource Recovery Order (RRO), the following shall apply:

- The commercial supplier of the material must provide a letter stating that the material was generated under the applicable RRO. At least one letter per material type will be required.
- The commercial supplier must provide copies of test results, confirming contaminant concentrations meet the applicable 'Absolute maximum concentrations'.

AECOM will undertake compliance sampling and analysis to ensure suitability of the materials for use at the Site.

2.10 On-Site Inspections

During importation of materials, the Earthworks Contractor (EC) will undertake inspections of vehicles entering the Site. The following information should be noted and recorded:

- Vehicle registration (license plate) number.
- Location of source site.
- Contact name at source site.
- Time left source site and time of arrival at Site.
- Contents of truck and are they similar to the expected contents.
- Inspection of materials when deposited from truck.
- GPS truck-tracking data (if applicable).

Where suspicious loads and/or evasive answers and/or incomplete vehicle tracking data are apparent, permission to unload should not be granted.

Where contaminants or suspected contaminants are observed in imported material during tipping, the truck will be reloaded and be sent back to the source site. Cartage from the source site shall cease and will only recommence when the EC is satisfied that the issue has been addressed.

3.0 Materials Tracking Register

A Materials Tracking Register (MTR) must be implemented by the EC, to ensure that only 'approved' material is imported to the Site. At a minimum, the MTR should include the following:

- Location of source site, expected volume of material and description and reference to a Consultant's Assessment Report.
- Log of vehicles leaving source site, to be provided by the source site each morning, including license plate details. The source site should also provide an indication of the number of truck loads expected each day.
- All trucks arriving at Site must possess a loading docket from the source site. If a truck does not possess a loading docket, it will not be allowed to unload at the Site. The loading docket must identify the source site and time the truck left the source site.
- A Spotter (or Spotters) will be at Site, to meet all trucks. The Spotter(s) will:
    - Log all vehicles entering the Site, including license plate details and 'time in'.
    - Check the loading docket, including time left source site and time-in at Site. Any discrepancies in times will be discussed. Trucks with significant time discrepancies may be refused entry to the Site.
    - Description of materials imported (e.g. clay, shale, sandstone etc.).
    - Location materials deposited at Site.
    - When tipping, the Spotter will check material for unexpected contaminants (odours, staining, waste materials etc.).

When the Spotter(s) is / are satisfied, they will sign the loading docket and keep a copy for records. All records will be retained by the contractor and are to be available to the Department of Planning upon request

An example pro-forma is included in **Appendix B**.

Appendix A

POEO (Waste) Regulation, Orders & Exemptions

Resource Recovery Order under Part 9, Clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014

The excavated natural material order 2014

Introduction

This order, issued by the Environment Protection Authority (EPA) under clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014 (Waste Regulation), imposes the requirements that must be met by suppliers of excavated natural material to which 'the excavated natural material exemption 2014' applies. The requirements in this order apply in relation to the supply of excavated natural material for application to land as engineering fill or for use in earthworks.

1. Waste to which this order applies

1.1. This order applies to excavated natural material. In this order, excavated natural material means naturally occurring rock and soil (including but not limited to materials such as sandstone, shale, clay and soil) that has:

a) been excavated from the ground, and
b) contains at least 98% (by weight) natural material, and
c) does not meet the definition of Virgin Excavated Natural Material in the Act.

Excavated natural material does not include material located in a hotspot; that has been processed; or that contains asbestos, Acid Sulfate Soils (ASS), Potential Acid Sulfate soils (PASS) or sulfidic ores.

2. Persons to whom this order applies

2.1. The requirements in this order apply, as relevant, to any person who supplies excavated natural material, that has been generated, processed or recovered by the person.

2.2. This order does not apply to the supply of excavated natural material to a consumer for land application at a premises for which the consumer holds a licence under the POEO Act that authorises the carrying out of the scheduled activities on the premises under clause 39 'waste disposal (application to land)' or clause 40 'waste disposal (thermal treatment)' of Schedule 1 of the POEO Act.

3. Duration

3.1. This order commences on 24 November 2014 and is valid until revoked by the EPA by notice published in the Government Gazette.

4. Generator requirements

The EPA imposes the following requirements on any generator who supplies excavated natural material.

Sampling requirements

4.1. On or before supplying excavated natural material, the generator must:

4.1.1. Prepare a written sampling plan which includes a description of sample preparation and storage procedures for the excavated natural material.

4.1.2. Undertake sampling and testing of the excavated natural material as required under clauses 4.2, 4.3, and 4.4 below. The sampling must be carried out in accordance with the written sampling plan.

4.2. The generator must undertake sampling and analysis of the material for ASS and PASS, in accordance with the NSW Acid Sulfate Soil Manual, Acid Sulfate Soils Management Advisory Council, 1998 and the updated Laboratory Methods Guidelines version 2.1 – June 2004 where:

4.2.1. the pH measured in the material is below 5, and/or

4.2.2. the review of the applicable Acid Sulfate Soil Risk Maps (published by the former Department of Land and Water Conservation and available at http://www.environment.nsw.gov.au/acidsulfatesoil/riskmaps.htm) indicates the potential presence of ASS.

4.3. For stockpiled material, the generator must:

4.3.1. undertake sampling in accordance with Australian Standard 1141.3.1-2012 Methods for sampling and testing aggregates – Sampling – Aggregates (or equivalent);

4.3.2. undertake characterisation sampling by collecting the number of samples listed in Column 2 of Table 1 with respect to the quantity of the waste listed in Column 1 of Table 1 and testing each sample for the chemicals and other attributes listed in Column 1 of Table 4. For the purposes of characterisation sampling the generator must collect:

4.3.2.1. composite samples for attributes 1 to 10 and 18 in Column 1 of Table 4.

4.3.2.2. discrete samples for attributes 11 to 17 in Column 1 of Table 4.

4.3.2.3. The generator must carry out sampling in a way that ensures that the samples taken are representative of the material from the entire stockpile. All parts of the stockpile must be equally accessible for sampling.

4.3.2.4. for stockpiles greater than 4,000 tonnes the number of samples described in Table 1 must be repeated.

4.3.3. store the excavated natural material appropriately until the characterisation test results are validated as compliant with the maximum average concentration or other value listed in Column 2 of Table 4 and the absolute maximum concentration or other value listed in Column 3 of Table 4.

Table 1

Sampling of Stockpiled Material		
Column 1	**Column 2**	**Column 3**
Quantity (tonnes)	**Number of samples**	**Validation**
<500	3	Required
500 – 1,000	4	
1,000 – 2,000	5	
2,000 – 3,000	7	
3,000 – 4,000	10	

4.4. For in situ material, the generator must:

4.4.1. undertake sampling by collecting discrete samples. Compositing of samples is not permitted for in-situ materials.

4.4.2. undertake characterisation sampling for the range of chemicals and other attributes listed in Column 1 of Table 4 according to the requirements listed in Columns 1, 2 and 3 of Table 2. When the ground surface is not comprised of soil (e.g. concrete slab), samples must be taken at the depth at which the soil commences.

4.4.3. undertake sampling at depth according to Column 1 of Table 3.

4.4.4. collect additional soil samples (and analyse them for the range of chemicals and other attributes listed in Column 1 of Table 4), at any depth exhibiting discolouration, staining, odour or other indicators of contamination inconsistent with soil samples collected at the depth intervals indicated in Table 3.

4.4.5. segregate and exclude hotspots identified in accordance with Table 2, from material excavated for reuse.

4.4.6. subdivide sites larger than 50,000 m² into smaller areas and sample each area as per Table 2.

4.4.7. store the excavated natural material appropriately until the characterisation test results are validated as compliant with the maximum average concentration or other value listed in Column 2 of Table 4 and the absolute maximum concentration or other value listed in Column 3 of Table 4.

Table 2

***In Situ* Sampling at surface**				
Column 1	**Column 2**	**Column 3**	**Column 4**	**Column 5**
Size of *in situ* area (m^2)	**Number of systematic sampling points recommended**	**Distance between two sampling points** (m)	**Diameter of the hot spot that can be detected with 95% confidence** (m)	**Validation**
500	5	10.0	11.8	Required
1000	6	12.9	15.2	
2000	7	16.9	19.9	
3000	9	18.2	21.5	
4000	11	19.1	22.5	
5000	13	19.6	23.1	
6000	15	20.0	23.6	
7000	17	20.3	23.9	
8000	19	20.5	24.2	
9000	20	21.2	25.0	
10,000	21	21.8	25.7	
15,000	25	25.0	28.9	
20,000	30	25.8	30.5	
25,000	35	26.7	31.5	
30,000	40	27.5	32.4	
35,000	45	27.9	32.9	
40,000	50	28.3	33.4	
45,000	52	29.3	34.6	
50,000	55	30.2	35.6	

Table 2 has been taken from NSW EPA 1995, *Contaminated Sites Sampling Design Guidelines*, NSW Environment Protection Authority.

Table 3

***In Situ* Sampling at Depth**	
Column 1	**Column 2**
Sampling Requirements *	**Validation**
1 soil sample at 1.0 m bgl from each surface sampling point followed by 1 soil sample for every metre thereafter. From 1.0 m bgl, sample at the next metre interval until the proposed depth of excavation of the material is reached. If the proposed depth of excavation is between 0.5 to 0.9 m after the last metre interval, sample at the base of the proposed depth of excavation.	Required if the depth of excavation is equal to or greater than 1.0 m bgl

* Refer to Notes for examples

Chemical and other material requirements

4.5. The generator must not supply excavated natural material waste to any person if, in relation to any of the chemical and other attributes of the excavated natural material:

4.5.1. The chemical concentration or other attribute of any sample collected and tested as part of the characterisation of the excavated natural material exceeds the absolute maximum concentration or other value listed in Column 3 of Table 4:

4.5.2. The average concentration or other value of that attribute from the characterisation of the excavated natural material (based on the arithmetic mean) exceeds the maximum average concentration or other value listed in Column 2 of Table 4.

4.6. The absolute maximum concentration or other value of that attribute in any excavated natural material supplied under this order must not exceed the absolute maximum concentration or other value listed in Column 3 of Table 4.

Table 4

Column 1	Column 2	Column 3
Chemicals and other attributes	**Maximum average concentration for characterisation** (mg/kg 'dry weight' unless otherwise specified)	**Absolute maximum concentration** (mg/kg 'dry weight' unless otherwise specified)
1. Mercury	0.5	1
2. Cadmium	0.5	1
3. Lead	50	100
4. Arsenic	20	40
5. Chromium (total)	75	150
6. Copper	100	200
7. Nickel	30	60
8. Zinc	150	300
9. Electrical Conductivity	1.5 dS/m	3 dS/m
10. pH *	5 to 9	4.5 to 10
11. Total Polycyclic Aromatic Hydrocarbons (PAHs)	20	40
12. Benzo(a)pyrene	0.5	1
13. Benzene	NA	0.5
14. Toluene	NA	65
15. Ethyl-benzene	NA	25
16. Xylene	NA	15
17. Total Petroleum Hydrocarbons C_{10}-C_{36}	250	500
18. Rubber, plastic, bitumen, paper, cloth, paint and wood	0.05%	0.10%

* The ranges given for pH are for the minimum and maximum acceptable pH values in the excavated natural material.

Test methods

4.7. The generator must ensure that any testing of samples required by this order is undertaken by analytical laboratories accredited by the National Association of Testing Authorities (NATA), or equivalent.

4.8. The generator must ensure that the chemicals and other attributes (listed in Column 1 of Table 4) in the excavated natural material it supplies are tested in accordance with the test methods specified below or other equivalent analytical methods. Where an equivalent analytical method is used the detection limit must be equal to or less than that nominated for the given method below.

4.8.1. Test methods for measuring the mercury concentration.

4.8.1.1. Analysis using USEPA SW-846 Method 7471B Mercury in solid or semisolid waste (manual cold vapour technique), or an equivalent analytical method with a detection limit < 20% of the stated absolute maximum concentration in Column 3 of Table 2 (i.e. < 0.20 mg/kg dry weight).

4.8.1.2. Report as mg/kg dry weight.

4.8.2. Test methods for measuring chemicals 2 to 8.

4.8.2.1. Sample preparation by digesting using USEPA SW-846 Method 3051A Microwave assisted acid digestion of sediments, sludges, soils, and oils (or an equivalent analytical method).

4.8.2.2. Analysis using USEPA SW-846 Method 6010C Inductively coupled plasma - atomic emission spectrometry, or an equivalent analytical method with a detection limit < 10% of the stated absolute maximum concentration in Column 3 of Table 2, (e.g. 10 mg/kg dry weight for lead).

4.8.2.3. Report as mg/kg dry weight.

4.8.3. Test methods for measuring electrical conductivity and pH.

4.8.3.1. Sample preparation by mixing 1 part excavated natural material with 5 parts distilled water.

4.8.3.2. Analysis using Method 103 (pH) and 104 (Electrical Conductivity) in Schedule B (3): Guideline on Laboratory Analysis of Potentially Contaminated Soils, National Environment Protection (Assessment of Site Contamination) Measure 1999 (or an equivalent analytical method).

4.8.3.3. Report electrical conductivity in deciSiemens per metre (dS/m).

4.8.4. Test method for measuring Polynuclear Aromatic Hydrocarbons (PAHs) and benzo(a)pyrene.

4.8.4.1. Analysis using USEPA SW-846 Method 8100 Polynuclear Aromatic Hydrocarbons (or an equivalent analytical method).

4.8.4.2. Calculate the sum of all 16 PAHs for total PAHs.

4.8.4.3. Report total PAHs as mg/kg dry weight.

4.8.4.4. Report benzo(a)pyrene as mg/kg.

4.8.5. Test method for measuring benzene, toluene, ethylbenzene and xylenes (BTEX).

4.8.5.1. Method 501 (Volatile Alkanes and Monocyclic Aromatic Hydrocarbons) in Schedule B (3): Guideline on Laboratory Analysis of Potentially Contaminated Soils, National Environment Protection (Assessment of Site Contamination) Measure 1999 (or an equivalent analytical method).

4.8.5.2. Report BTEX as mg/kg.

4.8.6. Test method for measuring Total Petroleum Hydrocarbons (TPH).

4.8.6.1. Method 506 (Petroleum Hydrocarbons) in Schedule B (3): Guideline on Laboratory Analysis of Potentially Contaminated Soils, National Environment Protection (Assessment of Site Contamination) Measure 1999 (or an equivalent analytical method).

4.8.6.2. Report as mg/kg dry weight.

4.8.7. Test method for measuring rubber, plastic, bitumen, paper, cloth, paint and wood.

4.8.7.1. NSW Roads & Traffic Authority Test Method T276 Foreign Materials Content of Recycled Crushed Concrete (or an equivalent method).

4.8.7.2. Report as percent.

Notification

4.9. On or before each transaction, the generator must provide the following to each person to whom the generator supplies the excavated natural material:

- a written statement of compliance certifying that all the requirements set out in this order have been met;
- a copy of the excavated natural material exemption, or a link to the EPA website where the excavated natural material exemption can be found; and
- a copy of the excavated natural material order, or a link to the EPA website where the excavated natural material order can be found.

Record keeping and reporting

4.10. The generator must keep a written record of the following for a period of six years:

- the sampling plan required to be prepared under clause 4.1.1;
- all characterisation sampling results in relation to the excavated natural material supplied;
- the volume of detected hotspot material and the location;
- the quantity of the excavated natural material supplied; and
- the name and address of each person to whom the generator supplied the excavated natural material.

4.11. The generator must provide, on request, the characterisation and sampling results for that excavated natural material supplied to the consumer of the excavated natural material.

5. Definitions

In this order:

application or apply to land means applying to land by:

- spraying, spreading or depositing on the land; or
- ploughing, injecting or mixing into the land; or
- filling, raising, reclaiming or contouring the land.

Bgl means below ground level, referring to soil at depth beneath the ground surface.

composite sample means a sample that combines five discrete sub-samples of equal size into a single sample for the purpose of analysis.

consumer means a person who applies, or intends to apply excavated natural material to land.

discrete sample means a sample collected and analysed individually that will not be composited.

generator means a person who generates excavated natural material for supply to a consumer.

hotspot means a cylindrical volume which extends through the soil profile from the ground surface to the proposed depth of excavation, where the level of any contaminant listed in Column 1 of Table 2 is greater than the absolute maximum concentration in Column 3 of Table 2.

***in situ* material** means material that exists on or below the ground level. It does not include stockpiled material.

***in situ* sampling** means sampling undertaken on *in situ* material.

N/A means not applicable.

stockpiled material means material that has been excavated from the ground and temporarily stored on the ground prior to use.

systematic sampling means sampling at points that are selected at even intervals and are statistically unbiased.

transaction means:

- in the case of a one-off supply, the supply of a batch, truckload or stockpile of excavated natural material that is not repeated.
- in the case where the supplier has an arrangement with the recipient for more than one supply of excavated natural material, the first supply of excavated natural material as required under the arrangement.

Manager Waste Strategy and Innovation

Environment Protection Authority

(by delegation)

Notes

The EPA may amend or revoke this order at any time. It is the responsibility of each of the generator and processor to ensure it complies with all relevant requirements of the most current order. The current version of this order will be available on ' www.epa.nsw.gov.au

In gazetting or otherwise issuing this order, the EPA is not in any way endorsing the supply or use of this substance or guaranteeing that the substance will confer benefit.

The conditions set out in this order are designed to minimise the risk of potential harm to the environment, human health or agriculture, although neither this order nor the accompanying exemption guarantee that the environment, human health or agriculture will not be harmed.

Any person or entity which supplies excavated natural material should assess whether the material is fit for the purpose the material is proposed to be used for, and whether this use may cause harm. The supplier may need to seek expert engineering or technical advice.

Regardless of any exemption or order provided by the EPA, the person who causes or permits the application of the substance to land must ensure that the action is lawful and consistent with any other legislative requirements including, if applicable, any development consent(s) for managing operations on the site(s).

The supply of excavated natural material remains subject to other relevant environmental regulations in the POEO Act and Waste Regulation. For example, a person who pollutes land (s. 142A) or water (s. 120), or causes air pollution through the emission of odours (s. 126), or does not meet the special requirements for asbestos waste (Part 7 of the Waste Regulation), regardless of this order, is guilty of an offence and subject to prosecution.

This order does not alter the requirements of any other relevant legislation that must be met in supplying this material, including for example, the need to prepare a Safety Data Sheet. Failure to comply with the conditions of this order constitutes an offence under clause 93 of the Waste Regulation.

Examples

In situ sampling at depth

Example 1.

If the proposed depth of ENM excavation is between 1 m bgl and 1.4 m bgl, then:

- 1 sample on surface (as per the requirements of Table 2).
- 1 sample at 1 m bgl.
- No further depth sampling after 1 m bgl, unless required under section 4.4.4.

Example 2.

If the proposed depth of ENM excavation is at 1.75 m bgl, then:

- 1 sample on surface (as per the requirements of Table 2).
- 1 sample at 1 m bgl.
- 1 sample at 1.75 m bgl.
- No further depth sampling after 1.75 m bgl, unless required under section 4.4.4.

Example 3.

If the proposed depth of ENM excavation is at 2.25 m bgl, then:

- 1 sample on surface (as per the requirements of Table 2).
- 1 sample at 1 m bgl.
- 1 sample at 2 m bgl.
- No further depth sampling after 2 m bgl, unless required under section 4.4.4.

Resource Recovery Exemption under Part 9, Clauses 91 and 92 of the Protection of the Environment Operations (Waste) Regulation 2014

The excavated natural material exemption 2014

Introduction

This exemption:

- is issued by the Environment Protection Authority (EPA) under clauses 91 and 92 of the Protection of the Environment Operations (Waste) Regulation 2014 (Waste Regulation); and
- exempts a consumer of excavated natural material from certain requirements under the *Protection of the Environment Operations Act 1997* (POEO Act) and the Waste Regulation in relation to the application of that waste to land, provided the consumer complies with the conditions of this exemption.

This exemption should be read in conjunction with 'the excavated natural material order 2014'.

1. Waste to which this exemption applies

1.1. This exemption applies to excavated natural material that is, or is intended to be, applied to land as engineering fill or for use in earthworks.

1.2. Excavated natural material is naturally occurring rock and soil (including but not limited to materials such as sandstone, shale, clay and soil) that has:

a) been excavated from the ground, and
b) contains at least 98% (by weight) natural material, and
c) does not meet the definition of Virgin Excavated Natural Material in the Act.

Excavated natural material does not include material located in a hotspot; that has been processed; or that contains asbestos, Acid Sulfate Soils (ASS), Potential Acid Sulfate soils (PASS) or sulfidic ores.

2. Persons to whom this exemption applies

2.1. This exemption applies to any person who applies or intends to apply excavated natural material to land as set out in 1.1.

3. Duration

3.1. This exemption commences on 24 November 2014 and is valid until revoked by the EPA by notice published in the Government Gazette.

4. Premises to which this exemption applies

4.1. This exemption applies to the premises at which the consumer's actual or intended application of excavated natural material is carried out.

5. Revocation

5.1. 'The excavated natural material exemption 2012' which commenced 19 October 2012 is revoked from 24 November 2014.

6. Exemption

6.1. Subject to the conditions of this exemption, the EPA exempts each consumer from the following provisions of the POEO Act and the Waste Regulation in relation to the consumer's actual or intended application of excavated natural material to land as engineering fill or for use in earthworks at the premises:

- section 48 of the POEO Act in respect of the scheduled activities described in clauses 39 of Schedule 1 of the POEO Act;
- Part 4 of the Waste Regulation;
- section 88 of the POEO Act; and
- clause 109 and 110 of the Waste Regulation.

6.2. The exemption does not apply in circumstances where excavated natural material is received at the premises for which the consumer holds a licence under the POEO Act that authorises the carrying out of the scheduled activities on the premises under clause 39 'waste disposal (application to land) or clause 40 'waste disposal' (thermal treatment) of Schedule 1 of the POEO Act.

7. Conditions of exemption

The exemption is subject to the following conditions:

7.1. At the time the excavated natural material is received at the premises, the material must meet all chemical and other material requirements for excavated natural material which are required on or before the supply of excavated natural material under 'the excavated natural material order 2014'.

7.2. The excavated natural material can only be applied to land as engineering fill or for use in earthworks.

7.3. The consumer must keep a written record of the following for a period of six years:

- the quantity of any excavated natural material received; and
- the name and address of the supplier of the excavated natural material received.

7.4. The consumer must make any records required to be kept under this exemption available to authorised officers of the EPA on request.

7.5. The consumer must ensure that any application of excavated natural material to land must occur within a reasonable period of time after its receipt.

8. Definitions

In this exemption:

application or apply to land means applying to land by:

- spraying, spreading or depositing on the land; or
- ploughing, injecting or mixing into the land; or
- filling, raising, reclaiming or contouring the land.

consumer means a person who applies, or intends to apply excavated natural material to land.

Manager Waste Strategy and Innovation

Environment Protection Authority

(by delegation)

Notes

The EPA may amend or revoke this exemption at any time. It is the responsibility of the consumer to ensure they comply with all relevant requirements of the most current exemption The current version of this exemption will be available on www.epa.nsw.gov.au

In gazetting or otherwise issuing this exemption, the EPA is not in any way endorsing the use of this substance or guaranteeing that the substance will confer benefit.

The conditions set out in this exemption are designed to minimise the risk of potential harm to the environment, human health or agriculture, although neither this exemption nor the accompanying order guarantee that the environment, human health or agriculture will not be harmed.

The consumer should assess whether or not the excavated natural material is fit for the purpose the material is proposed to be used for, and whether this use will cause harm. The consumer may need to seek expert engineering or technical advice.

Regardless of any exemption provided by the EPA, the person who causes or permits the application of the substance to land must ensure that the action is lawful and consistent with any other legislative requirements including, if applicable, any development consent(s) for managing operations on the site(s).

The receipt of excavated natural material remains subject to other relevant environmental regulations in the POEO Act and the Waste Regulation. For example, a person who pollutes land (s. 142A) or water (s. 120), or causes air pollution through the emission of odours (s. 126), or does not meet the special requirements for asbestos waste (Part 7 of the Waste Regulation), regardless of having an exemption, is guilty of an offence and subject to prosecution.

This exemption does not alter the requirements of any other relevant legislation that must be met in utilising this material, including for example, the need to prepare a Safety Data Sheet (SDS).

Failure to comply with the conditions of this exemption constitutes an offence under clause 91 of the Waste Regulation.

Certification:
Virgin excavated natural material

1. I *[full name]*

   of *[organisation and address]*

   certify that the waste as set out in section 2 of this notice is Virgin Excavated Natural Material (VENM) as defined in Schedule 1 of the *Protection of the Environment Operations Act 1997*.

   This certification is made on behalf of the waste generator *[fill out if applicable]*

   being *[full name]*

   of *[organisation and address]*

2. The waste was generated at:

   Street address:

   Title reference (Lot/DP, etc.):

   The amount of waste (by volume or weight) is:

3. I have made the determination that the waste is VENM because:

   - ☐ I have assessed the historical and current land use of the site at which the waste was generated.
   - ☐ The waste is not contaminated with manufactured chemicals, or with process residues, as a result of industrial, commercial, mining or agricultural activities.
   - ☐ The waste does not contain any sulfidic ores or soils.
   - ☐ The waste does not contain any other waste.
   - ☐ The waste does not contain asbestos in any form.

Note: that all sections of this form must be completed including all boxes checked in Section 3 above and signed below for any material to be certified as VENM.

Signature(s) . . . . . .

Name(s) (printed)

Date

Warning: There are significant penalties under s.144AA of the *Protection of the Environment Operations Act 1997* for a person who supplies (whether knowingly or not) information that is false or misleading in a material respect about waste.

This certificate is intended to assist waste generators, contractors and/or receivers of VENM to have confidence that a range of relevant factors have been considered in the classification of a waste material as VENM.

Published by:
Environment Protection Authority, 59–61 Goulburn Street, Sydney South 1232
Ph: 131 555. TTY users: phone 133 677, then ask for 131 555
Speak and listen users: phone 1300 555 727, then ask for 131 555
Email: info@environment.nsw.gov.au; Web: www.epa.nsw.gov.au
Report pollution and environmental incidents: Environment Line: 131 555 (NSW only)
EPA 2013/0693; September 2013

Resource Recovery Order under Part 9, Clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014

The recovered aggregate order 2014

Introduction

This order, issued by the Environment Protection Authority (EPA) under clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014 (Waste Regulation), imposes the requirements that must be met by suppliers of recovered aggregate to which 'the recovered aggregate exemption 2014' applies. The requirements in this order apply in relation to the supply of recovered aggregate for application to land as a road making material, or in building, landscaping or construction works.

1. Waste to which this order applies

1.1. This order applies to recovered aggregate. In this order, recovered aggregate means material comprising of concrete, brick, ceramics, natural rock and asphalt processed into an engineered material. This does not include refractory bricks or associated refractory materials, or asphalt that contains coal tar.

2. Persons to whom this order applies

2.1. The requirements in this order apply, as relevant, to any person who supplies recovered aggregate that has been generated, processed or recovered by the person.

2.2. This order does not apply to the supply of recovered aggregate to a consumer for land application at a premises for which the consumer holds a licence under the POEO Act that authorises the carrying out of the scheduled activities on the premises under clause 39 'waste disposal (application to land)' or clause 40 'waste disposal (thermal treatment)' of Schedule 1 of the POEO Act.

3. Duration

3.1. This order commences on 24 November 2014 and is valid until revoked by the EPA by notice published in the Government Gazette.

4. Processor requirements

The EPA imposes the following requirements on any processor who supplies recovered aggregate.

Sampling requirements

4.1. On or before supplying recovered aggregate, the processor must:

4.1.1. Prepare a written sampling plan which includes a description of sample

preparation and storage procedures for the recovered aggregate.

4.1.2. Undertake sampling and testing of the recovered aggregate as required under clauses 4.2 and 4.3 below. The sampling must be carried out in accordance with the written sampling plan and Australian Standard 1141.3.1-2012 Methods for sampling and testing aggregates – Sampling – Aggregates (or equivalent).

4.2. Where the recovered aggregate is generated as part of a continuous process, the processor must undertake the following sampling:

4.2.1. Characterisation of the recovered aggregate by collecting 20 composite samples of the waste and testing each sample for the chemicals and other attributes listed in Column 1 of Table 1. Each composite sample must be taken from a batch, truckload or stockpile that has not been previously sampled for the purposes of characterisation. Characterisation must be conducted for recovered aggregate generated and processed every year following the commencement of the continuous process; and

4.2.2. Routine sampling of the recovered aggregate by collecting either 5 composite samples from every 4,000 tonnes (or part thereof) processed or 5 composite samples every 3 months (whichever is the lesser); and testing each sample for the chemicals and other attributes listed in Column 1 of Table 1 other than those listed as 'not required' in Column 3. Each composite sample must be taken from a batch, truckload or stockpile that has not been previously sampled for the purposes of routine sampling. However, if characterisation sampling occurs at the same frequency as routine sampling, any sample collected and tested for the purposes of characterisation under clause 4.2.1 may be treated as a sample collected and tested for the purposes of routine sampling under clause 4.2.2.

4.3. Where the recovered aggregate is not generated as part of a continuous process, the processor must undertake one-off sampling of a batch, truckload or stockpile of the recovered aggregate, by collecting 10 composite samples from every 4,000 tonnes (or part thereof) processed and testing each sample for the chemicals and other attributes listed in Column 1 of Table 1. The test results for each composite sample must be validated as compliant with the maximum average concentration or other value listed in Column 2 of Table 1 and the absolute maximum concentration or other value listed in Column 4 of Table 1 prior to the supply of the recovered aggregate.

Chemical and other material requirements

4.4. The processor must not supply recovered aggregate to any person if, in relation to any of the chemical and other attributes of the recovered aggregate:

4.4.1. The concentration or other value of that attribute of any sample collected and tested as part of the characterisation, or the routine or one-off sampling, of the recovered aggregate exceeds the absolute maximum concentration or other value listed in Column 4 of Table 1, or

4.4.2. The average concentration or other value of that attribute from the characterisation or one-off sampling of the recovered aggregate (based on the arithmetic mean) exceeds the maximum average concentration or other value listed in Column 2 of Table 1, or

4.4.3. The average concentration or other value of that attribute from the routine sampling of the recovered aggregate (based on the arithmetic mean) exceeds the maximum average concentration or other value

listed in Column 3 of Table 1.

4.5. The absolute maximum concentration or other value of that attribute in any recovered aggregate supplied under this order must not exceed the absolute maximum concentration or other value listed in Column 4 of Table 1.

Table 1

Column 1	Column 2	Column 3	Column 4
Chemicals and other attributes	**Maximum average concentration for characterisation** (mg/kg 'dry weight' unless otherwise specified)	**Maximum average concentration for routine testing** (mg/kg 'dry weight' unless otherwise specified)	**Absolute maximum concentration** (mg/kg 'dry weight' unless otherwise specified)
1. Mercury	0.5	Not required	1
2. Cadmium	0.5	0.5	1.5
3. Lead	75	75	150
4. Arsenic	20	Not required	40
5. Chromium (total)	60	60	120
6. Copper	60	60	150
7. Nickel	40	Not required	80
8. Zinc	200	200	350
9. Electrical Conductivity	1.5 dS/m	1.5dS/m	3 dS/m
10. Metal	1%	1%	2%
11. Plaster	0.25%	0.25%	0.5%
12. Rubber, plastic, paper, cloth, paint, wood and other vegetable matter	0.2%	0.2%	0.3%

Test methods

4.6. The processor must ensure that any testing of samples required by this order is undertaken by analytical laboratories accredited by the National Association of Testing Authorities (NATA), or equivalent.

4.7. The processor must ensure that the chemicals and other attributes (listed in Column 1 of Table 1) in the recovered aggregate it supplies are tested in accordance with the test methods specified below or other equivalent analytical methods. Where an equivalent analytical method is used the detection limit must be equal to or less than that nominated for the given method below.

4.7.1. Test method for measuring the mercury concentration:

4.7.1.1. Analysis using USEPA SW-846 Method 7471B Mercury in solid or semisolid waste (manual cold vapour technique), or an equivalent analytical method with a detection limit < 20% of the stated maximum average concentration in Table 1, Column 2 (i.e. < 0.1 mg/kg dry weight).

4.7.1.2. Report as mg/kg dry weight.

4.7.2. Test methods for measuring chemicals 2 - 8:

4.7.2.1. Sample preparation by digesting using USEPA SW-846 Method 3051A Microwave assisted acid digestion of sediments, sludges, soils, and oils.

4.7.2.2. Analysis using USEPA SW-846 Method 6010C Inductively coupled plasma - atomic emission spectrometry, or an equivalent analytical method with a detection limit < 10% of stated maximum concentration in Table 1, Column 2 (i.e. 1 mg/kg dry weight for lead).

4.7.2.3. Report as mg/kg dry weight.

4.7.3. Test methods for measuring the electrical conductivity:

4.7.3.1. Sample preparation by mixing 1 part recovered aggregate with 5 parts distilled water.

4.7.3.2. Analysis using Method 104 (Electrical Conductivity) in Schedule B (3): Guideline on Laboratory Analysis of Potentially Contaminated Soils, National Environment Protection (Assessment of Site Contamination) Measure 1999 (or an equivalent analytical method).

4.7.3.3. Report deciSiemens per metre (dS/m).

4.7.4. Test method for measuring the attributes 10 - 12:

4.7.4.1. NSW Roads & Traffic Authority Test Method T276 Foreign Materials Content of Recycled Crushed Aggregate (or an equivalent method), for the materials listed in 10 - 12 of Column 1, Table 1.

4.7.4.2. Report as %

Notification

4.8. On or before each transaction, the processor must provide the following to each person to whom the processor supplies the recovered aggregate:

- a written statement of compliance certifying that all the requirements set out in this order have been met;
- a copy of the recovered aggregate exemption, or a link to the EPA website where the recovered aggregate exemption can be found; and
- a copy of the recovered aggregate order, or a link to the EPA website where the recovered aggregate order can be found.

Record keeping and reporting

4.9. The processor must keep a written record of the following for a period of six years:

- the sampling plan required to be prepared under clause 4.1.1;
- all characterisation, routine and/or one-off sampling results in relation to the recovered aggregate supplied;
- the quantity of the recovered aggregate supplied; and
- the name and address of each person to whom the processor supplied the recovered aggregate.

4.10. The processor must provide, on request, the most recent characterisation and sampling (whether routine or one-off or both) results for recovered aggregate supplied to any consumer of the recovered aggregate.

4.11. The processor must notify the EPA within seven days of becoming aware that it has not complied with any requirement in clause 4.1 to 4.7.

5. Definitions

In this order:

application or apply to land means applying to land by:

- spraying, spreading or depositing on the land; or
- ploughing, injecting or mixing into the land; or
- filling, raising, reclaiming or contouring the land.

composite sample means a sample that combines five discrete sub-samples of equal size into a single sample for the purpose of analysis.

consumer means a person who applies, or intends to apply, recovered aggregate to land.

continuous process means a process that produces recovered aggregate on an ongoing basis.

processor means a person who processes, mixes, blends, or otherwise incorporates recovered aggregate into a material in its final form for supply to a consumer.

transaction means:

- in the case of a one-off supply, the supply of a batch, truckload or stockpile of recovered aggregate that is not repeated.
- in the case where the supplier has an arrangement with the recipient for more than one supply of recovered aggregate the first supply of recovered aggregate as required under the arrangement.

Manager Waste Strategy and Innovation

Environment Protection Authority

(by delegation)

Notes

The EPA may amend or revoke this order at any time. It is the responsibility of each of the generator and processor to ensure it complies with all relevant requirements of the most current order. The current version of this order will be available on www.epa.nsw.gov.au

In gazetting or otherwise issuing this order, the EPA is not in any way endorsing the supply or use of this substance or guaranteeing that the substance will confer benefit.

The conditions set out in this order are designed to minimise the risk of potential harm to the environment, human health or agriculture, although neither this order nor the accompanying exemption guarantee that the environment, human health or agriculture will not be harmed.

Any person or entity which supplies recovered aggregate should assess whether the material is fit for the purpose the material is proposed to be used for, and whether this use may cause harm. The supplier may need to seek expert engineering or technical advice.

Regardless of any exemption or order provided by the EPA, the person who causes or permits the application of the substance to land must ensure that the action is lawful and consistent with any other legislative requirements including, if applicable, any development consent(s) for managing operations on the site(s).

The supply of recovered aggregate remains subject to other relevant environmental regulations in the POEO Act and Waste Regulation. For example, a person who pollutes land (s. 142A) or water (s. 120), or causes air pollution through the emission of odours (s. 126), or does not meet the special requirements for asbestos waste (Part 7 of the Waste Regulation), regardless of this order, is guilty of an offence and subject to prosecution.

This order does not alter the requirements of any other relevant legislation that must be met in supplying this material, including for example, the need to prepare a Safety Data Sheet. Failure to comply with the conditions of this order constitutes an offence under clause 93 of the Waste Regulation.

Resource Recovery Order under Part 9, Clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014

The basalt fines order 2014

Introduction

This order, issued by the Environment Protection Authority (EPA) under clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014 (Waste Regulation), imposes the requirements that must be met by suppliers of basalt fines to which 'the basalt fines exemption 2014' applies. The requirements in this order apply in relation to the supply of basalt fines for application to land for building or maintaining railway infrastructure, for road making activities, or as a soil amendment.

1. Waste to which this order applies

1.1. This order applies to basalt fines. In this order, basalt fines means a material comprising of naturally excavated basalt with a maximum particle size of 9.5 mm, that is derived from the processing of basalt or the recycling of railway ballast.

2. Persons to whom this order applies

2.1. The requirements in this order apply, as relevant, to any person who supplies basalt fines that has been generated, processed or recovered by the person.

2.2. This order does not apply to the supply of basalt fines to a consumer for land application at a premises for which the consumer holds a licence under the POEO Act that authorises the carrying out of the scheduled activities on the premises under clause 39 'waste disposal (application to land)' or clause 40 'waste disposal (thermal treatment)' of Schedule 1 of the POEO Act.

3. Duration

3.1. This order commences on 24 November 2014 and is valid until revoked by the EPA by notice published in the Government Gazette.

4. Processor requirements

The EPA imposes the following requirements on any processor who supplies basalt fines.

Sampling requirements

4.1. On or before supplying basalt fines the processor must:

4.1.1. Prepare a written sampling plan which includes a description of sample preparation and storage procedures for the basalt fines.

4.1.2 Undertake sampling and testing of the basalt fines as required under

clauses 4.2 and 4.3 below. The sampling must be carried out in accordance with the written sampling plan and Australian Standard 1141.3.1-2012 Methods for sampling and testing aggregates – Sampling – Aggregates (or equivalent).

4.2. Where the basalt fines are generated as part of a continuous process, the processor must undertake the following sampling:

4.2.1. Characterisation of the basalt fines by collecting 20 composite samples of the waste and testing each sample for the chemicals and other attributes listed in Column 1 of Table 1. Each composite sample must be taken from a batch, truckload or stockpile that has not been previously sampled for the purposes of characterisation. Characterisation must be conducted for basalt fines generated and processed during each 2-year period following the commencement of the continuous process; and

4.2.2. Routine sampling of basalt fines by collecting either 5 composite samples from every 10,000 tonnes (or part thereof) processed or 5 composite samples every 3 months (whichever is the lesser); and testing each sample for the chemicals and other attributes listed in Column 1 of Table 1 other than those listed as 'not required' in Column 3. Each composite sample must be taken from a batch, truckload or stockpile that has not been previously sampled for the purposes of routine sampling. However, if characterisation sampling occurs at the same frequency as routine sampling, any sample collected and tested for the purposes of characterisation under clause 4.2.1 may be treated as a sample collected and tested for the purposes of routine sampling under clause 4.2.2.

4.3. Where the basalt fines are not generated as part of a continuous process, the processor must undertake one-off sampling of a batch, truckload or stockpile of the basalt fines, by collecting 10 composite samples from every 4,000 tonnes (or part thereof) processed and testing each sample for the chemicals and other attributes listed in Column 1 of Table 1. The test results for each composite sample must be validated as compliant with the maximum average concentration or other value listed in Column 2 of Table 1 and the absolute maximum concentration or other value listed in Column 4 of Table 1 prior to the supply of the basalt fines.

Chemical and other material requirements

4.4. The processor must not supply basalt fines to any person if, in relation to any of the chemical and other attributes of the basalt fines:

4.4.1. The concentration or other value of that attribute of any sample collected and tested as part of the characterisation or the routine or one-off sampling of the basalt fines exceeds the absolute maximum concentration or other value listed in Column 4 of Table 1, or

4.4.2. The average concentration or other value of that attribute from the characterisation or one-off sampling of the basalt fines (based on the arithmetic mean) exceeds the maximum average concentration or other value listed in Column 2 of Table 1, or

4.4.3. The average concentration or other value of that attribute from the routine sampling of the basalt fines (based on the arithmetic mean) exceeds the maximum average concentration or other value listed in Column 3 of Table 1.

4.5. The absolute maximum concentration or other value of that attribute in any basalt fines supplied under this order must not exceed the absolute maximum concentration or other value listed in Column 4 of Table 1.

Table 1

Column 1	Column 2	Column 3	Column 4
Chemicals and other attributes	**Maximum average concentration for characterisation** (mg/kg 'dry weight' unless otherwise specified)	**Maximum average concentration for routine testing** (mg/kg 'dry weight' unless otherwise specified)	**Absolute maximum concentration** (mg/kg 'dry weight' unless otherwise specified)
1. Mercury	0.5	Not required	1
2. Cadmium	0.5	0.5	1
3. Lead	50	50	100
4. Arsenic	15	15	30
5. Chromium (total)	25	Not required	50
6. Copper	25	Not required	50
7. Nickel	25	Not required	50
8. Zinc	75	75	150
9. Electrical Conductivity	1 dS/m	1 dS/m	2 dS/m
10. Metal, glass, asphalt, ceramics and slag	2.5%	Not required	5%
11. Plaster, clay lumps and other friable materials	0.25%	Not required	0.5%
12. Rubber, plastic, bitumen, paper, cloth, paint, wood and other vegetable matter	0.05%	Not required	0.1%

Test methods

4.6. The processor must ensure that any testing of samples required by this order is undertaken by analytical laboratories accredited by the National Association of Testing Authorities (NATA), or equivalent.

4.7. The processor must ensure that the chemicals and other attributes (listed in Column 1 of Table 1) in the basalt fines it supplies are tested in accordance with the test methods specified below or other equivalent analytical methods. Where an equivalent analytical method is used the detection limit must be equal to or less than that nominated for the given method below.

4.6.1 Test methods for measuring the mercury concentration:

4.6.1.1 Analysis using USEPA SW-846 Method 7471B Mercury in solid or semisolid waste (manual cold vapour technique), or an equivalent analytical method with a detection limit < 20% of the stated absolute maximum average concentration in Table 1, Column 4 (i.e. <0.2mg/kg dry weight of mercury).

4.6.1.2 Report as mg/kg dry weight.

4.6.2 Test methods for measuring chemicals 2 - 8:

4.6.2.1 Sample preparation by digesting using USEPA SW-846 Method 3051A Microwave assisted acid digestion of sediments, sludges, soils, and oils.

4.6.2.2 Analysis using USEPA SW-846 Method 6010C Inductively coupled plasma - atomic emission spectrometry, or an equivalent analytical method with a detection limit < 10% of the stated absolute maximum concentration in Table 1, Column 4 (i.e. <10 mg/kg dry weight for lead).

4.6.2.3 Report as mg/kg dry weight.

4.6.3 Test methods for measuring the electrical conductivity:

4.6.3.1 Sample preparation by mixing 1 part basalt fines with 5 parts distilled water.

4.6.3.2 Analysis using Method 104 (Electrical Conductivity) in Schedule B (3): Guideline on Laboratory Analysis of Potentially Contaminated Soils, National Environment Protection (Assessment of Site Contamination) Measure 1999 (or an equivalent analytical method).

4.6.3.3 Report in deciSiemens per metre (dS/m).

4.6.4 Test method for measuring the attributes 10 - 12:

4.6.4.1 NSW Roads & Traffic Authority Test Method T276 Foreign Materials Content of Recycled Crushed Concrete (or an equivalent method) and modified to use a 2.36mm sieve.

4.6.4.2 Report as %.

Notification

4.8. On or before each transaction, the processor must provide the following to each person to whom the processor supplies the basalt fines:

- a written statement of compliance certifying that all the requirements set out in this order have been met;
- a copy of the basalt fines exemption, or a link to the EPA website where the basalt fines exemption can be found; and
- a copy of the basalt fines order, or a link to the EPA website where the basalt fines order can be found.

Record keeping and reporting

4.9. The processor must keep a written record of the following for a period of six years:

- the sampling plan required to be prepared under clause 4.1.1;
- all characterisation, routine and/or one-off sampling results in relation to the basalt fines supplied;
- the quantity of the basalt fines supplied; and
- the name and address of each person to whom the processor supplied the basalt fines.

4.10. The processor must provide, on request, the most recent characterisation and sampling (whether routine or one-off or both) results for basalt fines supplied to any consumer of the basalt fines.

4.11. The processor must notify the EPA within seven days of becoming aware that it has not complied with any requirement in clause 4.1 to 4.7.

5. Definitions

In this order:

application or apply to land means applying to land by:

- spraying, spreading or depositing on the land; or
- ploughing, injecting or mixing into the land; or
- filling, raising, reclaiming or contouring the land.

composite sample means a sample that combines five discrete sub-samples of equal size into a single sample for the purpose of analysis.

consumer means a person who applies, or intends to apply, basalt fines to land.

continuous process means a process that produces basalt fines on an ongoing basis.

processor means a person who processes, mixes, blends, or otherwise incorporates basalt fines into a material in its final form for supply to a consumer.

transaction means:

- in the case of a one-off supply, the supply of basalt fines, the supply of a batch, truckload or stockpile of basalt fine that is not repeated.
- in the case where the supplier has an arrangement with the recipient for more than one supply of basalt fines, the first supply of basalt fines as required under the arrangement.

Manager Waste Strategy and Innovation

Environment Protection Authority

(by delegation)

Notes

The EPA may amend or revoke this order at any time. It is the responsibility of each of the generator and processor and to ensure it complies with all relevant requirements of the most current order. The current version of this order will be available on www.epa.nsw.gov.au

In gazetting or otherwise issuing this order, the EPA is not in any way endorsing the supply or use of this substance or guaranteeing that the substance will confer benefit.

The conditions set out in this order are designed to minimise the risk of potential harm to the environment, human health or agriculture, although neither this order nor the accompanying exemption guarantee that the environment, human health or agriculture will not be harmed.

Any person or entity which supplies basalt fines should assess whether the material is fit for the purpose the material is proposed to be used for, and whether this use may cause harm. The supplier may need to seek expert engineering or technical advice.

Regardless of any exemption or order provided by the EPA, the person who causes or permits the application of the substance to land must ensure that the action is lawful and consistent with any other legislative requirements including, if applicable, any development consent(s) for managing operations on the site(s).

The supply of basalt fines remains subject to other relevant environmental regulations in the POEO Act and Waste Regulation. For example, a person who pollutes land (s. 142A) or water (s. 120), or causes air pollution through the emission of odours (s. 126), or does not meet the special requirements for asbestos waste (Part 7 of the Waste Regulation), regardless of this order, is guilty of an offence and subject to prosecution.

This order does not alter the requirements of any other relevant legislation that must be met in supplying this material, including for example, the need to prepare a Safety Data Sheet. Failure to comply with the conditions of this order constitutes an offence under clause 93 of the Waste Regulation.

Resource Recovery Order under Part 9, Clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014

The recovered glass sand order 2014

Introduction

This order, issued by the Environment Protection Authority (EPA) under clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014 (Waste Regulation), imposes the requirements that must be met by suppliers of recovered glass sand to which 'the recovered glass sand exemption 2014' applies. The requirements in this order apply in relation to the supply of recovered glass sand for application to land for the purpose of pipe bedding, drainage or for road making activities.

1. Waste to which this order applies

1.1. This order applies to recovered glass sand. In this order, recovered glass sand means recovered glass that has been processed to produce a 'sand-like' glass material with a particle size diameter generally less than 5 mm, and that contains at least 98% recovered glass.

2. Persons to whom this order applies

2.1. The requirements in this order apply, as relevant, to any person who supplies recovered glass sand that has been generated, processed or recovered by the person.

2.2. This order does not apply to the supply of recovered glass sand to a consumer for land application at the premises for which the consumer holds a licence under the POEO Act that authorises the carrying out of the scheduled activities on the premises under clause 39 'waste disposal (application to land) or clause 40 'waste disposal' (thermal treatment) of Schedule 1 of the POEO Act.

3. Duration

3.1. This order commences on 24 November 2014 and is valid until revoked by the EPA by notice published in the Government Gazette.

4. Processor requirements

The EPA imposes the following requirements on any processor who supplies recovered glass sand.

Sampling requirements

4.1. On or before supplying recovered glass sand the processor must:

4.1.1. Prepare a written sampling plan which includes a description of sample preparation and storage procedures for the recovered glass sand.

4.1.2. Undertake sampling and testing of the recovered glass sand as required under clauses 4.2 and 4.3 below. The sampling must be carried out in accordance with Australian Standard 1141.3.1-2012 Methods for sampling and testing aggregates – Sampling – Aggregates (or equivalent).

