

OAKDALE WEST INDUSTRIAL ESTATE

**Building 2A
Construction Environmental Management Plan
SSD 9794683**

Prepared for:

Goodman Property Services (Aust) Pty Ltd
The Hayesbery
1-11 Hayes Road
Rosebery NSW 2018

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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.

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DOCUMENT CONTROL

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CONTENTS

1	INTRODUCTION	7
1.1	Development Overview	7
1.2	Construction Environmental Management Plan	11
1.2.1	Scope	11
1.2.2	Objectives	13
1.2.3	Preparation.....	13
1.2.4	Consultation	13
2	DEVELOPMENT DESCRIPTION	14
2.1	Location	14
2.2	Construction Activities and Staging	14
2.3	Construction Hours	14
2.4	Construction Site Access	15
2.5	Contractor Car Parking.....	15
2.6	Construction Contact Details	16
3	ENVIRONMENTAL MANAGEMENT FRAMEWORK.....	17
3.1	RCC’s Environmental Policy	17
3.2	Roles and Responsibilities.....	17
3.3	Statutory Requirements	19
3.3.1	SSD 9794683.....	19
3.3.2	SSD 7348.....	19
3.4	Inductions and Environmental Training.....	20
3.5	Incident and Non-Compliance Response and Handling Procedure.....	21
3.5.1	Performance Objective.....	21
3.5.2	Responsibility	21
3.5.3	Notification Requirements	22
3.5.3.1	Incidents	22
3.5.3.2	Non-Compliances	23
3.5.4	Incidents and Non-Compliance Handling Procedure.....	24
3.5.5	Incidents and Non-Compliance Register	25
3.5.6	Minor Environmental Incidents.....	26
3.6	Complaints Response and Handling Procedure.....	27
3.6.1	Performance Objective.....	27
3.6.2	Responsibility	27
3.6.3	Complaints Handling Procedure.....	27

CONTENTS

3.6.4	Complaints Register.....	28
3.7	Dispute Resolution.....	29
4	ENVIRONMENTAL MANAGEMENT COMMITMENTS	30
4.1	General.....	30
4.2	Noise	31
4.3	Vibration	34
4.4	Air Quality	36
4.5	Traffic.....	40
4.6	Soil and Water	46
4.7	Waste	54
4.8	Visual Amenity	56
4.9	Flora and Fauna	57
4.10	Hazardous Goods and Contamination.....	59
4.11	Fire Safety and Emergency	61
4.12	Community	62
4.13	Heritage	64
5	MONITORING AND REPORTING	65
5.1	Environmental Monitoring and Inspections	65
5.2	Reporting	69
5.3	Auditing.....	72
5.4	Contingency Management Plan.....	72
6	REVIEW AND IMPROVEMENT OF ENVIRONMENTAL PERFORMANCE AGAINST CEMP	83
7	REFERENCES.....	84

CONTENTS

DOCUMENT REFERENCES

TABLES

Table 1	SSD 9794683 CEMP Context.....	12
Table 2	Consultation	13
Table 3	Construction Contact List	16
Table 4	Personnel Responsible for Environmental Management	17
Table 5	Regulatory Authority Contact List	23
Table 6	General Construction Environmental Management Controls	30
Table 7	Project Specific Construction Noise Management Levels.....	31
Table 8	Environmental Management Controls for Noise	31
Table 9	Acceptable Vibration Dose Values for Intermittent Vibration.....	34
Table 10	Recommended Safe Working Distances for Vibration Intensive Plant	34
Table 11	Environmental Management Controls for Vibration	35
Table 12	Environmental Management Controls for Air Quality	36
Table 13	Environmental Management Controls for Traffic	40
Table 14	Environmental Management Controls for Water and Soil	46
Table 15	Environmental Management Controls for Waste	54
Table 16	Environmental Management Controls for Visual Amenity	56
Table 17	Environmental Management Controls for Flora and Fauna	57
Table 18	Environmental Management Controls for Dangerous Goods.....	59
Table 19	Environmental Management Controls for Fire Safety and Emergency	61
Table 20	Environmental Management Controls for the Community	62
Table 21	Environmental Management Controls for Heritage	64
Table 22	Monitoring and Inspection Requirements	65
Table 23	Reporting Requirements	69
Table 24	Audit Requirements	72
Table 25	Contingency Plan.....	73