4.2. Where the recovered glass sand is generated as part of a continuous process, the processor must undertake the following sampling:

4.2.1. Characterisation sampling of recovered glass sand by collecting 20 composite samples of the waste and testing each sample for the chemical and other attributes listed in Column 1 of Table 1. Each composite sample must be taken from a batch, truckload or stockpile that has not been previously sampled for the purposes of characterisation. Where there is a change in inputs that is likely to affect the properties of the recovered glass sand, characterisation must be repeated. Characterisation samples can be used for routine testing and subsequent calculations. Characterisation must be conducted for recovered glass sand generated and processed during each 2-year period following the commencement of the continuous process; and

4.2.2. Routine sampling of the recovered glass sand by collecting either 5 composite samples from every 4,000 tonnes (or part thereof) processed or 5 composite samples every 3 months (whichever is the lesser); and testing each sample for the chemicals and other attributes listed in Column 1 of Table 1 other than those listed as 'not required' in Column 3. Each composite sample must be taken from a batch, truckload or stockpile that has not been previously sampled for the purposes of routine sampling. However, if characterisation sampling occurs at the same frequency as routine sampling, any sample collected and tested for the purposes of characterisation under clause 4.2.1 may be treated as a sample collected and tested for the purposes of routine sampling under clause 4.2.2.

4.3. Where the recovered glass sand is not generated as part of a continuous process, the processor must undertake one-off sampling of a batch, truckload or stockpile of the recovered glass sand, by collecting 10 composite samples from every 4,000 tonnes (or part thereof) processed and testing each sample for the chemicals and other attributes listed in Column 1 of Table 1. The test results for each composite sample must be validated as compliant with the maximum average concentration or other value listed in Column 2 of Table 1 and the absolute maximum concentration or other value listed in Column 4 of Table 1 prior to the supply of the recovered glass sand.

Chemical and other material requirements

4.4. The processor must not supply recovered glass sand to any person if, in relation to any of the chemical and other attributes of the recovered glass sand:

4.4.1. The concentration or other value of that attribute of any sample collected and tested as part of the characterisation, or the routine or one-off sampling, of the recovered glass sand exceeds the absolute maximum concentration or other value listed in Column 4 of Table 1, or

4.4.2. The average concentration or other value of that attribute from the characterisation or one-off sampling of the recovered glass sand (based on the arithmetic mean) exceeds the maximum average concentration or other value listed in Column 2 of Table 1, or

4.4.3. The average concentration or other value of that attribute from the routine sampling of the recovered glass sand (based on the arithmetic mean) exceeds the maximum average concentration or other value listed in Column 3 of Table 1.

4.5. The absolute maximum concentration or other value of that attribute in any recovered glass sand supplied under this order must not exceed the absolute maximum concentration or other value listed in Column 4 of Table 1.

Table 1

Column 1	**Column 2**	**Column 3**	**Column 4**
Chemicals and other attributes	**Maximum average concentration for characterisation** (mg/kg 'dry weight' unless otherwise specified)	**Maximum average concentration for routine testing** (mg/kg 'dry weight' unless otherwise specified)	**Absolute maximum concentration** (mg/kg 'dry weight' unless otherwise specified)
1. Mercury	0.5	Not required	1
2. Cadmium	0.5	0.5	1.5
3. Lead	50	50	100
4. Arsenic	10	Not required	20
5. Chromium (total)	20	Not required	40
6. Copper	40	Not required	120
7. Molybdenum	5	Not required	10
8. Nickel	10	Not required	20
9. Zinc	100	100	300
10. Total Organic Carbon	1.0%	Not required	2.0%
11. Electrical Conductivity	1 dS/m	1 dS/m	2 dS/m
12. Metals	0.25%	0.25%	0.50%
13. Plaster, clay lumps and other friable materials	0.25%	0.25%	0.50%
14. Rubber, plastic, bitumen, paper, cloth, paint, wood and other vegetable matter	0.3%	0.3%	0.5 %

Test methods

4.6. The processor must ensure that any testing of samples required by this order is undertaken by analytical laboratories accredited by the National Association of Testing Authorities (NATA), or equivalent.

4.7. The processor must ensure that the chemicals and other attributes (listed in Column 1 of Table 1) in the recovered glass sand it supplies are tested in accordance with the test methods specified below or other equivalent analytical methods. Where an equivalent analytical method is used the detection limit must be equal to or less than that nominated for the given method below.

4.7.1. Test methods for measuring the mercury concentration:

4.7.1.1. Analysis using USEPA SW-846 Method 7471B Mercury in solid or semisolid waste (manual cold vapour technique), or an equivalent analytical method with a detection limit < 20% of the stated absolute maximum concentration in Table 1, Column 4 (i.e. 0.2 mg/kg dry weight).

4.7.1.2. Report as mg/kg dry weight.

4.7.2. Test methods for measuring chemicals 2 - 9:

4.7.2.1. Sample preparation by digesting using USEPA SW-846 Method 3051A Microwave assisted acid digestion of sediments, sludges, soils, and oils.

4.7.2.2. Analysis using USEPA SW-846 Method 6010C Inductively coupled plasma - atomic emission spectrometry, or an equivalent analytical method with a detection limit < 10% of the stated absolute maximum concentration in Table 1, Column 4, (i.e. 0.15 mg/kg dry weight for cadmium).

4.7.2.3. Report as mg/kg dry weight.

4.7.3. Test methods for measuring the total organic carbon content:

4.7.3.1. Method 105 (Organic Carbon) and using a 2 gram sample in Schedule B (3): Guideline on Laboratory Analysis of Potentially Contaminated Soils, National Environment Protection (Assessment of Site Contamination) Measure 1999 (or an equivalent analytical method).

4.7.3.2. Reporting as % total organic carbon.

4.7.4. Test methods for measuring the electrical conductivity:

4.7.4.1. Sample preparation by mixing 1 part recovered aggregate ‘as received’ with 5 parts distilled water.

4.7.4.2. Analysis using Method 104 (Electrical Conductivity) in Schedule B (3): Guideline on Laboratory Analysis of Potentially Contaminated Soils, National Environment Protection (Assessment of Site Contamination) Measure 1999 (or an equivalent analytical method).

4.7.4.3. Report in deciSiemens per metre (dS/m).

4.7.5. Test method for measuring the attributes 12 - 14:

4.7.5.1. NSW Roads & Traffic Authority Test Method T276 Foreign Materials Content of Recycled Crushed Aggregate (or an equivalent method), for the materials listed in 12 - 14 of Column 1, Table 1.

4.7.5.2. Report as %.

Notification

4.8. On or before each transaction, the processor must provide the following to each person to whom the processor supplies the recovered glass sand:

- a written statement of compliance certifying that all the requirements set out in this order have been met;
- a copy of the recovered glass sand exemption, or a link to the EPA website where the recovered glass sand exemption can be found; and
- a copy of the recovered glass sand order, or a link to the EPA website where the recovered glass sand order can be found.

Record keeping and reporting

4.9. The processor must keep a written record of the following for a period of six years:

- the sampling plan required to be prepared under clause 4.1.1;
- all characterisation, routine and/or one-off sampling results in relation to the recovered glass sand supplied;
- the quantity of the recovered glass sand supplied; and
- the name and address of each person to whom the processor supplied the recovered glass sand.

4.10. The processor must provide, on request, the most recent characterisation and sampling (whether routine or one-off or both) results for recovered glass sand supplied to any consumer of the recovered glass sand.

4.11. The processor must notify the EPA within seven days of becoming aware that it has not complied with any requirement in clause 4.1 to 4.7.

5. Definitions

In this order:

application or apply to land means applying to land by:

- spraying, spreading or depositing on the land; or
- ploughing, injecting or mixing into the land; or
- filling, raising, reclaiming or contouring the land.

composite sample means a sample that combines five discrete sub-samples of equal size into a single sample for the purpose of analysis.

consumer means a person who applies, or intends to apply, recovered glass sand to land.

continuous process means a process that produces recovered glass sand on an ongoing basis.

processor means a person who processes, mixes, blends, or otherwise incorporates recovered glass sand into a material in its final form for supply to a consumer.

recovered glass is glass sourced from the collection of domestic or commercial waste. This includes glass collected from domestic commingled recycling collections. This does not include glass recovered from the sorting or processing of:

- mixed municipal waste, or
- mixed commercial and industrial waste, or
- construction and demolition waste, or
- Cathode Ray Tubes, or
- other glass recovered from electrical equipment, or
- fluorescent or incandescent lights.

transaction means:

- in the case of a one-off supply, the supply of a batch, truckload or stockpile of recovered glass sand that is not repeated.
- in the case where the supplier has an arrangement with the recipient for more than one supply of recovered glass sand the first supply of recovered glass sand as required under the arrangement.

Manager Waste Strategy and Innovation

Environment Protection Authority

(by delegation)

Notes

The EPA may amend or revoke this order at any time. It is the responsibility of each of the generator and processor to ensure it complies with all relevant requirements of the most current order. The current version of this order will be available on www.epa.nsw.gov.au

In gazetting or otherwise issuing this order, the EPA is not in any way endorsing the supply or use of this substance or guaranteeing that the substance will confer benefit.

The conditions set out in this order are designed to minimise the risk of potential harm to the environment, human health or agriculture, although neither this order nor the accompanying exemption guarantee that the environment, human health or agriculture will not be harmed.

Any person or entity which supplies recovered glass sand should assess whether the material is fit for the purpose the material is proposed to be used for, and whether this use may cause harm. The supplier may need to seek expert engineering or technical advice.

Regardless of any exemption or order provided by the EPA, the person who causes or permits the application of the substance to land must ensure that the action is lawful and consistent with any other legislative requirements including, if applicable, any development consent(s) for managing operations on the site(s).

The supply of recovered glass sand remains subject to other relevant environmental regulations in the POEO Act and Waste Regulation. For example, a person who pollutes land (s. 142A) or water (s. 120), or causes air pollution through the emission of odours (s. 126), or does not meet the special requirements for asbestos waste (Part 7 of the Waste Regulation), regardless of this order, is guilty of an offence and subject to prosecution.

This order does not alter the requirements of any other relevant legislation that must be met in supplying this material, including for example, the need to prepare a Safety Data Sheet.

Failure to comply with the conditions of this order constitutes an offence under clause 93 of the Waste Regulation.

Resource Recovery Exemption under Part 9, Clauses 91 and 92 of the Protection of the Environment Operations (Waste) Regulation 2014

The recovered glass sand exemption 2014

Introduction

This exemption:

- is issued by the Environment Protection Authority (EPA) under clauses 91 and 92 of the Protection of the Environment Operations (Waste) Regulation 2014 (Waste Regulation); and
- exempts a consumer of recovered glass sand from certain requirements under the *Protection of the Environment Operations Act 1997* (POEO Act) and the Waste Regulation in relation to the application of that waste to land, provided the consumer complies with the conditions of this exemption.

This exemption should be read in conjunction with 'the recovered glass sand order 2014'.

1. Waste to which this exemption applies

1.1. This exemption applies to recovered glass sand that is, or is intended to be, applied to land for the purpose of pipe bedding, drainage or for road making activities**.**

1.2. Recovered glass sand means recovered glass that has been processed to produce a 'sand-like' glass material with a particle size diameter generally less than 5 mm, and that contains at least 98% recovered glass.

2. Persons to whom this exemption applies

2.1. This exemption applies any person who applies, or intends to apply, the recovered glass sand to land as set out in 1.1.

3. Duration

3.1. This exemption commences on 24 November 2014 and is valid until revoked by the EPA by notice published in the Government Gazette.

4. Premises to which this exemption applies

4.1. This exemption only applies to the premises at which the consumer's actual or intended application of recovered glass sand is carried out.

5. Revocation

5.1. 'The recovered glass sand exemption 2010' which commenced on 14 June 2010 is revoked from 24 November 2014.

6. Exemption

6.1. Subject to the conditions of this exemption, the EPA exempts each consumer from the following provisions of the POEO Act and the Waste Regulation in relation to the consumer's actual or intended application of recovered glass sand to land as pipe bedding, drainage or for road making activities at the premises:

- section 48 of the POEO Act in respect of the scheduled activities described in clauses 39 and 42 of Schedule 1 of the POEO Act;
- Part 4 of the Waste Regulation;
- section 88 of the POEO Act; and
- clause 109 and 110 of the Waste Regulation.

6.2. The exemption does not apply in circumstances where recovered glass sand is received at the premises for which the consumer holds a licence under the POEO Act that authorises the carrying out of the scheduled activities on the premises under clause 39 'waste disposal (application to land)' or clause 40 'waste disposal (thermal treatment)' of Schedule 1 of the POEO Act.

7. Conditions of exemption

The exemption is subject to the following conditions:

7.1. At the time the recovered glass sand is received at the premises, the material must meet all chemical and other material requirements for recovered glass sand which are required on or before the supply of recovered glass sand under 'the recovered glass sand order 2014'.

7.2. The recovered glass sand can only be applied to land for the purpose of pipe bedding, drainage or for road making activities.

7.3. The consumer must keep a written record of the following for a period of six years:

- the quantity of any recovered glass sand received; and
- the name and address of the supplier of the recovered glass sand received.

7.4. The consumer must make any records required to be kept under this exemption available to authorised officers of the EPA on request.

7.5. The consumer must ensure that any application of recovered glass sand to land must occur within a reasonable period of time after its receipt.

8. Definitions

In this exemption:

application or apply to land means applying to land by:

- spraying, spreading or depositing on the land; or
- ploughing, injecting or mixing into the land; or
- filling, raising, reclaiming or contouring the land.

consumer means a person who applies, or intends to apply, recovered glass sand to land.

recovered glass is glass sourced from the collection of domestic or commercial waste. This includes glass collected from domestic commingled recycling collections. This does not include glass recovered from the sorting or processing of:

- mixed municipal waste, or
- mixed commercial and industrial waste, or
- construction and demolition waste, or
- Cathode Ray Tubes or other glass recovered from electrical equipment, or fluorescent or incandescent lights.

Manager Waste Strategy and Innovation

Environment Protection Authority

(by delegation)

Notes

The EPA may amend or revoke this exemption at any time. It is the responsibility of the consumer to ensure they comply with all relevant requirements of the most current exemption. The current version of this exemption will be available on www.epa.nsw.gov.au

In gazetting or otherwise issuing this exemption, the EPA is not in any way endorsing the use of this substance or guaranteeing that the substance will confer benefit.

The conditions set out in this exemption are designed to minimise the risk of potential harm to the environment, human health or agriculture, although neither this exemption nor the accompanying order guarantee that the environment, human health or agriculture will not be harmed.

The consumer should assess whether or not the recovered glass sand is fit for the purpose the material is proposed to be used for, and whether this use will cause harm. The consumer may need to seek expert engineering or technical advice.

Regardless of any exemption provided by the EPA, the person who causes or permits the application of the substance to land must ensure that the action is lawful and consistent with any other legislative requirements including, if applicable, any development consent(s) for managing operations on the site(s).

The receipt of recovered glass sand remains subject to other relevant environmental regulations in the POEO Act and the Waste Regulation. For example, a person who pollutes land (s. 142A) or water (s. 120), or causes air pollution through the emission of odours (s. 126), or does not meet the special requirements for asbestos waste (Part 7 of the Waste Regulation), regardless of having an exemption, is guilty of an offence and subject to prosecution.

This exemption does not alter the requirements of any other relevant legislation that must be met in utilising this material, including for example, the need to prepare a Safety Data Sheet (SDS).

Failure to comply with the conditions of this exemption constitutes an offence under clause 91 of the Waste Regulation.

Appendix B

Materials Tracking Register Proforma

Materials Tracking Record

Source Site (address)	Consultant's Report	Expected Material (description)	Date	Truck License Plate	Loading Docket (Yes/No)	Estimated Volume of Load	Time-in	Actual Material (description)	Material Accepted at Site (Yes/No)	Location Material Placed at Site

APPENDIX O

Waste Management Plan

OAKDALE WEST ESTATE

SSD 7348 Modification 3 and SSD 10397 Stage 2 Development Application
Waste Management Plan

Prepared for:

Goodman Property Services (Aust) Pty Limited
Level 17, 60 Castlereagh Street
Sydney, NSW, 2000

SLR Ref: 610.19170-R01
Version No: -v5.0
January 2020

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BASIS OF REPORT

This report has been prepared by SLR Consulting Australia Pty Ltd (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Goodman Property Services (Aust) Pty Limited (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 the Client. 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
610.19170-R01-v5.0	13 January 2020	Taylor Parsons	Celine El-Khouri	Andrew Quinn
610.19170-R01-v4.0	19 December 2019	Taylor Parsons	Andrew Quinn	Andrew Quinn
610.19170-R01-v3.0	4 December 2019	Celine El-Khouri	Andrew Quinn	Andrew Quinn
610.19170-R01-v2.0	29 November 2019	Celine El-Khouri	Andrew Quinn	Andrew Quinn
610.19170-R01-v1.0	19 November 2019	Taylor Parsons	Celine El-Khouri	Andrew Quinn

EXECUTIVE SUMMARY

SLR Consulting Australia Pty Ltd (SLR) has been commissioned by Goodman Property Services (Aust) Pty Ltd (the Client) to prepare a Waste Management Plan (WMP) in support of SSD 7348 Modification 3 (MOD 3) and SSD 10397 Stage 2 Development Application (DA). This WMP will comply with the requirements of the Secretary's Environmental Assessment Requirements (SEARs) relevant to this project. The WMP is for the site preparation, construction and operational activities of MOD 3 and the Stage 2 development of Oakdale West industrial Estate (the Project).

This WMP applies to the waste generated from the site preparation, construction and operational stages of the Project and has been prepared using architectural drawings supplied by the Client.

Site Preparation and Construction Waste Management

From aerial imagery and the architectural drawings, attached in **Appendix A** and **Appendix B**, SLR understands that some excavation work is required to prepare the site for development of both MOD 3 and Stage 2 DA. Estimated quantities of site preparation waste have been calculated and are shown in **Sections 5.3.1** and **5.3.2** in the WMP.

In the absence of readily available construction waste generation rates from Council, SLR has adopted the 'Factory' and 'Office' waste generation rates from Appendix A of The Hills Development Control Plan (DCP) 2012 for estimating the type and quantities of waste generated from construction of the Project, as this provides a comparable waste generation rate to what can be expected from the Project, which is in the Penrith Local Government Area. The anticipated construction waste quantities for MOD 3 and Stage 2 are shown in **Sections 5.4.1** and **5.4.2** in the WMP.

All construction waste materials are to be preferentially sold or reused and recycled on site, where possible. Where not possible, materials are to be sent for recycling and reused off-site. Delivery of items to an appropriately licenced landfill is to be considered as a last resort. Better practice waste minimisation measures for the construction stage the Project are discussed in detail in the WMP.

Operational Waste Management

The estimated number of bins required for weekly storage of operational waste and recycling generated by MOD 3, including Stage 2, are shown **Table 16** in the WMP. The waste storage areas for MOD 3 are only recommendations, based on preliminary master planning information, and should be updated for each building once detailed drawings are available. Better practice waste minimisation measures for the Project are discussed in detail in the WMP. The waste storage areas for Stage 2 are shown on the architectural drawing 'Site Plan' attached in **Appendix B**.

EXECUTIVE SUMMARY

Table 1 Minimum number of bins and waste storage area for operational waste of MOD 3 and Stage 2

Location	Bins Required			Total Number of Bins	Recommended Storage Area (m²)
	General Waste	Paper and Cardboard Recycling	Comingled Recycling		
Precinct 1					
Warehouse 1A	1 x 35 m³ compactor	2 x paper and cardboard compactors	2 x plastic film compactors	5	External storage
Warehouse 1B1	1 x 4.5 m³ 1 x 240 L	2 x 3 m³ 1 x 240 L		5	25
Warehouse 1B2	1 x 4.5 m³ 1 x 240 L	2 x 3 m³ 1 x 240 L		5	25
Warehouse 1B3	1 x 3 m³ 1 x 240 L	1 x 4.5 m³ 1 x 240 L		4	20
Precinct 2					
Warehouse 2A	2 x 3 m³	2 x 3 m³	2 x 1.5 m³	6	30
Warehouse 2B	1 x 25 m³ compactor	1 x baler	1 x 1,100 L	3	35
Warehouse 2C and 2D	1 x 3 m³	2 x 1,100 L	1 x 1,100 L	4	15
Warehouse 2E	2 x 1,100 L	1 x 1,100 L	1 x 660 L	4	10
Precinct 3					
Warehouse 3A	1 x 3 m³	2 x 1,100 L	1 x 1,100 L	4	15
Warehouse 3B	2 x 1,100 L	1 x 1,100 L	1 x 1,100 L	4	10
Warehouse 3C	2 x 1,100 L	1 x 1,100 L	1 x 1,100 L	4	10
Warehouse 3D and 3E	1 x 3 m³	2 x 1,100 L	1 x 1.5 m³	4	15
Warehouse 3F and 3G	1 x 3 m³	2 x 1,100 L	1 x 1.5 m³	4	15
Precinct 4					
Warehouse 4A	2 x 3 m³	3 x 1,100 L	2 x 1,100 L	7	20
Warehouse 4B	1 x 3 m³	1 x 1.5 m³	1 x 1,100 L	3	15
Warehouse 4C	2 x 3 m³	3 x 1,100 L	2 x 1,100 L	7	20
Warehouse 4D	2 x 1,100 L	1 x 1,100 L	1 x 660 L	4	10
Warehouse 4E	2 x 3 m³	1 x 3 m³	2 x 1,100 L	5	20
Warehouse 4F	1 x 1.5 m³	1 x 1,100 L	1 x 660 L	3	10
Warehouse 4G	1 x 1,100 L	1 x 660 L	1 x 660 L	3	10
Precinct 5					
Warehouse 5A	2 x 3 m³	3 x 1.5 m³	2 x 1,100 L	7	25

CONTENTS

1 INTRODUCTION 8
1.1 Overview 8
1.2 Objectives 8
1.3 Review of WMP 8
2 PROJECT DESCRIPTION 10
2.1 Overview of Proposed Development 10
2.2 Overview of Proposed Construction Work 10
2.2.1 MOD 3 10
2.2.2 Stage 2 11
2.3 Overview of Proposed Operations 11
3 BETTER PRACTICE WASTE MANAGEMENT AND RECYCLING 12
3.1 Waste Management Hierarchy 12
3.2 Benefits of Adopting Better Practice 12
4 WASTE LEGISLATION AND GUIDANCE 13
5 SITE PREPARATION AND CONSTRUCTION WASTE AND RECYCLING MANAGEMENT 15
5.1 Targets for Resource Recovery 15
5.2 Waste Streams and Classifications 15
5.3 Site Preparation Waste Types and Quantities 18
5.3.1 MOD 3 18
5.3.2 Stage 2 19
5.4 Construction Waste Types and Quantities 19
5.4.1 MOD 3 20
5.4.2 Stage 2 21
5.5 Waste Avoidance 22
5.6 Reuse, Recycling and Disposal 23
5.7 Waste Storage and Servicing 24
5.7.1 Waste Segregation and Storage 24
5.7.2 Waste Storage Areas 24
5.7.3 Waste Servicing and Record Keeping 25
5.7.4 Contaminated or Hazardous Waste Management 25
5.8 Site Inductions 26
5.9 Signage 26
5.10 Monitoring and Reporting 27

CONTENTS

5.11 Roles and Responsibilities 27
6 OPERATIONAL WASTE MANAGEMENT 29
6.1 Targets for Resource Recovery 29
6.2 Waste Streams and Classifications 29
6.3 Estimated Quantities of Operational Waste 31
6.3.1 MOD 3 31
6.3.2 Stage 2 33
6.4 Waste Storage Area Size 34
6.4.1 MOD 3 35
6.4.2 Stage 2 37
6.4.3 Bulky and Hazardous Waste Management 37
6.4.4 Recycling Bale Management 39
6.5 Waste Storage Room Location 40
6.6 Waste Storage Area Features 40
6.7 Waste Servicing 41
6.8 Waste Avoidance, Reuse and Recycling Measures 42
6.8.1 Waste Avoidance 42
6.8.2 Re-use 42
6.8.3 Recycling 42
6.9 Communication Strategies 43
6.10 Signage 43
6.11 Monitoring and Reporting 44
6.12 Roles and Responsibilities 45

DOCUMENT REFERENCES

TABLES

Table 1 Minimum number of bins and waste storage area for operational waste of MOD 3 and Stage 2 4
Table 2 SSD 10397 and SSD 7348 SEARs and Conditions for Waste Management 8
Table 3 Legislation and guidance 13
Table 4 Potential waste types and their management methods 16
Table 5 Estimated quantities of site preparation waste for MOD 3 18
Table 6 Waste generation rates for the construction of the Project 20
Table 7 Estimated types and quantities of construction waste from MOD 3 21
Table 8 Estimated types and quantities of construction waste from Stage 2 22

CONTENTS

Table 9 Suggested roles and responsibilities for site preparation and construction waste management. 28
Table 10 Potential waste types, classifications and management methods for operational waste 29
Table 11 Waste generation rates applied to the operations of the Project 31
Table 12 Estimated quantities of operational general waste and recycling for MOD 3 32
Table 13 Estimated quantities of operational general waste and recycling for Stage 2 34
Table 14 Compacted operational waste and recycling quantities for Stage 2 34
Table 15 Dimensions and approximate footprint of bins 35
Table 16 Recommended number of bins and storage area for weekly operations for MOD 3 36
Table 17 Minimum number of bins and waste storage area for operational waste of Stage 2 37
Table 18 Total recommended storage area for operations at Stage 2 38
Table 19 Operational waste management responsibility allocation 45

FIGURES

Figure 1 MOD 3 Masterplan 10
Figure 2 Stage 2 Site Plan 11
Figure 3 Waste management hierarchy 12
Figure 4 Examples of NSW EPA labels for waste skips and bins 27
Figure 5 Refuse area location for Stage 2 38
Figure 6 Balers and compactors location for Stage 2 39
Figure 7 Example of bin labels for operational waste 44

APPENDICES

Appendix A Modification 3 Architectural Drawings
Appendix B Stage 2 Architectural Drawings
Appendix C Council Waste Management Plan Form

1 Introduction

1.1 Overview

SLR Consulting Australia Pty Ltd (SLR) has been commissioned by Goodman Property Services (Aust) Pty Ltd (the Client) to prepare a Waste Management Plan (WMP) in support of SSD 7348 Modification 3 (MOD 3) and SSD 10397 Stage 2 Development Application (DA). This WMP will comply with the requirements of the Secretary's Environmental Assessment Requirements (SEARs) relevant to this project. The WMP is for the site preparation, construction and operational activities of MOD 3 and the Stage 2 development of Oakdale West industrial Estate (the Project).

This WMP applies to the waste generated from the site preparation, construction and operational stages of the Project and has been prepared using architectural drawings supplied by the Client and attached in **Appendix A** and **Appendix B**.

The relevant requirements of the SEARs issued for SSD 7438 (MOD 3) and SSD 10397, and Schedule C conditions to SSD 7348 are addressed in this report as shown in **Table 2**.

Table 2 SSD 10397 and SSD 7348 SEARs and Conditions for Waste Management

SSD 10397 and SSD 7348 Conditions	Relevant Sections in this WMP
Waste Management – Including details of the quantities and classification of waste streams generated during construction and operation and proposed storage, handling and disposal requirements.	Section 5 Section 6
Schedule C C17. Future DAs shall include a Waste Management Plan prepared in accordance with NSW Waste Classification Guidelines (DECCW, 2009)	Section 5.2 Section 6.2

1.2 Objectives

The principal objective of this WMP is to identify all potential wastes likely to be generated at the Project site during construction and operational phases, including a description of how waste would be handled, processed and disposed of, or re-used or recycled, in accordance with Penrith City Council's (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 and 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 the Project comply with Council's development consent conditions and other relevant regulatory authorities.

1.3 Review of WMP

This WMP is not a static document. It is a working document that requires review and updating to ensure ongoing suitability for the proposed on-going operations at the site.

This WMP will be reviewed and updated:

- To remain consistent with waste and landfill regulations and guidelines
- If changes are made to site waste and recycling management, or
- To take advantage of new technologies, innovations and methodologies for waste or recycling management.

Copies of the original WMP and its future versions should be retained by the building manager. Changes made to the WMP, as well as the reasons for the changes made, should be documented by the building manager as part of the review process.

2 Project Description

2.1 Overview of Proposed Development

The Client is developing the Oakdale West Industrial Estate site at Lot 11 in DP 1178389 in Kemps Creek. This site is primarily a greenfield site and will be comprised of five industrial warehouse and office precincts, including internal roads, car parking spaces and hardstand.

The Client intends to progress development to Stage 2. The works for Stage 2 require an alteration to the existing masterplan, identified as MOD 3. Under MOD 3, Stage 2 will relate to the development of building 2B.

2.2 Overview of Proposed Construction Work

Project works for MOD 3 and Stage 2 are expected to include site preparation and construction activities.

2.2.1 MOD 3

MOD 3 consists of five precincts Precinct 1 to Precinct 5 and requires alterations to the masterplan layout. The new layout is shown in **Figure 1**. The changes from the previous layout include:

- An increase in gross lettable area
- Alterations to the internal road network
- Alterations to the civil design, retaining wall, building pad levels, noise wall and storm basin
- The amenities required for site operation including Estate Road 03, fencing, utilities, safety and communications infrastructure, and
- An increase in building heights.

Figure 1 MOD 3 Masterplan

2.2.2 Stage 2

The development of Stage 2 relates to building 2B in Precinct 2 under MOD 3. A site plan for Stage 2 is shown in **Figure 2**. The anticipated construction works for this development include the construction of the below:

- A four-storey warehouse building
- An ancillary office
- A mezzanine, and
- Truck and car parking areas and associated site hardstand.

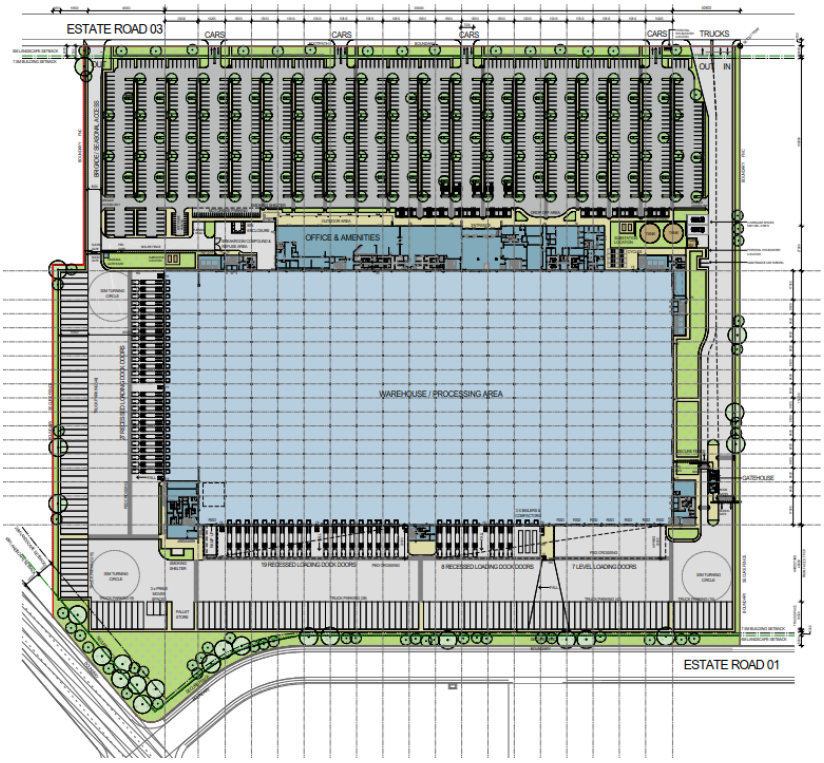


Figure 2 Stage 2 Site Plan

2.3 Overview of Proposed Operations

Based on communication with the Client, SLR understands the Project will retain its function as a regional distribution park of warehouses, distribution centres and freight logistics facilities under MOD 3. Stage 2 will function as a packaging reception and distribution centre staffed by over 1,500 employees. The warehouse will be operated by both robotics and staff handling.

3 Better Practice Waste Management and Recycling

3.1 Waste Management Hierarchy

This WMP has been prepared in line with the waste management hierarchy shown in **Figure 3**, which summarises the objectives of the *Waste Avoidance and Resource Recovery Act 2001.*

The waste management hierarchy comprises the following principles, from most to least preferable:

- Waste **avoidance**, prevention or reduction of waste generation. Achievable through better design and purchasing choices.
- Waste **reuse**, reuse without substantially changing the form of the waste.
- Waste **recycling**, treatment of waste that is no longer usable in its current form to produce new products.
- Energy **recovery**, processing of residual waste materials to recover energy.
- Waste **treatment**, reduce potential environmental, health and safety risks.
- Waste **disposal**, in a manner that causes the least harm to the natural environment.

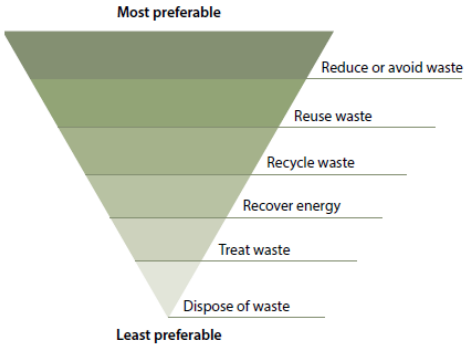


Image from NSW EPA (2014) NSW Waste Avoidance and Resource Recovery Strategy 2014-21.

Figure 3 Waste management hierarchy

3.2 Benefits of Adopting Better Practice

Adopting better practice principles in waste minimisation offers significant benefits for organisations, stakeholders and the wider community. Benefits from better practice waste minimisation include:

- Improved reputation of an organisation due to social and environmental responsibility.
- Lowered consumption of non-renewable resources.
- Reduced environmental impact, for example, pollution, from materials manufacturing and waste treatment.
- Reduced expenses from lower waste disposal.
- Providing opportunities for additional revenue streams through beneficial reuse.

4 Waste Legislation and Guidance

The legislation and guidance outlined in **Table 3** below should be referred to during the demolition, construction and operational phases of the Project.

Table 3 Legislation and guidance

Legislation and Guidance	Objectives
Council legislation and guidelines	
Secretary Environmental Assessment Requirements (SEARs)	SEARs provide the addition requirements that must be completed when a critical state significant infrastructure project is submitted in a DA in NSW. The objective of SEARs submissions is to achieve better environmental outcomes by focusing on environmentally sensitive areas and areas of the greatest community concern. The provisions of the SEARs must be met for DA approval including the provision of a construction and operational waste management plan. The SEARS SSD 10397 and SSD 7348 apply to this Project.
Penrith Local Environmental Plan (LEP) 2010[1]	The Penrith LEP came into force for the entire Penrith local government area on 25 February 2015 and provides the legal framework of the Penrith Development Control Plan, including land use and development permitted in a set zone. The LEP also contains provisions to conserve local heritage and protect sensitive land.
Penrith Development Control Plan (DCP) 2014[2]	The Penrith DCP came into effect on 17 April 2015 and supports provision of the LEP planning controls by providing detailed planning and design guidelines. The DCP has been prepared in accordance with the *Waste Avoidance and Resource Recovery Act 2001*. One of the objectives of the DCP is to assist in reducing Penrith's ecological footprint by encouraging the diversion of waste from landfill. This WMP specifically addresses Part C5 – Waste Management of the DCP and the Waste Management Guidelines for Industrial, Commercial and Mixed Use.
Waste Strategy 2017-2026, Penrith City Council	Council's waste strategy sets out the waste management targets for the Penrith local government area including working towards reduced waste generation and increased landfill diversion. The strategy was prepared in consultation with the community and informed by waste audit results. The strategy defines the actions required to reach the targets, including actions for waste diversion from landfill, resource recovery, technology innovation, community education and resource recovery facilities.
State and National legislation and guidelines	
Building Code of Australia (BCA) and relevant Australian Standards	The BCA has the aim of achieving nationally consistent, minimum necessary standards of relevant health and safety, amenity and sustainability objectives efficiently.
Council of Australian Governments National Construction Code 2016	The National Construction Code 2016 sets the minimum requirements for the design, construction and performance of buildings throughout Australia.
NSW EPA's Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities 2012	These better practice guidelines present information on waste minimisation and resource recovery as well as information on commonly used waste management provisions. The guidelines also provide benchmarks for assessing waste production rates in Australia.

[1] https://legislation.nsw.gov.au/#/view/EPI/2010/540

[2] https://www.penrithcity.nsw.gov.au/building-development/planning-zoning/planning-controls/development-control-plans

Legislation and Guidance	Objectives
NSW EPA (2014) NSW Waste Avoidance and Resource Recovery Strategy 2014-21	The *NSW Waste Avoidance and Resource Recovery Strategy 2014-21* is aimed at ultimately "improving environment and community well-being by reducing the environmental impact of waste and using resources more efficiently" by presenting a framework intended to avoid and reduce waste generation, increase recycling, divert more waste from landfill, manage problem wastes better, reduce litter and reduce illegal dumping.
NSW EPA Resource Recovery Orders and Resource Recovery Exemptions	The NSW EPA has issued a number of resource recovery orders and resource recovery exemptions under the POEO (Waste) Regulation 2014 for a range of wastes that may be recovered for beneficial re-use. These wastes typically include those from demolition and construction works, as well as operational wastes such as food waste. • Resource recovery orders present conditions which generators and processors of waste must meet to supply the waste material for beneficial re-use. • Resource recovery exemptions contain the conditions which consumers must meet to use waste for beneficial re-use.
NSW EPA's Waste Classification Guidelines 2014	The NSW EPA *Waste Classification Guidelines* assists waste generators to effectively 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 1997* and is associated regulations.
Protection of the Environment Operations Act (POEO) 1997 and Amendment Act 2011	The *POEO Act 1997* and *POEO Amendment Act 2011* are administered by the NSW Environment Protection Authority (NSW EPA) to enable the NSW Government to establish instruments for setting environmental standards, goals, protocols and guidelines. They outline the regulatory requirements for lawful disposal of wastes generated during the demolition, construction and operational phases of a development, as well as the system for licencing waste transport and disposal.
The Work Health and Safety Regulation 2011	The Work Health and Safety Regulation 2011 provide detailed actions and guidance associated with the topics discussed in *The Work Health and Safety Act 2011*. The primary aim of the regulation is to protect the health and safety of workers and ensure that risks are minimised in work environments. Workplaces are to ensure that they are compliant with the requirements specified in the regulations. The regulations discuss items such as actions that are prohibited or obligated in work environments, the requirements for obtaining licences and registrations, and the roles and responsibilities of staff in workplaces.
Waste Avoidance and Resource Recovery Act 2001	The *Waste Avoidance and Resource Recovery Act 2001* aims to promote waste avoidance and resource recovery and repeals the *Waste Minimisation and Management Act 1995*. Specific objectives of the *Waste Avoidance and Resource Recovery Act 2001* include: • encouraging efficient use of resources • minimising the consumption of natural resources and the final disposal of waste by encouraging the avoidance of waste and the reuse and recycling of waste • ensuring industry and the community share responsibility in reducing/dealing with waste, and • efficiently funding of waste/resource management planning, programs and service delivery. As of 2016, the addition to the Act of Part 5 defines the legislative framework for the "Return and Earn Container Deposit Scheme" whereby selected beverage containers can be returned to State Government authorities for a monetary refund.

5 Site Preparation and Construction Waste and Recycling Management

5.1 Targets for Resource Recovery

The performance of each new development should contribute to the following target from the NSW EPA (2014) *NSW Waste Avoidance and Resource Recovery Strategy 2014-21*:

- 75 % of total construction and demolition waste recycled, increasing to 80 % by 2021.

Additionally, in the interests of Council's additional commitments to waste management controls, the construction and excavation procedures should endeavour to reach the following outlined target from the DCP:

- Reduce the volume of demolition, construction and fit out waste, including excavation, going to landfill by 76 %.

It is anticipated that the waste minimisation measures in the following sections will assist the Project to meet these targets. Waste reporting and audits can be used to determine the actual percentage of wastes that have been recycled during the construction and site preparation stage of the Project.

5.2 Waste Streams and Classifications

The site preparation and construction of the Project is likely to generate the following broad waste streams:

- Site clearance wastes,
- Construction wastes,
- Plant maintenance waste
- Packaging wastes, and
- Work compound waste from on-site employees.

A summary of likely waste types generated from site preparation and construction activities, along with their waste classifications and proposed management methods, is provided in **Table 4**.

For further information on how to classify a waste type refer to the NSW EPA (2014) *Waste Classification Guidelines*[3]. Further information on managing site preparation and construction wastes is available from the NSW EPA website[4].

[3] Available online from https://www.epa.nsw.gov.au/your-environment/waste/classifying-waste/waste-classification-guidelines

[4] http://www.epa.nsw.gov.au/your-environment/waste/industrial-waste/construction-demolition

Table 4 Potential waste types and their management methods

Waste Types	NSW EPA Waste Classification	Proposed Management Method
Site Clearance		
Green waste including timber, pine and particle board	General solid waste (non-putrescible)	Separated, some chipped and stored on-site for landscaping, remainder to landscape supplies or off-site recycling. Stumps and large trees to landfill.
Clean fill	General solid waste (non-putrescible)	On-site re-use
Contaminated fill	To be classified subject to the results of testing	Off-site treatment or disposal to landfill
Excavated natural material (ENM) or virgin excavated natural material (VENM)	General solid waste (non-putrescible)	On-site re-use of topsoil for landscaping of the site, off-site beneficial re-use or send to landfill site.
Construction		
Sediment fencing, geotextile materials	General solid waste (non-putrescible)	Reuse at other sites where possible or disposal to landfill
Concrete	General solid waste (non-putrescible)	Off-site recycling for filling, levelling or road base
Bricks and pavers	General solid waste (non-putrescible)	Cleaned for reuse as footings, broken bricks for internal walls, crushed for landscaping or driveway use, off-site recycling
Gyprock or plasterboard	General solid waste (non-putrescible)	Off-site recycling or returned to supplier
Sand or soil	General solid waste (non-putrescible)	Off-site recycling
Metals such as fittings, appliances and bulk electrical cabling, including copper and aluminium	General solid waste (non-putrescible)	Off-site recycling at metal recycling compounds and remainder to landfill
Conduits and pipes	General solid waste (non-putrescible)	Off-site recycling
Timber	General solid waste (non-putrescible)	Off-site recycling, Chip for landscaping, Sell for firewood *Treated*: reused for formwork, bridging, blocking, propping or second-hand supplier *Untreated*: reused for floorboards, fencing, furniture, mulched second hand supplier Remainder to landscape supplies.
Doors, Windows, Fittings	General solid waste (non-putrescible)	Off-site recycling at second hand building supplier
Insulation material	General solid waste (non-putrescible)	Off-site disposal
Glass	General solid waste (non-putrescible)	Off-site recycling, glazing or aggregate for concrete production

Waste Types	NSW EPA Waste Classification	Proposed Management Method
Asbestos	Hazardous waste	Off-site disposal at a licenced landfill facility.
Fluorescent light fittings and bulbs	Hazardous waste	Off-site recycling or disposal; contact *FluoroCycle* for more information[5]
Paint	Hazardous waste	Off-site recycling, Paintback collection[6] or disposal
Synthetic Rubber or carpet underlay	General solid waste (non-putrescible)	Off-site recycling; reprocessed and used in safety devices and speed humps
Ceramics including tiles	General solid waste (non-putrescible)	Off-site recycling at a crushing and recycling company
Carpet	General solid waste (non-putrescible)	Off-site recycling or disposal; reused for landscaping, insulation or equestrian uses
Plant Maintenance		
Empty oil and other drums or containers, such as fuel, chemicals, paints, spill clean ups	Hazardous waste: Containers were previously used to store Dangerous Goods (Class 1, 3, 4, 5 or 8) and residues have not been removed by washing or vacuuming. General solid waste (non-putrescible): 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 local Council
Air filters and rags	General solid waste (non-putrescible)	Off-site disposal
Oil filters	Hazardous waste	Off-site recycling
Batteries	Hazardous waste	Off-site recycling, Contact the Australian Battery Recycling Initiative[7] for more information
Packaging		
Packaging materials, including wood, plastic, including stretch wrap or LLPE, cardboard and metals	General solid waste (non-putrescible)	Off-site recycling
Wooden or plastic crates and pallets	General solid waste (non-putrescible)	Reused for similar projects, returned to suppliers, or off-site recycling. Contact *Business Recycling* for more information[8]
Work Compound and Associated Offices		
Food Waste	General solid (putrescible) waste	Dispose to landfill with general garbage

[5] Available online from http://www.fluorocycle.org.au/ or http://www.environment.gov.au/settlements/waste/lamp-mercury.html
[6] Available online from https://www.paintback.com.au/
[7] http://www.batteryrecycling.org.au/home
[8] Available online from http://businessrecycling.com.au/search/

Waste Types	NSW EPA Waste Classification	Proposed Management Method
Recyclable beverage containers including glass and plastic bottles, aluminium cans and steel cans	General solid waste (non-putrescible)	Co-mingled recycling at off-site licensed facility or deliver to local NSW container deposit scheme 'Return and Earn' facility[9]
Clean paper and cardboard	General solid waste (non-putrescible)	Paper and cardboard recycling at off-site licensed facility
General domestic waste generated by workers such as soiled paper and cardboard and polystyrene	General solid waste (non-putrescible) mixed with putrescible waste	Disposal at landfill

5.3 Site Preparation Waste Types and Quantities

From aerial imagery and the architectural drawings, attached in **Appendix A** and **Appendix B**, SLR understands that some excavation work is required to prepare the site for development of both MOD 3 and Stage 2.

The estimated site preparation waste for MOD 3 and Stage 2 are shown in **Sections 5.3.1** and **5.3.2** below.

5.3.1 MOD 3

The earthworks quantities for MOD 3 are provided in the 'Civil, Stormwater and Infrastructure Services Report – DA Modification No. 3' by AT&L[10]. The anticipated waste quantities from the site preparation of MOD 3, including the developments of Stage 2, are shown in **Table 5** below. The 'Civil, Stormwater and Infrastructure Services Report' states that the areas used are representative of the net site area, including the site area that will be developed.

Table 5 Estimated quantities of site preparation waste for MOD 3

Project Component	Existing topsoil stripping volume (m^3)	Existing creeks and dams excavation (m^3)	Total Cut (m^3)	Total Fill (m^3)	Balance (m^3)
Precinct 1	-43,347	-27,007	-412,468	561,821	78,999
Precinct 2	-33,394	-5,795	-1,129,837	892,682	-276,343
Precinct 3	-12,361	-6,166	-108,546	447,377	320,304
Precinct 4	-18,631	-17,896	-205,979	733,279	490,773
Precinct 5	-4,516	-16,247	-2,974	172,957	149,220
Total	**-112,249**	**-73,111**	**-1,859,804**	**2,724,785**	**679,620**

For more information on the depth and location of the cut and fill works, refer to the 'Civil, Stormwater and Infrastructure Services Report'.

[9] Available online from http://returnandearn.org.au/

[10] AT&L, 2019, Civil, Stormwater and Infrastructure Services Report – DA Modification No. 3, Issue 01

5.3.2 Stage 2

A 'Lot 2B Civil Report' has been prepared by AT&L[11] that provides information on the expected civil works for Stage 2. For more information on the anticipated earthworks for Stage 2, refer to the 'Lot 2B Civil Report'. Based on information from the Client, SLR understands that the Building 2B pad levels will be per the Stage 1 MOD 3 documents which detail the finalised pad levels across the site. There will be no additional pad works sought under the Stage 2 consent.

As mentioned in Council's DCP, care should be taken to minimise site disturbance and limit unnecessary excavation.

Council's DCP states that if excess material is transported offsite, they are to be informed of the quantity, quality, method of transport and where the material will be disposed. SLR recommends that excavated spoil is classified by a specialist contaminated land consultant and separated into contaminated materials, if any, uncontaminated fill or ENM. Uncontaminated fill or ENM should be retained on site and managed appropriately for beneficial re-use for filling earthworks. As a last resort, remaining uncontaminated fill of ENM is to be sent off-site to a licenced facility in accordance with the Protection of the Environment Operations (Waste) Regulation 2014.

For contaminated material management, refer **Section 5.7.4** of this WMP.

5.4 Construction Waste Types and Quantities

The Construction Site Manager will need to specify the types and quantities of wastes produced during construction and on this basis, the numbers and capacity of skip bins can be determined.

In the absence of readily available construction waste generation rates from Council, SLR has adopted the waste generation rates from Appendix A of The Hills Development Control Plan (DCP) 2012 for estimating the type and quantities of waste generated from construction of the Project. The waste generation rates listed in the Hills DCP include '2 Bedroom', '3 Bedroom', 'Block of Flats', 'Factory' and 'Office'. SLR has adopted the 'Factory' and 'Office' rates to measure waste expected from the Project, as the construction of a factory and office is the most relevant in representing the construction of the industrial warehouse and office precinct.

In the absence of readily available published information for 'Carpark' construction waste generation rates, SLR has developed 'Carpark' construction rates based on the 'Office' rates by:

- Removing timber, bricks and gyprock as these materials are unlikely to be present in significant quantities in a modern carpark structure, and
- Increasing the rates for concrete, sand or soil, metal and 'other', in proportion, to maintain the total assumed tonnage per 1000 m^2 of construction.

The waste generation rates are shown in **Table 6**.

[11] AT&L, 2019, 'Lot 2B Civil Report', Issue 01

Table 6 Waste generation rates for the construction of the Project

Rate Type	Floor Area (m^2)	Waste types and quantities (m^3)						
		Timber	Concrete	Bricks	Gyprock	Sand or Soil	Metal	Other
Factory	1,000	0.25	2.10	1.65	0.45	4.80	0.60	0.50
Office	1,000	5.1	18.8	8.5	8.6	8.8	2.75	5
Carpark	1,000	--	30.6	--	--	14.3	4.5	8.1

These waste generation rates are used to estimate the waste generated from the construction of the Project. The anticipated construction waste quantities for MOD 3 and Stage 2 are shown in **Sections 5.4.1** and **5.4.2** below.

The waste generation rates for 'Factory' are applied to calculate the waste quantities from the construction of each level of the warehouses and the mezzanines. The 'Office' waste generation rates are applied to calculate the waste quantities from all office administration areas. The 'Carpark' waste generation rates are applied to calculate the waste quantities from the construction of all external hard surface areas including access roads, carparks, light duty surfaces and platforms for the generators. The areas are based on area information provided by the architects for the project, SBA Architects Pty Ltd[12].

Actual waste quantities and composition will vary; however, this estimate is provided so that the Construction Site Manager can make provision for on-site or off-site re-use and recycling opportunities.

5.4.1 MOD 3

The construction waste quantities anticipated from MOD 3, which includes the construction of Stage 2, are provided in **Table 7**. Construction waste quantities for Precinct 1 are addressed the waste management plan prepared by SLR for the Precinct 1 DA submission (SLR, Oakdale West Estate, Waste Management Plan, 29 October 2019) and have been included in **Table 7**.

[12] Email from William Ly – SBA Architects Pty Ltd, "19262 OAKDALE WEST ESTATE MOD 3 - UPDATED ESTATE MASTERPLAN", dated 7 November 2019.

Table 7 Estimated types and quantities of construction waste from MOD 3

Project Component		Area (m^2)	Waste types and quantities (m^3)						
			Timber	Concrete	Brick	Gyprock	Sand and Soil	Metal	Other
Precinct 1	Office	3,903	20	75	35	35	35	15	20
	Warehouse	81,773	25	175	135	50	400	60	50
	Mezzanine	32,402	10	70	55	15	160	20	20
	Outbuildings	4,004	5	10	10	5	20	5	5
	Hardstand	96,050	0	2,940	0	0	1,375	435	780
	Light Duty	17,050	0	525	0	0	245	80	140
Precinct 2	Office	8,992	50	170	80	80	80	25	45
	Warehouse	250,894	65	530	415	115	1,205	155	130
	Mezzanine	6,300	5	15	15	5	35	5	5
	Hardstand	116,969	-	3,580	-	-	1,675	530	950
Precinct 3	Office	3,120	20	60	30	30	30	10	20
	Warehouse	54,700	15	115	95	25	265	35	30
	Hardstand	38,774	-	1,190	-	-	555	175	315
Precinct 4	Office	5,414	30	105	50	50	50	15	30
	Warehouse	108,279	30	230	180	50	520	65	55
	Hardstand	68,628	-	2,105	-	-	985	310	560
Precinct 5	Office	1,697	10	35	15	15	15	5	10
	Warehouse	33,943	10	75	60	20	165	25	20
	Hardstand	18,308	-	565	-	-	265	85	150
Totals		**951,200**	**235**	**8,775**	**940**	**390**	**5,845**	**1,440**	**2,320**

Waste estimates have been rounded up to the nearest 5 m^3.

5.4.2 Stage 2

The construction wastes quantities anticipated from the construction of Building 2B alone are provided in **Table 8**.

Table 8 Estimated types and quantities of construction waste from Stage 2

Project Component		Area (m^2)	Waste types and quantities (m^3)						
			Timber	Concrete	Bricks	Gyprock	Sand and Soil	Metal	Other
Warehouse 2B	Office	5,492	30	105	50	50	50	20	30
	Warehouse Ground Floor	50,873	15	110	85	25	245	35	30
	Warehouse Level 1	48,101	15	105	80	25	235	30	25
	Warehouse Level 2	48,101	15	105	80	25	235	30	25
	Warehouse Level 3	48,101	15	105	80	25	235	30	25
	Mezzanine	6,300	5	15	15	5	35	5	5
	Hardstands	70,823	0	195	0	0	440	55	50
	Totals	**277,843**	**95**	**740**	**390**	**155**	**1,475**	**205**	**190**

Waste estimates have been rounded up to the nearest 5 m^3.

A waste management plan form provided by Council is attached in **Appendix C**. The form is also available on Council's website[13]. This is to be updated by the Site Manager once waste streams, estimated quantities, and final disposal locations and recycling services have been identified.

5.5 Waste Avoidance

In accordance with Council's DCP and better practice waste management, the Building Contractor, Building Designer and/or equivalent roles should:

- Develop a purchasing policy based on the approximate volumes of materials to be used so that the correct quantities are purchased.
- Arrange for delivery of materials on an 'as needed' basis to avoid material degradation through weathering and moisture damage.
- Communicate strategies to handle and store waste to minimise environmental, health and amenity impacts.
- Select materials with a low environmental impact over the lifecycle of the building.
- Choose timber from certified plantations and avoid unsustainable timber imports including western red cedar, oregon, meranti, luan or merbau.
- Use leased equipment rather than purchase and disposal.
- Minimise site disturbance and unnecessary excavation.
- Incorporate existing trees and shrubs into the landscape plan.
- Grouping wet areas together to minimise the amount of pipe work required.
- Design the Project to require standard material sizes or make arrangements with manufacturing groups for the supply of non-standard material sizes.
- Design works for de-construction.
- Reduce packaging waste by:

[13] https://www.penrithcity.nsw.gov.au/images/documents/forms/Waste_Management_Plan_Application_Form.pdf

  - Returning packaging to suppliers where practicable to reduce waste further along the supply chain
  - 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.
- Use prefabricated materials.
- Select materials for Project works with low embodied energy properties or materials that have been salvaged or recycled for the construction of the Project including concrete that utilises slag and fly ash content, structural and reinforced steel that uses recycled steel content or bulk insulation products that contain recycled content, such as recycled glass in glass-wool.
- Preferentially use paints, floor coverings and adhesives with low VOC (volatile organic compound) content.
- Reduce the use of polyvinyl chloride products.
- Implement measures to prevent the occurrence of windblown litter, dust and stormwater pollution.
- Ensure subcontractors are informed of and implement site waste minimisation and management procedures.

5.6 Reuse, Recycling and Disposal

Effective management of construction materials and construction and demolition 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.

Refer to **Table 4** for an outline of the proposed reuse, recycling and disposal methods for potential site preparation and construction waste streams generated by the Project.

In accordance with Council's DCP and best practice waste management, the following specific procedures should be implemented:

- Ensure the site's project management of the site includes minimising waste generation, requiring the appropriate storage and timely collection of waste materials, and maximising re-use or recycling of materials.
- Store wastes on site appropriately to prevent cross-contamination and guarantee the highest possible re-use value.
- Consider the potential of any new materials to be re-used and recycled at the end of the Project's life.
- Determine opportunities for the use of prefabricated components and recycled materials.
- Strip topsoil from areas designated for excavation and store it on site for reuse.
- Reuse excavation material will be on-site where possible.
- Re-use formwork where appropriate.
- Retain roofing material cut-offs for re-use or recycling.

- Retain used crates for storage purposes unless damaged.
- Recycle cardboard, glass and metal wastes.
- Recycle or dispose of solid waste timber, brick, concrete, asphalt and rock, where such waste cannot be re-used on site, to an appropriately licenced construction and demolition waste recycling facility or an appropriately licenced landfill.
- Dispose of all asbestos and/or hazardous wastes in accordance with SafeWork NSW and NSW EPA requirements.
- Deliver batteries and florescent lights to drop off-site recycling facility.
- Return excess materials and packaging to the supplier or manufacturer.
- Dispose of all garbage via a council approved system.

5.7 Waste Storage and Servicing

5.7.1 Waste Segregation and Storage

As outlined in the Penrith DCP, waste materials produced from site preparation and construction activities are to be separated at the source and stored separately on-site. It is anticipated that the Project will provide enough space on-site for separate storage, for example, separate skip bins or appropriately managed stockpiles, of the following waste types:

- Bricks, concrete and scrap metal
- Metal and steel, in a condition suitable for recycling at metal recycling facilities
- Timber
- Glass
- Hardstand rubble
- Uncontaminated excavation spoil, if present
- Contaminated excavation spoil, if present
- Hazardous waste, if present
- Paper and cardboard
- General co-mingled recycling waste, and
- Non-recyclable general waste.

If there is insufficient space on-site for full segregation of waste types, the Site Manager, or equivalent role, should consult with the waste and recycling collection contractor to confirm which waste types may be co-mingled prior to removal from the site.

5.7.2 Waste Storage Areas

Waste storage areas will be accessible and allow enough space for storage and servicing requirements. The storage areas will also be flexible in order to cater for change of use throughout the project. Where space is restricted, dedicated stockpile areas are to be delineated on the site, with regular transfers to dedicated skip bins for sorting.

All waste placed in skips or bins for disposal or recycling will be adequately contained to ensure that the waste does not fall, blow, wash or otherwise escape from the site. Waste containers and storage areas are to be kept clean and in a good state of repair.

As per Council's DCP, areas designated for waste storage should:

- Allow unimpeded access by site personnel and waste disposal contractors
- Consider environmental factors which could potentially cause an impact to the waste storage, such as slope, drainage and the location of watercourses and native vegetation
- Allow enough space for the storage of garden waste and other waste materials on-site
- Employ adequate environmental management controls to prevent off-site migration of waste materials and contamination from the waste. For example, consideration of slope, drainage, proximity relative to waterways, stormwater outlets and vegetation
- Consider visual amenity, safety, accessibility and convenience in their selection, and
- Not present hazards to human health or the environment.

5.7.3 Waste Servicing and Record Keeping

The Site Manager or equivalent role is to:

- Arrange for suitable waste collection contractors to remove any construction waste from site
- Ensure waste bins are not filled beyond recommended filling levels
- Ensure that all bins and loads of waste materials leaving site are covered
- Maintain waste disposal documentation detailing, at a minimum:
- Descriptions and estimated amounts of all waste materials removed from site
- Details of the waste and recycling collection contractors and facilities receiving the waste and recyclables
- Records of waste and recycling collection vehicle movements, for example, date and time of loads removed, licence plate of collection vehicles, tip dockets from receiving facility, and
- Waste classification documentation for materials disposed to off-site recycling or landfill facilities.
- Ensure lawful waste disposal records are readily accessible for inspection by regulatory authorities such as Council, SafeWork NSW or NSW EPA, and
- Remove waste during hours approved by Council.

If skips and bins are reaching capacity, removal and replacement should be organised as soon as possible. All site generated building waste collected in the skips and bins will leave the site and be deposited in the approved site lawfully able to accept them.

5.7.4 Contaminated or Hazardous Waste Management

During the site preparation and construction phases, SLR recommends that a qualified and certified contractor is engaged to remove all contaminated or hazardous materials, for example, asbestos, and dispose of all contaminated or hazardous waste at an appropriately licenced facility.

All asbestos and other hazardous waste must be handled according to appropriate legislation and regulation including the Work Health and Safety Regulation 2011.

In accordance with Council's DCP, hazardous waste management at the site may require a licence from the EPA and approval from Council. If hazardous waste is identified for removal, Council and NSW EPA are to be consulted prior to undertaking any hazardous waste removal.

5.8 Site Inductions

All staff, including sub-contractors and labourers, employed during the site preparation and construction phases of the Project must undergo induction training regarding waste management for the Site.

Induction training is to cover, as a minimum, an outline of the WMP including:

- Legal obligations and targets
- Emergency response procedures on-site
- Waste priorities and opportunities for reduction, reuse and recycling
- Waste storage locations and separation of waste
- Procedures for suspected contaminated and hazardous wastes
- Waste related signage
- The implications of poor waste management practices, and
- Responsibilities and reporting, including identification of personnel responsible for waste management and individual responsibilities.

It is the responsibility of the Site Manager or Building Contractor to notify Council of the appointment of waste removal, transport or disposal contractors.

5.9 Signage

Standard signage is to be posted in all waste storage and collection areas. All waste containers should be labelled correctly and clearly to identify stored materials.

Signs approved by the NSW EPA for labelling of waste materials are available online[14] and should be used where applicable. A selection of signs prepared by NSW EPA is provided in **Figure 4.**

[14] NSW EPA approved waste materials signage https://www.epa.nsw.gov.au/your-environment/recycling-and-reuse/business-government-recycling/standard-recycling-signs

Figure 4 Examples of NSW EPA labels for waste skips and bins

5.10 Monitoring and Reporting

The following monitoring practices are to be undertaken to improve site preparation and construction waste management and to obtain accurate waste generation figures:

- Conduct waste audits of current projects where feasible.
- Note waste generated and disposal methods.
- Look at past waste disposal receipts.
- Record this information to track waste avoidance, reuse and recycling performance and to help in waste estimations for future waste management plans.

As per Council's DCP, records of waste volumes recycled, reused or contractor removed are to be maintained. This can include dockets or receipts verifying recycling and disposal in accordance with this WMP. This evidence should also be presented to regulatory bodies when required.

Daily visual inspections of waste storage areas will be undertaken by site personnel and inspection checklists and 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 and reuse initiatives. Where audits show that the above procedures are not carried out effectively, additional staff training will be undertaken and signage re-examined.

5.11 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 Building Contractor to implement the WMP, and an employee and subcontractor responsibility to ensure that they always comply with the WMP .

Where possible, an Environmental Management Representative should be appointed for the Project. Suggested roles and responsibilities are provided in **Table 9**.

Table 9 Suggested roles and responsibilities for site preparation and construction waste management.

Responsible Person	General Tasks
Construction Site Manager	Ensuring plant and equipment are well maintained.
	Ordering only the required amount of materials.
	Keeping materials segregated to maximise reuse and recycling.
	Ultimately responsible for routinely checking waste sorting and storage areas for cleanliness, hygiene and safety issues, contaminated waste materials, and also ensuring that all monitoring and audit results are well documented and carried out as specified in the WMP.
Construction Environmental Manager or equivalent	Approaching and establishing the local commercial reuse of materials where reuse on-site is not practical.
	Establishing separate skips and recycling bins for effective waste segregation and recycling purposes.
	Ensuring staff and contractors are aware of site requirements.
	Provision of training of the requirements of the WMP and specific waste management strategies adopted for the Project.
	Contaminated waste management and approval of off-site waste transport, disposal locations and checking licensing requirements.
	Approval of off-site waste disposal locations and checking licensing requirements.
	Assessment of suspicious potentially contaminated materials, hazardous materials and liquid wastes.
	Monitoring, inspection and reporting requirements.

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 project induction and contract engagement process.

6 Operational Waste Management

6.1 Targets for Resource Recovery

The waste management performance of each new development should contribute to the overall NSW State targets for recycling outlined in the *NSW Waste Avoidance and Resource Recovery Strategy 2014-21*. The targets include increasing waste diverted from landfill to 75% and recycling 70% of commercial, industrial and municipal solid waste[15]. Each commercial and industrial development can contribute to this NSW State target through an effective waste management plan.

It is anticipated that the waste minimisation measures in the following sections will assist the Project to meet the state's targets. Waste reporting and audits can be used to determine the actual percentage of waste that are being, or have been, recycled during operation.

6.2 Waste Streams and Classifications

The operation of the Project is anticipated to generate the following broad waste streams:

- Domestic wastes generated by employees, including food wastes
- Bulk packaging wastes, including polystyrene, plastic wrapping and cardboard boxes
- Office waste
- Garden organic waste from landscaped areas
- Bulky waste items such as furniture and e-waste, and
- Stores, plant and general maintenance wastes.

Potential ongoing waste types, their associated waste classifications, and management methods are provided in **Table 10**. For further information on how to determine a waste's classification, refer to the NSW EPA (2014) Waste Classification Guidelines. Suggestions for recycling drop off locations and contacts can be found on https://businessrecycling.com.au/ for each waste type.

Table 10 Potential waste types, classifications and management methods for operational waste

Waste Types	NSW EPA Classification	Proposed Management Method
General Operations		
Clean office paper	General solid (non-putrescible) waste	Paper recycling at off-site licensed facility
Cardboard including bulky cardboard boxes	General solid (non-putrescible) waste	Cardboard recycling at off-site licensed facility
Recyclable beverage containers, glass and plastic bottles, aluminium cans, steel cans	General solid (non-putrescible) waste	NSW container deposit scheme 'Return and Earn', container recycling at off-site licensed facility

[15] https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/wastestrategy/140876-warr-strategy-14-21.pdf?la=en&hash=EC6685E6624995242B0538B18C2E80C0CA2E51B3

Waste Types	NSW EPA Classification	Proposed Management Method
Food waste	General solid (putrescible) waste	Compost on or off-site or dispose to landfill with general garbage
Batteries	Hazardous waste	Off-site recycling, alternatively contact the Australian Battery Recycling Initiative for more information
Mobile Phones	Hazardous waste	Off-site recycling; can be taken to the Mobile Muster program. Contact Mobile Muster for more information
Bulky polystyrene	General solid (non-putrescible) waste	Off-site recycling or disposal at landfill
Furniture	General solid (non-putrescible) waste	Off-site reuse or disposal to landfill
E-waste	Hazardous waste	Off-site recycling
Printer toners and ink cartridges	Hazardous waste	Off-site recycling, free disposal box or bags and pickup service exists for printer toners and ink cartridges
General garbage, including non-recyclable plastics	General solid (putrescible and non-putrescible) waste	Disposal at landfill
Maintenance		
Spent smoke detectors[16]	General solid (non-putrescible) waste, or Hazardous waste (some commercial varieties)	Disposal to landfill, or off-site disposal at licensed facility
Glass, other than containers	General solid (non-putrescible) waste	Off-site recycling
Light bulbs and fluorescent tubes	Hazardous waste	Off-site recycling or disposal, contact FluoroCycle[17] or Lamp Recyclers[18] for more information
Cleaning chemicals, solvents, area wash downs, empty oil or paint drums, chemical containers	Hazardous waste if containers used to store Dangerous Goods (Class 1, 3, 4, 5 or 8) and residues have not been removed by washing or vacuuming. General solid (non-putrescible) waste if containers 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.
Garden organics - lawn mowing, tree branches, hedge cuttings, leaves	General solid (non-putrescible) waste	Reuse on-site or contractor removal for recycling at licenced facility

16 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.

17 https://www.fluorocycle.org.au/

18 https://www.lamprecyclers.com.au/

6.3 Estimated Quantities of Operational Waste

SLR has adopted the 'Offices' and 'Warehouse' waste generation rates from Council's DCP Industrial, Commercial and Mixed-Use Waste Management Guidelines for estimating the type and quantities of waste generated from the operational activities of the Project. The operational waste generation rates used are shown below in **Table 11**.

Table 11 Waste generation rates applied to the operations of the Project

Type of Premises	General Waste Generation (L/100 m²/day)	Recycling Generation (L/100 m²/day)
Warehouse	10	10
Offices	10	10

Using the waste generation rates in **Table 11** above, the approximate weekly waste quantities for the Project have been calculated and are presented in **Sections 6.3.1** and **6.3.2. T**he operational waste quantities were additionally calculated based on the below assumptions:

- The floor areas as presented on the architectural drawings shown in **Appendix A** and **Appendix B**
- A week comprising seven days of operation, and
- General recycling consisting of approximately 60% paper and cardboard, and 40% other recycling[19].

Based on documents of the Project's activities[20], SLR understands that large quantities of the recycling stream will include pallets and plastic and cardboard packaging waste. To minimise packaging waste generated in the recyclables stream, it is recommended that packing waste is returned to the suppliers where possible. Standard pallets are recommended to be returned to their owners and non-standard and broken pallets are to be stockpiled and collected as required by a private waste contractor.

Additionally, it is anticipated that a substantial amount of the general waste stream will consist of food waste. As per Council's DCP, food scraps should be placed in specialised containment bins and collected on a regular basis. To minimise food waste in the general waste stream, it is recommended that the food is donated, composted on site or sent off-site to a composting facility.

If additional collection services are required, such as secured document destruction, these can be organised with a private waste contractor who can provide additional bins and take collected waste to an off-site licenced facility.

6.3.1 MOD 3

The estimated quantities of operational waste generated by MOD 3 are shown in **Table 12**. Operational waste quantities for Precinct 1 are addressed the waste management plan prepared by SLR for the Precinct 1 DA submission (SLR, Oakdale West Estate, Waste Management Plan, 29 October 2019) and have been included in **Table 12**. The naming conventions used in **Table 12** are as per the masterplan area spreadsheet provided by the Client. Warehouse 2B is addressed in more detail in **Section 6.3.2.**

[19] https://www.epa.nsw.gov.au/~/media/EPA/Corporate%20Site/resources/warrlocal/140442-audits-2011.ashx

[20] Document from Goodman, "Development Application Information – PROJECT WARATAH", dated 28 October 2019.

Table 12 Estimated quantities of operational general waste and recycling for MOD 3

Complex	Location	Area (m^2)	General Waste (L/week)	Recycling Paper and Cardboard (L/week)	Recycling Other (L/week)
Precinct 1					
Warehouse 1A	Warehouse	68,160	143,150	143,150	
	Office	2,646	1,855	1,855	
	Mezzanine	32,402	68,075	68,075	
Warehouse 1B1	Warehouse	4,380	9,205	9,205	
	Office	500	350	350	
Warehouse 1B2	Warehouse	4,691	9,870	9,870	
	Office	500	350	350	
Warehouse 1B3	Warehouse	3,846	8,085	8,085	
	Office	400	280	280	
Precinct 2					
Warehouse 2A	Warehouse	40,045	28,035	16,835	11,235
	Office	2,000	1,400	840	560
Warehouse 2B	Warehouse	195,176	136,745	21,385	-
	Office	5,492	3,850	2,310	1,540
Warehouse 2C and 2D	Warehouse 2C and 2D	9,675	6,790	4,095	2,730
	Office 2C	500	350	210	140
	Office 2D	500	350	210	140
Warehouse 2E	Warehouse	6,000	4,200	2,520	1,680
	Office	500	350	210	140
Precinct 3					
Warehouse 3A	Warehouse	18,400	12,880	7,735	5,180
	Office	920	665	420	280
Warehouse 3B	Warehouse	7,150	5,005	3,010	2,030
	Office	400	280	175	140
Warehouse 3C	Warehouse	7,100	4,970	3,010	1,995
	Office	600	420	280	175
Warehouse 3D and 3E	Warehouse 3D and 3E	11,000	7,700	4,620	3,080
	Office 3D	300	210	140	105
	Office 3E	300	210	140	105
Warehouse 3F and 3G	Warehouse	11,050	7,735	4,655	3,115
	Office	300	210	140	105
	Office	300	210	140	105
Precinct 4					
Warehouse 4A	Warehouse	21,598	15,120	9,100	6,055
	Office	1,080	770	455	315

Complex	Location	Area (m²)	General Waste (L/week)	Recycling Paper and Cardboard (L/week)	Recycling Other (L/week)
Warehouse 4B	Warehouse	14,771	10,360	6,230	4,165
	Office	739	525	315	210
Warehouse 4C	Warehouse	21,712	15,225	9,135	6,090
	Office	1,086	770	490	315
Warehouse 4D	Warehouse	6,594	4,620	2,800	1,855
	Office	330	245	140	105
Warehouse 4E	Warehouse	33,205	23,275	13,965	9,310
	Office	1,660	1,190	700	490
Warehouse 4F	Warehouse	6,043	4,235	2,555	1,715
	Office	302	245	140	105
Warehouse 4G	Warehouse	4,356	3,080	1,855	1,225
	Office	218	175	105	70
Precinct 5					
Warehouse 5A	Warehouse	33,943	23,765	14,280	9,520
	Office	1,697	1,190	735	490

Waste quantity estimates have been rounded up to the nearest 5 L.

'Other Recycling': comingled recycling excluding paper and cardboard.

6.3.2 Stage 2

The estimated quantities of operational waste generated by Stage 2 alone are shown in **Table 13**. Based on communication from the Client[21], the mezzanine areas are only to be used for good storage and therefore not anticipated to generate waste.

Due to the anticipated operations of Warehouse 2B, the recycling generated from the building is primarily anticipated to be packaging waste consisting of paper and recycling. Based on communication from the Client[22], levels 1 to 3 of the warehouse are anticipated to generate minimal paper and cardboard waste, as all incoming paper and cardboard packaging will be separated on the ground floor. The paper and cardboard recycling will be sent directly from the ground floor warehouse to the baler. Hence paper and cardboard recycling has only been considered for the ground floor of the warehouse, where it will be primarily generated.

Comingled recycling is anticipated to be minimal and primarily be generated from the office areas. Hence the recycling breakdown of 60% paper and cardboard, and 40% other recycling has only been considered for the office spaces, where comingled recycling will be generated.

[21] Email from Stephanie Partridge – Goodman, "RE: MOD 3 & Stage 2 DA co-ordination meeting – Oakdale West", dated 30 October 2019.

[22] Email from Stephanie Partridge – Goodman, "FW: DA Package – Oakdale West", dated 03 December October 2019.

Table 13 Estimated quantities of operational general waste and recycling for Stage 2

Complex	Location	Area (m^2)	General Waste (L/week)	Recycling Paper and Cardboard (L/week)	Recycling Other (L/week)
Warehouse 2B	Warehouse - Ground Floor	50,873	35,630	21,385	-
	Warehouse - Level 1	48,101	33,705	-	-
	Warehouse - Level 2	48,101	33,705	-	-
	Warehouse - Level 3	48,101	33,705	-	-
	Offices	5,492	3,850	2,310	1,540
	Total	**200,668**	**140,595**	**23,695**	**1,540**

Waste quantity estimates have been rounded up to the nearest 5 L.

'Other Recycling': comingled recycling excluding paper and cardboard.

Due to the anticipated quantity of operational general waste and recycling, a baler is recommended to be used for the storage compaction of paper and cardboard waste and a general waste compactor for the storage and compaction of general waste. Based on an assumed compaction ratio for 1:3[23] for general waste compactors and 1:10[24] for paper and cardboard balers, the compacted waste volumes generated by Stage 2 have been calculated and are shown in **Table 14** below.

Table 14 Compacted operational waste and recycling quantities for Stage 2

		General Waste	Paper and Cardboard Recycling	Other Recyclables
Warehouse 2B	Uncompacted waste (m^3/week)	140.60	23.70	1.6
	Compaction ratio	3	10	No compaction
	Compacted waste (m^3/week)	**46.87**	**2.37**	**1.6**

The Project is anticipated to produce minimal quantities of garden organics. Less than 100 L of garden organics are estimated to be generated per week. This waste will be taken by a landscaping contractor who will dispose of it at an off-site licenced facility.

6.4 Waste Storage Area Size

For each building that is a part of the Project, the waste storage area must be large enough to adequately store all quantities of operational waste and recycling between collections. Interim storage units are to be provided for general waste and recyclables on each floor in buildings three storeys or greater. All waste material will be transported from these units to the central waste storage area at the end of each day by the site cleaners.

All waste storage room calculations have considered the bin dimensions listed in Council's DCP, as outlined in **Table 15**.

23 https://wasteinitiatives.com.au/products/waste-compactors/

24 https://cdn2.hubspot.net/hubfs/5089498/Orwak%20Brochures/Orwak%20Selection%20Guide_nz.pdf

Table 15 Dimensions and approximate footprint of bins

Dimension	Height (mm)	Depth (mm)	Width (mm)	Gross Floor Area (GFA) (m^2)
660 L Bin	1,400	1,260	800	1.01
1,100 L Bin	1,330	1,240	1,090	1.35
1.5 m^3	1,190	1,080	2,070	2.24
3 m^3	1,540	1,520	2,060	3.13

To allow for ready movement of bins into and out of the bin storage area, the bin storage area is to provide a floor area of at least 150% of the total minimum bin GFA. This can also act as a contingency in the event of spikes in waste generation. Additionally, in accordance with Council's DCP, an additional 0.2 m is to be permitted between the bins to allow for manoeuvrability. This has been considered in the calculation of the waste storage area for each of the buildings in the Project. The waste storage areas are shown in **Sections 6.4.1** and **6.4.2**.

The recommended storage areas do not include consideration for the storage of bulky and hazardous waste. For the additional storage space for bulky and hazardous waste, refer to **Section 6.4.3**.

6.4.1 MOD 3

The estimated number of bins required for weekly storage of operational waste and recycling generated by MOD 3 are in **Table 16** and are based on:

- The estimated quantities of operational waste and recycling as shown in **Table 12**
- Bin dimensions from the Council's DCP as shown in **Table 15**
- Garbage and recycling collection frequency of five times per week for warehouses 2A, 3A, 4B, 4E and 5A, and
- Garbage and recycling collection frequency of three times per week for all other warehouses.

The waste storage areas calculations in **Table 16** are only recommendations, based on preliminary master planning information, and should be updated for each building once detailed drawings are available. Building 2B is addressed in more detail in **Section 6.4.2**.

Table 16 Recommended number of bins and storage area for weekly operations for MOD 3

Location	Bins Required			Total Number of Bins	Recommended Storage Area (m²)
	General Waste	Paper and Cardboard Recycling	Comingled Recycling		
Precinct 1					
Warehouse 1A	1 x 35 m³ compactor	2 x paper and cardboard compactors	2 x plastic film compactors	5	External storage
Warehouse 1B1	1 x 4.5 m³ 1 x 240 L	2 x 3 m³ 1 x 240 L		5	25
Warehouse 1B2	1 x 4.5 m³ 1 x 240 L	2 x 3 m³ 1 x 240 L		5	25
Warehouse 1B3	1 x 3 m³ 1 x 240 L	1 x 4.5 m³ 1 x 240 L		4	20
Precinct 2					
Warehouse 2A	2 x 3 m³	2 x 3 m³	2 x 1.5 m³	6	30
Warehouse 2B	1 x 25 m³ compactor	1 x baler	1 x 1,100 L	3	35
Warehouse 2C and 2D	1 x 3 m³	2 x 1,100 L	1 x 1,100 L	4	15
Warehouse 2E	2 x 1,100 L	1 x 1,100 L	1 x 660 L	4	10
Precinct 3					
Warehouse 3A	1 x 3 m³	2 x 1,100 L	1 x 1,100 L	4	15
Warehouse 3B	2 x 1,100 L	1 x 1,100 L	1 x 1,100 L	4	10
Warehouse 3C	2 x 1,100 L	1 x 1,100 L	1 x 1,100 L	4	10
Warehouse 3D and 3E	1 x 3 m³	2 x 1,100 L	1 x 1.5 m³	4	15
Warehouse 3F and 3G	1 x 3 m³	2 x 1,100 L	1 x 1.5 m³	4	15
Precinct 4					
Warehouse 4A	2 x 3 m³	3 x 1,100 L	2 x 1,100 L	7	20
Warehouse 4B	1 x 3 m³	1 x 1.5 m³	1 x 1,100 L	3	15
Warehouse 4C	2 x 3 m³	3 x 1,100 L	2 x 1,100 L	7	20
Warehouse 4D	2 x 1,100 L	1 x 1,100 L	1 x 660 L	4	10
Warehouse 4E	2 x 3 m³	1 x 3 m³	2 x 1,100 L	5	20
Warehouse 4F	1 x 1.5 m³	1 x 1,100 L	1 x 660 L	3	10
Warehouse 4G	1 x 1,100 L	1 x 660 L	1 x 660 L	3	10
Precinct 5					
Warehouse 5A	2 x 3 m³	3 x 1.5 m³	2 x 1,100 L	7	25

6.4.2 Stage 2

The estimated number of bins required for weekly storage of operational waste and recycling generated by Stage 2 are shown in **Table 17** and are based on:

- The estimated quantities of compacted operational waste and recycling as shown in **Table 14**
- Bin dimensions from the Council's DCP as shown in **Table 15**
- Garbage and comingled recycling collection frequency of two times per week
- Paper and cardboard collection frequency of once per week
- General waste compactor capacity of 25 m^3
- Paper and cardboard bale capacity of 500 kg

To calculate the anticipated number of bales generated per week, the volume of paper and cardboard in cubic metres was converted to the weight of compacted paper and cardboard in tonnes. A density of 0.13 t/m^3 was applied and taken from the NSW Department of Environment, Climate Change and Water Disposal based survey of the commercial and industrial waste stream in Sydney[25]. The estimated number of bins required for weekly storage of operational waste and recycling generated by Stage 2 is shown in **Table 17.**

Table 17 Minimum number of bins and waste storage area for operational waste of Stage 2

Location	Bins Required			Recommended Storage Area (m^2)
	General Waste	Paper and Cardboard Recycling	Comingled Recycling	
Warehouse 2B	1 x 25 m^3 compactor	1 x baler	1 x 1,100 L	35

6.4.3 Bulky and Hazardous Waste Management

As outlined in the Penrith DCP, additional storage space for the bulky waste stream must be provided. This stream includes broken pallets, broken storage units, e-waste and other materials that cannot be disposed of in the general or recyclable waste stream.

Council's guidelines do not provide storage area dimensions for bulky waste. In the absence of dimensions provided by Council, SLR has adopted storage area dimensions for bulky waste presented in The City of Sydney's Guidelines for Waste Management in New Developments. These are applied as they are the most recent recommendations for bulky waste storage that have been provided in guidelines for new developments in NSW and are applicable to non-residential developments. The recommended space for storing bulky wastes should be at least:

- 4 m^2 for developments between 100 m^2 and 2,000 m^2, and
- An additional 4m^2 for developments over 2,000 m^2 and for every 20,000 m^2 of office space.

SLR recommends 8 m^2 to be allocated for bulky waste storage. Hence in addition to the recommended waste storage area noted in **Table 17**, the total waste storage area recommended for Stage 2 is identified in **Table 18**.

[25] https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/warrlocal/100005-waste-survey-append.pdf

Table 18 Total recommended storage area for operations at Stage 2

Location	Recommended Storage Area (m^2)		
	Waste and Recycling	Bulky waste	Total Storage Area
Warehouse 2B	35	8	43

Management may consider organising a skip on a monthly basis or as required to remove bulky waste items or engage a contractor to collect and transport these items for reuse, recycling or disposal at an EPA licensed facility.

The waste storage areas for Stage 2 are shown on the architectural drawing the 'Site Plan' labelled as 'Bin Enclosure' and 'Balers and Compactors'. The waste storage areas are highlighted in red in **Figure 5** and **Figure 6** below. The 'Site Plan' can be seen in the architectural drawings attached in **Appendix B**.

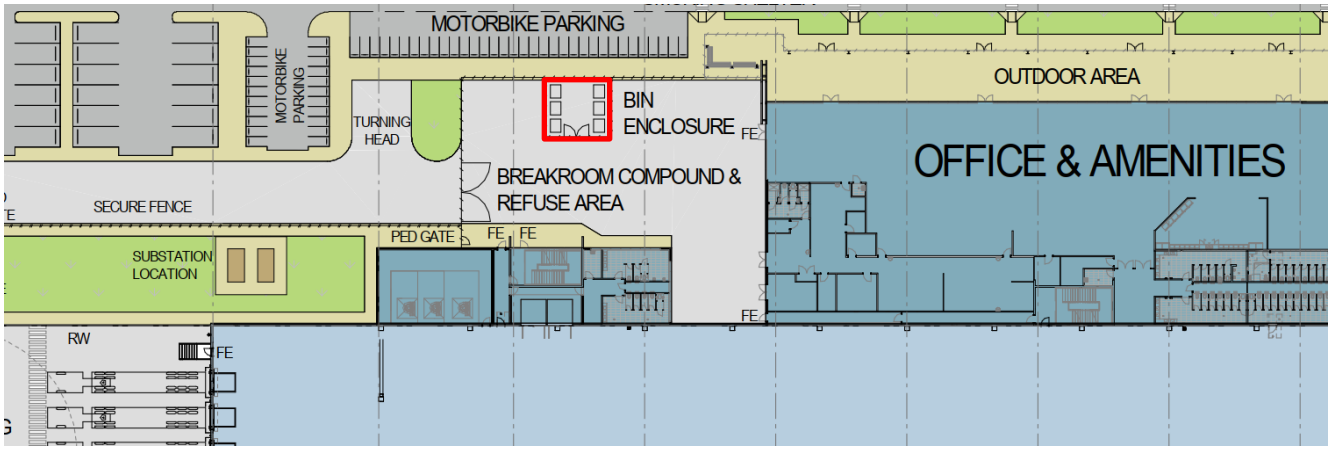


Figure 5 Refuse area location for Stage 2

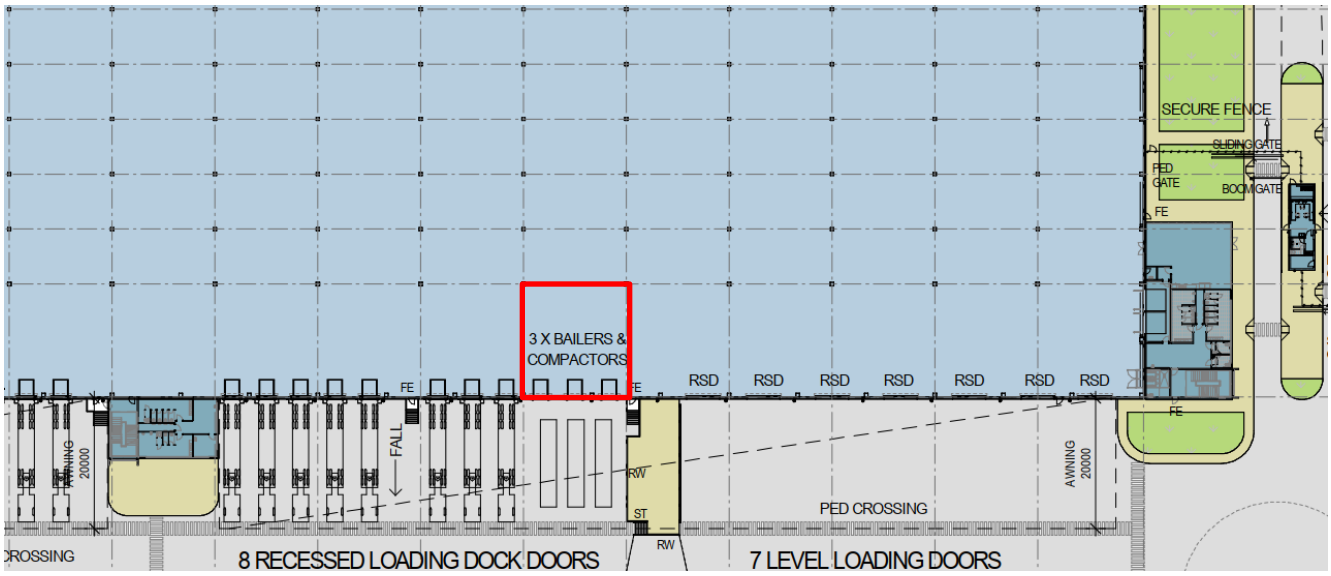


Figure 6 Balers and compactors location for Stage 2

In the unlikely event of hazardous waste generation, SLR also recommends using this space to separate and manage hazardous waste. In accordance with Council's DCP, hazardous waste management at the site must be placed in specialised containment bins and may require a licence from the EPA and approval from Council. If hazardous waste is identified for removal, Council and NSW EPA are to be consulted prior to undertaking any hazardous waste removal. Removal is to be undertaken by appropriately licensed specialised services. Based on communication with the Client[26], SLR understands a private contractor is to be engaged for the collection of hazardous waste to be undertaken as needed.

SLR recommends that waste audits be undertaken approximately one month into the operational phase of Stage 2 to quantify actual waste generation rates. The assessment of generated waste quantities will be influenced by management, employee and tenant attitudes to recycling and disposal, and the adequacy of signage and education provided for occupants.

6.4.4 Recycling Bale Management

It is important to note that bales of recyclable material are susceptible to degradation by exposure to the elements and vermin. Therefore, recycling bales should be stored indoors for no longer than two weeks until collection. An indoor bale storage area for the Project should:

- Be clean and well-maintained
- Be of sufficient size to store the required number of bales
- Be sufficiently lighted with vermin control measures
- Have appropriate security measures to prevent theft of bales, and
- Be equipped with a high-volume sprinkler system to retard the spread of fire.

The bales themselves should be stored with the following considerations:

[26] Email from Stephanie Partridge – Goodman, "RE: MOD 3 & Stage 2 DA co-ordination meeting - Oakdale West", dated 1 November 2019.

- Bales should be placed on storage pallets, not directly on the floor or ground
- Bales should be stacked and secured in accordance with relevant SafeWork Australia Codes of Practice, and any other relevant legislation or guidance to prevent bales from presenting a risk of harm to workers
- Bales should not be stacked too close to sprinkler systems to avoid compromising the effectiveness of the fire suppression system, and
- Although not generally recommended, if bales are stored outdoors, they should be covered with plastic sheeting, or similar, as protection from exposure to the elements.

In accordance with better practice management and to reduce packaging waste generation, it is recommended that packaging materials are returned to the suppliers through the services of the supplier delivery trucks, allowing the reduction of waste further along the supply chain.

6.5 Waste Storage Room Location

In accordance with Council's DCP, the design for the waste storage areas of the Project are to take into consideration better practice waste management and recommendations from Council's DCP. In accordance with better practice waste management and Council's DCP, the waste storage area should be located so that:

- It is located away from primary street frontages
- It is near any on-site loading bays
- It is convenient, safe, functional and directly accessible to users in each tenancy and servicing collection staff, but inaccessible to the public
- It avoids pedestrian or vehicular traffic hazards likely to be caused by waste collection and storage,
- It has 1.8 m zone of unobstructed clearance between the waste storage area and the entrance.

As per Council's DCP, the nominated collection areas for each warehouse tenancy is to be clearly nominated on site plans accompanying development applications.

6.6 Waste Storage Area Features

In accordance with better practice waste management and Council's DCP, the Project's waste storage areas should have the following features:

- Blend in to the design of the wider development and the surrounding streetscape
- Be well lit and well-ventilated
- Fully enclosed and walled
- Adequate vermin prevention measures
- Reduce potential noise and odour impacts
- Enhance safety for the public
- Be connected to a water outlet for washing purposes
- Equipped with a hot and cold tap-based water supply centralised mixing valve
- Floor graded to a central drainage point which is connected to the sewer

- Have water discharge from washing flow to a sewer approved by the relevant authority
- Waterproofed and sealed non-slip floor constructed in accordance with the Building Code of Australia.
- Waste equipment is protected from theft and vandalism
- Be fully enclosed, walled and not permit through access to other on-site waste infrastructure
- Have a minimum 2.7 m unobstructed internal room height in accordance with the Building Code of Australia
- Adequate lighting and natural or mechanical ventilation in accordance with the Building Code of Australia
- Provide suitable dual door access with a minimum width of 1.8 m and a minimum 1.8 m unobstructed access corridor for the service of bins
- Provide administrative management, including signage to ensure appropriate use
- Be screened from public areas to reduce the impacts of noise, odour and visual amenity, and
- Flexible in design to allow for future changes in operation, tenancies and uses.

6.7 Waste Servicing

In accordance with Council's DCP, for buildings three storeys or greater, interim waste and recyclables storage units are required on each level. The units are to be collected at the end of each day and transferred by cleaners to the central waste storage room.

Based on communication with the Client, SLR understands that waste collections will be undertaken through a private contractor[27]. The following general waste servicing access requirements should be implemented:

- Waste will be removed regularly.
- Arrangements should be in place so that the waste and recycling storage rooms are not accessible to the general public.

In accordance with Council's DCP, the following is required for the access provisions for of waste collection vehicles:

- Collection vehicles must be able to enter and exit the collection area in a forward direction
- Drawings must show the site's entry point, vehicle's route of travel and manoeuvring
- Swept path models must illustrate how a standard waste collection vehicle will enter, service and exit the site
- A 0.5 m unobstructed clearance is required from all obstructions for the vehicle's ingress and egress manoeuvres
- For rear loaded vehicles, an additional 2 m unobstructed loading zone is required behind the vehicle for the loading of 1,100 L bins. Additionally, a 0.5 m side clearance is required on either side of the vehicle for driver movements and accessibility

[27] Email from Stephanie Partridge – Goodman, "RE: MOD 3 & Stage 2 DA co-ordination meeting - Oakdale West", dated 1 November 2019.

- Unobstructed access, adequate driveways and ramps of sufficient strength to support waste collection
- A structural engineer's report is to accompany the DA and confirm that all infrastructure used for vehicle ingress and egress movements can support the waste collection vehicle's weight. Council's DCP consists of dimensions for waste collection vehicles.

SLR recommends that the design of the Project is reviewed by a traffic specialist and that the drawings are updated to be in accordance with Council's servicing requirements listed above. This WMP should be updated to reflect those updates.

Hazardous waste produced at the site will be collected by appropriately licensed specialised services.

Once a private waste contractor is engaged, a valid waste and recycling collection contract is recommended to demonstrate disposal at a waste facility lawfully able to accept it. Written evidence of the valid contract should be kept on-site.

6.8 Waste Avoidance, Reuse and Recycling Measures

6.8.1 Waste Avoidance

Waste avoidance measures include:

- Participating in take-back services to suppliers to reduce waste further along the supply chain
- Avoiding printing where possible
- Review of packaging design to reduce waste but maintain 'fit for purpose'
- Providing ceramic cups, mugs, crockery and cutlery rather than disposable items
- Purchasing consumables in bulk to avoid unnecessary packaging
- 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.

6.8.2 Re-use

Possible re-use opportunities include establishing systems with in-house and supply chain stakeholders to transport products in re-useable packaging where possible.

6.8.3 Recycling

Recycling opportunities include:

- Collecting and recycling e-wastes
- Flatten or bale cardboard to reduce number of bins required
- Paper recycling trays provided in office areas for scrap paper collection and recycling
- Collecting printer toners and ink cartridges in allocated bins for appropriate contractor recycling, and
- Development of 'buy recycled' purchasing policy.

6.9 Communication Strategies

Waste management initiatives and management measures should be clearly communicated to building managers, owners, employees, customers and cleaners. Benefits of providing this communication include:

- improved satisfaction with services
- increased ability and willingness to participate in recycling
- improved amenity and safety
- improved knowledge and awareness through standardisation of services
- increased awareness or achievement of environmental goals and targets
- reduced contamination of recyclables stream
- increased recovery of recyclables and organics material, if implemented, and
- greater contribution to targets for waste reduction and resource recovery, the environment and heritage conservation.

To realise the above benefits, the following communication strategies should be considered:

- Use consistent signage and colour coding throughout the Project
- Ensure all staff are trained in correct waste separation and management procedures
- Provide directional signage to show location of and routes to waste storage area
- General waste and co-mingled recycling bins should be clearly labelled and colour-coded to ensure no cross contamination, where applicable
- Employees and cleaners should adhere to the WMP for compliance, in consultation with management, and
- Repair signs and labels promptly to avoid breakdown of communications.

6.10 Signage

As outlined in the Penrith DCP, the waste storage and collection areas should be provided with appropriate signage. These signs should clearly identify waste management procedures and provisions to contractors, tenants and visitors should be distributed around the Project.

Signs which clearly identify waste management procedures and provisions to staff and visitors should be distributed around the Project. Key signage considerations are:

- Clear and correct labelling on all waste and recycling bins, indicating the correct type or types of waste that can be placed into a given bin, as shown in **Figure 7**
- Signposts and directions to location of waste storage areas
- Clear signage in all waste storage areas to instruct users how to correctly separate waste and recycling
- Maintaining a consistent style colour scheme and system for signs throughout the Project, and
- Emergency contact information for reporting issues associated with waste or recycling management.

Colour-coded and labelled bin lids are necessary for identifying bins. All signage should conform to the relevant Australian Standard and use labels approved by the NSW EPA[28]. The design and use of safety signs for waste rooms and enclosures should comply with Australian Standard AS 1319 Safety Signs for the Occupational Environment and clearly describes the types of materials designated for each bin.

Figure 7 Example of bin labels for operational waste

6.11 Monitoring and Reporting

Monitoring is recommended to ensure waste and recycling management arrangements and provisions for the Project are functional, practical and are maintained to the standard outlined in this plan, at a minimum.

Visual assessments of bins and bin storage areas should be conducted by the building manager, at minimum:

- Weekly, in the first two months of operation to ensure the waste management system is sufficient for the operation, and
- Every six months, to ensure waste is being managed to the standards outlined in this document.

In addition, audits are to be conducted on a half-yearly basis to ensure WMP provisions are maintained.

Quantities of waste and recycling associated with disposal of waste and recycling, including dockets, receipts and other physical records should be recorded by the Building Manager. This is to allow reviews of the waste management arrangements and provisions at the site over time. Records of waste disposal should also be available to regulatory authorities such as the NSW Environmental Protection Authority and SafeWork NSW, upon request.

Any deficiencies identified in the waste management system, including, but not limited to, unexpected waste quantities, is to be rectified by the Building Manager as soon as it is practical. Where audits show that recycling is not carried out effectively, management should carry out additional staff training, signage re-examination and reviews of the waste management system where the audit or other reviewing body has deemed necessary. If this waste management plan no longer sufficiently meets the needs of the Project, review and updates to maintain suitability must be undertaken.

[28] NSW EPA waste signage and label designs http://www.epa.nsw.gov.au/wastetools/signs-posters-symbols.htm

6.12 Roles and Responsibilities

It is the responsibility of the Building Manager, or equivalent role, to implement this WMP and a responsibility of all warehouse tenants and staff to follow the waste management procedures set out by the WMP. SLR recommends that all subcontractors enlisted by the Client are to have roles and responsibilities identified and the Project's waste management system clearly explained. A summary of recommended roles and responsibilities are provided in **Table 19**.