FIGURES

Figure 1	Oakdale West Staging Plan.....	8
Figure 2	Oakdale West Precinct Plan	9
Figure 3	Building 2A Layout.....	10
Figure 4	Site Access Routes.....	15

CONTENTS

APPENDICES

- Appendix A Development Consent SSD 9794683
- Appendix B Relevant Consent Conditions
- Appendix C Environmental Policy
- Appendix D Incident Report Form
- Appendix E Complaint Form
- Appendix F Construction Noise and Vibration Management Plan
- Appendix G Construction Air Quality Management Plan
- Appendix H Construction Traffic Management Plan
- Appendix I Soil and Water Management Plan
- Appendix Ia Erosion and Sediment Control Plan
- Appendix J Unexpected Finds Protocol – Contamination
- Appendix K Flora and Fauna Management Plan
- Appendix L Community Communication Strategy
- Appendix M Waste Management Plan
- Appendix N Unexpected Finds Protocol – Archeological
- Appendix O Consultation

1 Introduction

1.1 Development Overview

Goodman Property Services (Aust) Pty Ltd (Goodman) obtained Development Consent SSD 7348 on 13 September 2019 for the staged development of Oakdale West Industrial Estate (Oakdale West) comprising a warehousing and a distribution hub at Kemps Creek in Western Sydney (**Figure 1**).

SSD 7348 incorporates the approval of a 'Concept Proposal' to guide the future development of the estate and consent for the 'Stage 1 Development'. The Stage 1 Development includes construction of the proposed Western North South Link Road (WNSLR – now referred to as Compass Drive)), site-wide bulk earthworks, estate wide basins, and lead-in services. It also includes infrastructure and associated services, landscaping, and construction and use approval for Precinct 1.

SSD 7348 has since been modified Eight times with the most recent modification (MOD 7) being approved on 8 October 2021. The modification seeks minor changes to the building layout within Precinct 3 and 4 with subsequent amendments to bulk earthworks and pad levels to accommodate these layout changes. Consequentially, it also results in the deletion of part Estate Road 7. Amendments to conditions are proposed relating to building fence height within Precinct 1 and night-time use of mechanical plant and forklift which will allow complete 24 hour, 7 days operation of Building 2A without acoustic concerns (Keylan 2021).

The Concept Proposal consent did not approve the Stage 3 construction, fit out and use of the remaining buildings within Precinct 2 of Oakdale West (Building 2A, 2C and 2D). This is subject to a separate Development Application (SSD 9794683) submitted to the Department of Planning, Industry and Environment (DPIE). SSD 9794683 was approved on 16 December 2021.

A copy of Development Consent SSD 9794683 (as modified) is attached as **Appendix A**.

This Construction Environmental Management Plan (CEMP) has been prepared for the construction and fit out of Building 2A (**Figure 2**). Building 2A comprises the following:

- Construction and fit out of a single 44,000 sqm warehouse building with loading bays and dual office facilities;
- Truck delivery access, two car parking areas with dedicated entrances; and one heavy vehicle entrance;
- site landscaping; signage; and
- Lighting.

The layout of Building 2A is shown in **Figure 3**.

It is noted that separate CEMPs will be prepared for Buildings 2C and 2D and have not been including in this CEMP.

For the purposes of this document, the development is described in *Oakdale West Industrial Estate Concept Plan and Stage 1 Modification (MOD 7 SSD 7348)* and *Environmental Impact Statement State Significant Development Application (SSD 9794683) Oakdale West Industrial Estate Stage 3* prepared by Keylan Consulting (2021), including all specialist assessments and other appendices.