Table 19 Operational waste management responsibility allocation

Responsible Person	General Tasks
Management	Ensure the WMP is implemented throughout the life of the operation.
	Update the WMP on a regular basis (e.g. annually) to ensure the Plan remains applicable.
	Undertake liaison and management of contracted waste collections.
	Organise internal waste audits on a regular basis.
	Manage any complaints and non-compliances reported through waste audits etc.
	Perform inspections of all waste storage areas and waste management equipment on a regular basis.
	Organise cleaning and maintenance requirements for waste management equipment.
	Monitor bins to ensure no overfilling occurs.
	Ensure effective signage, communication and education is provided to alert visitors, employees and cleaners about the provisions of this WMP and waste management equipment use requirements.
	Monitor and maintain signage to ensure it remains clean, clear and applicable.
	Ensure waste and recycling storage rooms are kept tidy.
	Ensure that regular cleaning and daily transfer of bins is being undertaken by the cleaners
	Ultimately responsible for the management of all waste management equipment, cleaning requirements, waste transfer and collection arrangements.
Cleaners and Staff	Removal of general waste, recyclables, cardboard waste and hazardous waste from floor areas for transfer to centralised waste and recycling collection rooms daily or as required.
	Cleaning of all bins and waste and recycling rooms on a weekly basis or as required.
	Compliance with the provisions of this WMP.
Gardening Contractor, as applicable	Removal of all garden organics waste generated during gardening maintenance activities for recycling at an off-site location or reuse as organic mulch on landscaped areas.

APPENDIX A

Modification 3 Architectural Drawings

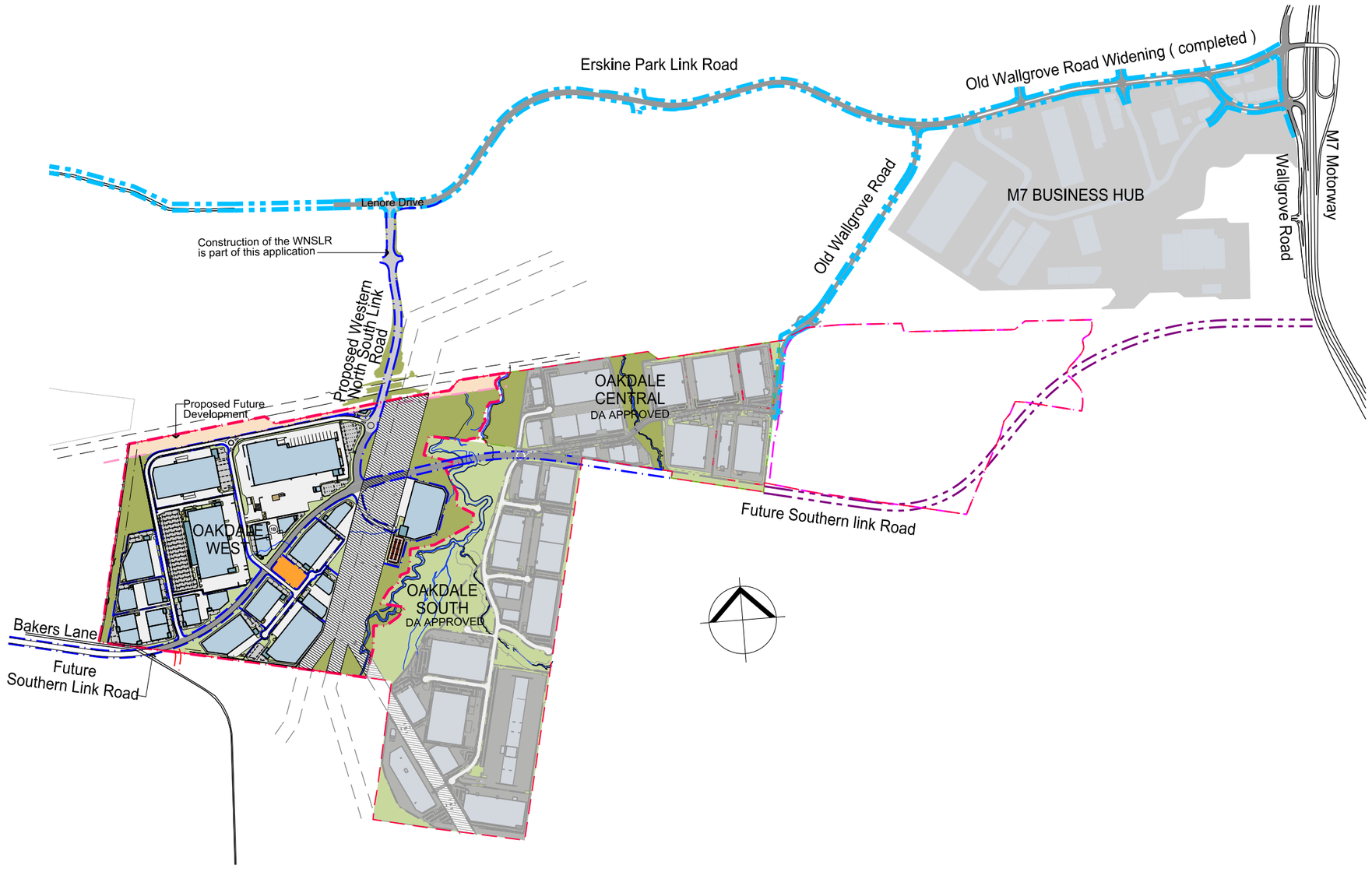
PROPOSED INDUSTRIAL FACILITIES

OAKDALE WEST
Estate Road HORSLEY PARK, NSW 2175

Drawing List

Masterplans

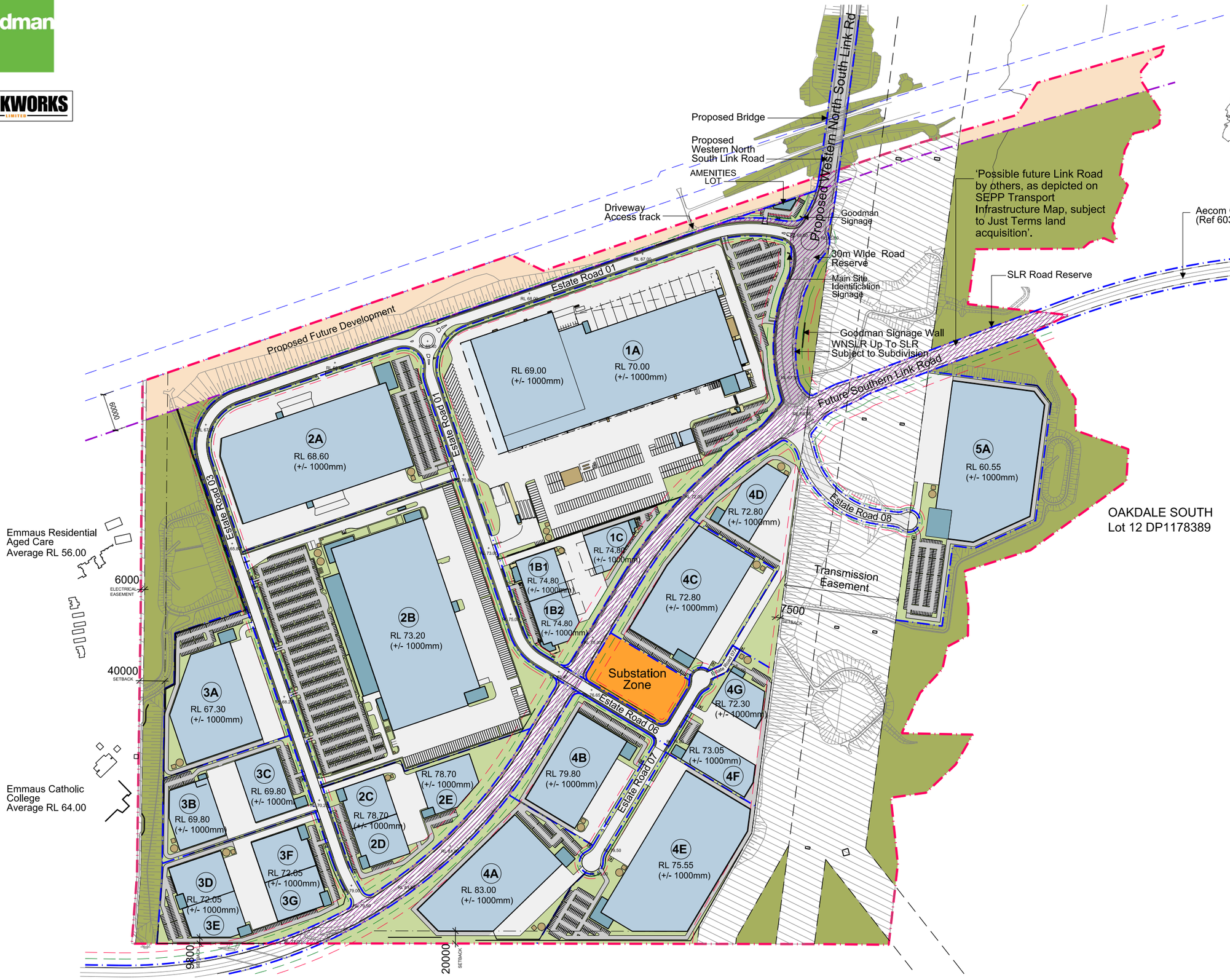
OAK MP01	Cover Sheet & Location
OAK MP02	Masterplan
OAK MP03	Not Used
OAK MP04	Not Used
OAK MP05	Not Used
OAK MP06	Precinct Plan
OAK MP07	Indicative Ultimate Lot Layout
OAK MP08	Site Analysis Plan
OAK MP09	Existing Zoning
OAK MP10	Not Used
OAK MP11	Not Used
OAK MP12	Not Used
OAK MP13	Fire Protection Plan
OAK MP14	Biodiversity Management Plan



SBA ARCHITECTS	Oakdale West Estate - SSD 7348 MOD 3	Cover Sheet / Location Plan	Not To Scale	OAK MP 01 (F)
	Kemps Creek		09 Jan 2020	Job No 19262

Goodman

BRICKWORKS LIMITED



Legend

- Site Boundary
- Lot Boundary
- 3.75m Landscape Setback
- 7.50m Building Setback

Site Area Schedule

Total Site Area	**154.12 ha**
Less:	
Non Developable Land	21.08 ha
Easements	22.45 ha
Regional Roads	6.74 ha
Services Lot	1.26 ha
Estate Roads	7.64 ha
E2 Zone non developable	1.43 ha
	60.60 ha
Development Areas	
Precinct 1	21.92 ha
Precinct 2	26.83 ha
Precinct 3	11.15 ha
Precinct 4	22.39 ha
Precinct 5	6.02 ha
Proposed Future Development	4.82 ha
Amenities Lot	0.26 ha
Total Developable	**93.39 ha**
Precint 1 GLA	89,680 sqm
Precint 2 GLA	259,886 sqm
Precint 3 GLA	57,819 sqm
Precint 4 GLA	113,693 sqm
Precint 5 GLA	35,640 sqm
Amenities Lot GLA	345 sqm
Total GLA	**557,063 sqm**
Precint 1 GFA	122,082 sqm
Precint 2 GFA	266,186 sqm
Precint 3 GFA	57,819 sqm
Precint 4 GFA	113,693 sqm
Precint 5 GFA	35,640 sqm
Amenities Lot GFA	345 sqm
Total GFA	**595,765 sqm**
Total Warehouse	529,589 sqm
Total Office	23,126 sqm
Others (for Site 1A)	4,349 sqm
Mezzanines (for Site 1A & 2B)	38,702 sqm
Total GFA	**595,765 sqm**

SBA ARCHITECTS

Oakdale West Estate - SSD 7348 MOD 3

Kemps Creek

Estate Masterplan

0 60 300

1:3000 @ A1
1:6000 @ A3

09 Jan 2020

OAK MP 02 (E)

Job No 19262

Goodman

BRICKWORKS LIMITED

Precinct 1

Precinct 2

Precinct 3

Precinct 4

Precinct 5

Substation Zone Lot 103

Precinct Area Schedule

Precinct 1	28.95 ha
Net Developable area	21.92 ha
Precinct 2	32.00 ha
Net Developable area	26.83 ha
Precinct 3	17.56 ha
Net Developable area	11.15 ha
Precinct 4	23.75 ha
Net Developable area	22.39 ha
Precinct 5	13.51 ha
Net Developable area	6.02 ha

SBA ARCHITECTS

Oakdale West Estate - SSD 7348 MOD 3

Kemps Creek

Precinct Plan

0 60 300

1:3000 @ A1
1:6000 @ A3

09 Jan 2020

OAK MP 06 (E)

Job No 19262

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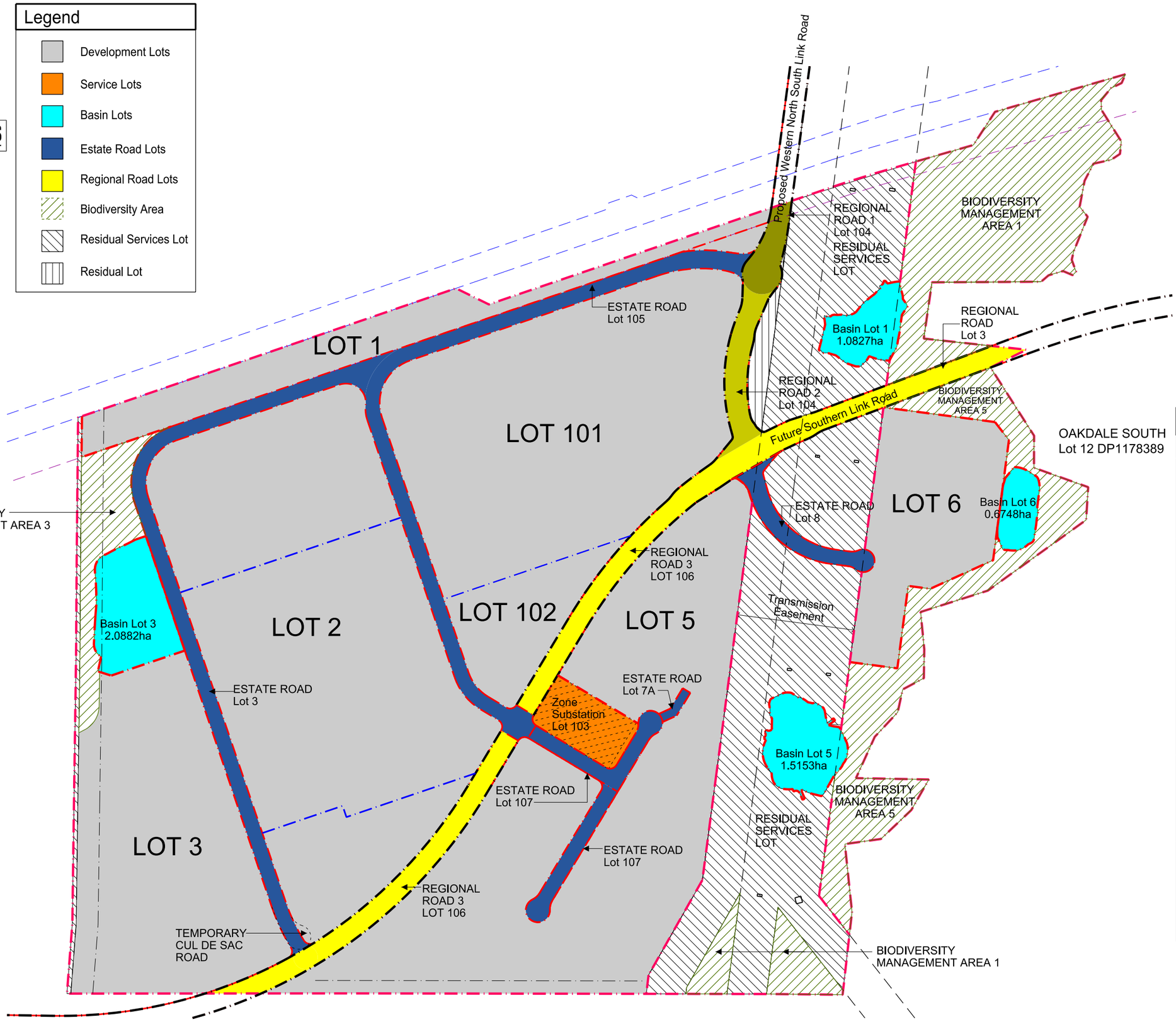
Legend

- Development Lots
- Service Lots
- Basin Lots
- Estate Road Lots
- Regional Road Lots
- Biodiversity Area
- Residual Services Lot
- Residual Lot



Lot 1 DP120679		Sub Total
Total Land Area	WEST	154.12 ha
Biodiversity Lot 1	8.0710 ha	
Biodiversity Lot 2	Not Used	
Biodiversity Lot 3	2.1208 ha	
Biodiversity Lot 4	Not Used	
Biodiversity Lot 5	7.2420 ha	17.4338 ha
Regional Road 1 Lot 104	.6057 ha	
Regional Road 2 Lot 104	.915 ha	
Regional Road 3 Lot 106	5.0791 ha	6.5998 ha
Services Lot 103	1.2614ha	1.2614 ha
Residiual Lot	.5918 ha	.5918 ha
Residual Services Lot	20.0564 ha	20.0564 ha
Estate Road Lot 105	2.8247 ha	
Estate Road Lot 2	Deleted	
Estate Road Lot 3	2.8491 ha	
Estate Road Lot 4	Deleted	
Estate Road Lot 5	Deleted	
Estate Road Lot 107	1.3473 ha	
Estate Road Lot 7A	.0845 ha	
Estate Road Lot 8	.747 ha	7.8526 ha
Basin Lot 1	1.0828 ha	
Basin Lot 2	Not Used	
Basin Lot 3	2.0882 ha	
Basin Lot 4	Not Used	
Basin Lot 5	1.5153 ha	
Basin Lot 6	0.6748 ha	5.3611 ha
Development Lot 101 & 102	21.9242 ha	
Development Lot 1	5.0751 ha	
Development Lot 2	26.8293 ha	
Development Lot 3	12.7244 ha	
Development Lot 4	Deleted	
Development Lot 5	22.3902 ha	
Development Lot 6	6.0196 ha	94.9628 ha

*All areas subject to survey.

SBA ARCHITECTS

Oakdale West Estate - SSD 7348 MOD 3

Kemps Creek

Indicative Ultimate Lot Layout

1:3000 @ A1
1:6000 @ A3

0 60 300

10 Dec 2019

OAK MP 07 (C)

Job No 19262

APPENDIX B

Stage 2 Architectural Drawings

Proposed Building 2B

OAKDALE WEST ESTATE, KEMPS CREEK, NSW

DRAWING LIST

DA000	COVERPAGE
DA001	WAREHOUSE 3D VIEWS
DA002	OFFICE 3D VIEWS
DA100	MASTERPLAN
DA101	SITE PLAN
DA102	SIGNAGE PLAN
DA200	GF PLAN
DA201	LEVEL 1 PLAN
DA202	LEVEL 2 PLAN
DA203	LEVEL 3 PLAN
DA204	ROOF PLAN
DA210	MAIN OFFICE PLANS
DA211	OFFICE ELEVATIONS
DA212	TRUCKERS LOUNGE
DA213	BREAKOUT AREA PLANS
DA214	GATEHOUSE PLANS
DA300	OVERALL ELEVATIONS
DA400	SECTIONS
DA410	TYPICAL WALL SECTIONS

FOR APPROVAL

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#	DESCRIPTION	DATE
D	REVISED DA ISSUE	10/01/2020
C	REVISED DA ISSUE	11/12/2019
B	REVISED DA ISSUE	29/11/2019
A	DA ISSUE	25/11/2019

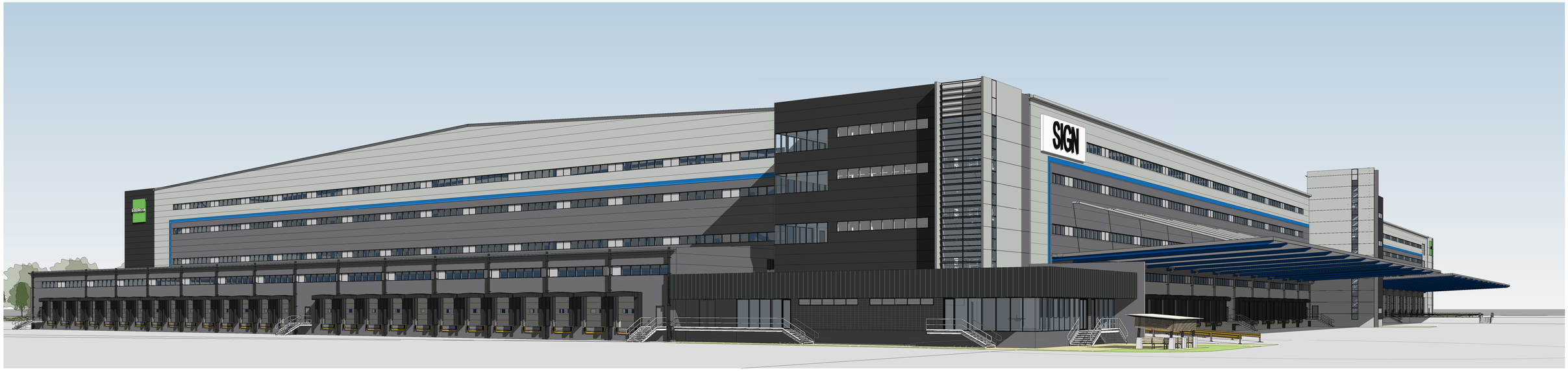
Project Waratah

Oakdale West Estate, Kemps Creek, NSW

TITLE: COVERPAGE

DATE	SCALE	PROJECT NO.	DWG NO.	REVISION
10/01/2020		19217	DA000	D

1 NORTH - WEST VIEW FROM ESTATE ROAD 03



2 SOUTH - EAST VIEW FROM FUTURE LINK ROAD

INDICATIVE EXTERNAL FINISHES LEGEND

FOR APPROVAL

- **AL-1** P.C. ALU. FRAME BLACK
- **AL-2** ALU. LOUVRES COLORBOND - MONUMENT
- **BLK-1** CONCRETE BLOCK CHARCOAL - STACK BOND
- **GL-1** GLAZING DARK GREY TINT
- **GL-2** SPANDREL GLAZING DARK GREY (OPAQUE)
- **GL-3** TRANSLUSCENT GLAZING LIGHT GREY
- **MBC-1** METAL BARGE CAPPING COLORBOND BASALT
- **MDR-1** METAL DECK ROOFING TYPE 1
- **MDR-2** METAL DECK ROOFING TYPE 2
- **IWP-1** INSULATED WALL PANEL COLORBOND - BASALT
- **IWP-2** INSULATED WALL PANEL COLORBOND - SHALE GREY
- **IWP-3** INSULATED WALL PANEL BLUE FINISH
- **IWP-4** INSULATED WALL PANEL COLORBOND - MONUMENT
- **MWC-1** METAL WALL CLADDING RAISED SEAM PANELS COLORBOND - MONUMENT
- **MWC-2** FC WALL CLADDING BLUE FINISH
- **MWC-3** LYSAGHT SPANDEK COLORBOND - BASALT
- **MWC-4** METAL WALL CLADDING RAISED SEAM PANELS COLORBOND - BASALT
- **PCP-1** PRECAST CONCRETE PANELS OFF FORM CONCRETE
- **PCP-PF-2** PRECAST CONCRETE PANELS PAINT FINISH - SHALE GREY
- **PCP-PF-3** PRECAST CONCRETE PANELS PAINT FINISH - BASALT
- **PF-1** PAINT FINISH - 1 MONUMENT
- **PF-2** PAINT FINISH - 2 SHALE GREY
- **PF-3** PAINT FINISH - 3 COLORBOND - BASALT
- **TRS-1** TRANSLUSCENT ROOF SHEETING - OPAL

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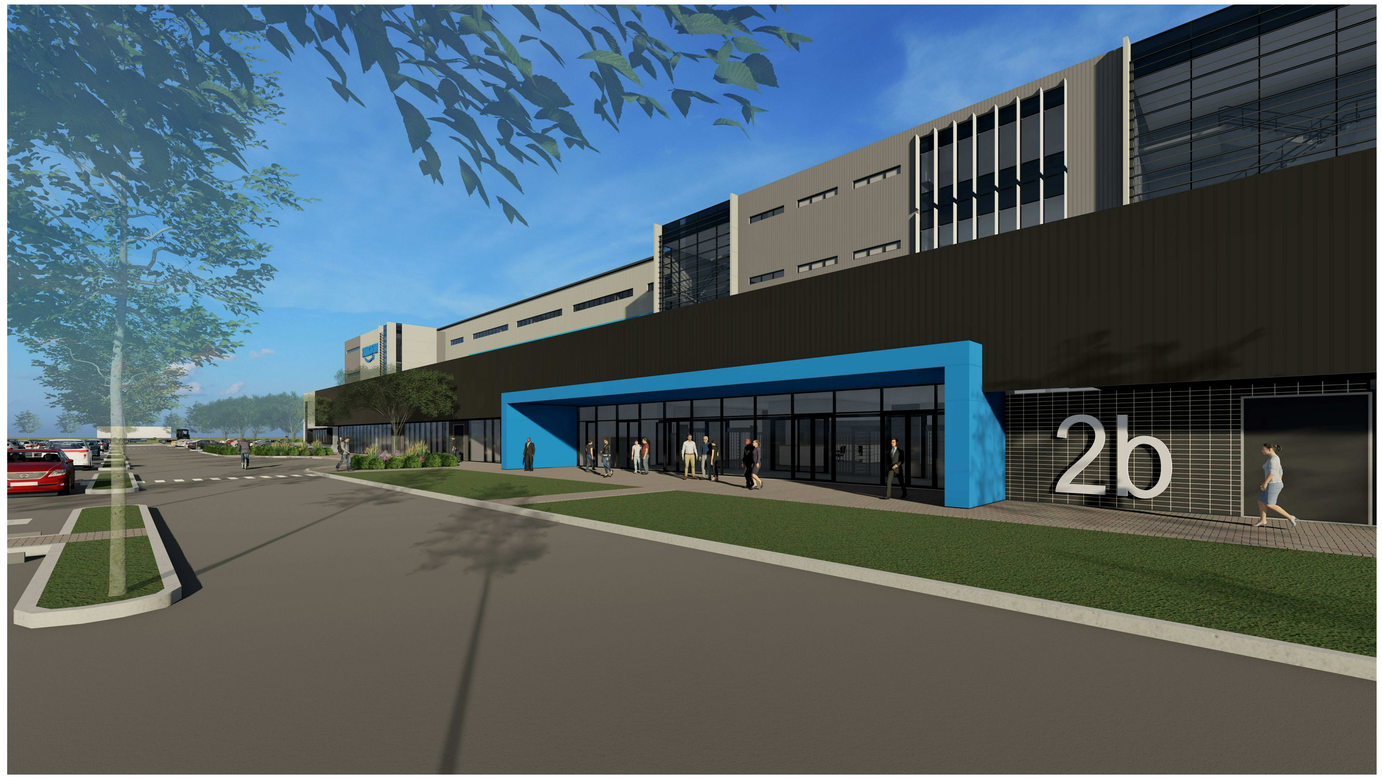
B	REVISED DA ISSUE	29/11/2019
A	DA ISSUE	25/11/2019

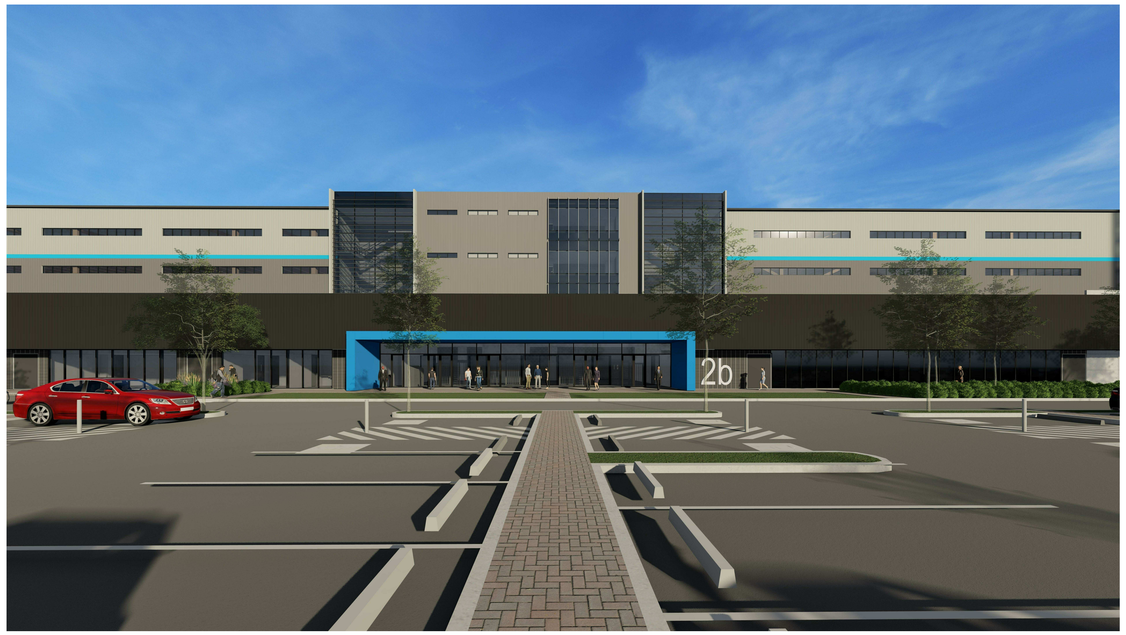
Project Waratah

Oakdale West Estate, Kemps Creek, NSW

TITLE
WAREHOUSE 3D VIEWS

DATE	SCALE	PROJECT NO.	DWG NO.	REVISION
10/01/2020		19217	DA001	D





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B	REVISED DA ISSUE	29/11/2019
A	DA ISSUE	25/11/2019

Project Waratah

Oakdale West Estate, Kemps Creek, NSW

TITLE
OFFICE 3D VIEWS

DATE	SCALE	PROJECT NO.	DWG NO.	REVISION
10/01/2020		19217	DA002	D

Goodman

Proposed Future Development

Estate Road 01

Estate Road 03

Proposed Western

APPROVED UNDER SSD 7398

Future Southern Link Road

ESTATE ROAD 01

Estate Road 03

SITE AREA
14.92 HA

Transmission
Easement

Zone
Substation

DEVELOPMENT SCHEDULE

SITE AREA	149,266 sqm
FLOOR AREAS	M²
GROUND FLOOR - OFFICE AND AMENITIES	5,492
GROUND FLOOR - PROCESSING	50,873
GROUND FLOOR - MEZZANINE	6,300
LEVEL 1 - PROCESSING	48,101
LEVEL 2 - PROCESSING	48,101
LEVEL 3 - PROCESSING	48,101
TOTAL GFA	206,968
TOTAL GLA	200,668
SITE COVER	34.2 %
HARDSTAND PAVEMENT	40,626 sqm
LIGHT DUTY PAVEMENT	30,197 sqm
TRUCK PARKING	134
SHUNTER PARKING	3
CAR PARKING SPACES	1,127
MOTORCYCLE PARKING SPACES	54

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C	REVISED DA ISSUE	10/01/2020
B	REVISED DA ISSUE	11/12/2019
A	REVISED DA ISSUE	29/11/2019

Project Waratah

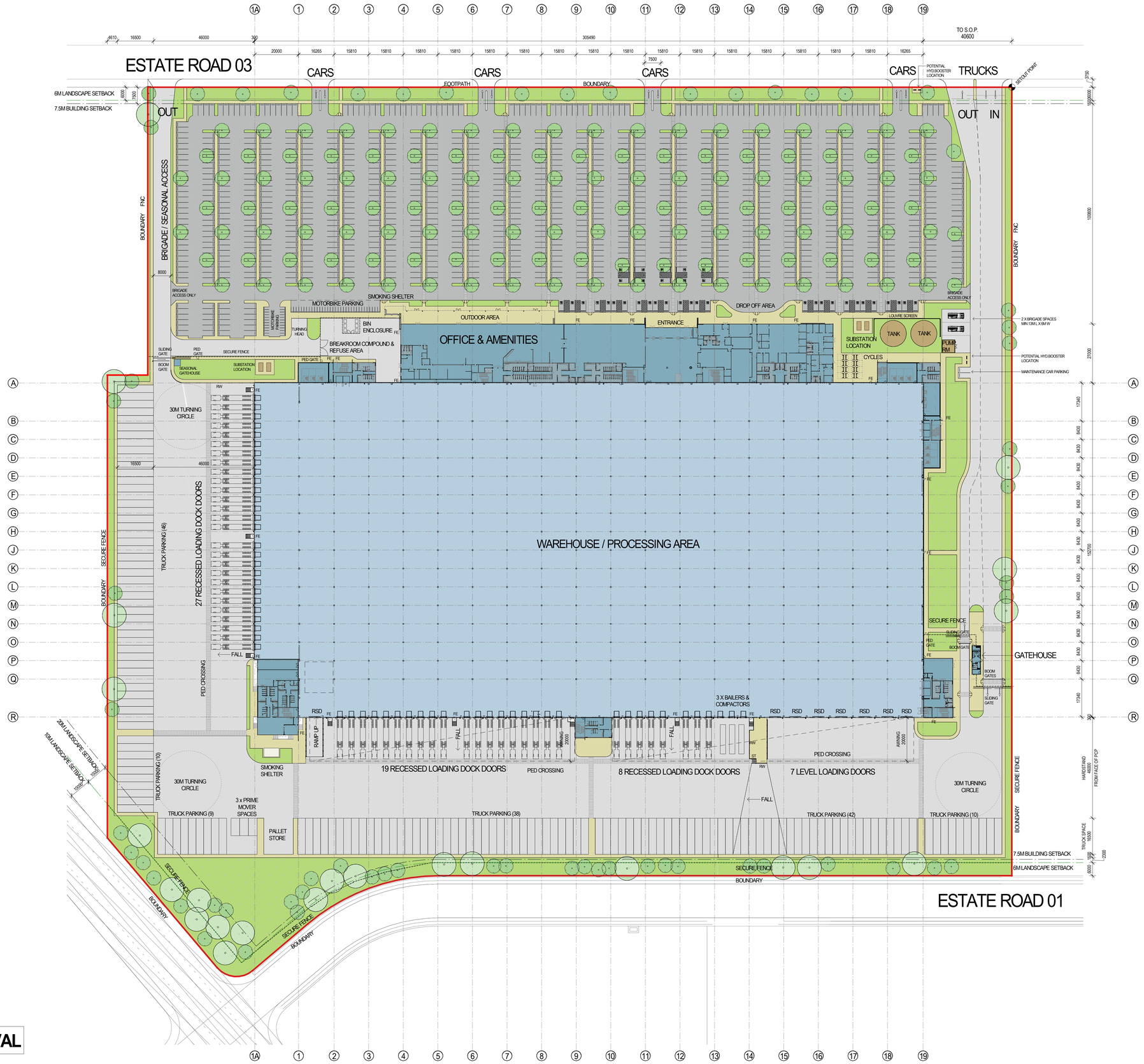
Oakdale West Estate, Kemps Creek, NSW

NORTH

TITLE
MASTERPLAN

DATE	SCALE	PROJECT NO.	DWG NO.	REVISION
10/01/2020	1 : 2000 @ B1	19217	DA100	C

Goodman



DEVELOPMENT SCHEDULE

SITE AREA	149,266 sqm
FLOOR AREAS	M²
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GROUND FLOOR - PROCESSING	50,873
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LEVEL 3 - PROCESSING	48,101
TOTAL GFA	206,968
TOTAL GLA	200,668
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HARDSTAND PAVEMENT	40,626 sqm
LIGHT DUTY PAVEMENT	30,197 sqm
TRUCK PARKING	135
SHUNTER PARKING	3
DOUBLE SWAP SPACES	20
CAR PARKING SPACES	1,127
MOTORCYCLE PARKING SPACES	54

LEGEND:

- FNC-1, FENCE TYPE-1
- FNC-2, FENCE TYPE 2
- SITE BOUNDARY
- 6M LANDSCAPE SETBACK (MIN 3.75M)
- 7.5M BUILDING SETBACK

FOR APPROVAL

G	REVISED DA ISSUE	10/01/2020
F	FOR COMMENT	09/01/2020
E	FOR COMMENT	11/12/2019
D	REVISED DA ISSUE	11/12/2019
C	FOR COMMENT	09/12/2019
B	REVISED DA ISSUE	29/11/2019
A	DA ISSUE	25/11/2019
#	DESCRIPTION	DATE

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Phone: 02 9929 9988 Web: www.sbaarch.com.au

Project Waratah

Oakdale West Estate, Kemps Creek, NSW

NORTH

TITLE
SITE PLAN

DATE	SCALE	PROJECT NO.	DWG NO.	REVISION
10/01/2020	1 : 750 @ B1	19217	DA101	G

APPENDIX C

Council Waste Management Plan

WASTE MANAGEMENT PLAN
DEMOLITION, CONSTRUCTION AND USE OF PREMISES

If you need more space to give details, you are welcome to attach extra pages to this form.

PLEASE COMPLETE ALL PARTS OF THIS FORM THAT ARE RELEVANT TO YOUR DEVELOPMENT APPLICATION (DA).

IF YOU NEED MORE SPACE TO GIVE DETAILS, YOU ARE WELCOME TO ATTACH EXTRA PAGES TO THIS FORM.

Council will assess the information you provide on this form along with your attached plans. We will take into account the types and volumes of waste that could be produced as a result of your proposed development, and how you are planning to:

- minimise the amount of waste produced
- maximise re-use and recycling
- store, transport and dispose of waste safely and thoughtfully.

APPLICANT DETAILS

First name

Surname

Postal Address

Street No.

Street name

Suburb

Post code

Contact phone number

Email address

DETAILS OF YOUR PROPOSED DEVELOPMENT

Street No.

Street name

Suburb

Post code

What buildings and other structures are currently on the site?

Briefly describe your proposed development

Applicant Signature

Date

PENRITH CITY COUNCIL

SECTION 1: DEMOLITION

*Please include details on the plans you submit with this form, for example location of on-site storage areas/ containers, vehicle access point/s.

Materials		Destination		
		Re-use and recycling		Disposal
Material	Estimated volume (m^2 or m^3)	ON-SITE* Specify proposed re-use or on-site recycling	OFF-SITE Specify contractor and recycling facility	Specify contractor and landfill site
Excavation (eg soil, rock)				
Green waste				
Bricks				
Concrete				
Timber (Please specify type/s)				
Plasterboard				
Metals (Please specify type/s)				
Other				

SECTION 2: CONSTRUCTION

*Please include details on the plans you submit with this form, for example location of on-site storage areas/ containers, vehicle access point/s.

Materials		Destination		
		Re-use and recycling		Disposal
Material	Estimated volume (m^2 or m^3)	ON-SITE* Specify proposed re-use or on-site recycling	OFF-SITE Specify contractor and recycling facility	Specify contractor and landfill site
Excavation (eg soil, rock)				
Green waste				
Bricks				
Concrete				
Timber (Please specify type/s)				
Plasterboard				
Metals (Please specify type/s)				
Other				

SECTION 3: WASTE FROM ON-GOING USE OF PREMISES

If relevant, please list the type/s of waste that may be generated by on-going use of the premises after the development is finished.	Expected volume (average per week)

SECTION 4: ON-GOING MANAGEMENT OF PREMISES

If relevant, please give details of how you intend to manage waste on-site after the development is finished, for example through lease conditions for tenants or an on-site caretaker/manager. Describe any proposed on-site storage and treatment facilities. Please attach plans showing the location of waste storage and collection areas, and access routes for tenants and collection vehicles.

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APPENDIX P

Unexpected Finds Protocol – Archaeological Items

artefact

Unexpected Finds Protocol – Archaeological Items

Project: Oakdale West Estate	**Date:** Wednesday, 13 November 2019
Client: Goodman Group	**Author:** Sandra Wallace (Senior Heritage Consultant)

Project Background

On 13 September 2019 consent for the proposed Stage 1 works was granted by the Secretary of the NSW Department of Planning and Environment. The development consent is for a State Significance Development (SSD), reference number is 15_7348, referred to as SSD 15_7348.

Artefact Heritage has prepared this Unexpected Finds Protocol (UFP) to satisfy the conditions of approval for the project, as below:

Table 1: Table of conditions

Archaeology			
Condition No.		Condition	Action
D106. If any item or object of Aboriginal heritage significance is identified on Site:	(a)	All work in the immediate vicinity of the suspected Aboriginal item or object must cease immediately;	Refer to Unexpected Finds Protocol
	(b)	A 10 m wide buffer area around the suspected item of object must be cordoned off; and	
	(c)	The Biodiversity and Conservation Division of the Department must be contacted immediately.	
D107. Work in the immediate vicinity of the Aboriginal item or object may only recommence in accordance with the provisions of Part 6 of the National Parks and Wildlife Act 1974.			Refer to the Office of Environment and Heritage 2011 *Guide to Investigating, assessing and reporting on Aboriginal cultural heritage in NSW: Part 6 National Parks and Wildlife Act 1974*

D108. If any archaeological relics are uncovered during construction of Stage 1, then all works in the immediate vicinity of the relic must cease immediately. Unexpected finds must be evaluated and recorded in accordance the requirements of Department of Premier and Cabinet, Heritage (former NSW OEH Heritage Division).	The significance of unexpected finds will be assessed against the seven heritage criteria as outlined in the NSW Heritage Manual, including historical, associative, aesthetic or technical, social, research potential, rarity, and representativeness criterion. The aim of assessing significance is to identify if an unexpected find is of local or state significance. The assessment will guide recommendations for further management, approvals, and mitigations measures that may be required prior to recommencement of works

This UFP should be implemented if any potentially significant Aboriginal object or Non-Aboriginal archaeological remains are identified during proposed groundworks.

Examples of types of unexpected archaeological finds include:

- Potential Aboriginal flaked items
- Concentrations of artefacts – this may take the form of a number of artefacts concentrated in a single location, typically associated with a dark silty soil deposit. Artefacts may include complete or broken glass bottles and ceramic items, animal bone and other domestic items.
- Structural remains i.e. brick or stone footings, areas of buried paving.

NSW Heritage Legislation and Protection

Three Acts afford protection to cultural heritage and archaeology in NSW:

- *National Parks and Wildlife Act 1974* (NPW Act)
- *Heritage Act 1977* (Heritage Act)
- *Environmental Planning and Assessment Act 1979* (EP&A Act).

Aboriginal sites are protected by all three acts. It is an offence to knowingly or unknowingly damage or disturb an Aboriginal site without the appropriate approval. Fines and prison sentences may apply.

Historical archaeological sites in NSW are protected by the NSW *Heritage Act 1977*. Sections 139-145 of the *Heritage Act 1977* prevent the excavation or disturbance of land known or likely to contain **historic Archaeological Relics**, unless in accordance with an excavation permit or with the conditions of approval for a State Significant Development. If an archaeological site or object is damaged or disturbed prosecution may result.

Unexpected Finds Protocol

If unanticipated archaeological items are uncovered at any time throughout the life of the project the following actions must be followed:

- Cease all activity in the vicinity of the find
- Leave the material in place and protect it from harm
- Erect a 10 m exclusion zone (temporary fencing/signage)
- Take note of the details of the material and its location, take a photograph of the find *in situ*
- Inform the site manager/area supervisor, who would then inform the superintendent / principal

The superintendent / principal must:

- Notify the Biodiversity and Conservation Division: **(02) 6274 1111**
- Notify OEH on the Environment Line: **131 555**
- Call the archaeologist to identify whether additional investigation is required in accordance with the conditions of approval and OEH guidelines
- Notify OEH if confirmed as an Aboriginal object or relic
- Await further advice before proceeding with work in the area.

Artefact archaeologist contact

Artefact Heritage, Pyrmont Office **02 9518 8411,** office@artefact.net.au

Examples of Aboriginal heritage and historical archaeological remains

APPENDIX Q

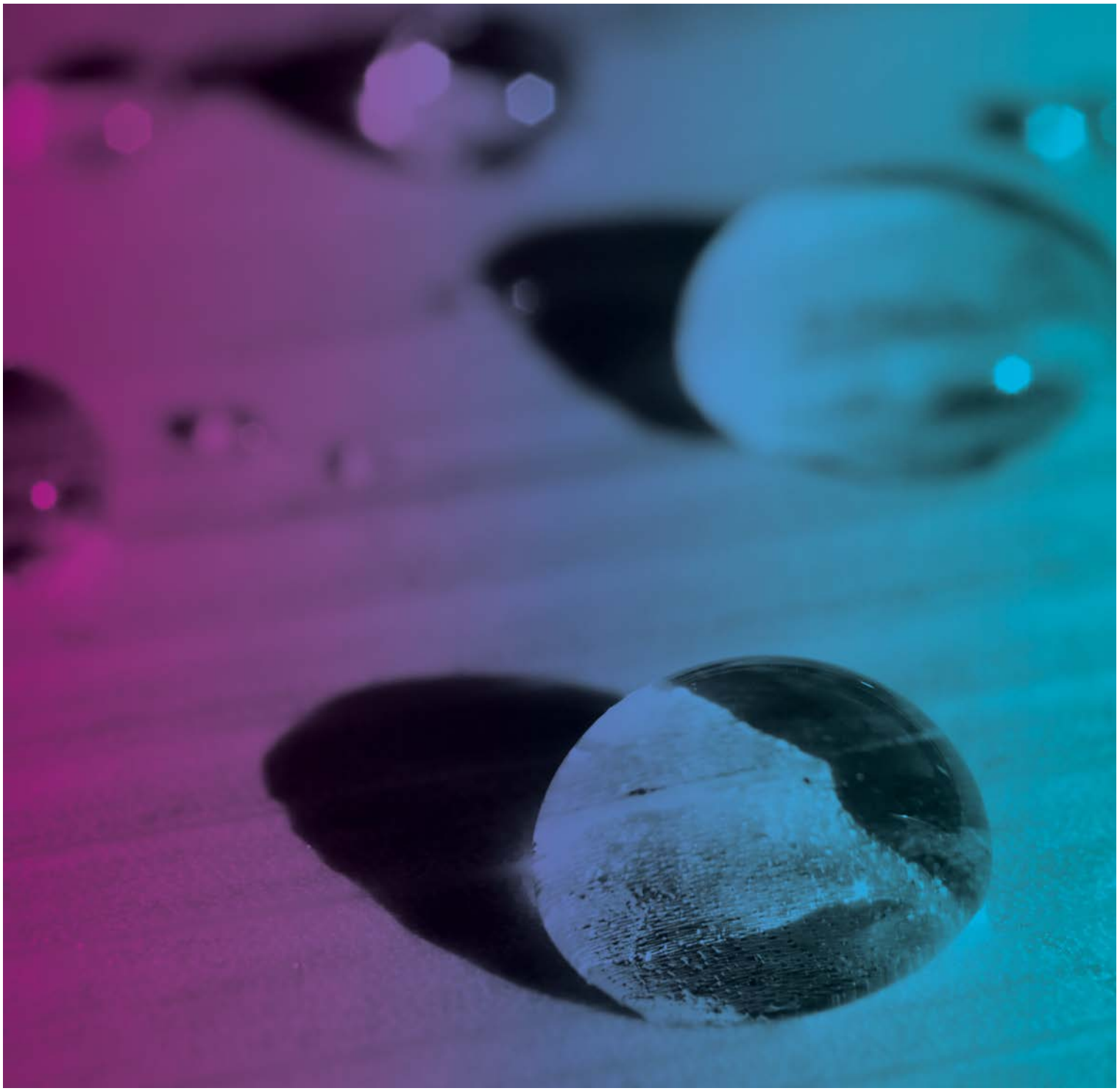
Unexpected Contamination Protocol

AECOM Imagine it Delivered

Goodman Property Services (Aust) Pty Ltd
31-Oct-2019

Unexpected Finds Protocol

Oakdale West Estate



Unexpected Finds Protocol

Oakdale West Estate

Client: Goodman Property Services (Aust) Pty Ltd

ABN: 40 088 981 793

Prepared by

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31-Oct-2019

Job No.: 60599325

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Quality Information

Document Unexpected Finds Protocol

Ref 60599325

Date 31-Oct-2019

Prepared by Alex Latham

Reviewed by Clayton Cowper

Revision History

Rev	Revision Date	Details	Authorised	
			Name/Position	Signature
A	07-Dec-2018	Draft for comment	Alex Latham Associate Director	
1	24-Sep-2019	Final	Alex Latham Associate Director	
3	31-Oct-2019	Revised Final	Alex Latham Associate Director	

Table of Contents

Glossary i
1.0 Introduction 1
1.1 Objectives 1
1.2 Guidelines 1
1.3 SSD Conditions of Consent 2
2.0 Background Information 4
2.1 Site Conditions 4
2.2 Surrounding Land Use 4
2.3 Phase I ESA 2007 4
2.4 Targeted Phase II Assessment 2012 5
2.5 Remediation Report 2017 6
2.6 Surface Water & Sediment Report 2019 6
2.7 Hazmat Assessment 2019 7
2.8 Geotechnical Investigations 8
2.9 Site Inspections 9
3.0 Unexpected Finds 10
3.1 Roles and Responsibilities 10
3.2 Areas with Perceived Higher Risk 10
3.3 Asbestos Containing Materials 10
3.4 Burial Pits 12
3.5 Other Unexpected Finds 12
4.0 Materials Tracking Plan 13
5.0 Validation Reporting 14
6.0 References 15

Appendix A
Figures A

Appendix B
Materials Tracking Register (proformas) B

Glossary

General Terms	
ACM	Asbestos Containing Material
AEC	Area of Environmental Concern
ASC NEPM	Assessment of Site Contamination National Environment Protection Measure (2013)
BTEXN	Benzene, toluene, ethylbenzene, xylenes and naphthalene
CEMP	Construction Environmental Management Plan
CoPC	Contaminants of Potential Concern
CSM	Conceptual Site Model
DQI	Data Quality Indicators
DQO	Data Quality Objectives
EIL	Ecological Investigation Level
EPA	Environment Protection Authority
ESL	Ecological Screening Level
FIP	Fill Importation Protocol
Ha	Hectare
HIL	Health Investigation Level
HSL	Health Screening Level
LOR	Limit of Reporting
m	Metre
m bgs	Metres below ground surface
mg/kg	milligrams/kilogram
NATA	National Association of Testing Authorities
NEPC	National Environment Protection Council
NEPM	National Environment Protection Measure
OCP	Organochlorine Pesticides
OPP	Organophosphorus Pesticides
PAH	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyls
PID	Photoionisation detector
QA/QC	Quality Assurance/Quality Control
RPD	Relative Percent Difference
TPH / TRH	Total Petroleum Hydrocarbons / Total Recoverable Hydrocarbons
UFP	Unexpected Finds Protocol
UST / UPSS	Underground Storage Tank / Underground Petroleum Storage System
VOC	Volatile Organic Compound

1.0 Introduction

AECOM Australia Pty Ltd (AECOM) was engaged by Goodman Property Services (Aust) Pty Ltd (Goodman) to complete an Unexpected Finds Protocol (UFP) for the earthworks associated with the construction of the Oakdale West Estate (OWE), Kemps Creek, NSW (the Site).

The Site is approximately 154 hectares (Ha) of predominantly agricultural (grazing) land and riparian corridor associated with Ropes Creek. Goodman propose to develop approximately 90 Ha of the Site into a warehouse-style estate and distribution centre, under State Significant Development Application 7348 (SSD 7348).

OWE will include pads for building construction, roads, footpaths, bio-retention basins, wildlife corridor(s) and electricity transmission easements. It is expected that earthworks will include:

- Stripping of geotechnically unsuitable overburden in the developable areas (i.e. grass and surface soils to approximately 0.3 m depth), stockpiling and subsequent re-use in landscaping areas, or blended with other Site won materials and re-used in the earthworks.
- Proof rolling stripped areas.
- Extensive cut to fill and retaining wall construction.

This UFP relates to soil contamination and applies up to the completion of the construction of building pads at OWE.

AECOM has previously completed a Phase I Environmental Site Assessment (2007), targeted Phase II Contamination Assessment (2012), asbestos remediation validation sampling (2017) and assessment of sediment and surface water (2019) at OWE. Site features and sampling locations are shown on **Figure 1** and **Figure 2** in **Appendix A**.

Goodman has commissioned geotechnical investigations and a hazardous building material survey at the Site. Data from these investigations and survey have been reviewed and incorporated into this report.

Goodman has appointed a NSW EPA (land contamination) Auditor, Tom Onus of Ramboll Australia Pty Ltd (the Auditor) to the project. Where unexpected finds are encountered, the Auditor must be notified.

A Fill Importation Protocol (FIP) for OWE has been developed by AECOM. The FIP stipulates the soil and aggregates that will be imported to the Site for construction of the building pads, retaining walls, stormwater and sewer pipe trench backfill etc and the associated (contamination-related) testing requirements.

1.1 Objectives

The objectives of this UFP are to:

- Provide a summary of the expected ground conditions.
- Provide a summary of unexpected finds that may be present, based on historical Site data.
- Provide management and assessment recommendations for any identified unexpected finds encountered during OWE construction earthworks.

1.2 Guidelines

AECOM completed this UFP with reference to the following guidelines:

- National Environment Protection Measure (NEPM), *Assessment of Site Contamination (ASC) (National Environment Protection Council [NEPC]*, *1999* as amended (2013) (the ASC NEPM).
- NSW EPA (2017). *Contaminated Land Management: Guidelines for the NSW Site Auditor Scheme (3rd Edition)*.

- NSW OEH (2011). *Guidelines for Consultants Reporting on Contaminated Sites*. NSW Government Office of Environment & Heritage (OEH).
- SafeWork NSW (2016a). *How to manage and control asbestos in the workplace Code of Practice*.
- SafeWork NSW (2016b). *How to safely remove asbestos Code of Practice.*
- WorkCover (2014). *Managing asbestos in or on soil.* March.

1.3 SSD Conditions of Consent

The SSD Conditions of Consent were issued to Goodman on 13 September 2019. With respect to soil contamination, these are summarised in the following table:

Table 1 Consent Requirements

Condition Requirement	Section / Comment
D116. Prior to the commencement of construction of Stage 1, the Applicant must prepare an unexpected finds protocol to ensure that potentially contaminated material is appropriately managed. The procedure must form part of the CEMP in accordance with Condition D119 and must ensure any material identified as contaminated is disposed offsite, with the disposal location and results of testing submitted to the Planning Secretary, prior to its removal from the Site.	This UFP.
D121 (k). As part of the CEMP required under Condition D119 of this consent, the Applicant must include an Unexpected Contamination Protocol.	This UFP is to be included in the CEMP prepared by SLR Consulting Australia Pty Ltd.
Management Plan Requirement	Section / Comment
D118. Management plans required under this consent must be prepared in accordance with relevant guidelines and include:	
a) details of: i. the relevant statutory requirements (including any relevant approval, licence or lease conditions); ii. any relevant limits or performance measures and criteria; and iii. the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, Stage 1 or any management measures;	Section 1.2 and Section 5.0.
b) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	This UFP
c) a program to monitor and report on the: i. impacts and environmental performance of Stage 1; and ii. effectiveness of the management measures set out pursuant to paragraph (b) above;	Continual monitoring during bulk earthworks. Sections 3.1 to 3.5.

Condition Requirement	Section / Comment
d) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	This UFP
e) a program to investigate and implement ways to improve the environmental performance of Stage 1 over time;	Completed in CEMP
f) a protocol for managing and reporting any: i. incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria); ii. complaint; iii. failure to comply with statutory requirements; and	Completed in CEMP
g) a protocol for periodic review of the plan.	Completed in CEMP

2.0 Background Information

2.1 Site Conditions

The Site comprises undulating grasslands, with a ridge running from northeast to southwest. Three farm dams are located to the west of the ridge and two to the east. A Transgrid electricity easement is present in the eastern portion of the Site. Other Site features include:

- Residential house.
- In-ground water holding tank (previously referred to as “old well”).
- Unpaved internal access roads.
- Concrete slab, likely a former building.
- Concrete blocks in a drainage line, assumed to represent an erosion control mechanism.
- Pumping point. A small concrete slab that previously housed a pump. Based on anecdotal information obtained from the Brickworks Site caretaker, it is understood that the pump point was connected directly to the water supply pipeline.
- Two pipes (polyethylene and steel, both approximately 50 mm diameter) at the eastern end of the eastern most dam. The Brickworks Site caretaker was aware of the pipes but had no knowledge of any pump station or plinth for the pipes.

Ropes Creek is mostly located off-site to the east however, parts of the creek and the riparian corridor are located on the Site but are not subject to future development.

2.2 Surrounding Land Use

Land uses surrounding the Site include:

- North: water supply pipelines followed by commercial/industrial premises and undeveloped agricultural land (the Fitzpatrick Land).
- East: Oakdale South and Central Estates.
- South: rural/residential properties.
- West: schools and retirement village.

2.3 Phase I ESA 2007

The Phase I ESA included the proposed Oakdale development, representing approximately 420 Ha. OWE is situated within the Phase I ESA study area. Site history and background data for OWE is summarised below:

- The Site comprised rural (pastoral lands) since the early to mid 1800s.
- Site soils were expected to comprise clay of the Blacktown and/or Luddenham Soil Landscape Groups and fluvial soils of the South Creek Soil Landscape Group (near Ropes Creek), overlying Shale bedrock.
- Regional groundwater was likely to occur within sedimentary rock at depths greater than 20 metres below ground surface (m bgs) although seasonal, shallow perched groundwater may exist at the soil-bedrock interface and shallow groundwater would likely be present in fluvial soils along drainage lines.
- Surface application of “envirosoil” (recycled sewage waste) had occurred to approximately 80 mm depth in the north eastern portion of the OWE (refer **Appendix A**).
- A rubbish scrape and disposal area was identified in a gulley in the south west portion of the Site.
- Deposits of concrete blocks were identified in the drainage line down-stream of the rubbish disposal area, likely placed for erosion control (refer **Appendix A**).

- A concrete slab (probable floor of former building/shed) was identified in the western portion of the Site (refer **Appendix A**).
- An old wooden building (the Old Farmhouse) was present in the south west portion of the Site. Adjacent to the building were fragments of asbestos containing material (ACM), likely associated with an outhouse building. The Old Farmhouse building has subsequently been removed from Site.
- A residential house was located on the ridge line above the Old Farmhouse. The house was occupied at the time of the Phase I. The house was of brick construction with a tiled roof.
- Approximately two small buildings were formerly present to the north east of the residential house, adjacent and on the south side of the ridge-line access road (refer **Appendix A**).
- An in-ground concrete lined water tank was present in the south west portion of the Site. The tank contained minor quantities of waste material (e.g. steel, wire, tyres).
- A former piggery was identified in the southern central portion of the Site (refer **Appendix A**). Brick and steel waste was scattered over the ground surface.
- Some spot applications of phenoxyacetic acid herbicides (e.g. to control blackberry and other woody weeds) has been historically undertaken, on an 'as needs basis'.
- No burial pits for animal carcasses or cattle/sheep dips were known to be present.

2.4 Targeted Phase II Assessment 2012

AECOM completed a targeted assessment at OWE based on the results of the Phase I ESA. The Phase I ESA identified a low potential for the presence of soil contamination across the majority of OWE however, six areas of environmental concern (AEC) were identified. The six AEC were investigated in the targeted Phase II Assessment, as summarised below:

Table 2 AEC and Targeted Assessment

AEC	Investigation	Results
In ground water tank	2 test pits adjacent to tank (TP1 and TP2)	No contamination identified
Former piggery	15 test pits across former piggery (TP3 to TP17)	No contamination identified
Rubbish burial and scrape	6 test pits (TP18 to TP23)	No chemical contamination identified. Fragments of ACM and asbestos fibres identified in rubbish burial area.
Former buildings area	5 test pits (TP24 to TP28)	No contamination identified
Envirosoil application area	9 test pits (TP29 to TP37)	No contamination identified
Old Farmhouse	3 test pits, 3 surface samples (TP38 to TP40 and SS01 to SS03)	No chemical contamination identified. Fragments of ACM identified.

The sample location plan from the targeted Phase II assessment is included in **Appendix A**.

Other information from the targeted Phase II assessment and relevant to this UFP included:

- Test pits were excavated to at least 0.5 m into natural soils. These were logged to comprise dark brown sandy clayey silt topsoil overlying orange to grey clays. Sandstone and shale bedrock was encountered.
- Fill materials were logged at six locations and in each instance, appeared to comprise re-worked natural soils.
- Groundwater was not observed in the test pits completed.

- No unusual odours or colouration in soil were observed at the test pits completed.
- Soil samples were collected from each test pit and samples submitted for laboratory analysis to evaluate concentrations of the inferred contaminants of potential concern (CoPC), which included:
  - Suite of eight metals, including arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc (M8).
  - Benzene, toluene, ethylbenzene, xylenes (BTEX).
  - Total Recoverable Hydrocarbons (TRH).
  - Polycyclic aromatic hydrocarbons (PAH).
  - Organochlorine and organophosphorus pesticides (OCP, OPP).
  - Polychlorinated biphenyls (PCB).
  - Asbestos.
- Waste materials (general rubbish, metal waste) and ACM were identified in the rubbish burial area. ACM was identified in the vicinity of the Old Farmhouse. Remediation of both areas was recommended.
- Concentrations of the chemical CoPC investigated at all test pits were below the ASC NEPM health investigation level (HIL) and health screening levels (HSL) applicable for commercial/industrial land use (HIL D and HSL D).

Groundwater was not investigated. Based on the Phase II data, the potential for groundwater contamination to be present is considered to be low.

2.5 Remediation Report 2017

AECOM was retained by The Austral Brick Company Pty Ltd (Austral) to provide remediation validation services for two AEC identified in the targeted Phase II assessment. The areas were the Old Farmhouse and the Rubbish Disposal Area.

In summary:

- Excavation activities were completed by the Austral appointed earthworks contractor, as well as disposal of rubbish materials and ACM impacted soils.
- The Old Farmhouse excavation footprint was approximately 650 m^2 and the Rubbish Disposal area excavation footprint was approximately 2800 m^2.
- Soils at the base of the excavations comprised natural, orange-brown clay.
- No obviously visible fragments of ACM were observed by AECOM at the final excavation surfaces.
- Laboratory analysis results for the validation samples collected from the final excavation surfaces did not identify asbestos at concentrations exceeding the ASC NEPM HSL D in the samples analysed.
- Concentrations of the non-asbestos CoPC investigated were below ASC NEPM HIL D and HSL D.

The sample location plan from the Remediation Report is included in **Appendix A**.

2.6 Surface Water & Sediment Report 2019

AECOM was engaged by Goodman to undertake surface water and sediment sampling at the Site, to assess:

- The suitability of dam sediments for use in bulk earthworks (i.e. re-use at the Site).
- The suitability of dam water for use in bulk earthworks.

- The suitability of dam water for discharge to Ropes Creek.

Nine sediment samples were collected from the Dams, seven surface water samples were collected from the Dams and three surface water samples were collected from Ropes Creek. Samples were analysed by laboratories utilising NATA certified methods, to evaluate concentrations of contaminants of potential concern.

Sediment samples were logged to comprise clay, clayey silt and silty clay. Some shale gravel was present. Concentrations of the CoPC investigated were below the ASC NEPM HSL D and HIL D.

Water in the dams was noted to be low to medium turbidity, with aquatic vegetation present. No obvious indicators of contamination were observed. Concentrations of the CoPC investigated were below the adopted assessment criteria in the surface water samples analysed.

Based on the available data, AECOM considered that:

- Sediment in the Dams would be suitable for re-use at the Site.
- Water in the Dams would be suitable for use in the bulk earthworks.
- Water in the Dams appear suitable for discharge to Ropes Creek. This may require evaluation by the Goodman-appointed ecological consultant.

2.7 Hazmat Assessment 2019

EP Risk completed a destructive hazardous materials (Hazmat) assessment of the residential house in 2019. Data from the EP Risk report indicated:

- The house had a footprint of approximately 160 m^2 and was constructed circa 1960. The house will be demolished as part of the OWE development works.
- Lead based paints were not identified.
- Asbestos was identified in:
    - Fuses within the electrical box (Class A friable)
    - Backing board within the electrical box, eaves, internal wall panels and vinyl floor tiles (Class B non-friable).
- Asbestos removal works will be required to be undertaken by appropriately licensed contractors under controlled conditions.
- An in-ground septic tank (concrete construction) was present on the western side of the house.

Goodman has advised that the head earthworks contractor will undertake the demolition (via a sub-contractor). AECOM has requested the following information for ‘validation’ reporting:

- Copies of asbestos licenses.
- Copies of all landfill disposal documents for asbestos containing materials.
- Air monitoring results (taken during asbestos removal works).
- Hygienist clearance inspection reports.
- Soil sample analysis data. It is expected that:
    - Surface soil samples will be collected from the building footprint and analysed for asbestos, OCP, OPP and M8.
    - Soil samples will be collected from a small excavation formed by the removal of the septic tank and pipe run and analysed for asbestos, OCP, OPP, M8, TRH and BTEXN.
    - Soil samples will be collected from excavated materials (i.e. from pipe run and around septic tank) and analysed for asbestos, OCP, OPP, M8, TRH and BTEXN.

2.8 Geotechnical Investigations

Goodman commissioned Pells Sullivan Meynink (PSM) to undertake geotechnical assessments of the Site. These are summarised below. Sample location plans are included in **Appendix A**.

PSM 2015a

The PSM investigation was based on the proposed cut to fill earthworks. PSM inferred fill depth up to approximately 12 m and cut depth up to approximately 15 m. Fieldworks were completed in October 2015 and included:

- 13 boreholes (BH01 to BH13) completed by a 14 tonne (t) excavator with a pendulum auger attachment. These locations were completed to depths between 1.5 and 4.95 m, predominantly in 'cut' areas.
- 2 boreholes (BH14 and BH15) were completed by drill rig to approximately 15 m depth. The boreholes were completed by auger then coring.
- 27 test pits (TP01 to TP27) were completed by a 12 t excavator to a maximum depth of 2 m.

PSM noted that the Site comprised 'grassy paddocks separated by steel wire fencing and several dams.

In summary, PSM logged the conditions as:

- Topsoil (0 to 0.04 m): low plasticity, soft to stiff, dark brown clay with rootlets.
- Natural Soil (0.04 to 0.7 m): medium to high plasticity, stiff to very stiff, light brown to grey clay.
- Bedrock (0.7 to 4 m): extremely to moderately weathered, light brown to grey, shale and sandstone.
- No groundwater was encountered.
- No anthropogenic inclusions or fill materials were noted on the logs.

PSM 2015b (soil salinity and aggressivity)

The fieldwork was undertaken concurrently with 2015a. Samples were collected from the geotechnical investigation locations and called E1 to E25. PSM noted that the Site was covered in grass and trees and that no indications of salinity were observed (e.g. salt crystals, bare soil patches, salt pans, die-back of trees, gully erosion etc.).

The PSM data indicated:

- The majority of soils on Site are classified as non-saline, with some soils classified as slightly saline.
- The risk of acid sulfate soils to be present was considered to be low.
- Soils ranged from non-sodic to highly sodic (the measure of the likely dispersion on wetting and to shrink-swell properties).

PSM 2018a

Six boreholes were drilled in or within close proximity to the water pipeline easement. Logged conditions were:

- Northern side of pipeline easement: approximately 2.5 m of grey-red-brown sandy clay (reworked natural, or easement spoil), overlying orange-red-brown clay, grading to shale bedrock at approximately 4 to 4.5 m bgs.
- Pipeline Easement: asphalt access road with roadbase sub-grade overlying grey-red-yellow-brown sandy clay, grading to shale bedrock at approximately 3 to 3.8 m bgs.
- Southern side of pipeline easement: red-grey-brown clay to approximately 8 m bgs, overlying shale bedrock.

PSM 2018b

The investigation targeted the location of the proposed sewer infrastructure. PSM understood that approximately 3.8 km of sewer main (with 56 manholes) would be constructed, between 1.2 and 15.8 m below existing ground level.

The investigation included:

- Boreholes BH01 to BH47 were drilled by track and truck mounted drill rigs. Primary boreholes were drilled at proposed manhole locations or at intermediate locations where the distance between manholes exceeded 120 m. Secondary boreholes were drilled where the distance between manholes was less than 50 m. Some boreholes were not completed or were moved, due to:
  - Proposed manhole/sewer was above the existing ground surface (within future fill)
  - Presence of services (BH01 moved)
  - Presence of ponds (BH16 and BH17).
- Boreholes were completed to depths between 6 and 15 m.
- Logged conditions were consistent with PSM 2015a. No anthropogenic inclusions or fill materials were noted to be present.
- Groundwater was observed at 11 locations, as wet material on the auger rods, between 3.5 and 13.5 m. Shallow groundwater (i.e. at approximately 3.5 to 5 m) was present in proximity to Ropes Creek.

2.9 Site Inspections

The inspection undertaken on 5 December 2018 was targeted to the rubbish disposal excavation, Old Farmhouse excavation, two small dams and concrete slab in the western portion of the Site, former piggery and traverses of the paddock between the residential house and main northern farm dam (by car).

In summary:

- Conditions were similar to those previously observed.
- The residential house was present but not occupied.
- Remedial excavations were still identifiable.
- The Old Farmhouse was not present.
- The traverses were undertaken to assess for a possible old water pump location. This was not identified. It is noted that long grass negated a detailed inspection of the ground surface.

Inspection was undertaken during the sediment and surface water sampling in March 2019, which primarily focused on the five dams and the pump point. In summary:

- Vegetation (grass and trees) appeared healthy.
- Inspection observations relating to the dams and Ropes Creek are provided in AECOM 2019.
- Two pipes were noted at the eastern end of Dam 5. No obviously visible buildings/sheds/concrete plinths etc associated with the pipes were observed.
- The pumping point was identified. The pump was not present. No obvious indications of contamination were observed.
- No areas of bulk excavation or stockpiling were observed, consistent with previous inspections.

3.0 Unexpected Finds

3.1 Roles and Responsibilities

Roles and responsibilities for the Site works are expected to include:

Table 3 Roles & Responsibilities

Company	Role / Responsibility
Goodman	Owner / Development Manager
AT&L	Project Manager / Superintendent
Burton	Earthworks Contractor
AECOM	Contamination Consultant
Ramboll	Auditor (contamination)

In the event that unexpected finds are encountered:

- The Earthworks Contractor will immediately inform the Superintendent.
- The Superintendent will inform Goodman and AECOM.
- AECOM will inspect the unexpected find (if required) and inform the Auditor.

In the event that any identified unexpected find requires remediation, the following is noted:

- A Remedial Action Plan (RAP) should be prepared by the Contamination Consultant and be approved by the Auditor prior to undertaking the remediation works. The RAP will be prepared with reference to applicable NSW EPA approved guideline documents. The RAP will include disposal locations and results of testing of materials identified as contaminated and is to be submitted to the Planning Secretary, prior to removal from Site.
- Following any remediation work, a validation report will be prepared, confirming that all requirements of the RAP have been met, including documentary evidence confirming off-Site disposal of contaminated soils (refer **Section 5.0** of this document).
- The validation report will be available to the Planning Secretary of the Department of Planning upon request.

3.2 Areas with Perceived Higher Risk

The presence of unexpected finds cannot be discounted at the Site however, the following areas are considered to pose a higher risk of the presence of ACM:

- Former piggery.
- Two former small buildings to the north east of the residential building.
- Concrete slab in western portion of Site.
- Area of deposited concrete blocks in the gulley / creek line.

These are shown in figures provided in **Appendix A**.

3.3 Asbestos Containing Materials

In the event that fragments of ACM are identified during the earthworks, works will cease in that area and AECOM, Goodman and/or the Site Superintendent will be contacted immediately and the Auditor will be notified. An exclusion zone will be established around the ACM and an appropriate occupational health and safety (OHS) protocol for entry into the exclusion zone will be implemented. The Earthworks Contractor (EC) should collect fragments and store in an appropriate location (e.g. plastic lined skip bin). The ACM will be disposed to an appropriately licensed landfill facility. This

disposal process will be tracked via the Material Tracking Plan (refer to **Section 4.0**) and the landfill documentation included in the Validation Report. All work must be conducted in accordance with SafeWork NSW (formerly WorkCover) policy and licensing requirements.

If large quantities of ACM are identified, excavation and stockpiling is recommended. Excavation should continue until there is no visible ACM. Stockpiles should be kept moist and covered until disposed off-Site.

Validation sampling of the stockpiles to assess suitability for potential re-use is not recommended.

Areas that are excavated will require validation sampling, to confirm removal of the ACM. Validation sampling should be done with reference to the Western Australian Department of Health (DoH) *Guidelines for the Assessment, Remediation and Management of Asbestos Contaminated Sites in Western Australia* (May 2009) and ASC NEPM 2013.

With reference to WorkCover NSW (2014) *Managing Asbestos in or on Soil* and Safework NSW (2016b) *How to Safely Remove Asbestos*, implementation of the following management measures are recommended if asbestos is identified:

- Less than 10 m^2 of bonded asbestos (e.g. fragments of fibro in good condition):
  - Handpick the fragments and double wrap in plastic sheeting. Inspection/handpicking should be completed on a grid basis for a systematic approach.
  - Appropriate personnel protective equipment should be worn.
  - Appropriately trained personnel should be utilised.
  - The area should be inspected by an appropriately qualified hygienist to confirm removal of the asbestos fragments.
  - A Licensed asbestos removal contractor (Class A or B) should not be required.
  - Air monitoring for asbestos fibres should not be required.
- More than 10 m^2 of bonded asbestos:
  - A Class B licensed asbestos removal contractor will be required to collect and dispose of the materials.
  - Handpick the fragments and double wrap in plastic sheeting. Inspection/handpicking should be completed on a grid basis for a systematic approach.
  - Appropriate personnel protective equipment should be worn.
  - Appropriately trained personnel should be utilised.
  - Air monitoring for asbestos fibres may not be required but should be considered if there are reasonable grounds to expect that exposure standards have been or could be exceeded.
  - The area should be inspected by an appropriately qualified hygienist to confirm removal of the asbestos fragments.
- Friable asbestos is identified:
  - Isolate and secure the area by installing warning signs and barriers.
  - Keep the soil damp but not flooded and if safe, cover the area with plastic sheeting.
  - Class A licensed asbestos removal contractors will be required.
  - Air monitoring will be required.
  - The area should be inspected by an appropriately qualified hygienist to confirm removal of the asbestos.
  - Friable asbestos must be stored in sealed containers.
  - Asbestos waste must be transported in a covered, leak proof vehicle.

3.4 Burial Pits

In the event that burial pits relating to the former grazing activities are exposed, works will cease in that area and AECOM, Goodman and/or the Site Superintendent will be contacted immediately and the Auditor will be notified. An exclusion zone will be established around the burial pit and an appropriate occupational health and safety (OHS) protocol for entry into the exclusion zone will be implemented. All carcass' and impacted soils will be removed appropriately and disposed off-Site at a registered facility. Soils remaining in the burial pit will be validated for total phosphorus (TP), filterable reactive phosphorus (FRP), total nitrogen (TN), nitrate (NO3), nitrite (NO2), total Kjeldahl nitrogen (TKN) and ammonia (NH4+). Investigation for other CoPC may be required (e.g. hydrocarbons, asbestos, M8 etc), depending on the buried materials encountered.

3.5 Other Unexpected Finds

If materials are encountered during the earthworks which are significantly different to those described herein (including the identification of drums or underground storage tanks, etc.), works will cease in that area and AECOM, Goodman and the Site Superintendent will be contacted immediately and the Auditor will be notified. An exclusion zone will be established around the unexpected find area and an appropriate OHS protocol for entry into the exclusion zone will be implemented. AECOM will inspect the unexpected find and assess if it is the source or has the potential to contaminate the surrounding area. In the case that there is potential for contamination or it has occurred, all materials and impacted soil will be removed appropriately and disposed off-Site at a registered facility. Remaining soils will be validated for CoPC (refer **Section 2.4**) and any additional analytes specific to the unexpected find.

4.0 Materials Tracking Plan

A Materials Tracking Plan (MTP) will be developed and implemented by the Earthworks Contractor (EC). All materials handled during the earthworks will be tracked in order to allow verification of the correct movement and handling. The system will track materials from 'cradle-to-grave' and will provide information on the location and quantity of all material movements both on and off-Site, so that the material being handled can be identified and accounted for.

The MTP will include confirmation of stockpile locations and contamination status by regular communication between AECOM, the EC appointed environmental consultant (as applicable), the EC and the Site Superintendent. Where necessary, stockpiles and/or pit locations will be recorded by surveying, to reduce the risk of cross-contamination between stockpiles.

As part of the MTP, records shall be kept to ensure that backfilling of excavations and beneficial reuse of material only occurs following the successful validation of the subject materials.

The EC must implement a MTP, to appropriately control and manage the excavation of material at the Site. The purpose of the MTP is to ensure that material movements are controlled at all times and placed in their correct locations.

The MTP should be based on the proformas provided in **Appendix B,** as summarised below:

- **Material Excavation Form:** a record of excavated materials on the Site which includes the date, material type/description, excavated quantity, origin and intended destination.
- **Stockpile Register**: a record of all materials placed in stockpiles which includes the date, material type/description, stockpiled quantity, origin and intended end use (which will be "for characterisation", "for backfilling" or "for off-Site disposal"). Material excavated and stockpiled will be identified with a marker flag or stake clearly labelled with the stockpile source information and a stockpile ID.
- **Material Placement Form:** a record of all materials backfilled on the Property which includes the date, material type, quantity backfilled and origin.

Any soil and other waste materials that require off-Site disposal, must be classified in accordance with the NSW EPA (2014) *Waste Classification Guidelines*.

5.0 Validation Reporting

At the completion of the earthworks, AECOM will prepare a Validation Report (or reports) in accordance with the requirements of the NSW OEH (2011) *Guidelines for Consultants Reporting on Contaminated Sites* and NSW EPA (2017) *Guidelines for the NSW Site Auditor Scheme* (3rd Edition). The Validation Report(s) will include the following information:

- An overview of the earthworks carried out.
- Survey plans outlining the extent and elevations of the earthworks.
- The location of validation samples (if validation sampling is required).
- Descriptions of sampled materials (including visual and olfactory observations, if required).
- Summary tables for soil analytical results.
- NATA registered laboratory analytical certificates.
- Summary of the tracking and fate of all excavated materials (detailed in a Stockpile Register).
- Demonstration that the MTP has been implemented appropriately including copies of the EC's documentation.
- Landfill weighbridge dockets (if required).
- A summary of data reviewed and collected under the FIP.
- Conclusion as to the suitability of the Site for the proposed land use.

6.0 References

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Appendix A

Figures

G:\ENV\GIS\Projects\60516\60599325 Goodman Oakdale West Estate\FIGURES\60599325 Fx Targeted Phase II Sample Locations 18 04 2019

AECOM Imagine it. Delivered.

Source: LTS Lockley Registered Surveyors NSW (50034 011 Site Audit.dwg (26/02/2019)

TARGETED PHASE II SAMPLE LOCATIONS

Unexpected Finds Protocol

Oakdale West Estate, New South Wales

FIGURE 1

G:\ENV\GIS\Projects\605\60599325 Goodman Oakdale West Estate\FIGURES\605599325 Fx Targeted Phase II Sample Locations 23 04 2019

AECOM Imagine it. Delivered.

Source: LTS Lockley Registered Surveyors NSW (50034 011 Site Audit.dwg (26/02/2019)

VALIDATION SAMPLE LOCATIONS

Unexpected Finds Protocol

Oakdale West Estate, New South Wales

FIGURE 2

G:\Jobs\S4\S40700_S40799\S40742\S404201 F2.cdr 13 12 2007 TO www.hlaensr.aecom.com

1	Former building
2	Residence
3	Old farmhouse
4	Former buildings
5	Waste materials
6	Well
7	Rubbish scrape
8	Former (possible) piggery
9	Soil stockpiles
10	Dam with concrete blocks
11	Well
12	Settlement ponds
13	Cattle yards
A	Visual bunds

ENSR | AECOM

Not to Scale

Approximate site boundary

Approximate areas of enviro-soil application

12 Plate number and direction of view

Figure 2 | **Site Plan (Aerial Photograph - 2005)**

Goodman International Limited

Phase I Environmental Site Assessment

Oakdake Concept Plan

Concrete blocks downstream of former rubbish disposal area.

G:\Jobs\S4\S40700_S40799\S40742\S404201 F4.cdr 13 12 2007 TO www.hlaensr.aecom.com

ENSR | AECOM

Not to Scale

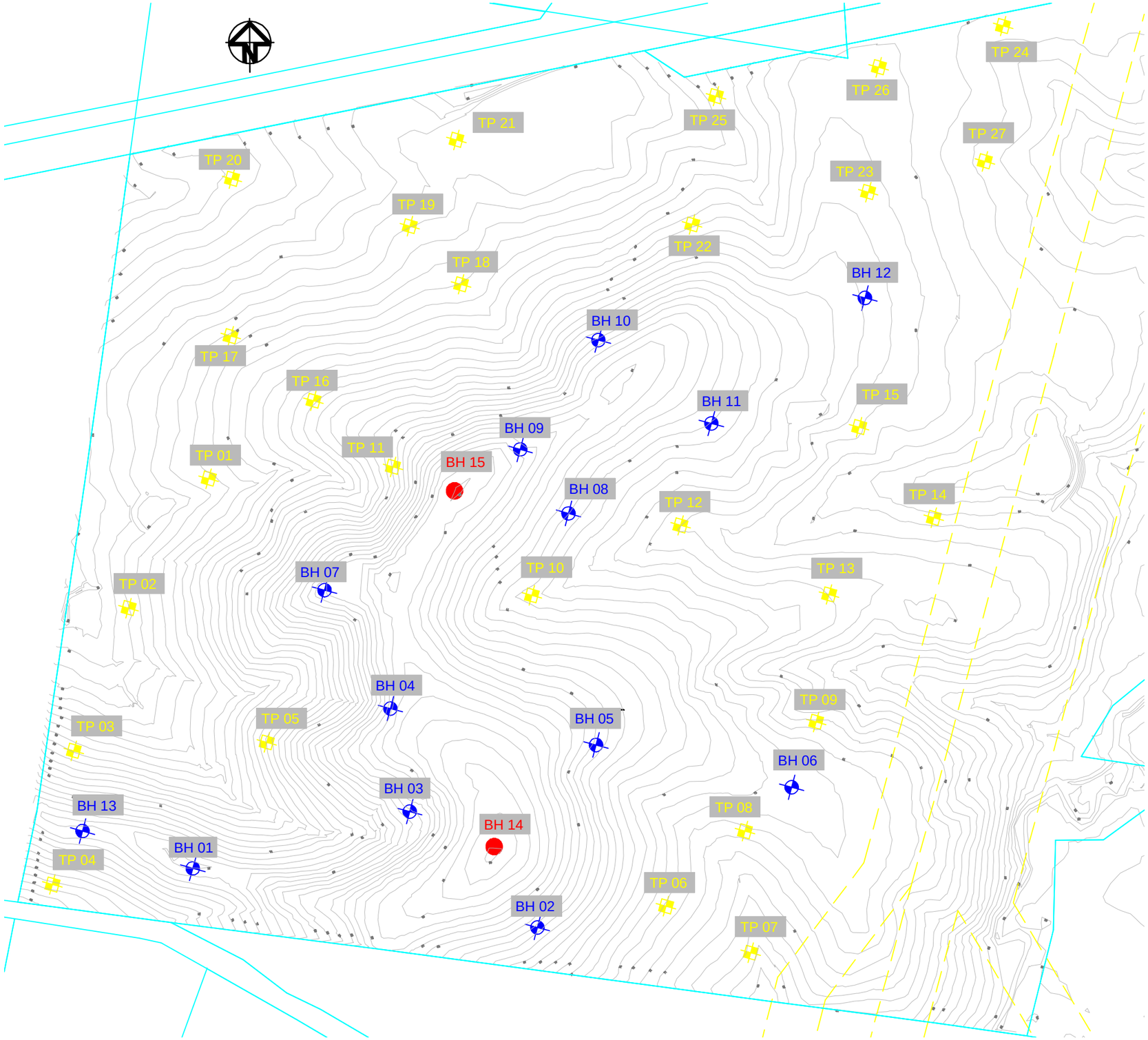
Approximate site boundary

Figure 4 | **Aerial Photograph - 1956**

Goodman International Limited

Phase I Environmental Site Assessment

Oakdake Concept Plan



0 100 200

Scale (m) 1:5000 @ A3

NOTE:

1. PSM geotechnical investigation undertaken between 14 and 20 October 2015.

2. Test locations were surveyed by a hand-held GPS unit with a vertical accuracy of ± 5 m.

3. The base plan was taken from "SKC051 - OPTIMISED MASTER PLAN CUT TO FILL PLAN" dated 14 September 2015

BH 02 - PSM augured borehole locations

TP 02 - PSM augured borehole locations

BH 15 - PSM cored borehole locations

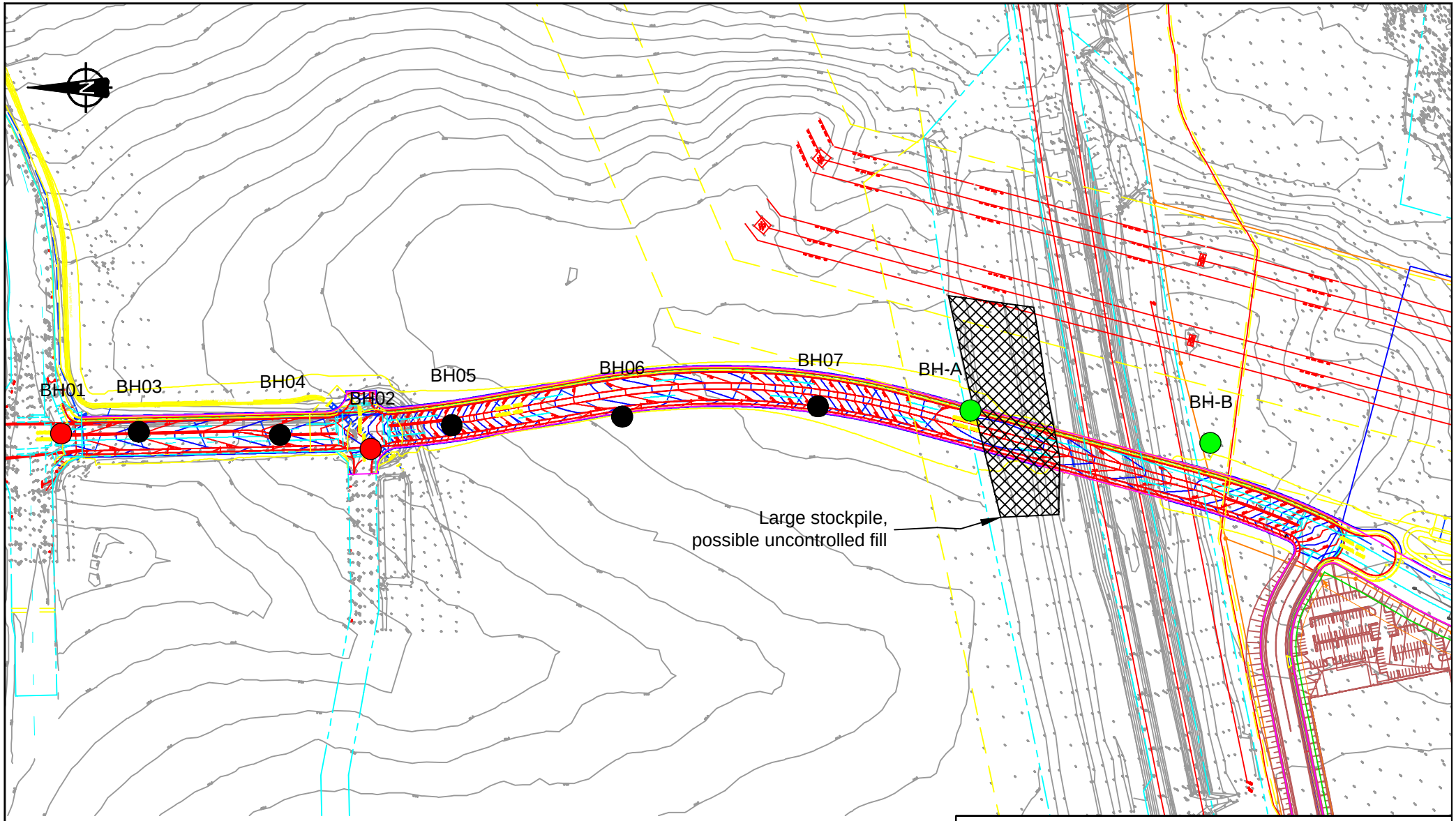
PSM

Pells Sullivan Meynink

Goodman Pty Ltd
Oakdale West Estate
Kemps Creek, NSW

GEOTECHNICAL INVESTIGATION
LOCALITY PLAN

PSM1541-123R	FIGURE 1



LEGEND

- PSM existing pavement borehole
- PSM new pavement borehole
- PSM cored corehole

0 50 100 150 200

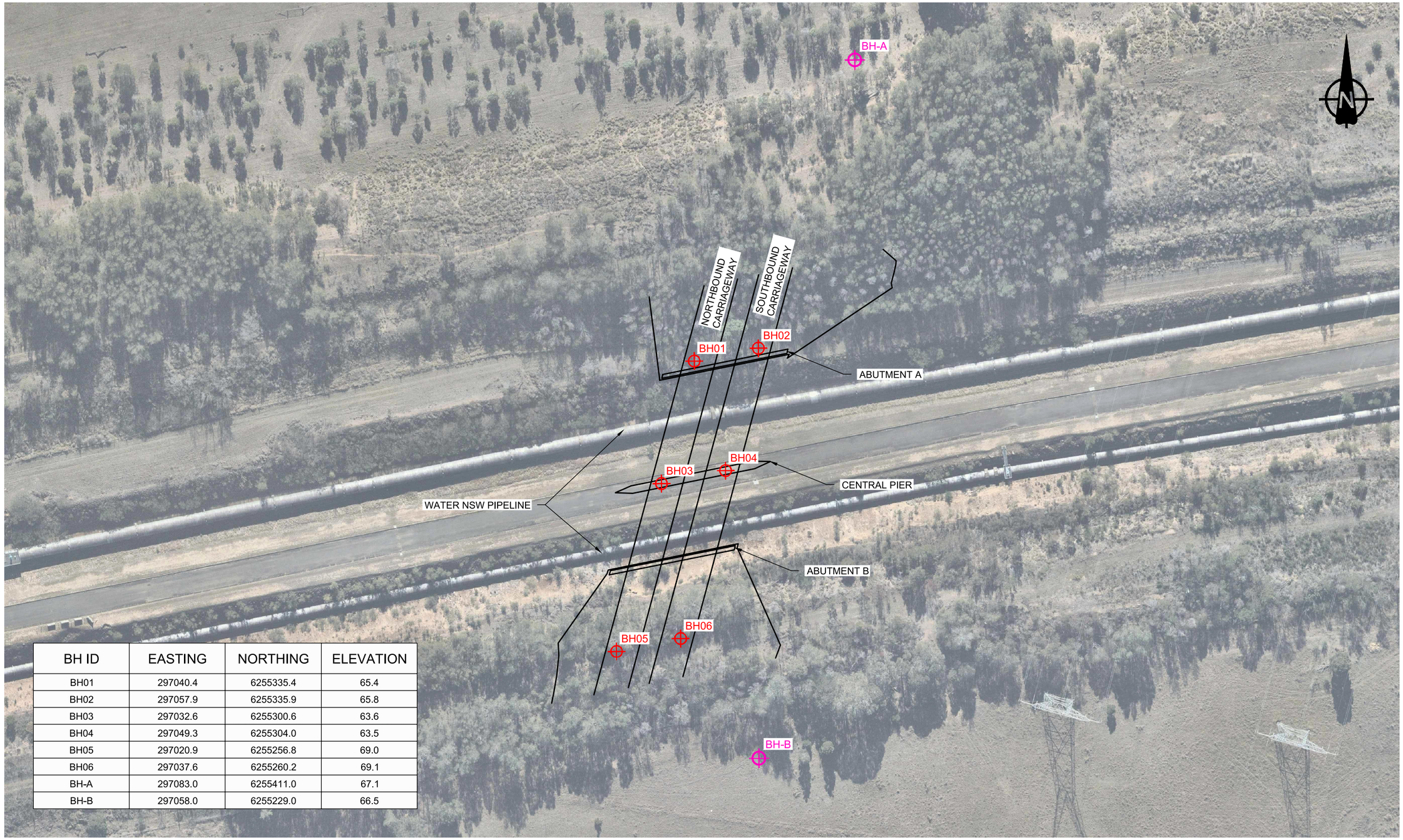
Scale (m)

Pells Sullivan Meynink

Goodman Property Services (Aust) Pty Ltd
Western North South Link Road
Erskine Park, NSW

LOCALITY PLAN

Figure 1	PSM1541-140R



BH ID	EASTING	NORTHING	ELEVATION
BH01	297040.4	6255335.4	65.4
BH02	297057.9	6255335.9	65.8
BH03	297032.6	6255300.6	63.6
BH04	297049.3	6255304.0	63.5
BH05	297020.9	6255256.8	69.0
BH06	297037.6	6255260.2	69.1
BH-A	297083.0	6255411.0	67.1
BH-B	297058.0	6255229.0	66.5

NOTES:

1. BRIDGE LAYOUT FROM AT&L DRAWING "*WNSLR BOREHOLE TESTING LOCATIONS FOR BRIDGE PIERS PLAN*"
2. BOREHOLE ELEVATIONS ESTIMATED FROM CONTOURS ON AT&L DRAWING (SKC121)
3. NEARMAP IMAGERY DATED 22 JUNE 2018

PSM BH LOCATIONS (CURRENT INVESTIGATION)

PREVIOUS PSM BH LOCATIONS (REFER PSM1541-140R)

0 10 20 30 40 50

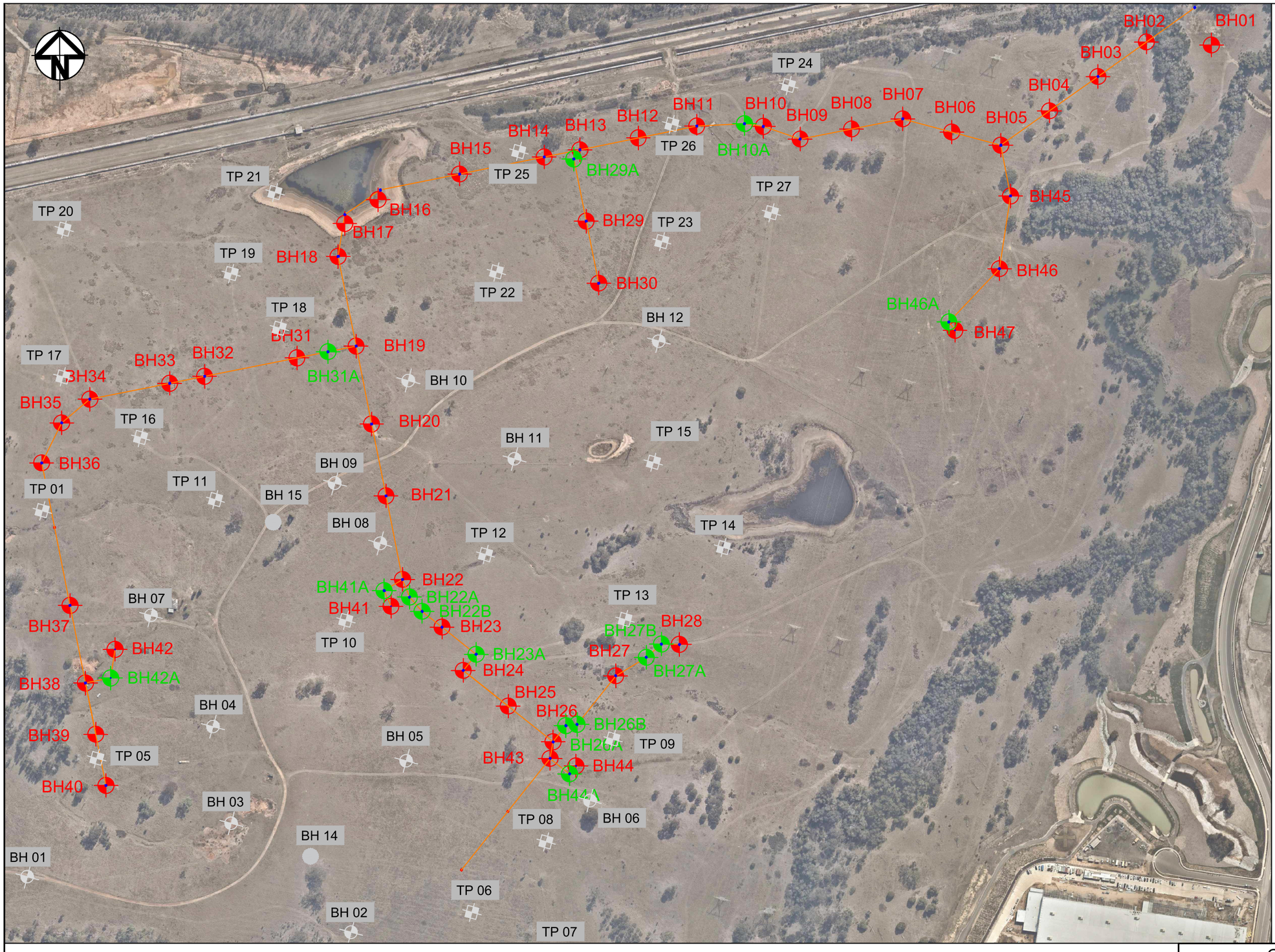
SCALE: 1:1000 @A3

Pells Sullivan Meynink

AT&L
WESTERN NORTH-SOUTH LINK ROAD
EASTERN CREEK

BOREHOLE LOCALITY PLAN

PSM1541-367R | FIGURE 1



LEGEND:

- Primary borehole location
- Secondary borehole location
- Sewer manhole location
- Sewer manhole location - above existing ground surface
- Previous PSM test pits
- Previous PSM augered boreholes
- Previous PSM cored boreholes

NOTES:

1. Primary boreholes are located at sewer manholes or at interim locations where manhole distance is greater than 120 m.
2. Secondary boreholes are located between manholes where distance is less than 50 m.
3. No boreholes were drilled at manhole locations where sewer level will be above existing ground surface (manholes 3-7, 6-2 and 6-3).
4. For details of previous PSM investigation, refer to PSM1541-123R.

0 50 100 150 200
Scale (m)

Pells Sullivan Meynink

Goodman Property Pty Ltd
Oakdale West Estate Proposed Sewer
Kemps Creek, NSW

LOCALITY PLAN

PSM1541-370L | Figure 1

Appendix B

Materials Tracking Register (proformas)

MATERIALS EXCAVATION FORM

DATE……

Material Type	Material Description	Source Location	Volume m^3	Intended Destination

Make notes on: Where and when the material is excavated, how long and where it is stockpiled. Take photos and sketch.

Stockpile Materials Tracking System Form

Location of Stockpile (tick one below)

Within bunded work area, designated area (stockpile grid number or excavation number…)	

The stockpile status/classification: (tick one below)

Import	
Closed – quarantined	
Export	

The material type:

The origin (excavation or another stockpile) of material in the stockpile:

The stockpile volume:

The destination (including intended end use) of material in the stockpile:

For characterization	
Backfill	
Another stockpile (describe)	
Off-site landfill	

Validation samples collected from the stockpile (as appropriate).