Figure 1 Oakdale West Staging Plan



Figure 2 Oakdale West Precinct Plan

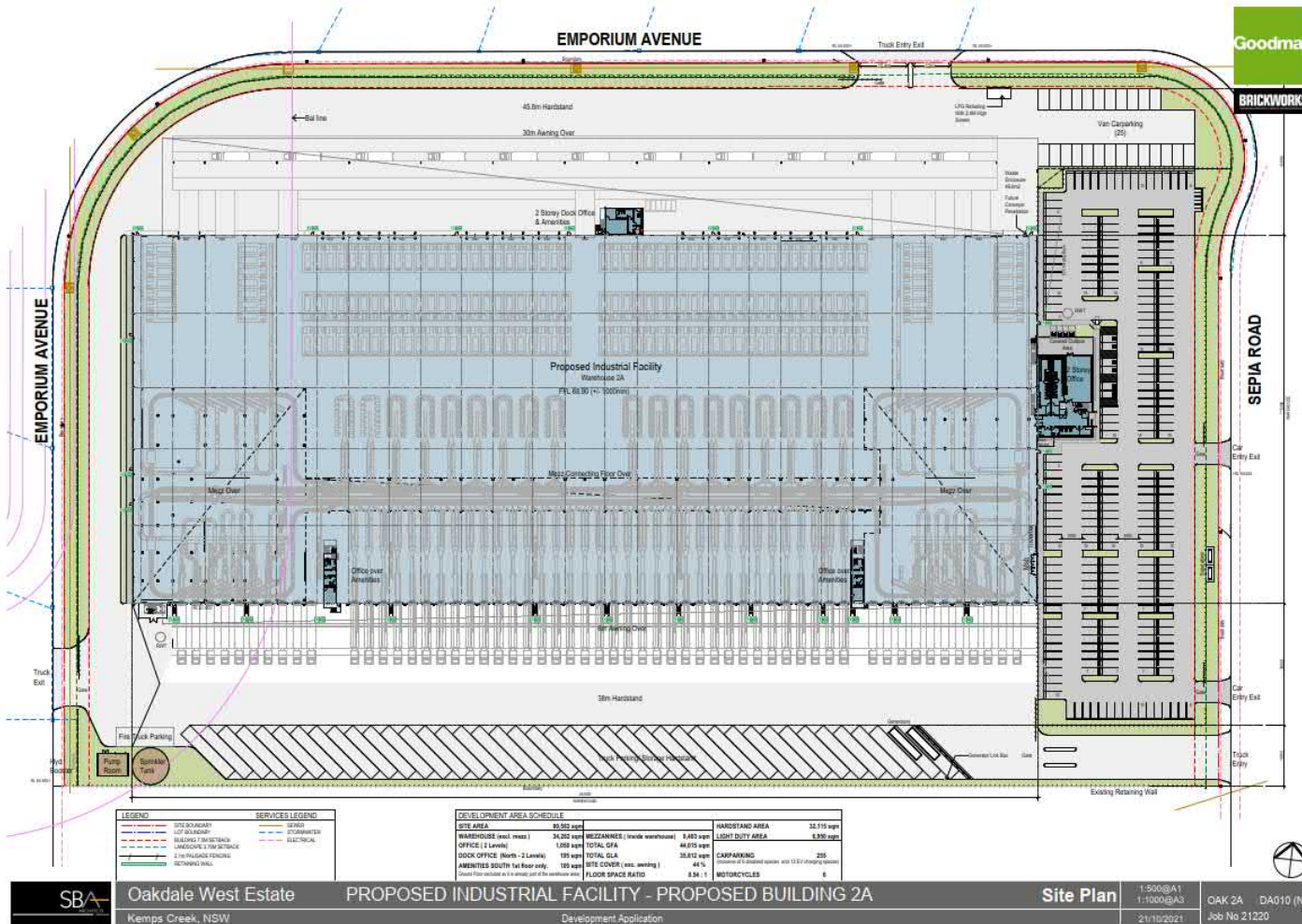


Figure 3 Building 2A Layout

1.2 Construction Environmental Management Plan

The CEMP has been prepared to address the specific requirements of SSD 9794683 and in consideration of the *Guideline for the Preparation of Environmental Management Plans* (Department of Infrastructure, Planning and Natural Resources 2004).

The following specialist management plans have been prepared to support this CEMP:

- Construction Noise and Vibration Management Plan (CNVMP) (SLR);
- Construction Air Quality Management Plan (CAQMP) (SLR);
- Community Consultation Strategy (CCS) (SLR);
- Construction Traffic Management Plan (CTMP) (ASON);
- Soil and Water Management Plan (SWMP) (Rubicon);
- Erosion and Sediment Control Plan (ESCP), appended within the SWMP (Rubicon);
- Flora & Fauna Management Plan (Ecologique); and
- Waste Management Plan (WMP) (SLR).