MATERIALS PLACEMENT FORM

Material type	Backfill quantity	Source location	Validated

MATERIALS OFF-SITE TRANSFER FORM

Source Location/ Stockpile No.	Material Description	Volume (m^3) or Tons	Waste Classification received (date)	Landfill Disposal Dockets

APPENDIX R

Bushfire Protection Assessment

UPDATED

BUSHFIRE PROTECTION ASSESSMENT

FOR THE OAKDALE WEST SSD 7348 MODIFICATION 3
AND THE
SSD 10397 STAGE 2 DEVELOPMENT APPLICATION

OAKDALE INDUSTRIAL ESTATE - WEST

ON LOT 11 in DP 1178389

KEMPS CREEK

FOR GOODMAN PROPERTY SERVICES (AUST) PTY LTD

Australian Bushfire Protection Planners Pty Limited

Bushfire Mitigation Consultants
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Phone: (02) 43622112
Email: abpp@bigpond.net.au

ABPP
Australian Bushfire Protection Planners Pty Ltd
ABN 48 935534 462
Bushfire Mitigation Consultants

UPDATED

BUSHFIRE PROTECTION ASSESSMENT

FOR THE OAKDALE WEST SSD 7348 MODIFICATION 3

&

THE PROPOSED SSD 10397 STAGE 2 DEVELOPMENT APPLICATION

ON
LOT 11 in DP 1178389

KEMPS CREEK

FOR

GOODMAN PROPERTY SERVICES (AUST.) PTY LTD

Report Number	Document	Preparation Date	Issue Date	Directors Approval
B193412 - 7	Final	05.11.2019	13.01.2020	*G.L.Swain*

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BACKGROUND

Australian Bushfire Protection Planners Pty Limited, at the request of *Goodman Property Services (Australia) Pty Ltd,* undertook the bushfire consultancy to inform the State Significant Development Application (SSDA – Reference SSD 7348) for the staged development of the Oakdale West Estate (OWE) on the bushfire protection measures required for the development of the proposed Oakdale West Estate (OWE) on Lot 11 in DP 1178389 Kemps Creek, here-in known as the 'development site'.

The aim of the proposed OWE development is to integrate with the broader Oakdale Estate to create a high quality warehouse and logistics estate which maximises the employment generating potential of the land to create an efficient, attractive and high quality employment zone for Western Sydney.

SSDA 7348 for OWE incorporated a Master Plan to guide the staged development of the OWE and a Stage 1 Development Application.

Development Consent was issued under Section 4.38 of the *Environmental Planning & Assessment Act 1979* on the 13th September 2019 for a Concept Proposal including:

- Concept layout of 22 warehouse buildings providing 476,000 square metres of gross floor area and ancillary offices, built over five development stages;
- Concept layout of development lots, internal roads, drainage, landscaping and biodiversity offsets;
- Development controls.

A Stage 1 Development Application including:

- Bulk earthworks across all five stages including retaining walls and noise walls;
- Construction and operation of three warehouse buildings in Precinct 1 (1A, 1B and 1C);
- West-North-South Link Road and associated subdivision;
- Estate roads 1, 2, 6 and the eastern part of road 7;
- Service infrastructure to Precinct 1, including drainage, power, sewer, water and telecommunications;
- Landscaping of Stage 1, the western site boundary, West-North-South Link Road, estate roads 1, 2 .6 and the eastern part of road 7 and detention basins;
- Subdivision of Stage 1 lots and road infrastructure; and
- Stormwater drainage infrastructure for Lots 2A and 2B.

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B20 – Bushfire Protection of Schedule B – Conditions for the Concept Proposal requires the Applicant to ensure that the Development complies with:

a. The relevant provisions of *Planning for Bushfire Protection 2006;*

b. The construction standards and asset protection zone requirements recommended in the Oakdale Industrial Estate – West Bushfire Protection Assessment prepared by ABPP, dated September 2016; and

c. AS2419.1 – 2005 for fire-fighting water supply.

Goodman is seeking modification to the approved Concept Plan with a MOD 3 Application (SSD 7398 MOD 3) and approval for the Stage 2B Development Application being lodged with the Department of Planning, Industry & Environment (SSD 10397).

Chapter One of this report examines the proposed SSD 7348 MOD 3 layout for consistency with the bushfire protection requirements of B20 – Bushfire Protection of Schedule B – Conditions for the Concept Proposal.

Chapter Two of this report examines the compliance of the SSD 10397 Stage 2B Application with the relevant provisions of *Planning for Bushfire Protection 2006.*

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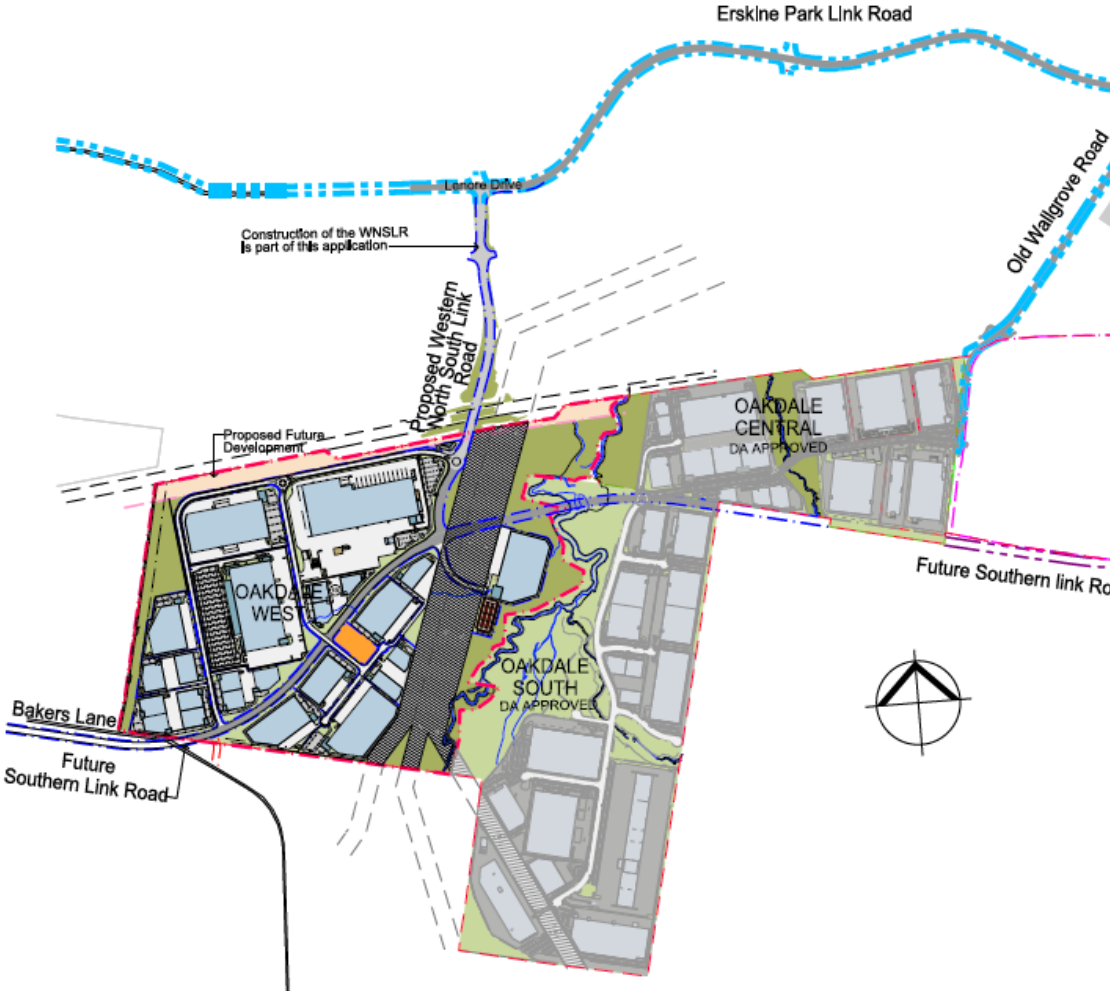
CHAPTER ONE – SSD 7348 MODIFICATION 3 APPLICATION

The site is known as Oakdale West and comprises the third stage of four stages within the broader 'Oakdale Estate' under the management of Goodman Property Services (Aust.) Pty Ltd Limited – refer to Figure 1 – Oakdale Estate.

Figure 1 – Oakdale Estate



The development site an irregular shaped parcel which is mainly located to the west of Ropes Creek. The development site is largely zoned IN1 – General Industrial under the WSEA SEPP but also includes large areas of land zoned E2 – Environmental Protection, associated with the Ropes Creek riparian corridor.

The Penrith Council Bushfire Prone Land Map indicates that the Kemps Creek corridor contains Category 1 Bushfire Prone Vegetation with Category 1 vegetation occupying the land to the south and west of the site. The vegetation within the site is mapped as Category 2 Bushfire Prone Vegetation.

Therefore, measures are required to be provided to minimise bushfire risk on the proposed development in accordance with the provisions of *Planning for Bushfire Protection 2006.*

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Figure 2 on Page 6 provides a copy of the Bushfire Protection Measures Plan approved under the Concept Plan Approval. Figure 3 on Page 7 provides a copy of the bushfire protection measures proposed for the SSD 7348 MOD 3 layout.

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Figure 2 - Oakdale West Estate 2019 Approved Masterplan showing Defendable Space widths to the future buildings.

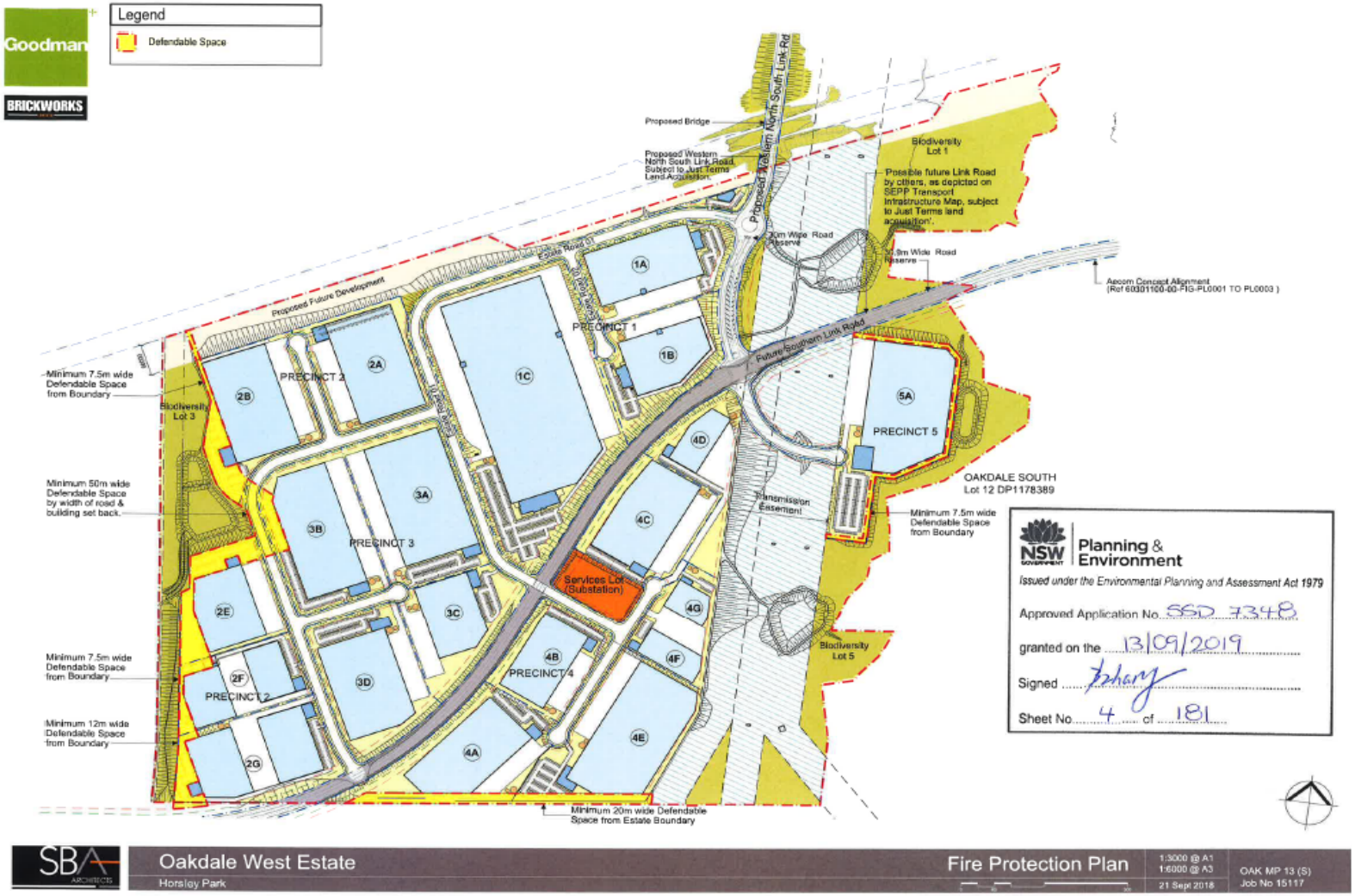

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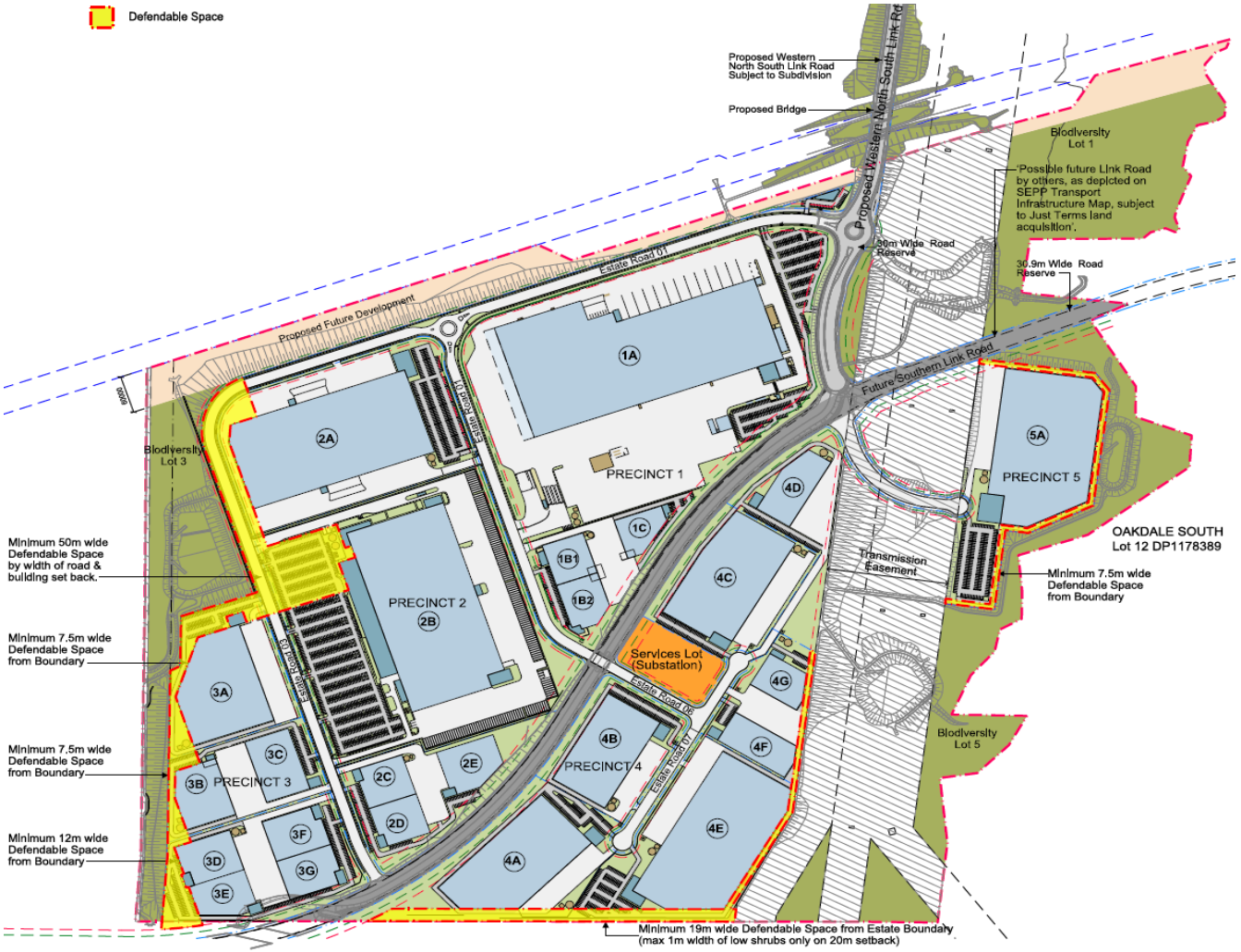
Figure 3 - Oakdale West Estate Masterplan SSD 7348 MOD 3 showing Defendable Space widths to the future buildings.



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I have reviewed the Oakdale West Estate Master Plan SSD 7348 Modification 3 and confirm that the bushfire protection measures are consistent with the measures provided in the approved Concept Plan and Consent Condition B20 – Bushfire Protection of Schedule B – Conditions for the Concept Proposal.

Graham Swain,
Managing Director,
Australian Bushfire Protection Planners Pty Limited
13.01.2020

Fire Protection Association Australia Member No: 48781

CHAPTER TWO – SSD 10397 STAGE 2 DEVELOPMENT APPLICATION

Australian Bushfire Protection Planners Pty Limited has been commissioned by *Goodman Property Services (Aust.) Pty Ltd* to prepare a Bushfire Protection Assessment that provides advice on the bushfire protection measures required for the construction of the proposed warehouse building 2B within the SDD 10397 Stage 2 Precinct on Lot 11 in DP 1178389 Kemps Creek.

Development Consent was issued under Section 4.38 of the *Environmental Planning & Assessment Act 1979* on the 13th September 2019 for a Concept Proposal and a Stage 1 Building Approval contained the following condition relating to the construction of buildings within Stage 1 of the estate.

B91 – Bushfire Protection of Schedule D – Conditions for the Stage 1 requires the Applicant to ensure that the Development complies with:

a. The relevant provisions of *Planning for Bushfire Protection 2006;*

b. The construction standards and asset protection zone requirements recommended in the Oakdale Industrial Estate – West Bushfire Protection Assessment prepared by ABPP, dated September 2016; and

c. AS2419.1 – 2005 for fire-fighting water supply.

In recognition that this condition will prevail over the SSD 10397 Stage 2 Precinct I have reviewed the Stage 2 layout against the relevant provisions of *Planning for Bushfire Protection 2006* and construction standards and asset protection zone requirements recommended in the Oakdale Industrial Estate – West Bushfire Protection Assessment prepared by ABPP, dated September 2016, and confirm:

1. The location of Building 2B within the Stage 2 Precinct exceeds the width determined in Table 2 of the ABPP report.

   This width removes the chance of flame contact on the building - therefore satisfying Section 4.3.6(f) of *Planning for Bushfire Protection 2006.*

2. The management of the defendable space shall be in accordance with Strategy 2 of the ABPP report;

3. In accordance with Strategy 3 of the ABPP report the fire-fighting water supply to the proposed building shall comply with the Building Code of Australian (BCA) and Australian Standard A.S. 2419.1 – 2005.

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4. In accordance with Strategy 4 – Table 4, Building 2B shall be constructed to comply with Section 3 and Section 5 (BAL 12.5) of A.S. 3959 – 2009 – *'Construction of Buildings in Bushfire Prone Areas'* and the following additional construction standards shall apply:

   - The downpipe/stormwater system to the internal box gutters shall be sized to provide a self flushing of combustible materials from the roof/gutter. This shall include increased fall in the box gutters to the sumps;

   - Any operable windows shall be fitted with aluminium/stainless steel mesh flyscreens having a maximum mesh aperture size of 2mm;

   - Access doors (PA and Vehicle) to the building shall be fitted with seals that seal the bottom, stiles and head of the door against the opening/frame to prevent the entry of embers into the building. Particular attention shall be given to the gap at the head of the curtain of the roller doors, where mohair type seals can be used;

   - External timber doors shall be fitted with a stainless steel/Colorbond kick plate of 400mm high on the outside of the door;

   - External glazed doors and windows shall comply with the requirements for glazing less than 400mm above finished ground level; paths / pavement and elevated roofs;

   - Any external vents, grilles and ventilation louvres shall have stainless steel mesh with a maximum aperture of 2mm square fitted to prevent the entry of embers into the building or be fitted with a louvre system which can be closed in order to maintain a maximum aperture or gap of no more than 2mm.

   - Roof ventilators shall be fitted with stainless steel flymesh (2mm aperture) to prevent the entry of embers into the building or be fitted with a louvre system which can be closed in order to maintain a maximum aperture or gap of no more than 2mm.

5. In accordance with Strategy 4 of the ABPP report there shall be prepared for Building B2 a Bushfire Evacuation & Emergency Plan (BEEP).

6. In accordance with Strategy 5 of the ABPP report access to the bushfire prone vegetation shall be provided either by a perimeter road or by vehicular access to the building or parking areas that are incorporated into the defendable space setbacks.

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The access provisions shall satisfy the NSW Rural Fire Service and Fire & Rescue NSW appliance requirements.

Figure 4 on Page 12 is a plan of the Stage 2 Precinct showing the location and extent of the Defendable Space provided to the west of Building 2B.

Figure 5 on Page 13 is the Site Plan for the proposed Warehouse Building on site 2B within the Stage 2 Precinct.

Graham Swain
Managing Director,
Australian Bushfire Protection Planners Pty Limited.
13.01.2020

Fire Protection Association Australia Member No: 48781

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Email. abpp@bigpond.net.au

Figure 4 – Plan of the Stage 2 Precinct showing the location and extent of the defendable space to the west of SSD 10397 Stage 2 Building 2B.

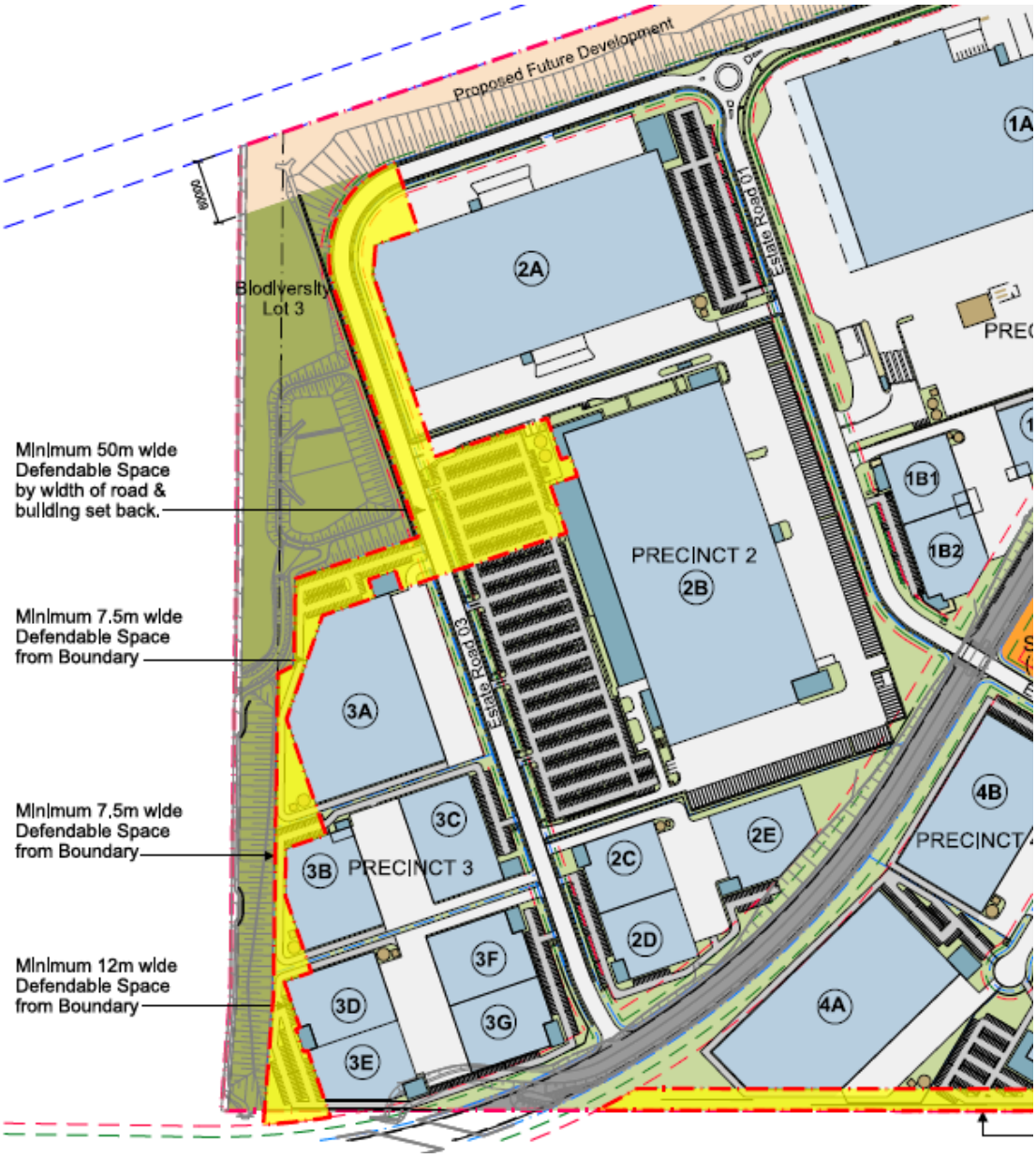

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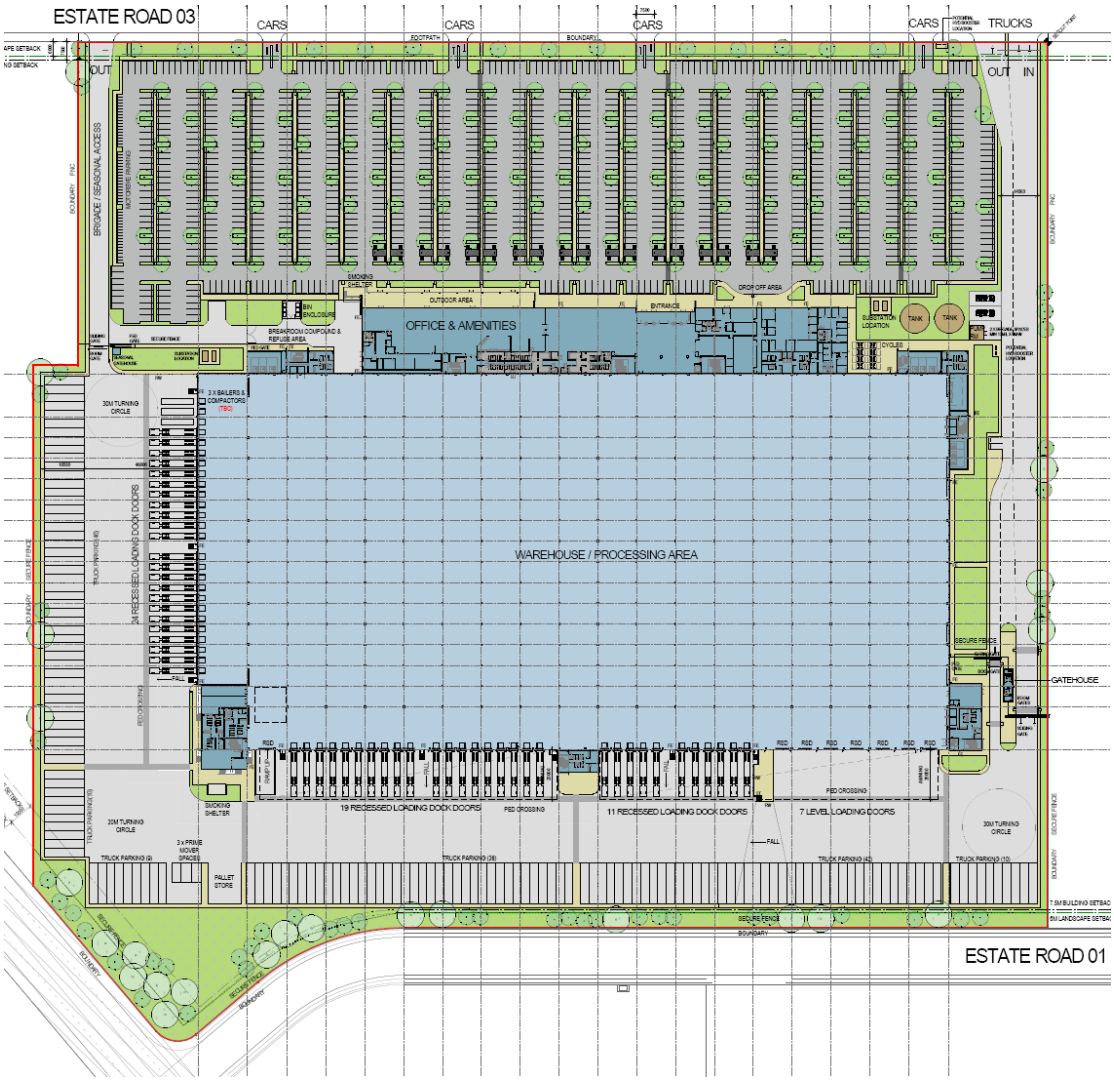
Figure 5 – Site Plan for the proposed Warehouse Building on Site 2B within the Stage 2 Precinct of the Oakdale West Estate.



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APPENDIX S

Consultation Schedule for TfNSW (former RMS) and Water NSW

Consultation Schedules for Conditions Below

Consultation

D57. The Applicant must develop a schedule for consultation with and approval by TfNSW for the construction of the bridge foundations over the future WSFL, including geotechnical and structural certification as required by TfNSW. The schedule must form part of the CEMP required by Condition D119.

D58. The Applicant must develop a schedule for consultation with and approval by WNSW for the construction of the bridge over the water pipelines corridor. This schedule must form part of the CEMP required by Condition D119.

WNSLR Schedule for Consultation (TfNSW):

Timing	Trigger	Consultation Details
Preconstruction	Endorsement of design drawings, geotechnical engineering and consultation schedule	Meetings and document sharing and modifications until TfNSW and Goodman are satisfied.
During WNSLR Construction	If unexpected ground conditions are found for piling works requiring design changes to diameter or location of piles, columns or abutment B. Depth of foundations will vary and is not considered to trigger further consultation.	Provide Geotechnical results and design changes to TfNSW representative. Meeting to discuss if required.
Project CEMP's	Not Triggered	TfNSW require no consultation for development or implementation of site CEMP's
WNSLR Completion	After practical completion is achieved.	TfNSW to be sent as built information and certification to close out consultation.

WNSLR Schedule for Consultation (Water NSW):

Timing	Trigger	Consultation Details
Preconstruction	Endorsement of design drawings, construction methodology, Site Extent Setout, CEMP and Consultation Schedule	Meetings and document sharing and modifications until Water NSW and Goodman are satisfied.
Prior to Entering Corridor	When Structural Inspection and Dilapidation Reports are complete	Provide information to Water NSW and discuss any items requiring
During WNSLR Construction	If any noteworthy design or methodology changes are required to complete works within the Water NSW Corridor.	Contact Water NSW representative for consultation and meeting if / as required.
During WNSLR Construction	If any incidents occur that affect or could affect the water pipelines.	Contact Water NSW 24 hour Incident Notification Number 1800 061 069
WNSLR CEMP	If any updates are required to WNSLR CEMP once approved.	Contact Water NSW representative for consultation discussion, provide draft update for review and schedule meeting if / as required.
WNSLR Completion	After practical completion is achieved.	Water NSW to be sent as built information and certification to close out consultation.

APPENDIX T

Evidence of Consultation for CEMP

Consultation

Water NSW

From: Justine Clarke <Justine.Clarke@waternsw.com.au>
Sent: Wednesday, 11 September 2019 9:25 AM
To: Alex Lohrisch <Alex.L@atl.net.au>
Cc: Stephanie Partridge <Stephanie.Partridge@goodman.com>; Alison Kniha <Alison.Kniha@waternsw.com.au>; Kym Dracopoulos <Kym.Dracopoulos@goodman.com>; Luke Ridley <Luke.Ridley@goodman.com>
Subject: WaterNSW Response - Oakdale West Estate - STAGE 1 CEMP

Hi Alex

Thank you for allowing WaterNSW the opportunity to comment on the Construction Environmental Management Plan (CEMP) for stage 1 of the Oakdale West Estate as per draft consent condition D111.

WaterNSW understands the works covered by the CEMP will be completed by Burtons and include;

- Bulk earthworks across the entire site (with the exception to the WNSLR works area which covers the Construction Access Road and Basin 1);
- Construction of the retaining and noise walls across the site;
- Construction of the western bund;
- Construction of lead in services infrastructure, including potable water, sewer, telecommunications and electrical;
- Construction of Roads 1, 2, 6 and part of Road 7;
- Construction of Basins 2, 3, 4, and 5; and
- Landscaping across the site.

WaterNSW notes that no works are planned within our lands and no access consent is requested for this stage of works. Nevertheless, works will be occurring directly adjacent to the Pipelines corridor.

WaterNSW acknowledges that controls adopted for the North South Link Road (NSLR) where relevant are included within this CEMP including vibration controls and monitoring, fencing arrangements, erosion and sediment controls, incident reporting, dilapidation surveying, ongoing consultation, and traffic controls. The implementation of these controls is essential for the protection of Sydney's critical water supply infrastructure.

In general WaterNSW supports the implementation of this plan and makes the following additional comments;

- To manage any unpredicted impacts to water quality on Ropes Creek and protect WaterNSW stormwater drainage infrastructure, controls for monitoring water quality and discharge risk should be included in the contingency plan at section 5.1 (Table 30).
- Include an item within section 3.4 'Inductions and Environmental Training' to notify workers and visitors that *'Access into the WaterNSW pipeline corridor is prohibited unless written access consent has been obtained from WaterNSW'.*

If you have any questions please do not hesitate to contact me.

Regards

Justine Clarke
Catchment and Asset Protection Adviser

WaterNSW

Level 14, 169 Macquarie Street
PO Box 398
Parramatta NSW 2150
T: 02 9865 2402
M: 0457 535 955
justine.clarke@waternsw.com.au

TfNSW (former RMS)

From: Malgy Coman <Malgy.COMAN@rms.nsw.gov.au> Sent: Fri 27-Sep-2019 3:36 PM
To: Alex Lohrisch
Cc: Pahee Rathan
Subject: RE: RMS responses for Oakdale West

Hi Alex,

Roads and Maritime Services has reviewed the Stage 1 CEMP and has no further comment.

Regards,

Malgy Coman
Senior Land Use Planner (Monday, Tuesday and Thursday)
North West Precinct
T 02 8849 2413
www.rms.nsw.gov.au
Every journey matters

Roads and Maritime Services
27 Argyle Street Parramatta NSW 2150

Council

From: Stephen Masters <stephen.masters@penrith.city>
Sent: Friday, 4 October 2019 12:13 AM
To: Alex Lohrisch
Subject: Council approval of Oakdale West Industrial Estate Construction Environmental Management Plan SSD 7348 including all relevant subplans

Good Morning Alex,

I have reviewed the Oakdale West Industrial Estate Construction Environmental Management Plan SSD 7348 prepared by SLR, reference 610.17948-R04, version -v1.0 dated 26 September 2019 including all subplans of the Construction Environmental Management Plan (CEMP) as listed in the appendices below:

APPENDICES

Appendix A	Development Consent SSD 7348
Appendix B	Erosion and Sediment Control Plans (Burton)
Appendix C	Terrestrial Flora and Fauna Management Plan (Ecologique)
Appendix D	Aquatic Flora and Fauna Management Plan (Ecologique)
Appendix E	Landscape Management Plan (Scape Design)
Appendix F	Construction Traffic Management Plan (Ason)
Appendix G	Environmental Management Policy
Appendix H	SSD 7348 Relevant Consent Conditions
Appendix I	Event Notification Report
Appendix J	Community Communication Strategy (SLR)
Appendix K	Community Correspondence Register
Appendix L	Construction Noise and Vibration Management Plan (SLR)
Appendix M	Construction Air Quality Management Plan (SLR)
Appendix N	Salinity Management Plan (Pells Sullivan Meynink)
Appendix O	Fill Importation Protocol (AECOM)
Appendix P	Waste Management Plan (SLR)
Appendix Q	Unexpected Finds Protocol – Archaeological Items (Artefact)
Appendix R	Unexpected Finds Protocol – Contamination (AECOM)
Appendix S	Bushfire Protection Assessment (ABPP)
Appendix T	Consultation Schedule for TfNSW (former RMS) and Water NSW
Appendix U	Evidence of Consultation for CEMP

I can advise that the Oakdale West Industrial Estate CEMP, including all relevant subplans as required to be reviewed by Council in accordance with the relevant consent conditions, are acceptable to Council.

As previously discussed, you are advised to undertake a dilapidation survey of existing pavement condition of both Bakers Lane and Aldington Road out to their intersections with Mamre Road prior to the commencement of construction works. Section 3.1.2 of the Construction Traffic Management Plan (CTMP) submitted with the WNSLR CEMP states that up to 696 truck movements per day are associated with inbound and outbound deliveries. Any damage to Council's local road network as a result of the truck movements will be required to be rectified by Goodman. You are to ensure all construction traffic are made aware of the CTMP, particularly Section 3.1.5 Measures to Manage Construction Traffic in Bakers Lane During School Zone Hours.

I trust the above information is satisfactory, please do not hesitate to contact me if you wish to discuss any matter.

Regards

Stephen Masters
Development Engineering Coordinator

E Stephen.Masters@penrith.city
T +612 4732 7759 | F +612 4732 7958 | M +61423 781 518
PO Box 60, PENRITH NSW 2751
www.visitpenrith.com.au
www.penrithcity.nsw.gov.au

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CITY COUNCIL

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INTRODUCING
GOOD
NEIGHBOUR

15 October 2019

Endeavour Energy Ref: UIS0845 – 2018/01427/001
Customer Ref:

Connect Infrastructure
PO Box 484
CASULA MALL NSW 2170

Attention: Brendon Hince

Dear Sir/Madam

UIS0845 – Land Subdivision Application: LOT 2,3,11,2,6, DP 84578,85393,1178389,1215268,229784, Lenore Drive, KEMPS CREEK

Drawing Number: 513625A 513624A

Endeavour Energy has reviewed and certified your design package. Please find the certified drawing 513625A 513624A attached.

The certification of this project is supported by the following key documents:

Document name	Notation Date
Summary Environmental Report (SER) – FAT0038	19/ 09/ 2019
Design Safety Report	24/ 06/ 2019

This certification is valid for six months from the date of issue and is conditional on the network remaining unchanged. Amendments to the design may need to be arranged by the Developer if the network conditions change prior to the works being completed.

Please note that the network is subject to change at any time. Endeavour Energy accepts no responsibility for any changes to the certified design that may be required.

Endeavour Energy will provide advice regarding Ancillary Network Services Fees applicable to the construction phase of the project following the nomination of the Level 1 Accredited Service Provider (ASP).

Please complete and return the attached Notice of Intent form that must be signed by the ASP3, the Developer and the nominated ASP1.

Should you have any enquiries regarding your application please contact the undersigned.
Yours faithfully,

Vishal Chavan
Contestable Works Engineer
Ph: 02 9853 7923
Fax: 9853 7925
Email: cwtech@endeavourenergy.com.au

15 October 2019

Endeavour Energy Ref: UIS0845

Drawing Number: **513625A** 513624A

Endeavour Energy
PO Box 811
Seven Hills NSW 1730

LETTER OF INTENT – ELECTRICITY SUPPLY OF *LOT 2,3,11,2,6, DP 84578,85393,1178389,1215268,229784, Lenore Drive, KEMPS CREEK*

The Level 3 Accredited Service Provider (ASP) for this project to complete the following.

I declare that I am the rightful owner of the Intellectual property of the design for this project. I agree to release the design to the Developer Representative for construction and Endeavour Energy for their network records.

Name / Company: .....

Signature: .....

Date: .....

Email: .....

Phone: .....

The Developer and the Constructor Representatives to complete the following and return to Endeavour Energy.

Please accept this letter as notification that I intend to proceed with the development referenced above.

I own or am developing the land and will undertake works associated with the electrical network. I intend to carry out all works and transfer this work to Endeavour Energy in accordance with Endeavour Energy's requirements outlined in the Terms and Conditions of Endeavour Energy's Model Standing Offer for a Standard Connection Service.

I shall nominate ***ONE ONLY*** Level 1 ASP responsible for this CAP project. This Level 1 ASP will be prepared to accept all warranty maintenance, insurances and defect liability for this CAP project.

I acknowledge that Endeavour Energy will only issue the letter of acceptance to accept the assets when all of the works associated with this project and the necessary forms, declarations & WAE drawings have been completed and finalised and all Ancillary Network Services Fees and outstanding charges including Street Lighting Tariff Class 5 have been paid to Endeavour Energy.

A **The Trenching works will be carried out by:**

Name / Company: .....

Address: .....

Email: …… **Phone:** …….

Proposed start date: …… **Proposed End date:** ……..

B **The Electrical works will be carried out by:**

Name / Company: .....

Address: .....

Email: …… **Phone:** …….

Proposed start date: …… **Proposed End date:** ……..

C **The Warranty and Maintenance Retention Security will be provided by the following single party:**

Name / Company: .....

Address: .....

Email: …… **Phone:** …….

D **The total value of this project excluding GST is** **$** ……..

E **The Fees will be paid to Endeavour Energy by the following single party:**

Name / Company: .....

Address: .....

Email: …… **Phone:** …….

F **The charge for the use of Endeavour Energy Duct if applicable will be paid by the following single party:**

Name / Company: .....

Address: .....

Email: …… **Phone:** …….

G The payment advice for the Streetlight Tariff Class 5 charge, if included in the certified design package has been paid (please circle): Yes / No / NA

If No, please provide reason: .....

.....

H The Reimbursement if applicable is payable to the following single party following the letter of acceptance and receipt of invoice:

Name / Company: .....

Address: .....

Email: …… **Phone:** ……

I Acknowledgment of works responsibilities:

I, ……..., being the foreman, project manager or superintendent for the Level 1 ASP (constructor), have been issued with and understand the Environmental Management Plan and undertake to comply with its requirements.

I have briefed all personnel, contractors and sub-contractors about the objectives and contents of the Environmental Management Plan and the works to be undertaken.

I am also aware of requirements as detailed in design drawings and other supporting documents associated with the certified design.

I have attached the approved DA from the local Council to this form (if it has not previously been provided)

We, the undersigned, warrant that the information provided above is correct and we are authorised to execute this agreement on behalf of our respective organisation.

Developer Representative	**Level 1 ASP Representative**
Company: ……..	**Company:** …….
Name: …….	**Name:** ……...
Email: …….	**Email:** ……
Phone: …….	**Phone:** ……..
…… **Date:** …… **(Signature)**	…… **Date:** …… (**Signature)**

26 November 2018

Endeavour Energy Ref: UIS0846 – 2018/01428/001
Customer Ref:

Connect Infrastructure
PO Box 484
CASULA MALL NSW 2170

Attention: Brendon Hince

Dear Sir/Madam

UIS0846 – LOT 14,1, DP ,663937, Land Subdivision Application: Aldington Road (off), KEMPS CREEK

Your Proposed Method of Supply has been assessed, and Endeavour Energy has determined the method of supply requirements as outlined in the enclosed Design Brief. Please use this Design Brief in preparation of the design package which you will submit for certification.

The design must comply with all the conditions specified in this document, the Terms and Conditions of Endeavour Energy's Model Standing Offer for a Standard Connection Service and all relevant Endeavour Energy standards and instructions.

This Design Brief is valid for three (3) months from the date of issue.

A final Determination of Funding and a Payment Advice for Ancillary Network Services Fees applicable to this phase of the project are attached.

Property tenure is required for this project.

The applicable bond for this project is:

Property Tenure Bond	*$Nil*

A Payment Advice for the total bond required is attached. This Payment Advice along with the agreement to enter (Form FPJ 5013), signed by the owner, must be returned with the evidence of payment of the Property Tenure Bond.

Should you have any enquiries regarding your application please contact the undersigned.

Yours faithfully,

Saroun Ly
Contestable Works Engineer
Ph: 9853 6152
Email: cwtech@endeavourenergy.com.au

26 November 2018

Endeavour Energy Ref: UIS0846 – 2018/01428/001
Customer Ref:

Design Brief

Proposed Method Of Supply:
Feeders MM1232 and MM1342 are to be extended to supply the Oakdale West Estate.

1- Substations DS28123 and DS33600 are to have the HV switchgear upgraded to RTRR-C to facilitate the extension of these feeders.
2- Extend HV Feeder MM1342 from DS33600 to Oakdale West Estate development via existing spare conduits to Pillar 130780 and then via new conduits Eastward along Lockwood Road and then Southward along the new Western North South Link Road (refer to Attachment A6 of PMOS Sketch).
3- Install Type 24 conduits from Pillar 130780 to proposed Western North South Link Road (CAP Number UIS0845).
4- From the existing conduits located on the North-Western boundary of the development to new Road 01, create a new 3m wide easement for new conduits. Install Type 24 conduits in the new easement.
5- Extend HV feeder MM1232 from DS28123 to the development site (refer to Attachment A7 – PMOS Sketch)
6- Install a new 315kVA padmount substation to supply the street lighting and the temporary supply for construction of South Pipe Zone Substation. Substation is proposed to be configured RTR with Cat 2 FIF LV end. Temporary supply for South Pipe ZS construction is to be from this substation via a new pillar.
7- All new HV cable to be 11kV 3C 240mm2 Cu.
8- All new conduits installed on the development site are to be configured as Type 26.
9- Street lighting to be in accordance with EE standards and Penrith City Council lighting category requirements.

Conditions Of Supply Requirement:
The above MOS is acceptable with the followings:

1- Install 4 x 125mm ducts along Lockwoood Rd.
2- Install 4 x 125mm ducts along new easement along North-West boundary of precinct.
3- Agreed to item 8 above. The only difference would be along ROAD NO.1, on the western side of the road, north of the future intersection with only 4 x 125mm ducts will be required. *Note, Capacity planner requires to establish a future link to the north-western boundary of the precinct to future ROAD NO.4. This is not a requirement for this application but it may be worthwhile keeping in mind so that this link can be easily established in the future. Refer to diagram.*

The scope of works is to be undertaken in accordance with all relevant Endeavour Energy policies, regulations and network standards.

All service works are to comply with the NSW Service and Installation Rules.

Determination of Funding

Endeavour Energy Supplied Materials:

Nil

Endeavour Energy Funded and Constructed:

Nil

Endeavour Energy Funded and Customer (ASP L1) Constructed – Reimbursement Paid by Endeavour Energy:

Capital contribution:

- For urban subdivision as per AVS:
  - HV light trenching and reinstatement
  - HV cable pulling through duct
  - HV ducts laying on trench
  - HV cable
  - HV cable terminations, UGOH, STJs

- Spare HV duct as per Fact Sheet 11.

Note, Endeavour Energy will not pay capital cost contribution towards the 315kVA substation's package as it will be used for a temporary builder supply and to be replaced in future project under UIL 5503. Endeavour Energy will pay capital cost contribution towards the larger PM substation's package for permanent load under UIL5503.

Reimbursements to be paid to Endeavour Energy by Customer:

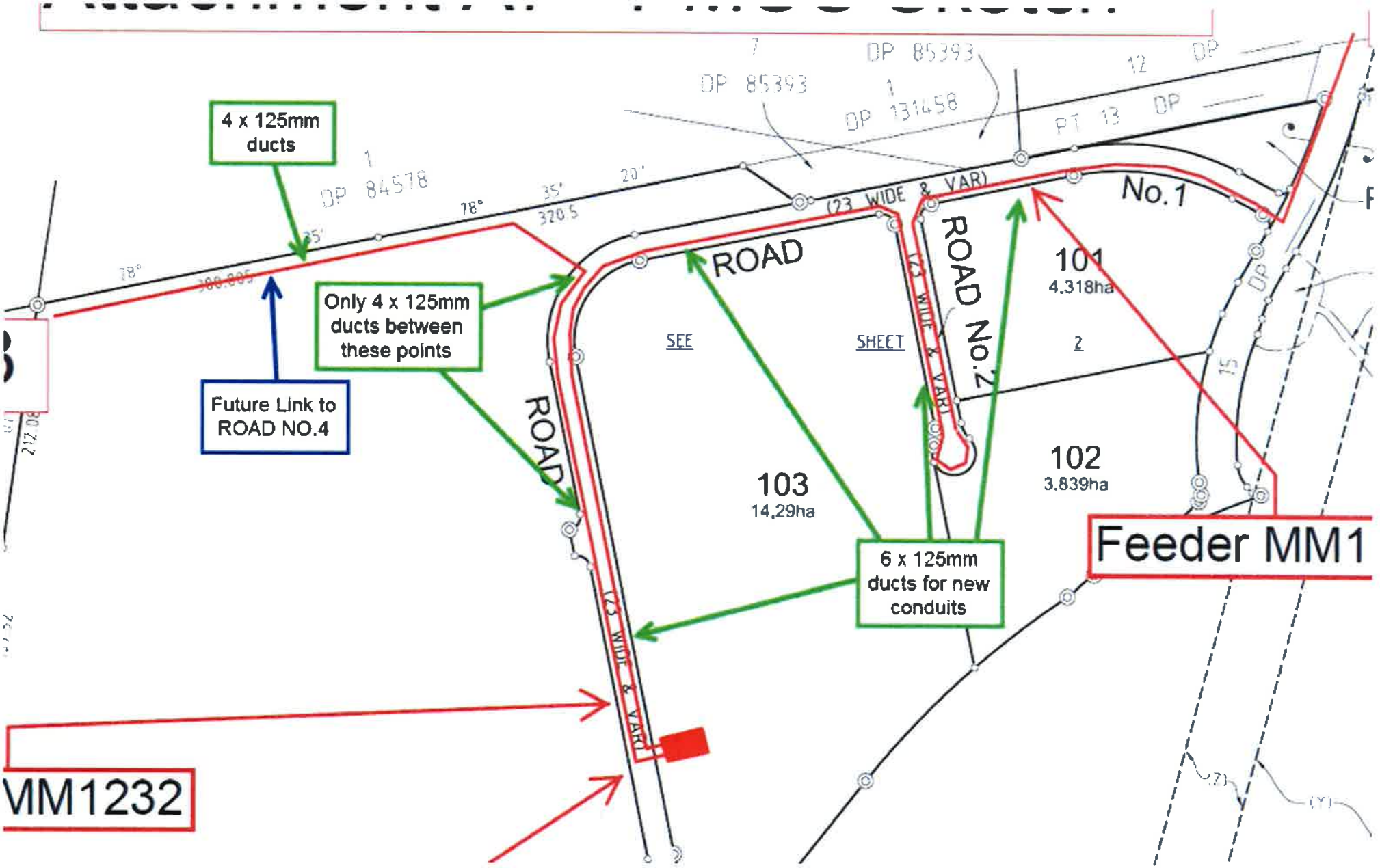
Duct usage as per Fact Sheet 11.