1.2.1 Scope

This CEMP has been prepared to satisfy C1, C2, C3 and C4 of SSD 9794683. The specific requirements of these consent conditions, along with where these requirements have been addressed within this CEMP, are listed in **Table 1**.

Table 1 SSD 9794683 CEMP Context

SSD 9794683 Consent Condition	CEMP Section
A1. Management plans required under this consent must be prepared in accordance with relevant guidelines, and include:	
a) details of: <ul style="list-style-type: none"> (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, the development or any management measures; 	<ul style="list-style-type: none"> (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
c) a program to monitor and report on the: <ul style="list-style-type: none"> (i) impacts and environmental performance of the development; and (ii) effectiveness of the management measures set out pursuant to paragraph (c) 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 the development over time;	Section 6
f) a protocol for managing and reporting any: <ul style="list-style-type: none"> (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 	<ul style="list-style-type: none"> (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: <i>The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans</i>	Section 6
C2. The Applicant must prepare a Construction Environmental Management Plan (CEMP) for the development in accordance with the requirements of condition C1 and to the satisfaction of the Planning Secretary.	This Plan
C3. As part of the CEMP required under Condition C2 of this consent, the Applicant must include the following:	
a) Construction Traffic Management Plan (see Condition B2);	Section 4.5
b) a Driver Code of Conduct (see Condition B13);	Section 4.5
c) an Erosion and Sediment Control Plan (see Condition B19); and	Section 4.6
d) A Waste Management Plan (see Condition B36).	Section 4.7
C4. The Applicant must: <ul style="list-style-type: none"> a) not commence construction of the development until the CEMP is approved by the Planning Secretary; and b) carry out the construction of the development in accordance with the CEMP approved by the Planning Secretary and as revised and approved by the Planning Secretary from time to time. 	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 the development;
- Clearly and concisely document the commitments made in the EIS (Keylan Consulting 2021) and Response to Submissions (RTS) (Keylan Consulting 2021), 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;
- Outlines the controls to be implemented by the contractor in order to meet those obligations;
- Clearly and concisely document the conditions imposed by SSD 9794683 that are required to be implemented and/or complied with during the construction phase; and
- Assist to establish Building 2A at Oakdale West in a manner that avoids (where possible) or minimises impact to the surrounding environment and populace.

1.2.3 Preparation

This CEMP has been prepared by SLR Consulting (Australia) Pty Ltd (SLR). SLR provides global environmental and advisory solutions from a network of offices in Asia-Pacific, Europe, North America and Africa. Author qualifications are listed in the document control on Page ii.

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

1.2.4 Consultation

Consultation for this CEMP, although not required under SSD 9794683, has been undertaken in accordance with SSD 7348 Condition C18(b). Feedback received has been summarised below in **Table 2** and is attached as **Appendix O**.

Table 2 Consultation

Government Agency	Consultation Received
Water NSW	Received feedback with no specific updates (via email dated 8 December 2021)
Penrith City Council	Received feedback with no specific updates (via emailed letter dated 3 December 2021)
Endeavour Energy (EE)	Received feedback with no specific updates (via email dated 29 November 2021)
Traffic for NSW (TfNSW)	Followed up but no feedback received
Department of Infrastructure and Environment (DPIE)	No feedback received; liaison ongoing

2 Development Description

2.1 Location

Oakdale West is legally described as Lot 111 DP 1262310 at the far south-western extent of the Western Sydney Employment Area (WSEA) within the Penrith Local Government Area (LGA).

Oakdale West 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 and agricultural.

As shown in **Figure 2**, Building 2A is at the southern boundary of Oakdale West.

2.2 Construction Activities and Staging

Construction will include the works to be undertaken on Lot 2A at Precinct 2 (**Figure 2**).

No vegetation clearing, bulk earthworks or supporting infrastructure will be required as part of Stage 3 as this has been approved and undertaken as part of Stage 1 in accordance with SSD 7348.

All works will be undertaken in accordance with the Approved Development Consent SSD 9794683.