Customer Funded Non-Contestable Works:

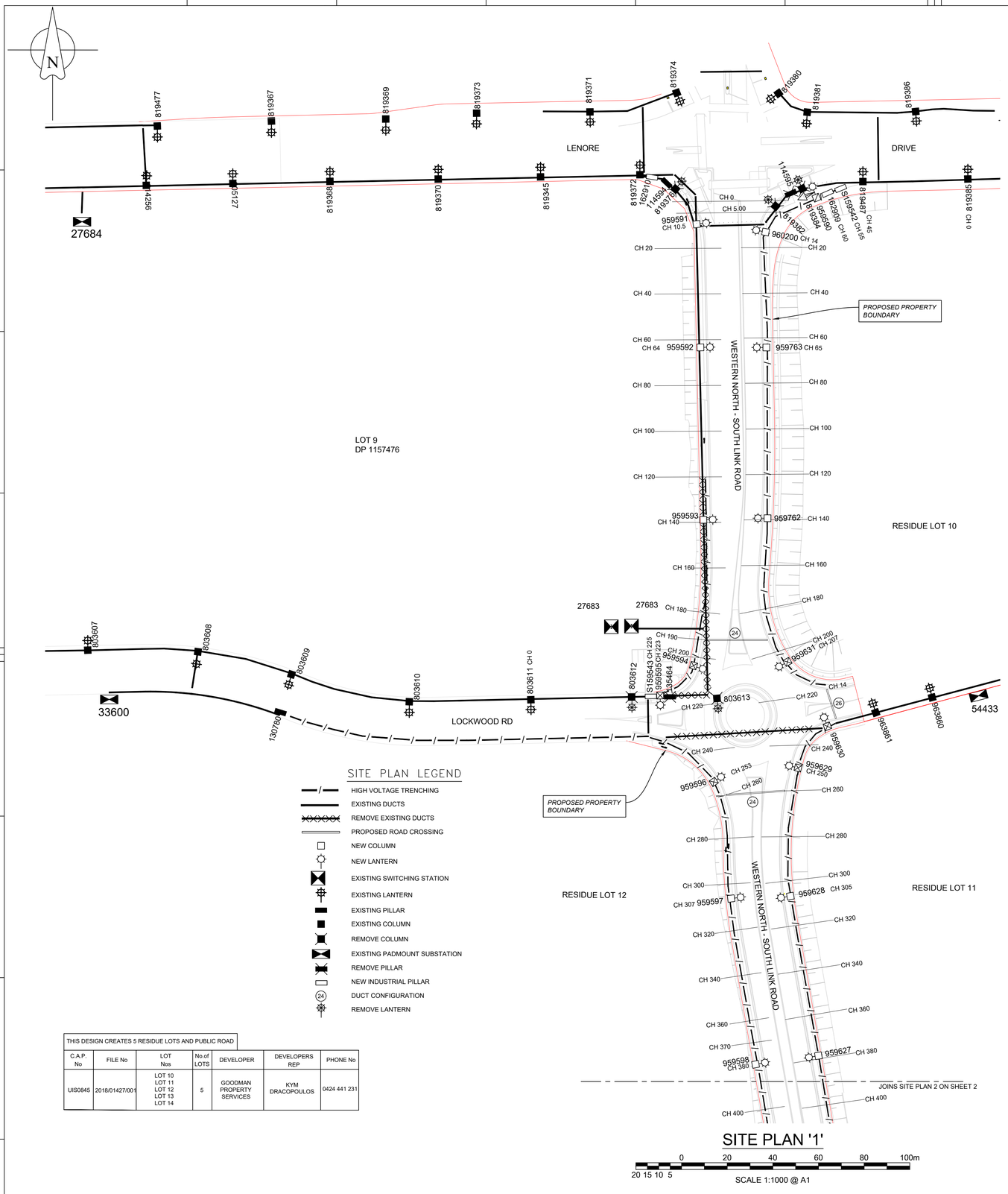
Network switching, substation commissioning, contract inspection

Customer Funded Contestable Works:

All other works required.



AS&P to review design.


N
LENORE
DRIVE
LOT 9
DP 1157476
WESTERN NORTH - SOUTH LINK ROAD
PROPOSED PROPERTY BOUNDARY
RESIDUE LOT 10
RESIDUE LOT 12
RESIDUE LOT 11
LOCKWOOD RD
JOINS SITE PLAN 2 ON SHEET 2
27684
33600
54433
27683
819477
819367
819369
819373
819371
819374
819380
819381
819386
819256
819127
819368
819370
819345
819372
1629101
1145941
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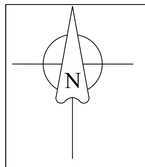
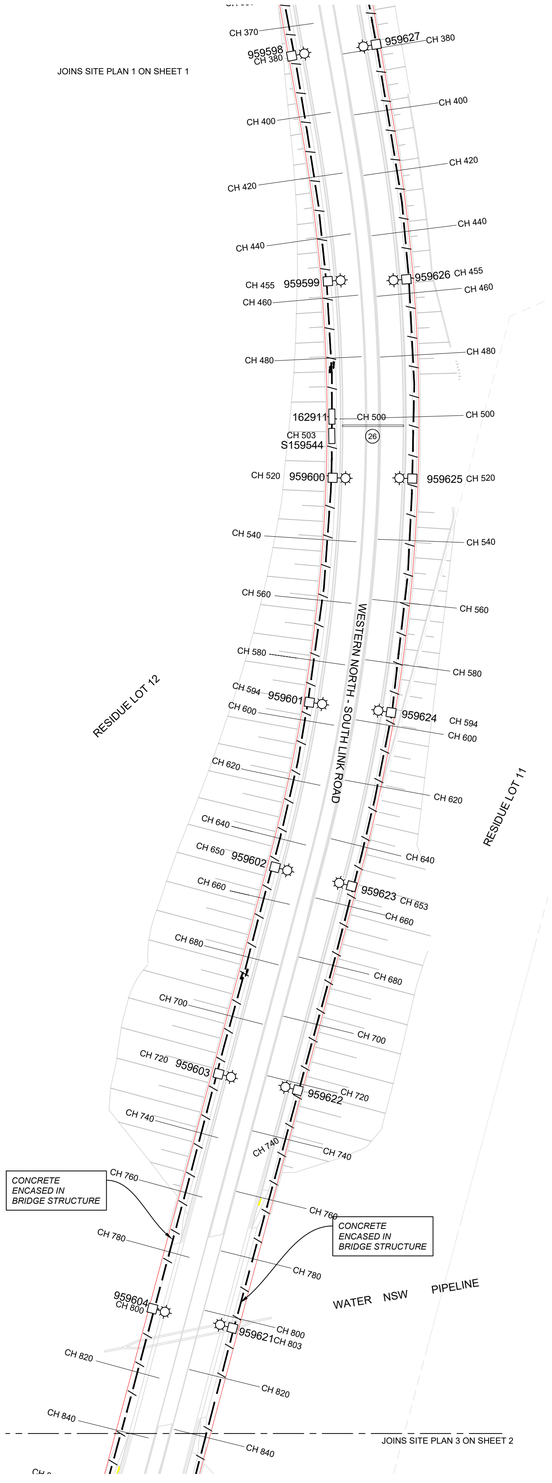


JOINS SITE PLAN 1 ON SHEET 1



SITE PLAN '2'

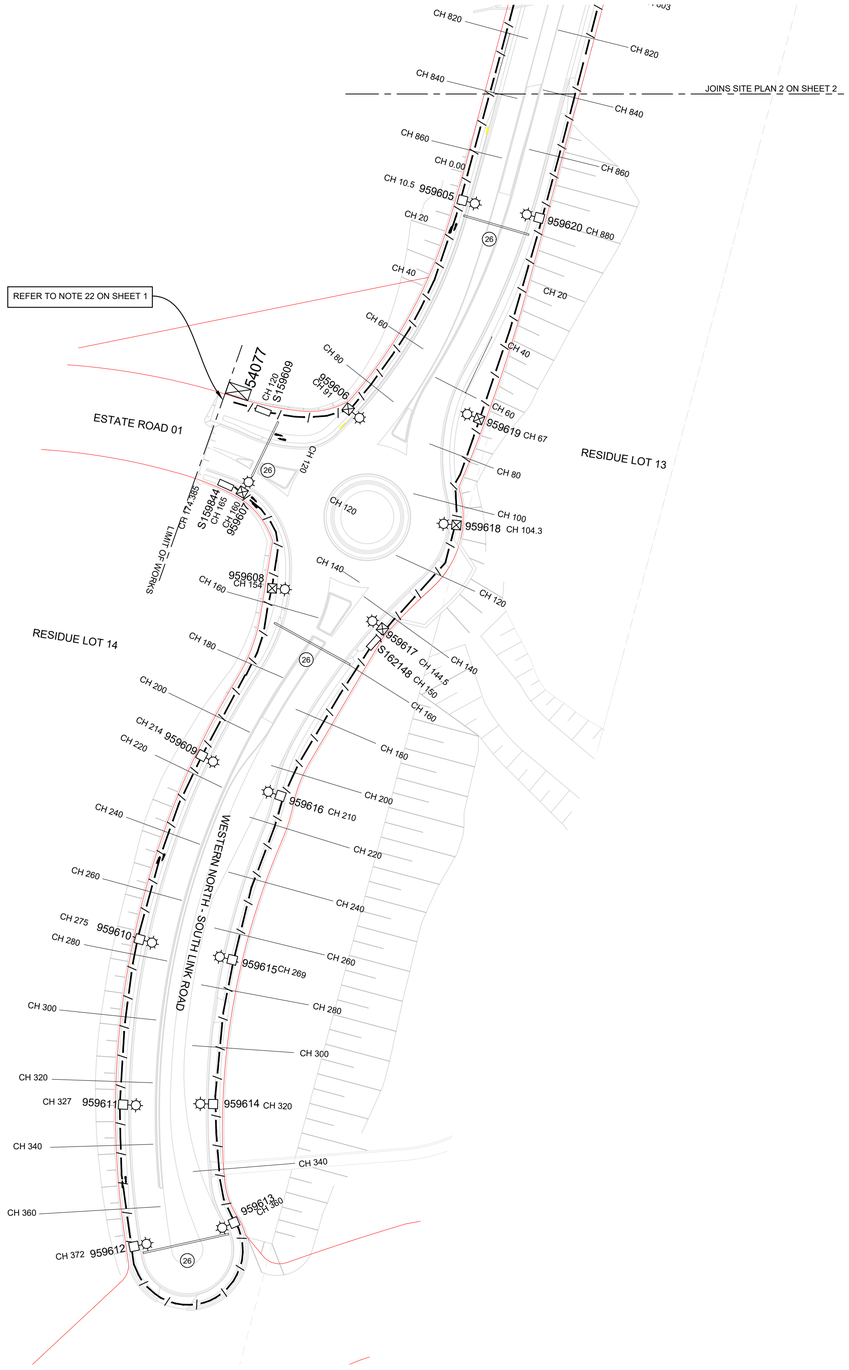
0 20 40 60 80 100m

20 15 10 5

SCALE 1:1000 @ A1

SITE PLAN LEGEND

- HIGH VOLTAGE TRENCHING
- EXISTING DUCTS
- REMOVE EXISTING DUCTS
- PROPOSED ROAD CROSSING
- NEW COLUMN
- NEW LANTERN
- EXISTING SWITCHING STATION
- EXISTING LANTERN
- EXISTING PILLAR
- EXISTING COLUMN
- REMOVE COLUMN
- EXISTING PADMOUNT SUBSTATION
- REMOVE PILLAR
- NEW INDUSTRIAL PILLAR
- DUCT CONFIGURATION (24)
- REMOVE LANTERN



SITE PLAN '3'

0 20 40 60 80 100m

20 15 10 5

SCALE 1:1000 @ A1

DESIGN COMPLIANCE AND INDEMNITY

This design complies with Endeavour Energy's relevant standards as current at this time and as listed on the Endeavour Energy Accredited Service Provider's Internet site. These standards include, but are not limited to:

CP:	Connection Policy
EMS:	Environmental Management Standard
MCI:	Mains Construction Instruction
MDI:	Mains Design Instruction
PDI:	Protection Design Instruction
SDI:	Substation Design Instruction
SAD 0001:	Design Drawing Standard
MMI:	Mains Maintenance Instruction
SMI:	Substation Maintenance Instruction
LDI 0001:	Public lighting Electrical Design Element

Additionally, where relevant, the design complies with AS/NZS 7000 "Overhead Line Design - Detailed Procedures" published by The Australian Standards.

CONNECT INFRASTRUCTURE DESIGN PTY LTD indemnifies Endeavour Energy for any loss or damage resulting from non-compliance of the design with the above standards.

Signed: _____ _____

Name: ALPESH MANJI

Service Provider Number: 1104 Date: 27/09/2019

WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY: _____

WORKS COMPLETED: _____

SIGNATURE: _____ DATE: _____

INSPECTED BY: _____

SIGNATURE: _____ DATE: _____

ASSET RECORDING

I: _____

OF: _____

CONTACT No.: _____

HEREBY CERTIFY THAT ASSETS MARKED AS-BUILT ON THIS DRAWING HAVE BEEN RECORDED AS PER ENDEAVOR ENERGY STANDARD SAD 0004.

SIGNATURE: _____

DATE: _____

CERTIFIED BY ENDEAVOUR ENERGY

Amendment: A

Date Approved: 15/10/2019

Examiner's Signature: _____

Print Name: Vishal Chavan

This Certification is issued subject to Endeavour Energy's Standard Certification Terms

Cadastre: © Land and Property Information 2016

AMENDMENTS: A ORIGINAL ISSUE — DRAFT No. 01

connect INFRASTRUCTURE
Connect Design Pty Ltd
Electrical Infrastructure Consultancy, Design & Construction
Tel: 02 9733 3333
Fax: 02 9733 3330
Email: mail@connecteng.com.au
6 Progress Cct, Prestons NSW 2170
PO Box 484, Casula Mall NSW 2170

connect REF. NUMBER

DV052A D05

TEMPLATE VERSION No. 4.3

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REFERENCE DRAWING'S		WORK ORDERS	
		GENERAL	
		OVERHEAD	
		UNDERGROUND	
		SUBSTATIONS	

CAP / SAMP No.	UIS0845
AM PROJ. No.	2018/01427/001
HV SWITCHING	
UBD/PENGUIN REF	
GIS MAP No	U82524
HV OP DIAGRAM	MAMRE 2, S6
LOCAL GOV AREA	PENRITH

ORIGINAL SCALE

DRAWN R.AZZI

DATE 07/06/2019

CH'D B.DUBEY

DESIGN A.MANJI

DO NOT SCALE DIMENSIONS IN METRES

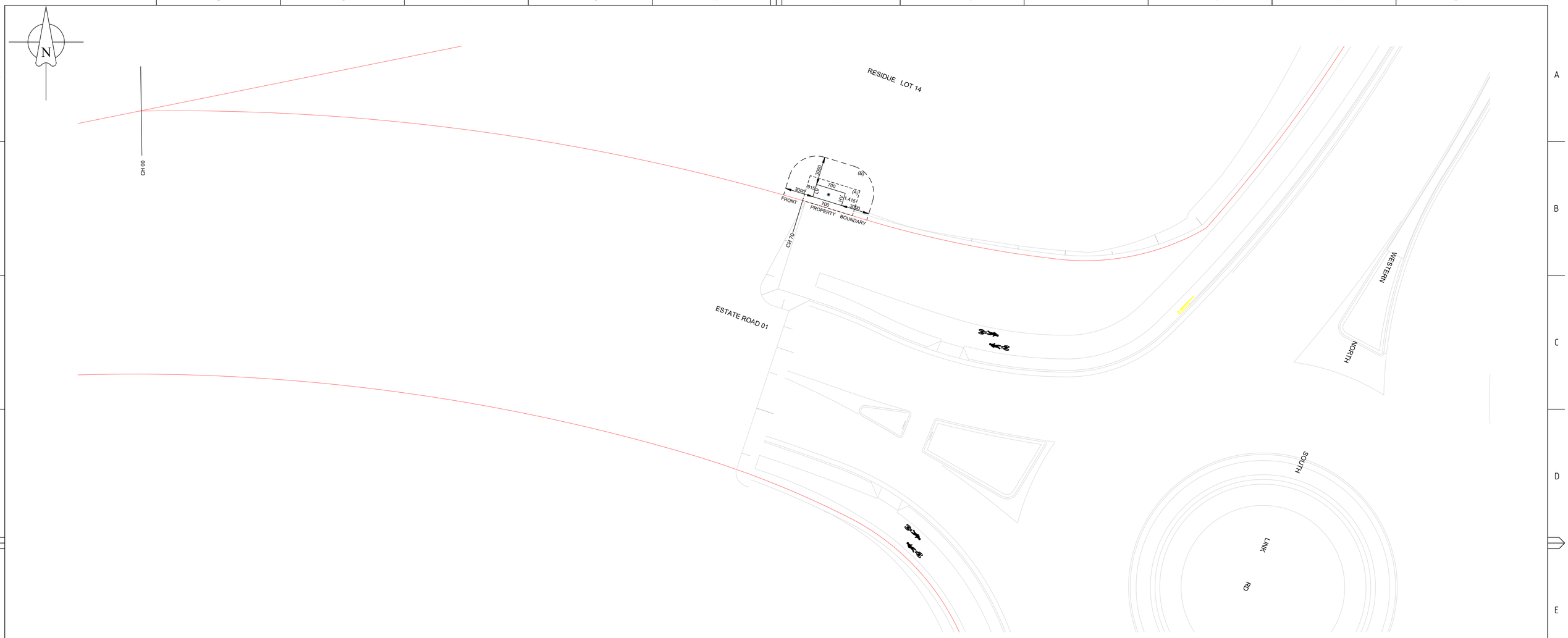
LENORE DRIVE (OFF)
KEMPS CREEK
UIS0845
DUCT , TRENCH AND EASEMENT PLAN
LOT 6, 2, 2, 11, 3,
DP 229784, DP84578, DP1215268, DP1178389, DP85393

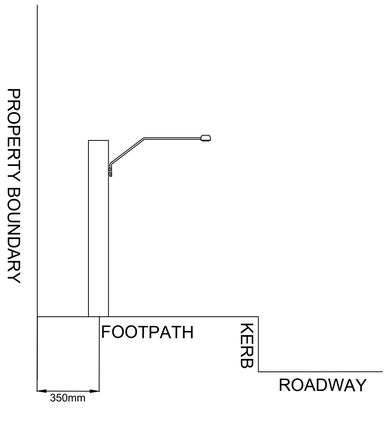
Endeavour Energy

A1 513624 A

SHEET No 2 OF 3 SHEETS

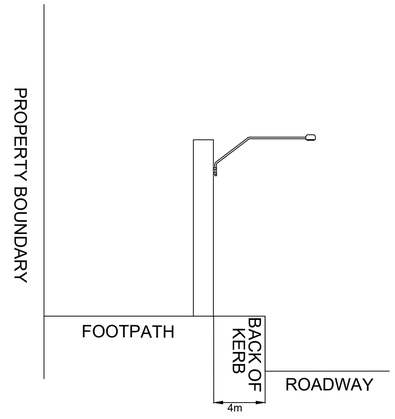
68384





STREETLIGHT PROFILE FOR ALL OTHER COLUMNS

NOT TO SCALE



STREETLIGHT PROFILE FOR COLUMNS 959590, 960200

NOT TO SCALE

(A) EASEMENT PADMOUNT SUBSTATION 2.75x5.5 CENTRED AROUND THE SUBSTATION PLINTH EXCEPT FOR 0.25 METRE OFFSET TOWARD THE HV END

(B) RESTRICTION ON THE USE OF LAND IN RELATION TO THE FIRE RATING OF BUILDINGS MEASURED 3 METRES FROM SUBSTATION PLINTH

SUBSTATION PLINTH 1.35x3.17 AT TOP OF CONCRETE (ALL OFFSETS TO PLINTH SHOWN FROM TOP OF CONCRETE)

IF A PLAN OF SURVEY, PLEASE SHOW SUBSTATION NUMBER AND AT LEAST TWO OFFSETS TO PLINTH

EASEMENT AND RESTRICTION ZONE DIAGRAM FOR PADMOUNT SUBSTATION 54077 COMMON EARTHING - INDUSTRIAL

0 4 8 12 16 20m

4 3 2 1

SCALE 1:200 @ A1

CERTIFIED BY ENDEAVOUR ENERGY

Amendment: A

Date Approved: 15/10/2019

Examiner's Signature:

Print Name: Vishal Chavan

This Certification is issued subject to Endeavour Energy's Standard Certification Terms

WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY:

WORKS COMPLETED:

SIGNATURE: DATE:

INSPECTED BY:

SIGNATURE: DATE:

ASSET RECORDING

I:

OF:

CONTACT No.:

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SIGNATURE:

DATE:

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CONNECT INFRASTRUCTURE DESIGN PTY LTD indemnifies Endeavour Energy for any loss or damage resulting from non-compliance of the design with the above standards.

Signed:

Name: ALPESH MANJI

Service Provider Number: 1104 Date: 27/09/2019

Cadastre: © Land and Property Information 2016

AMENDMENTS: A ORIGINAL ISSUE — DRAFT No. 01

connect INFRASTRUCTURE
Connect Design Pty Ltd
Electrical Infrastructure Consultancy, Design & Construction
Tel: 02 9733 3333
Fax: 02 9733 3330
Email: mail@connecteng.com.au
6 Progress Cct, Prestons NSW 2170
PO Box 484, Casula Mall NSW 2170

connect REF. NUMBER **DV052A D05**

TEMPLATE VERSION No. 4.3

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REFERENCE DRAWING'S		WORK ORDERS		CAP / SAMP No.	UIS0845
				AM PROJ. No.	2018/01427/001
		GENERAL		HV SWITCHING	
		OVERHEAD		UBD/PENGUIN REF	
		UNDERGROUND		GIS MAP No	U82524
		SUBSTATIONS		HV OP DIAGRAM	MAMRE 2, S6
				LOCAL GOV AREA	PENRITH

ORIGINAL SCALE		DO NOT SCALE DIMENSIONS IN METRES	
DRAWN	R.AZZI		
DATE	07/06/2019		
CH'D	B.DUBEY	DESIGN	A.MANJI

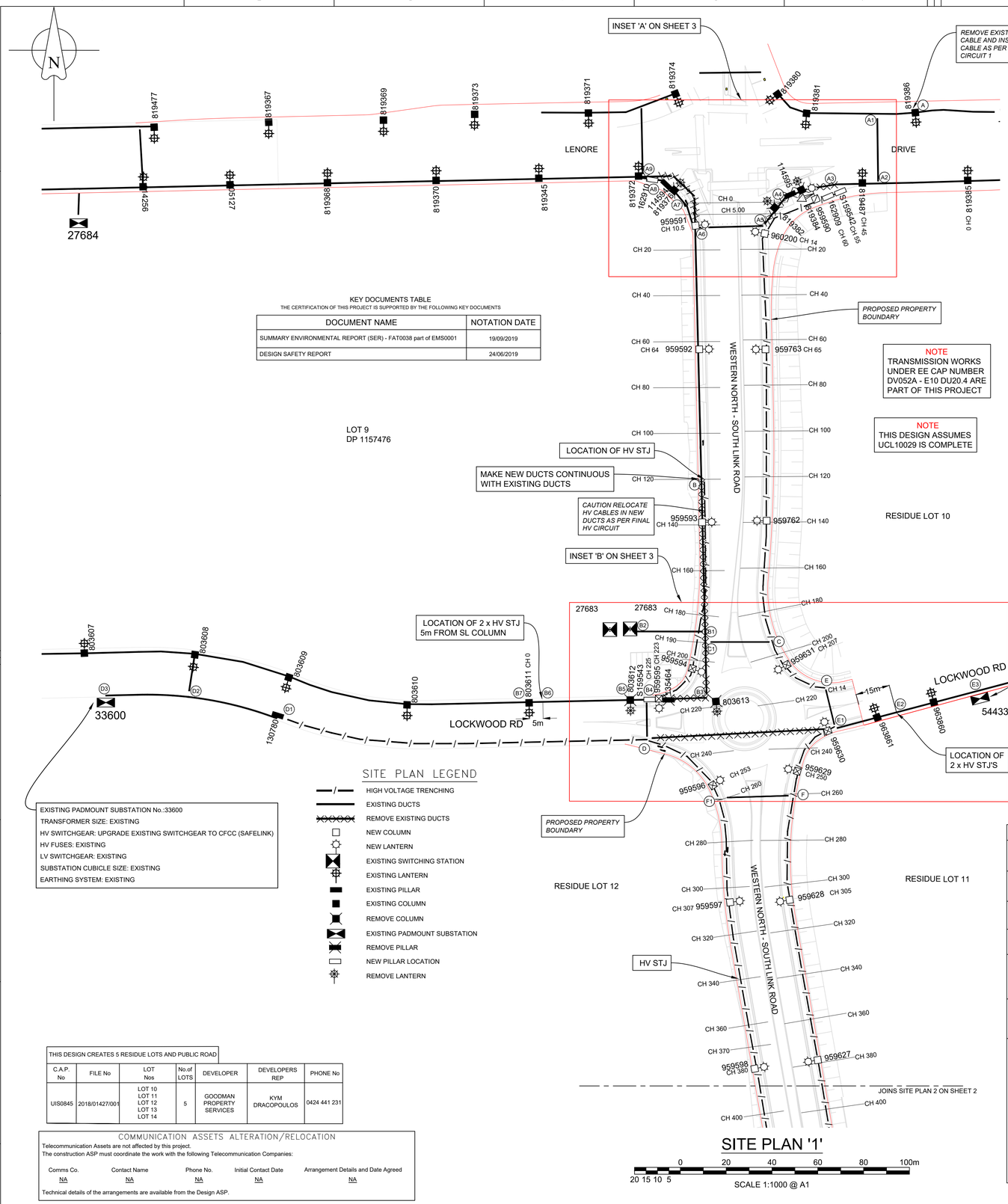
LENORE DRIVE (OFF)
KEMPS CREEK
UIS0845
DUCT , TRENCH AND EASEMENT PLAN
LOT 6, 2, 2, 11, 3,
DP 229784, DP84578, DP1215268, DP1178389, DP85393

Endeavour Energy

A1 | 513624 | A

SHEET No 3 OF 3 SHEETS

68384



KEY DOCUMENTS TABLE

THE CERTIFICATION OF THIS PROJECT IS SUPPORTED BY THE FOLLOWING KEY DOCUMENTS

DOCUMENT NAME	NOTATION DATE
SUMMARY ENVIRONMENTAL REPORT (SER) - FAT0038 part of EMS0001	19/09/2019
DESIGN SAFETY REPORT	24/06/2019

THIS DESIGN CREATES 5 RESIDUE LOTS AND PUBLIC ROAD

C.A.P. No	FILE No	LOT Nos	No.of LOTS	DEVELOPER	DEVELOPERS REP	PHONE No
UIS0845	2018/01427/001	LOT 10 LOT 11 LOT 12 LOT 13 LOT 14	5	GOODMAN PROPERTY SERVICES	KYM DRACOPOULOS	0424 441 231

COMMUNICATION ASSETS ALTERATION/RELOCATION

Telecommunication Assets are not affected by this project.
The construction ASP must coordinate the work with the following Telecommunication Companies:

Comms Co.	Contact Name	Phone No.	Initial Contact Date	Arrangement Details and Date Agreed
NA	NA	NA	NA	NA

Technical details of the arrangements are available from the Design ASP.

APPROVAL TO CONNECT TO PUBLIC LIGHTING

Reviewers Name: A
Date Approved: 15/10/2019
Reviewers Signature:

This approval is issued subject to Endeavour Energy's General Terms & Conditions for connection of Public Lighting Assets and is specifically for Drawing No. 513625 Amendment A.

CERTIFIED BY ENDEAVOUR ENERGY

Amendment: A
Date Approved: 15/10/2019
Examiner's Signature:
Print Name: Vishal Chavan

This Certification is issued subject to Endeavour Energy's Standard Certification Terms

NOTE
COLUMNS 959590, 960200 ARE TO BE INSTALLED 4m FROM BACK OF KERB. ALL OTHER COLUMNS TO BE INSTALLED 350mm FROM FRONT PROPERTY BOUNDARY. REFER SL PROFILE ON SHEET 3

NOTE
TRANSMISSION WORKS UNDER EE CAP NUMBER DV052A - E10 DU20.4 ARE PART OF THIS PROJECT

NOTE
THIS DESIGN ASSUMES UCL10029 IS COMPLETE

NOTE
THE LV PILLAR BASE SHALL BE LOCATED SUCH THAT THE CENTRE OF THE PILLAR IS 300mm FROM THE FRONT PROPERTY LINE

NOTE
ALL NEW SPARE 125mm DUCTS ARE TO HAVE MINIMUM 750mm COVER

NOTE
THE PEDESTRIAN CROSSING FLOODLIGHT SHOULD BE MOUNTED WITH THE GLASS HORIZONTAL, AIMED PARALLEL TO THE KERB AT THE CROSSING

DESIGN COMPLIANCE AND INDEMNITY

This design complies with Endeavour Energy's relevant standards as current at this time and as listed on the Endeavour Energy Accredited Service Provider's Internet site. These standards include, but are not limited to:

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Additionally, where relevant, the design complies with AS/NZS 7000 "Overhead Line Design - Detailed Procedures" published by The Australian Standards.

CONNECT INFRASTRUCTURE DESIGN PTY LTD indemnifies Endeavour Energy for any loss or damage resulting from non-compliance of the design with the above standards.

Signed:
Name: ALPESH MANJI
Service Provider Number: 1104 Date: 14/10/2019

WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY:
WORKS COMPLETED:
SIGNATURE: DATE:
INSPECTED BY:
SIGNATURE: DATE:

ASSET RECORDING

I:
OF:
CONTACT No.:

HEREBY CERTIFY THAT ASSETS MARKED AS-BUILT ON THIS DRAWING HAVE BEEN RECORDED AS PER ENDEAVOR ENERGY STANDARD SAD 0004.

SIGNATURE:
DATE:

AUTHORISATION OF ESTIMATE VALUE OF ENDEAVOUR ENERGY FUNDED ASSETS FOR UIS0845

Signed:

Print Name: Vishal Chavan

Service Number: 37825

Funding Amount: $12,236.00

Date: 14/10/2019

FUNDING ARRANGEMENTS FOR SCOPE OF WORKS

ASP LEVEL 1 ELECTRICAL WORKS

ENDEAVOUR ENERGY SUPPLIED MATERIALS

- NIL

ENDEAVOUR ENERGY FUNDED & CONSTRUCTED

Works Required Prior to Completion of Customer Contestable Project	Works Required in Association of Customer Contestable Project
- NIL	- NIL

ENDEAVOUR ENERGY FUNDED & ASP L1 CONSTRUCTED – REIMBURSEMENT (exc GST)

Padmount Substation:
-1 x 11kV 315kVA Transformer: $11,154

Total EE Capital Contribution(excluding PM & Design) = $11,154
Total EE Capital Contribution (HV reimbursed) = $12,236

CUSTOMER FUNDED NON–CONTESTABLE WORKS

Inspection and Access Authority
- System switching
- Provision of Access Authority (As per Fee sent by EE's CWA's)

CUSTOMER FUNDED CONTESTABLE WORKS

All other works and materials including but not limited to:
- Installation & establishment of PM Substation
- Trenching
- Underbores
- Duct Installation
- Cable laying and/or installations
- Jointing

CUSTOMER

CUSTOMER FUNDED

Includes but not limited to:
- Pegging of easements, property boundaries & infrastructure locations
- Registering of easements
- Providing site access
- Own service & service connection
- Confirm finished ground levels

EXISTING DUCT USAGE CHARGES (exc GST)

135m @ $ 23/m = $ 3,105
(based on current reimbursement rates)

CO–ORDINATION SUPPLY REQUIRED DATE

(TO BE CONFIRMED BY THE CUSTOMER)

DAY: 20 MONTH: 01 YEAR:2020

ASSET TO BE RETURNED TO NEAREST ENDEAVOUR ENERGY DEPOT BY L1 ASP

- NIL

NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT ENDEAVOUR ENERGY NETWORK STANDARDS AND CONNECTION POLICY.
2. ENDEAVOUR ENERGY CONTACT PHONE: 131081
3. DESIGN CERTIFICATION SHALL LAPSE WHERE:
(i) NOTICE OF INTENT HAS NOT BEEN RECEIVED WITHIN SIX (6) MONTHS OF THIS CERTIFICATION, OR
(ii) CONSTRUCTION HAS BEEN INTERRUPTED FOR MORE THAN SIX (6) MONTHS.
WHERE DESIGN CERTIFICATION HAS LAPSED, THE DESIGN MUST BE RESUBMITTED FOR CERTIFICATION BY THE ACCREDITED DESIGNER.
4. ATTENTION:
PERMANENT SURVEY MARKS MAY EXIST IN THIS AREA. THESE ARE TO BE LOCATED BY A SURVEYOR PRIOR TO COMMENCEMENT OF WORK.
5. ATTENTION:
ALL SERVICES SEARCHES MUST BE CHECKED BEFORE CONSTRUCTION.
6. WARNING:
LIVE ENDEAVOUR ENERGY CABLES & OTHER SERVICES IN THIS AREA. PLEASE CONTACT 'DIAL BEFORE YOU DIG' TELEPHONE: 1100 FOR SERVICES TWO DAYS PRIOR TO EXCAVATION.
7. ATTENTION:
SERVICE PROVIDER TO NOTIFY ENDEAVOUR ENERGY'S ASSET DATA CUSTOMER DEPT DAILY WHEN CABLE WORKS IS IN PROGRESS. TELEPHONE 131 081
8. OPERATIONAL LIMITS
UNLESS APPROVED OTHERWISE, INTERRUPTION TO ANY CUSTOMER'S SUPPLY MUST BE AVOIDED. THE FOLLOWING ALTERNATIVES SHOULD BE CONSIDERED:
- MOBILE GENERATORS OR SUBSTATIONS
- LIVE LINE WORK
- DESIGN ALTERNATIVES
- LOW VOLTAGE PARALLELS
- WORK PRACTICES/STANDARDS
THE COST IS TO BE FUNDED BY THE CUSTOMER/DEVELOPER
9. REIMBURSEMENTS WILL BE PAID TO THE NOMINATED PARTY ON THE LETTER OF INTENT AFTER THE WORKS HAVE BEEN COMPLETED AND THE LETTER OF ACCEPTANCE HAS BEEN ISSUED. THE REIMBURSED AMOUNT IS SHOWN IN THE FUNDING ARRANGEMENTS FOR SCOPE OF WORK. ANY DISAGREEMENT WITH THE AMOUNT SHOULD BE RESOLVED WITH ENDEAVOUR ENERGY PRIOR TO THE COMMENCEMENT OF WORKS.
10. AN EARTH CONNECTION WARNING LABEL MUST BE INSTALLED WHERE EARTH CONDUCTOR OR AN EXTENDED EARTH GRID IS TO BE CONNECTED TO THE LV STREET NEUTRAL TO ACHIEVE AN MEN SYSTEM AS PER EDI 100. REFER TO DRAWING No. 010646.
11. ALL THE EXISTING ASSETS HAVE BEEN FIELD CHECKED AND ARE ACCURATE AT THE TIME OF DESIGN.
12. ENDEAVOUR ENERGY'S GENERIC EMP, EMS 0001, IS PART OF THIS DESIGN.
13. ALL SERVICE WORK TO BE INSTALLED IN ACCORDANCE WITH AS/NZS 3000 AND THE NSW SERVICE AND INSTALLATION RULES
14. CUSTOMER TO ARRANGE FOR INSTALLATION & CONNECTION OF SERVICE MAINS BY A LEVEL 2 ACCREDITED SERVICE PROVIDER.
15. DO NOT PLACE ANY RELIANCE ON ANY QUANTITIES OR DIMENSIONS GIVEN IN THIS DRAWING QUANTITIES AND DIMENSIONS GIVEN ON THIS DRAWING ARE BASED ON DESIGN INFORMATION AND SITE CONDITIONS AT THE TIME OF DESIGN. AS QUANTITIES AND DIMENSIONS ARE SUBJECT TO CHANGE, THE BUILDER OF THIS PROJECT MUST CHECK ALL QUANTITIES AND DIMENSIONS ON SITE PRIOR TO TENDERING AND PRIOR TO CONSTRUCTION.
16. ATTENTION:
THE PREPARATION OF THIS DESIGN, HAS BEEN UNDERTAKEN GIVING DUE CONSIDERATION TO THE EXISTING SERVICES. THE PROJECT CONSTRUCTOR IS, HOWEVER, WHOLLY RESPONSIBLE FOR VERIFYING THE EXACT LOCATION OF EXISTING SERVICES AND PERMANENT SURVEY MARKS BEFORE CONSTRUCTION COMMENCES, AND NO RESPONSIBILITY NOR LIABILITY WILL BE ACCEPTED BY THE DESIGNER OF THIS PROJECT FOR DAMAGE TO EXISTING SERVICES AS A RESULT OF THIS DESIGN AND/OR POLE PEGGING.
17. SUBSTATION TO BE INSTALLED IN ACCORDANCE WITH MCI0006.
18. SUBSTATION NO. 54077 IS TO BE COMMON EARTHED IN ACCORDANCE WITH ENDEAVOUR ENERY'S EDI 100 - DISTRIBUTION DESIGN, CONSTRUCTION AND TEST.
19. PM SUB LOCATION AS SHOWN IN THE EASEMENT AND RESTRICTION ZONE DIAGRAM TO BE PEGGED BY DEVELOPER PRIOR TO ANY CONSTRUCTION WORKS.
20. ENSURE END OF SERVICE DUCTS ARE NOT PLACED UNDER PROPOSED DRIVEWAYS. REFER DEVELOPER REPRESENTATIVE FOR DRIVEWAY LOCATIONS
21. THERE ARE NO RECORDS THAT DUCTS HAVE BEEN INSTALLED UNDER EXISTING DRIVEWAYS. CONSTRUCTOR MUST CONSULT WITH LOCAL COUNCIL AND PROPERTY OWNERS TO DETERMINE IF UNDERBORING IS NECESSARY.
22. SUBSTATION EASEMENT AND RESTRICTION ZONE REQUIRED. REFER TO DETAIL ON THIS DRAWING.
23. CONSTRUCTOR TO CONFIRM WITH DEVELOPER PRIOR TO CONSTRUCTION:
23.1. FINISHED GROUND LEVELS
23.2. THE PADMOUNT SUBSTATION EASEMENT IS FREE OF SERVICES AND OTHER ENCUMBRANCES
24. 24/7 SITE ACCESS TO BE PROVIDED TO ENDEAVOUR ENERGY STAFF TO SUB 54077 IN ACCORDANCE WITH MCI0006.
25. TELECOMMUNICATIONS ASSETS ARE NOT AFFECTED BY WORKS IN THIS PROJECT.
26. ALL STREET LIGHT CABLES ARE TO BE INSTALLED IN 50mm DUCTS.
27. UNLESS NOTED OTHERWISE, THE CENTRE OF ALL STREETLIGHT COLUMNS ARE TO BE LOCATED 350mm FROM THE PROPERTY LINE.

Cadastre: © Land and Property Information 2016

AMENDMENTS
A ORIGINAL ISSUE
DRAFT No. 01

connect INFRASTRUCTURE
Connect Design Pty Ltd
Electrical Infrastructure Consultancy, Design & Construction
Tel: 02 9733 3333
Fax: 02 9733 3330
Email: mail@connecteng.com.au
6 Progress Cct, Prestons NSW 2170
PO Box 484, Casula Mall NSW 2170

connect REF. NUMBER
DV052A
E13

TEMPLATE VERSION No. 4.3

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ORIGINAL SCALE
DRAWN R.AZZI
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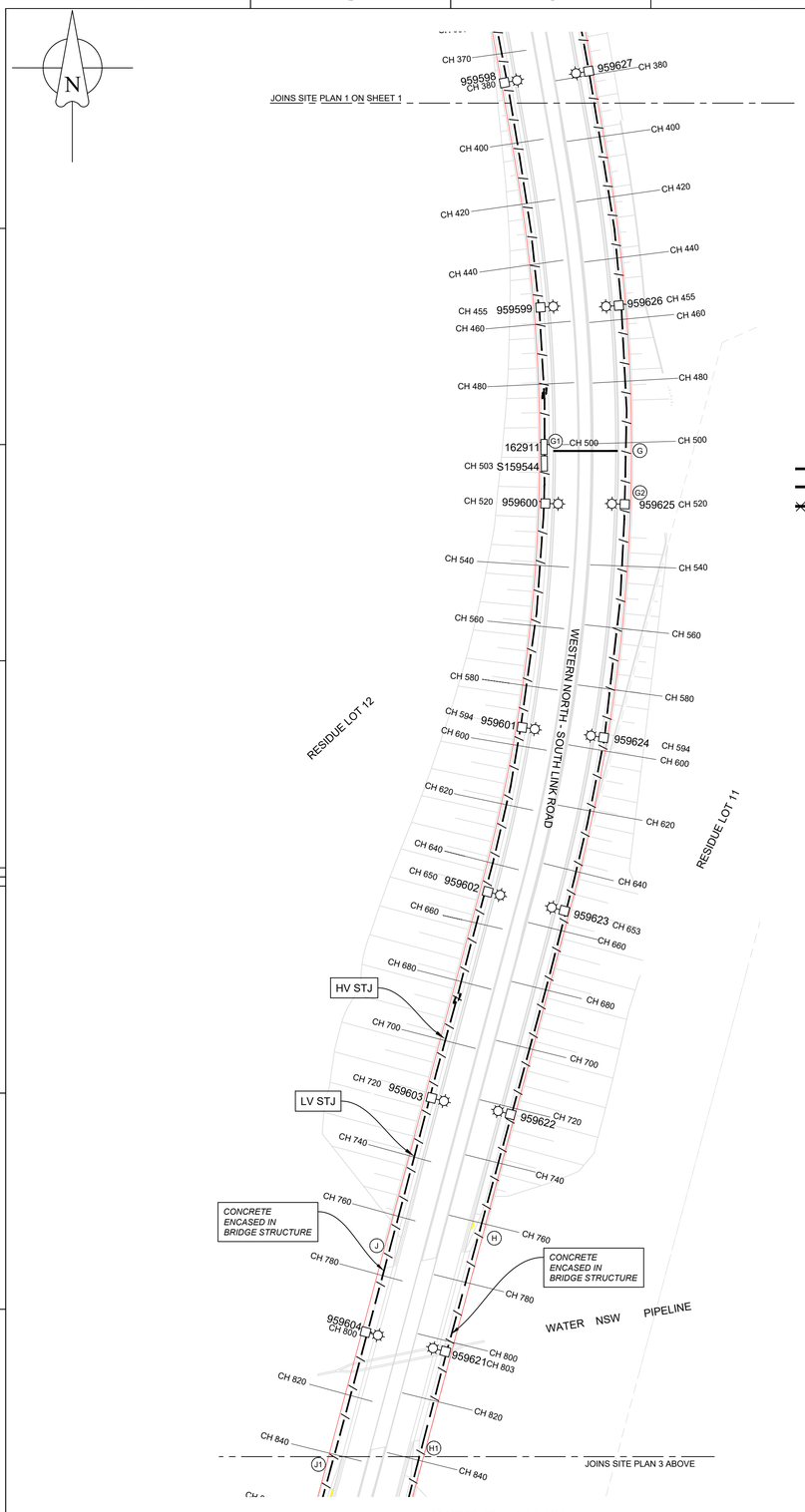


SITE PLAN '2'

0 20 40 60 80 100m

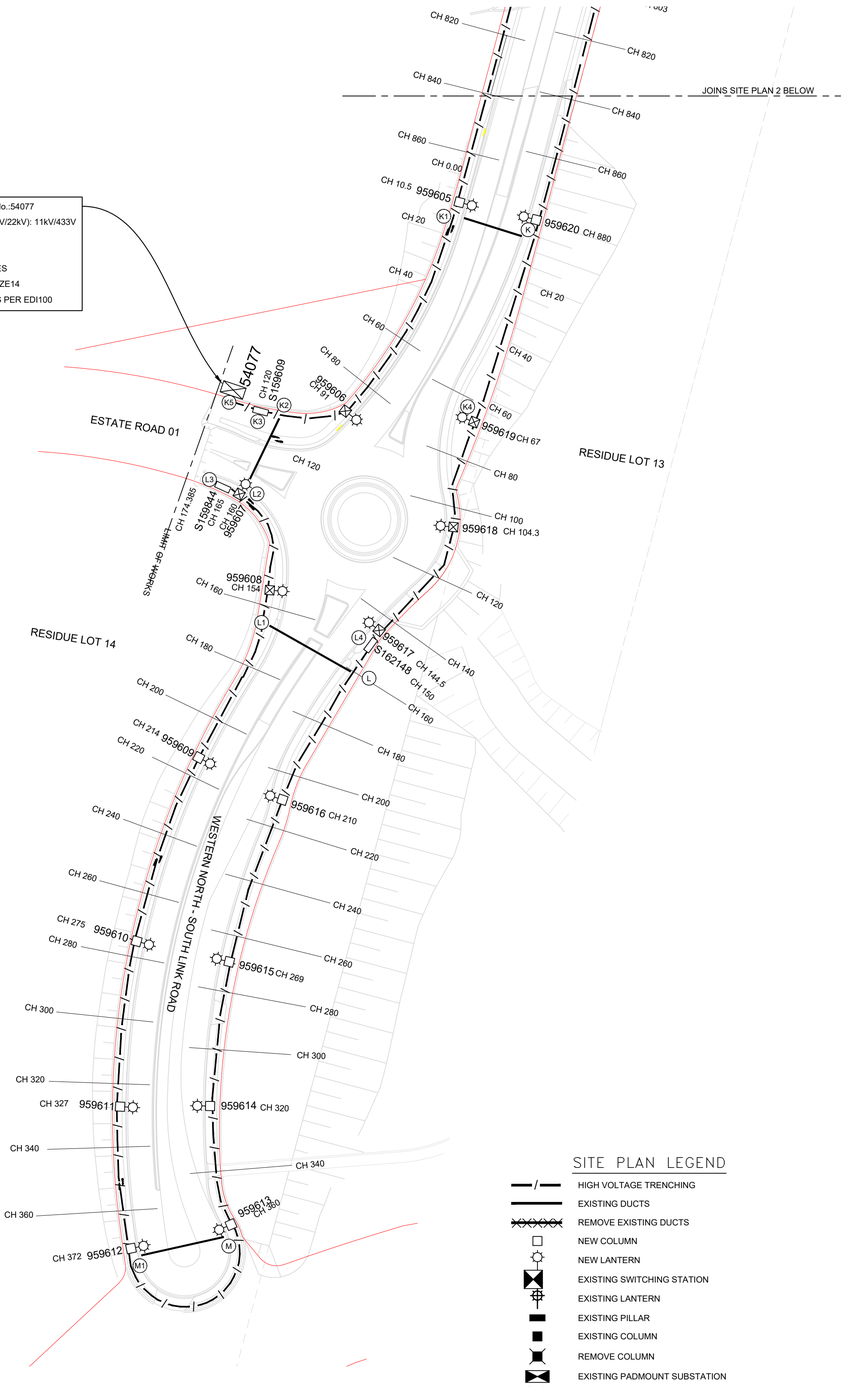
20 15 10 5

SCALE 1:1000 @ A1

ESTABLISH NEW PADMOUNT SUBSTATION No.:54077
TRANSFORMER SIZE: 315kVA VOLTAGE (11kV/22kV): 11kV/433V
HV SWITCHGEAR: RTRR - 22kV (SIEMENS)
HV FUSES: 50 Amps HRC
LV SWITCHGEAR: CAT 2 FIF WITH 400A FUSES
SUBSTATION CUBICLE SIZE: FIBREGLASS SIZE14
EARTHING SYSTEM: COMMON EARTHING AS PER EDI100

SITE PLAN LEGEND

- HIGH VOLTAGE TRENCHING
- EXISTING DUCTS
- REMOVE EXISTING DUCTS
- NEW COLUMN
- NEW LANTERN
- EXISTING SWITCHING STATION
- EXISTING LANTERN
- EXISTING PILLAR
- EXISTING COLUMN
- REMOVE COLUMN
- EXISTING PADMOUNT SUBSTATION
- REMOVE PILLAR
- NEW PILLAR LOCATION
- REMOVE LANTERN



SITE PLAN '3'

0 20 40 60 80 100m

20 15 10 5

SCALE 1:1000 @ A1

SITE PLAN LEGEND

- HIGH VOLTAGE TRENCHING
- EXISTING DUCTS
- REMOVE EXISTING DUCTS
- NEW COLUMN
- NEW LANTERN
- EXISTING SWITCHING STATION
- EXISTING LANTERN
- EXISTING PILLAR
- EXISTING COLUMN
- REMOVE COLUMN
- EXISTING PADMOUNT SUBSTATION
- REMOVE PILLAR
- NEW PILLAR LOCATION
- REMOVE LANTERN

CERTIFIED BY ENDEAVOUR ENERGY
Amendment: A
Date Approved: 15/10/2019
Examiner's Signature:
Print Name: Vishal Chavan
This Certification is issued subject to Endeavour Energy's Standard Certification Terms

WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY:

WORKS COMPLETED:

SIGNATURE: DATE:

INSPECTED BY:

SIGNATURE: DATE:

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I:

OF:

CONTACT No.:

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SMI:	Substation Maintenance Instruction
LDI 0001:	Public lighting Electrical Design Element

Additionally, where relevant, the design complies with AS/NZS 7000 "Overhead Line Design - Detailed Procedures" published by The Australian Standards.

CONNECT INFRASTRUCTURE DESIGN PTY LTD indemnifies Endeavour Energy for any loss or damage resulting from non-compliance of the design with the above standards.

Signed:

Name: ALPESH MANJI

Service Provider Number: 1104 Date: 14/10/2019

Cadastre: © Land and Property Information 2016

AMENDMENTS: ORIGINAL ISSUE — A — DRAFT No. 01

connect INFRASTRUCTURE
Connect Design Pty Ltd
Electrical Infrastructure Consultancy, Design & Construction
Tel: 02 9733 3333
Fax: 02 9733 3330
Email: mail@connecteng.com.au
6 Progress Cct, Prestons NSW 2170
PO Box 484, Casula Mall NSW 2170

connect REF. NUMBER **DV052A E13**

TEMPLATE VERSION No. 4.3

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REFERENCE DRAWING'S		WORK ORDERS		CAP / SAMP No.	UIS0845
		GENERAL		AM PROJ. No.	2018/01427/001
		OVERHEAD		HV SWITCHING	
		UNDERGROUND		UBD/PENGUIN REF	
		SUBSTATIONS		GIS MAP No	U82524
				HV OP DIAGRAM	MAMRE 2, S6
				LOCAL GOV AREA	PENRITH

ORIGINAL SCALE — DO NOT SCALE — DIMENSIONS IN METRES

DRAWN	R.AZZI		
DATE	07/06/2019		
CH'D	B.DUBEY	DESIGN	A.MANJI

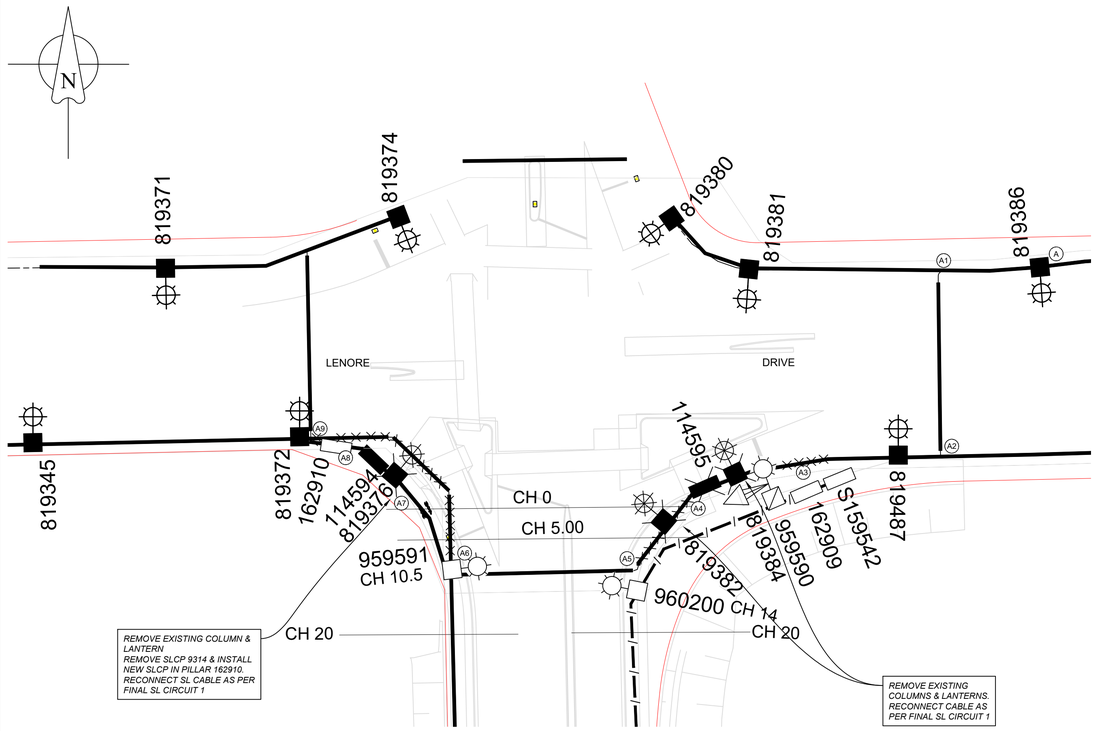
LENORE DRIVE (OFF)
KEMPS CREEK
UIS0845
ELECTRICAL RETICULATION
LOT 6, 2, 2, 11, 3,
DP 229784, DP84578, DP1215268, DP1178389, DP85393

Endeavour Energy

A1 | 513625 | A

SHEET No 2 OF 9 SHEETS

68384

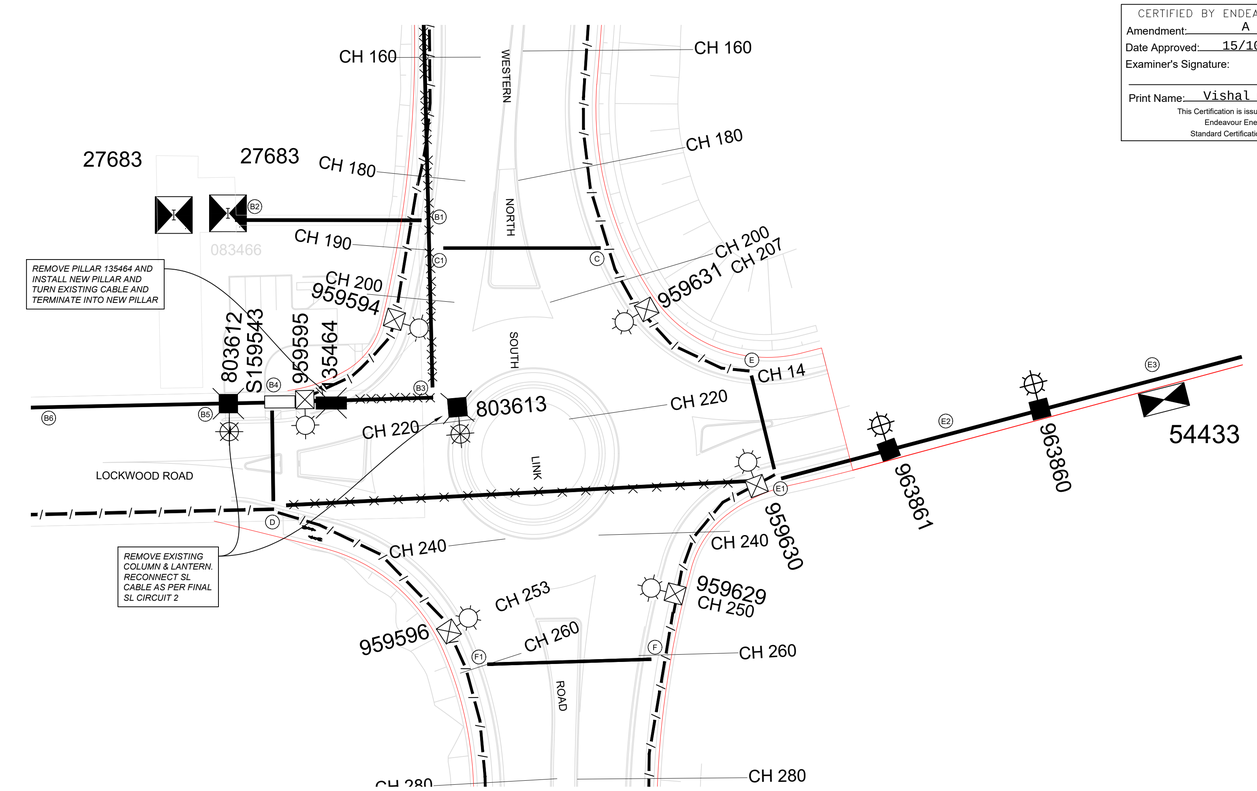


INSET 'A'

0 10 20 30 40 50m

10 8 6 4 2

SCALE 1:500 @ A1



INSET 'B'

0 10 20 30 40 50m

10 8 6 4 2

SCALE 1:500 @ A1

CERTIFIED BY ENDEAVOUR ENERGY

Amendment: A

Date Approved: 15/10/2019

Examiner's Signature:

Print Name: Vishal Chavan

This Certification is issued subject to Endeavour Energy's Standard Certification Terms

WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY: _____

WORKS COMPLETED: _____

SIGNATURE: _____ DATE: _____

INSPECTED BY: _____

SIGNATURE: _____ DATE: _____

ASSET RECORDING

I: _____

OF: _____

CONTACT No.: _____

HEREBY CERTIFY THAT ASSETS MARKED AS-BUILT ON THIS DRAWING HAVE BEEN RECORDED AS PER ENDEAVOR ENERGY STANDARD SAD 0004.

SIGNATURE: _____

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Name: ALPESH MANJI

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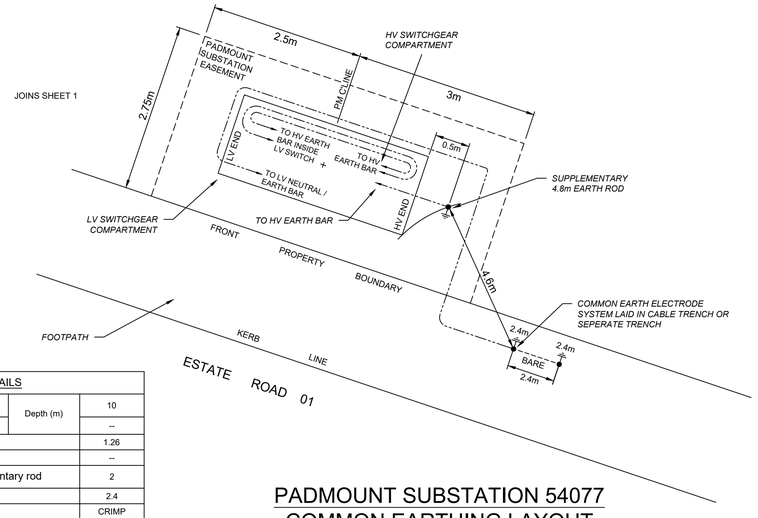


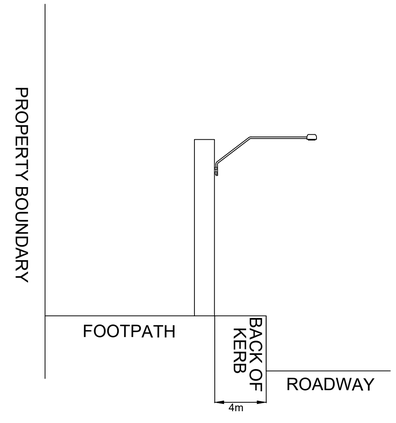
EARTHING DETAILS				
Soil Resistively (ohms.m)	Layer 1	5.29	Depth (m)	10
	Layer 2	2.48		--
Designed earth resistance limit (ohms)				1.26
Measured earth resistance (ohms)				--
Number of electrodes excluding supplementary rod				2
Length of bare electrode (m)				2.4
Connector type (CAD or CRIMP)				CRIMP
Location Category: F - frequented, R - Remote, S - Special				F
What design tool used?				3E
Fault Level (kA)				4.93
Is this 'first asset out' from ZS? (If yes, check ZS earthing configuration)				NO
Are screens of incoming cable bonded to distribution substation earth bar?				YES

PADMOUNT SUBSTATION 54077 COMMON EARTHING LAYOUT

NOT TO SCALE.

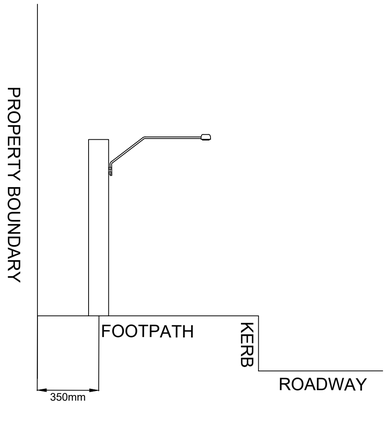
EARTHING PLAN LEGEND

- CABLE 70mm² INSULATED CU
- CABLE 70mm² BARE CU
- EARTH ELECTRODE LOCATION & LENGTH. (LENGTH SHOWN IN METRES).



STREETLIGHT PROFILE FOR COLUMNS 959590, 960200

NOT TO SCALE



STREETLIGHT PROFILE FOR ALL OTHER COLUMNS

NOT TO SCALE

AMENDMENTS: A ORIGINAL ISSUE DRAFT No. 01

connect INFRASTRUCTURE

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ORIGINAL SCALE

DRAWN R.AZZI

DATE 07/06/2019

CH'D B.DUBEY

DESIGN A.MANJI

DO NOT SCALE
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Endeavour Energy

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SHEET No 3 OF 9 SHEETS

68384

DUCT REIMBURSEMENT SCHEDULE (DISTRIBUTION)

NODES	CONFIGURATION	ROUTE LENGTH (m)	REIMBURSEMENT (m) X ($)	EXISTING DUCT USAGE CHARGE (m) X ($)
A - A1	EXISTING SL	20m	- NIL	- NIL
A1 - A2	EXISTING SL	30m	- NIL	- NIL
A2 - A3	EXISTING SL	15m	- NIL	- NIL
A3 - A4	INSTALL 4 x 125mm UPVC DUCTS; NEW LV; EXISTING	25m	- NIL	- NIL
A4 - A5	INSTALL 2 x 50mm 4 x 125mm UPVC DUCTS; NEW LV; EXISTING	15m	- NIL	- NIL
A5 - A6	EXISTING LV	30m	- NIL	- NIL
A6 - A7	EXISTING LV HV	20m	- NIL	- NIL
A7 - A8	EXISTING SL LV HV	5m	- NIL	- NIL
A6 - B	EXISTING SL HV	110m	- NIL	- NIL
A6 - A9	EXISTING	40m	- NIL	- NIL
B - B1	INSTALL 2 x 50mm 6 x 125mm UPVC DUCTS; NEW SL HV; EXISTING	65m	- NIL	- NIL
B1 - B2	EXISTING HV	30m	- NIL	- NIL
B1 - B3	EXISTING SL HV	30m	- NIL	- NIL
B3 - B4	EXISTING SL LV HV	25m	- NIL	- NIL
B4 - B5	EXISTING SL LV HV; CUT EXISTING CABLE AND MAKE STJ's AT REF B6. LAY NEW CABLE IN SAME DUCTS	10m	- NIL	- NIL
B5 - B6	EXISTING SL LV HV; CUT EXISTING CABLE AND MAKE STJ's AT REF B6. LAY NEW CABLE IN SAME DUCTS	35m	- NIL	- NIL
B6 - B7	EXISTING SL LV HV	5m	- NIL	- NIL
B4 - B1	NEW SL HV; INSTALL 2 x 50mm 4 x 125mm UPVC DUCTS	45m	- NIL	- NIL
B4 - D	EXISTING SL LV HV; REMOVE EXISTING HV CABLE AND LAY NEW CABLE IN SAME DUCT	15m	- NIL	- NIL
D - F1	NEW SL LV HV; INSTALL 2 x 50mm 6 x 125mm UPVC DUCTS	40m	- NIL	- NIL
A5 - C	NEW SL; INSTALL 2 x 50mm 4 x 125mm UPVC DUCTS	180m	- NIL	- NIL
C - C1	EXISTING ROAD CROSSING	25m	- NIL	- NIL

CONTINUED ON RIGHT ABOVE

CONTINUED ON LEFT BELOW

NODES	CONFIGURATION	ROUTE LENGTH (m)	REIMBURSEMENT (m) X ($)	EXISTING DUCT USAGE CHARGE (m) X ($)
F - F1	EXISTING ROAD CROSSING HV	25m	- NIL	- NIL
D - D1	NEW HV; INSTALL 4 x 125mm UPVC DUCTS	160m	- NIL	- NIL
D1 - D2	EXISTING HV	40m	- NIL	40m of 125mm ducts @ $23/m = $920
D2 - D3	EXISTING LV HV	35m	- NIL	35m of 125mm ducts @ $23/m = $805
E1 - F	NEW SL HV; INSTALL 2 x 50mm 6 x 125mm UPVC DUCTS	35m	- NIL	- NIL
D - E1	EXISTING SL HV	80m	- NIL	- NIL
E1 - E2	EXISTING SL EARTH HV	30m	- NIL	60m of 125mm ducts @ $23/m = $1380
E2 - E3	EXISTING SL EARTH	35m	- NIL	- NIL
C - E F - G G2 - H H1 - K K4 - L4 L - M L1 - M1	NEW SL; INSTALL 2 x 50mm 6 x 125mm UPVC DUCTS	30m 240m 245m 50m 85m 195m 215m	- NIL	- NIL
E - E1 M - M1 K - K1 G - G1	EXISTING ROAD CROSSING SL	15m 25m 20m 20m	- NIL	- NIL
F1 - G1	NEW SL LV HV; INSTALL 2 x 50mm 6 x 125mm UPVC DUCTS	240m	- NIL	- NIL
K2 - L2	EXISTING ROAD CROSSING SL LV	25m	- NIL	- NIL
G1 - J J1 - K1 K1 - K2 K2 - K3	NEW SL LV HV; INSTALL 2 x 50mm 6 x 125mm UPVC DUCTS	265m 40m 100m 5m	- NIL	- NIL
K3 - K5	NEW SL LV HV; INSTALL 2 x 50mm 6 x 125mm UPVC DUCTS	10m	- NIL	- NIL
L2 - L3	NEW LV; INSTALL 2 x 50mm 6 x 125mm UPVC DUCTS	10m	- NIL	- NIL
M - M1 K - K4 G - G2	NEW; INSTALL 2 x 50mm 6 x 125mm UPVC DUCTS	60m 60m 15m	- NIL	- NIL
H - H1	NEW CONCRETE ENCASED SL; INSTALL 2 x 50mm 6 x 125mm UPVC DUCTS	75m	- NIL	- NIL
J - J1	NEW CONCRETE ENCASED SL LV HV; INSTALL 2 x 50mm 6 x 125mm UPVC DUCTS	75m	- NIL	- NIL
L - L1	EXISTING ROAD CROSSING LV	20m	- NIL	- NIL

CONTINUED ON RIGHT ABOVE

CONTINUED ON LEFT BELOW

NODES	CONFIGURATION	ROUTE LENGTH (m)	REIMBURSEMENT (m) X ($)	EXISTING DUCT USAGE CHARGE (m) X ($)
L4 - L L2 - L1	NEW SL LV; INSTALL 2 x 50mm 6 x 125mm UPVC DUCTS	10m 45m	- NIL	- NIL
TOTAL		3450m	- NIL	$3105

LEGEND

- SPARE DUCT - FUNDED BY CLIENT
- DUCT WITH NEW CABLE
- DUCT WITH EXISTING CABLE
- DIRECT BURIED CABLE
- CABLE/DUCT TO BE REMOVED
- NEW TRENCH
- EXISTING TRENCH
- DUCT TO BE REMOVED

★ WHEN UTILISING TOP BANK OF CONDUIT ASP1 TO ENSURE THAT THE EXISITNG CONDUIT TO BE UTILISED HAS A MINIMUM 750mm COVER. IF 750mm COVER OVER HV CABLE CAN NOT BE ACHIEVED THEN INSTALL NEW CONDUIT FOR EACH NEW CABLE PLUS SPARE CONDUIT AS PER CLAUSE 4.1.4 IN MDI0028.

CERTIFIED BY ENDEAVOUR ENERGY

Amendment: A
Date Approved: 15/10/2019
Examiner's Signature:
Print Name: Vishal Chavan

This Certification is issued subject to Endeavour Energy's Standard Certification Terms

DESIGN COMPLIANCE AND INDEMNITY

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Signed:
Name: ALPESH MANJI
Service Provider Number: 1104 Date: 14/10/2019

WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY:
WORKS COMPLETED:
SIGNATURE: DATE:
INSPECTED BY:
SIGNATURE: DATE:

ASSET RECORDING

I:
OF:
CONTACT No.:

HEREBY CERTIFY THAT ASSETS MARKED AS-BUILT ON THIS DRAWING HAVE BEEN RECORDED AS PER ENDEAVOR ENERGY STANDARD SAD 0004.

SIGNATURE:
DATE:

CONCRETE ENCASED IN CULVERT/BRIDGE CROSSING

NEW CONCRETE ENCASED

15 MPa CONCRETE WITH MINIMUM THICKNESS OF 75mm AROUND THE OUTSIDE AND IN BETWEEN THE CONDUITS.

CROSS SECTION DETAIL
AT 'H' - 'H1' & 'J' - 'J1'

BRIDGE CROSSING PROFILE

AMENDMENTS: A ORIGINAL ISSUE DRAFT No. 01

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Endeavour Energy

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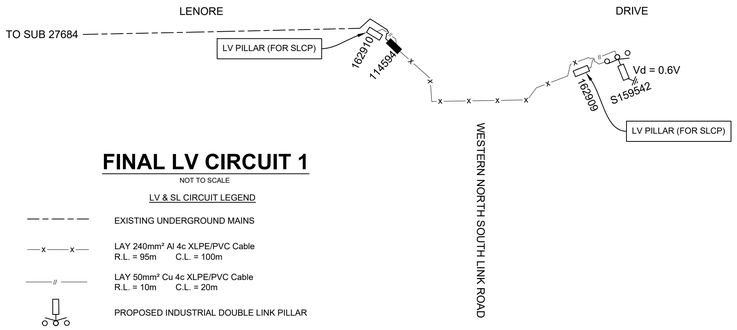
SHEET No. 4 OF 9 SHEETS

68384

LIGHTING EQUIPMENT AND BILLING SCHEDULE

ITEM ID	STATE	SL NUMBER	SUPPORT NUMBER	LUMINAIRE				COLUMN/POLE					BRACKET/OUTREACH				UPCAST	MOUNTING HEIGHT	CATEGORY	COLOUR	CHARGE TO
		NEW / EXISTING	NEW / EXISTING	DESCRIPTION	PART NO	QTY	RATE CODE	DESCRIPTION	PART NO	FOOTING (BOLT/FOUNDATION)	QTY	RATE CODE	DESCRIPTION	PART NO	QTY	RATE CODE					
	NEW	283802, 286799	959590	82W ROAD LED & 250W HPS SYLFLOOD	PL99G01L80 & XS43G01	2	950 & 873	7m IMPACT ABSORBING COLUMN	IE-7.0IA	Type 2/Type 2	1	995	4.5m SINGLE STANDARD CURVED OUTREACH + 1.5m OUTREACH EXTENSION	IE4.5CPS/32 + IE1.5 EXT	1	991	5°	9m	V5	GALVANISED	Penrith City Council
	NEW	283803, 283804, 283805, 283809, 283810, 283811, 283812, 283813, 283814, 283815, 283816, 283817, 283821, 283822, 283823, 283824, 283825, 283826, 283827, 283828, 283832, 283833, 283834, 283835, 283836, 283837, 283838, 283839, 283840, 283891, 283892, 284129	959591, 959592, 959593, 959597, 959598, 959599, 959600, 959601, 959602, 959603, 959604, 959605, 959609, 959610,959611, 959612, 959613, 959614, 959615, 959616, 959620, 959621, 959622, 959623, 959624, 959625, 959626, 959627, 959628, 959762, 959763, 960200	82W ROAD LED	PL99G01L80	32	950	7m IMPACT ABSORBING COLUMN	IE-7.0IA	Type 2/Type 2	32	995	4.5m SINGLE STANDARD CURVED OUTREACH	IE4.5CPS/32	32	991	5°	9m	V5	GALVANISED	Penrith City Council
	NEW	283806, 283807, 283808, 283841, 283842, 283843, 283818, 283819, 283820, 283829, 283830,283831	959594, 959595, 959596, 959629, 959630, 959631, 959606,959607, 959608, 959617, 959618, 959619	100W ROAD LED	PL99G01L100	12	951	8.5m IMPACT ABSORBING COLUMN	IE-8.5IA	Type 2/UNIVERSAL	12	995	4.5m SINGLE STANDARD CURVED OUTREACH	IE4.5CPS/32	12	991	5°	10.5m	V5	GALVANISED	Penrith City Council
	REMOVED	231979, 231977, 231971	819384, 819382, 819376	ROADSPAN 400W HPS	EX	3	863	EX	EX	EX	3	996	EX	EX	3	991	EX	EX	EX	EX	Penrith City Council
	REMOVED	224860, 224859	803613, 803612	2 X 24W	EX	2	552	EX	EX	EX	2	426	EX	EX	2	424	EX	EX	EX	EX	Penrith City Council

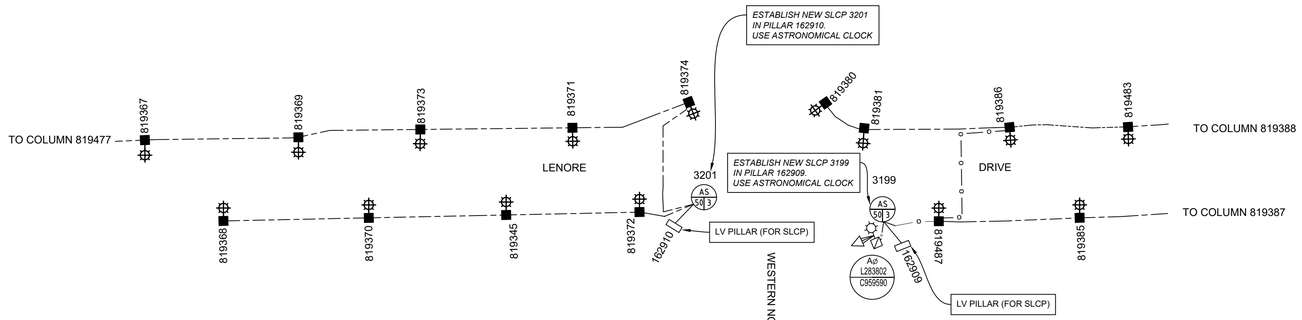


FINAL LV CIRCUIT 1

NOT TO SCALE

LV & SL CIRCUIT LEGEND

- EXISTING UNDERGROUND MAINS
- LAY 240mm² Al 4c XLPE/PVC Cable R.L. = 95m C.L. = 100m
- LAY 50mm² Cu 4c XLPE/PVC Cable R.L. = 10m C.L. = 20m
- PROPOSED INDUSTRIAL DOUBLE LINK PILLAR
- PROPOSED LV PILLAR (FOR SLCP)
- BOND NEUTRAL TO EARTH



FINAL SL CIRCUIT 1

NOT TO SCALE

LV & SL CIRCUIT LEGEND

- EXISTING UNDERGROUND MAINS
- LAY 1 X 25mm² Cu 4c XLPE/PVC Cable R.L. = 70m C.L. = 75m
- PROPOSED INDUSTRIAL DOUBLE LINK PILLAR
- PROPOSED LV PILLAR (FOR SLCP)
- PROPOSED SLCP
- PHASE CONTROLLED STREETLIGHT NEW LANTERN NUMBER NEW COLUMN NUMBER

CERTIFIED BY ENDEAVOUR ENERGY

Amendment: A

Date Approved: 15/10/2019

Examiner's Signature:

Print Name: Vishal Chavan

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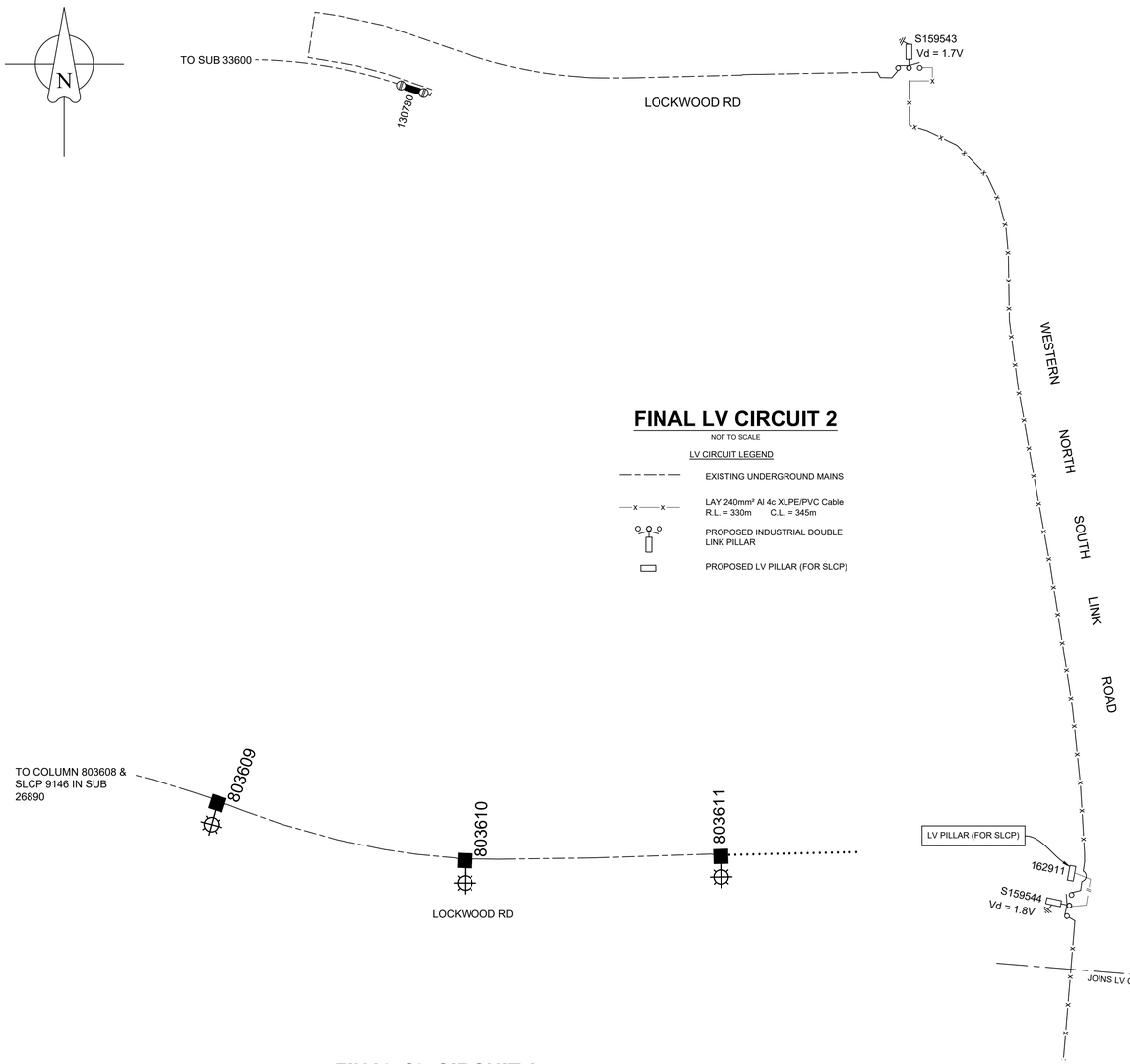
SHEET No 5 OF 9 SHEETS

68384



FINAL LV CIRCUIT 2

NOT TO SCALE

LV CIRCUIT LEGEND

- EXISTING UNDERGROUND MAINS
- LAY 240mm² Al 4c XLPE/PVC Cable R.L. = 330m C.L. = 345m
- PROPOSED INDUSTRIAL DOUBLE LINK PILLAR
- PROPOSED LV PILLAR (FOR SLCP)

FINAL SL CIRCUIT 2

NOT TO SCALE

SL CIRCUIT LEGEND

- EXISTING UNDERGROUND MAINS
- EXISTING CABLE TO BE REMOVED

NEW LABELS
SUB 54077
'R' - PILLAR S159544
'S' - TRANSFORMER
'T' - PILLAR S159609

INSTALL
CAT 2 FIF LV SWITCHGEAR
WITH 400A FUSES

FINAL LV CIRCUIT 3

NOT TO SCALE

LV & SL CIRCUIT LEGEND

- EXISTING UNDERGROUND MAINS
- LAY 240mm² Al 4c XLPE/PVC Cable R.L. = 615m C.L. = 650m
- LAY 50mm² Cu 4c XLPE/PVC Cable R.L. = 5m C.L. = 10m
- PROPOSED INDUSTRIAL DOUBLE LINK PILLAR
- PROPOSED LV PILLAR (FOR SLCP)
- BOND NEUTRAL TO EARTH

CERTIFIED BY ENDEAVOUR ENERGY
Amendment: A
Date Approved: 15/10/2019
Examiner's Signature:
Print Name: Vishal Chavan
This Certification is issued subject to Endeavour Energy's Standard Certification Terms

WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY:
WORKS COMPLETED:
SIGNATURE: DATE:
INSPECTED BY:
SIGNATURE: DATE:

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OF:
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SDI:	Substation Design Instruction
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MMI:	Mains Maintenance Instruction
SMI:	Substation Maintenance Instruction
LDI 0001:	Public lighting Electrical Design Element

Additionally, where relevant, the design complies with AS/NZS 7000 "Overhead Line Design - Detailed Procedures" published by The Australian Standards.

CONNECT INFRASTRUCTURE DESIGN PTY LTD indemnifies Endeavour Energy for any loss or damage resulting from non-compliance of the design with the above standards.

Signed:
Name: ALPESH MANJI
Service Provider Number: 1104 Date: 14/10/2019

AMENDMENTS | ORIGINAL ISSUE | A | DRAFT No. 01

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TEMPLATE VERSION No. 4.3

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REFERENCE DRAWING'S		WORK ORDERS			
				CAP / SAMP No.	UIS0845
				AM PROJ. No.	2018/01427/001
		GENERAL		HV SWITCHING	
		OVERHEAD		UBD/PENGUIN REF	
		UNDERGROUND		GIS MAP No	U82524
		SUBSTATIONS		HV OP DIAGRAM	MAMRE 2, S6
				LOCAL GOV AREA	PENRITH

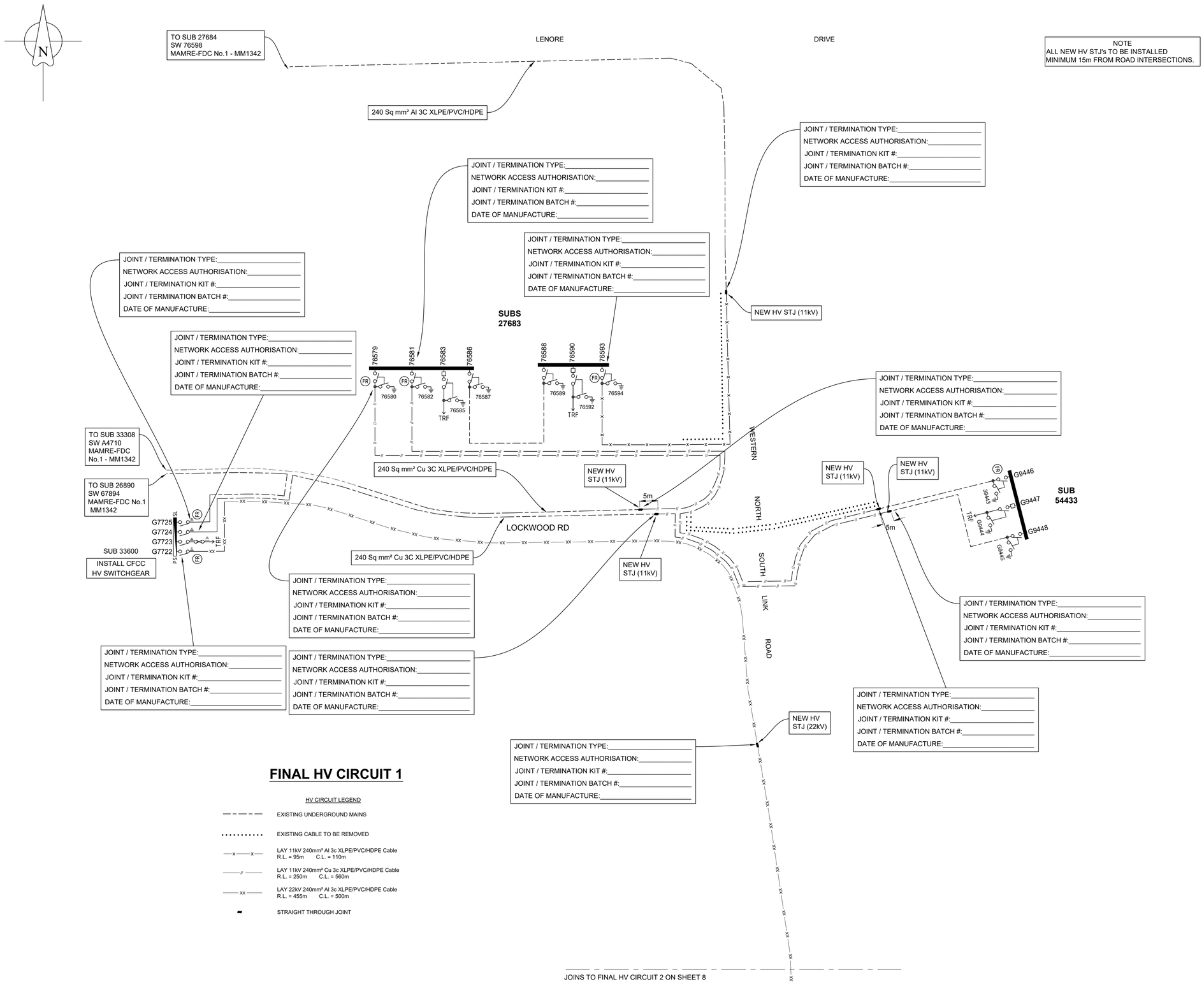
ORIGINAL SCALE
DO NOT SCALE
DIMENSIONS IN METRES

DRAWN	R.AZZI
DATE	07/06/2019
CH'D	B.DUBEY
DESIGN	A.MANJI

LENORE DRIVE (OFF)
KEMPS CREEK
UIS0845
ELECTRICAL RETICULATION
LOT 6, 2, 2, 11, 3,
DP 229784, DP84578, DP1215268, DP1178389, DP85393

Endeavour Energy
A1 | 513625 | A
SHEET No 6 OF 9 SHEETS

68384



NOTE
ALL NEW HV STJ's TO BE INSTALLED
MINIMUM 15m FROM ROAD INTERSECTIONS.

FINAL HV CIRCUIT 1

HV CIRCUIT LEGEND

- EXISTING UNDERGROUND MAINS
- EXISTING CABLE TO BE REMOVED
- LAY 11kV 240mm² Al 3c XLPE/PVC/HDPE Cable R.L. = 95m C.L. = 110m
- LAY 11kV 240mm² Cu 3c XLPE/PVC/HDPE Cable R.L. = 250m C.L. = 560m
- LAY 22kV 240mm² Al 3c XLPE/PVC/HDPE Cable R.L. = 455m C.L. = 500m
- STRAIGHT THROUGH JOINT

CERTIFIED BY ENDEAVOUR ENERGY
Amendment: A
Date Approved: 15/10/2019
Examiner's Signature:
Print Name: Vishal Chavan
This Certification is issued subject to Endeavour Energy's Standard Certification Terms

WORKS COMPLETED/FIELD BOOK
CONSTRUCTED BY:
WORKS COMPLETED:
SIGNATURE: DATE:
INSPECTED BY:
SIGNATURE: DATE:

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I:
OF:
CONTACT No.:
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Signed:
Name: ALPESH MANJI
Service Provider Number: 1104 Date: 14/10/2019

AMENDMENTS: A ORIGINAL ISSUE — DRAFT No. 01

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PO Box 484, Casula Mall NSW 2170

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REFERENCE DRAWING'S		WORK ORDERS		CAP / SAMP No.	UIS0845
				AM PROJ. No.	2018/01427/001
		GENERAL		HV SWITCHING	
		OVERHEAD		UBD/PENGUIN REF	
		UNDERGROUND		GIS MAP No	U82524
		SUBSTATIONS		HV OP DIAGRAM	MAMRE 2, S6
				LOCAL GOV AREA	PENRITH

ORIGINAL SCALE
DO NOT SCALE
DIMENSIONS IN METRES

DRAWN	R.AZZI
DATE	07/06/2019
CH'D	B.DUBEY
DESIGN	A.MANJI

LENORE DRIVE (OFF)
KEMPS CREEK
UIS0845
ELECTRICAL RETICULATION
LOT 6, 2, 2, 11, 3,
DP 229784, DP84578, DP1215268, DP1178389, DP85393

Endeavour Energy
A1 | 513625 | A
SHEET No 7 OF 9 SHEETS

68384

JOINS TO FINAL HV CIRCUIT 1 ON SHEET 7

NOTE
ALL NEW HV STJ's TO BE INSTALLED
MINIMUM 15m FROM ROAD INTERSECTIONS.

WESTERN NORTH SOUTH LINK ROAD

NEW HV
STJ (22kV)

JOINT / TERMINATION TYPE:_____
NETWORK ACCESS AUTHORISATION:_____
JOINT / TERMINATION KIT #:_____
JOINT / TERMINATION BATCH #:_____
DATE OF MANUFACTURE:_____

FINAL HV CIRCUIT 2

NOT TO SCALE

HV CIRCUIT LEGEND

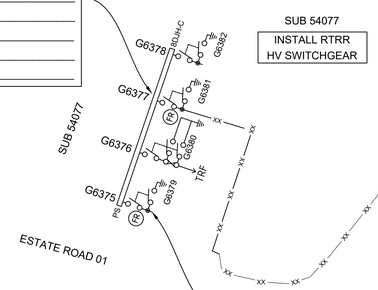
EXISTING UNDERGROUND MAINS

LAY 22kV 240mm² Al 3c XLPE/PVC/HDPE Cable
R.L. = 540m C.L. = 575m

STRAIGHT THROUGH JOINT

JOINT / TERMINATION TYPE:_____
NETWORK ACCESS AUTHORISATION:_____
JOINT / TERMINATION KIT #:_____
JOINT / TERMINATION BATCH #:_____
DATE OF MANUFACTURE:_____

SUB 54077
INSTALL RTRR
HV SWITCHGEAR



CONNECTION TO BE
MADE UNDER UIS 0846

CERTIFIED BY ENDEAVOUR ENERGY
Amendment: A
Date Approved: 15/10/2019
Examiner's Signature:
Print Name: Vishal Chavan
This Certification is issued subject to
Endeavour Energy's
Standard Certification Terms

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OF: _____

CONTACT No.: _____

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MMI:	Mains Maintenance Instruction
SMI:	Substation Maintenance Instruction
LDI 0001:	Public lighting Electrical Design Element

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Signed: _____

Name: ALPESH MANJI

Service Provider Number: 1104 Date: 14/10/2019

AMENDMENTS: ORIGINAL ISSUE — A — DRAFT No. 01

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				AM PROJ. No.	2018/01427/001
		GENERAL		HV SWITCHING	
		OVERHEAD		UBD/PENGUIN REF	
		UNDERGROUND		GIS MAP No	UB2524
		SUBSTATIONS		HV OP DIAGRAM	MAMRE 2, S6
				LOCAL GOV AREA	PENRITH

ORIGINAL SCALE

DRAWN R.AZZI
DATE 07/06/2019
CH'D B.DUBEY

DO NOT SCALE
DIMENSIONS IN METRES

DESIGN A.MANJI

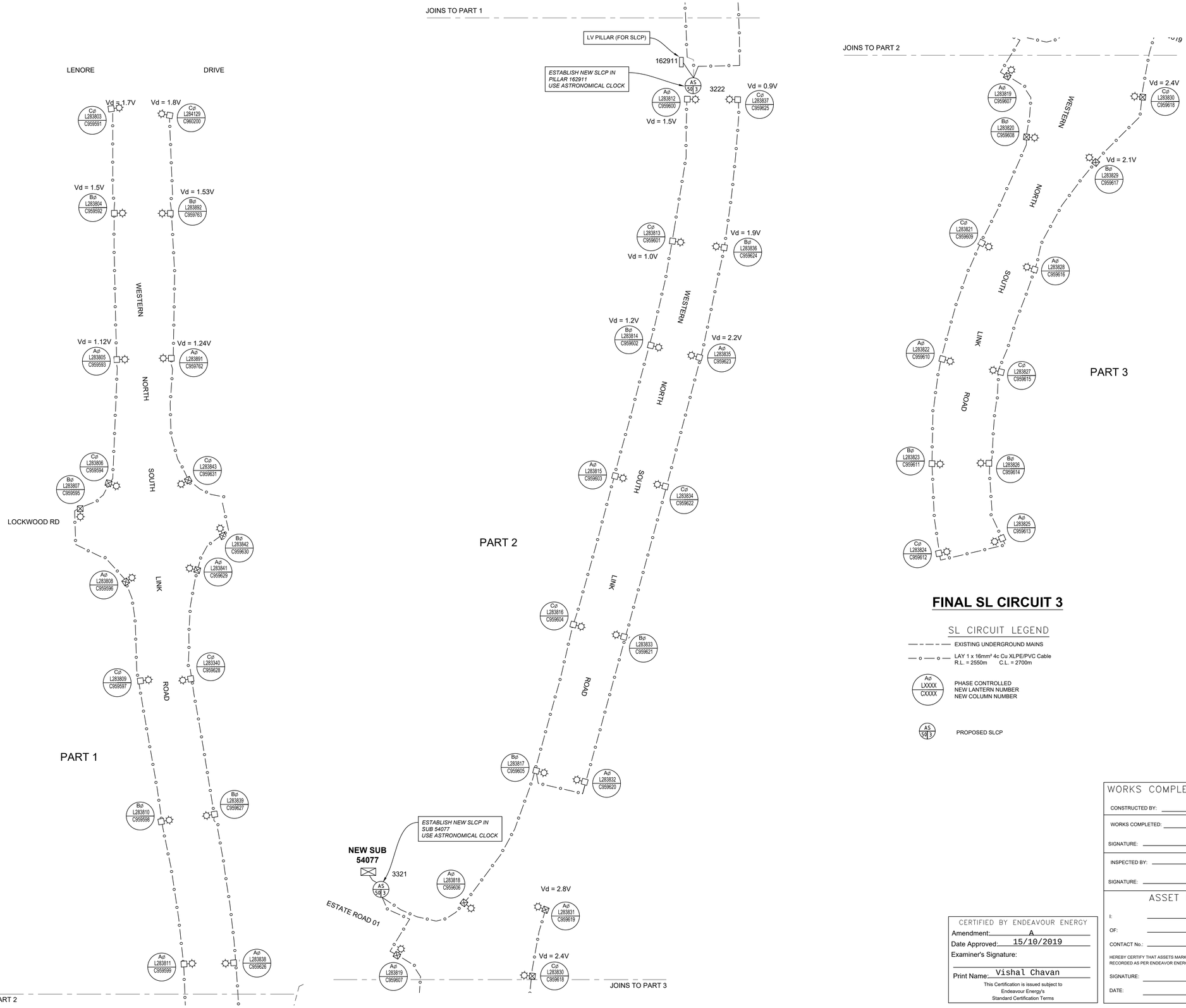
LENORE DRIVE (OFF)
KEMPS CREEK
UIS0845
ELECTRICAL RETICULATION
LOT 6, 2, 2, 11, 3,
DP 229784, DP84578, DP1215268, DP1178389, DP85393

Endeavour Energy

A1 | 513625 | A

SHEET No 8 OF 9 SHEETS

68384



FINAL SL CIRCUIT 3

SL CIRCUIT LEGEND

- EXISTING UNDERGROUND MAINS
- LAY 1 x 16mm² 4c Cu XLPE/PVC Cable — R.L. = 2550m C.L. = 2700m
- Aø / LXXXX / CXXXX — PHASE CONTROLLED, NEW LANTERN NUMBER, NEW COLUMN NUMBER
- AS 50|3 — PROPOSED SLCP

CERTIFIED BY ENDEAVOUR ENERGY

Amendment: A
Date Approved: 15/10/2019
Examiner's Signature:
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		UNDERGROUND		GIS MAP No	U82524
		SUBSTATIONS		HV OP DIAGRAM	MAMRE 2, S6
				LOCAL GOV AREA	PENRITH

ORIGINAL SCALE
DRAWN R.AZZI
DATE 07/06/2019
CH'D B.DUBEY
DESIGN A.MANJI
DO NOT SCALE
DIMENSIONS IN METRES

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KEMPS CREEK
UIS0845
ELECTRICAL RETICULATION
LOT 6, 2, 2, 11, 3,
DP 229784, DP84578, DP1215268, DP1178389, DP85349

Endeavour Energy
A1 513625 A
SHEET No 9 OF 9 SHEETS

68384

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