2.3 Construction Hours

Construction hours will be in accordance with Conditions B7 and B8 of Development Consent SSD 9794683, which are reproduced below:

B7. The Applicant must comply with the hours detailed in Table 2, unless otherwise agreed in writing by the Planning Secretary.

Table 2: Hours of Work

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

B8. Works outside of the hours identified in Condition B8 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.

2.4 Construction Site Access

Access to the site shall be available via Compass Drive, the Link Road, and Emporium Avenue and Sepia Road, as shown below. Relevant truck routes are outlined within **Figure 4**.

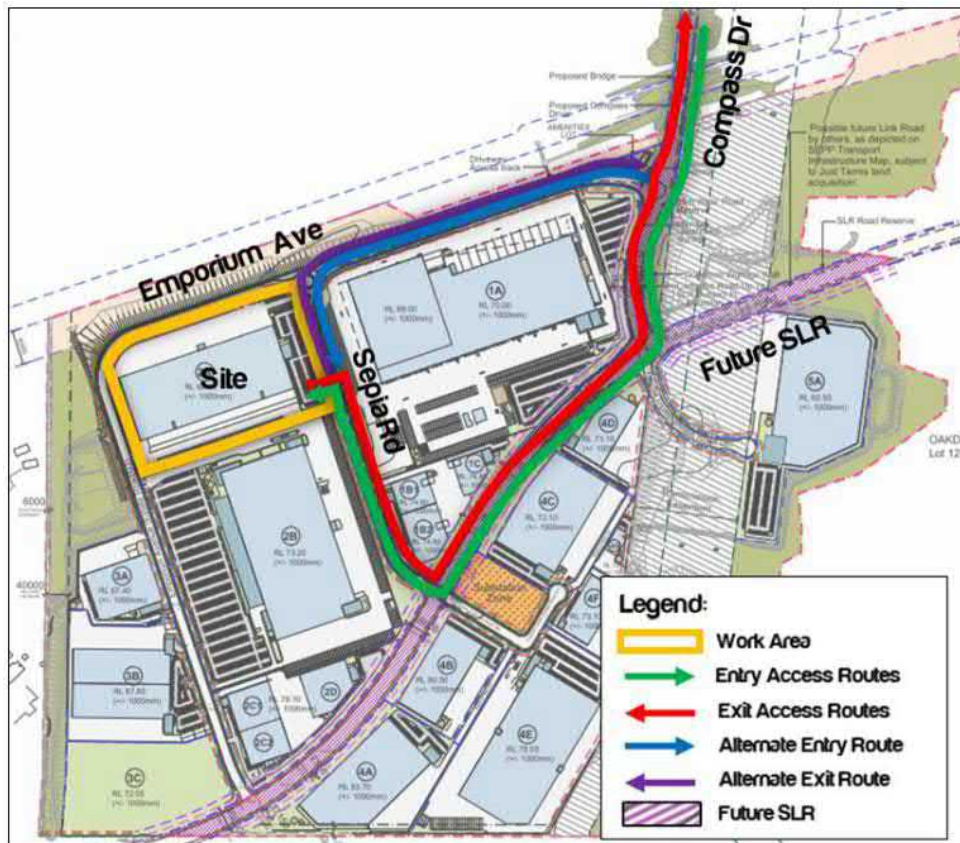


Figure 4 Site Access Routes

Source: CTMP (Ason 2021)

2.5 Contractor Car Parking

All contractor parking areas will be wholly within dedicated parking areas in the Oakdale West Estate. RCC, the engaged contractor shall nominate Contractor parking zones that do not obstruct any vehicle manoeuvre routes. The location of Contractor parking lots are expected to change as construction continues and encompasses various portions of the Site.

2.6 Construction Contact Details

Table 3 lists the key contacts during the construction of Building 2A.

Table 3 Construction Contact List

Role	Name	Company	Contact Details
Project Principal/Superintendent	Rob Moody	Goodman	0418 275 745 Rob.moody@goodman.com
Site Manager	T.B.C	T.B.C	T.B.C
Contractor's Project Manager	Mitchell Kay	Richard Crookes Constructions	0413 611 842 kaym@richardcrookes.com.au
Contractor's WHS&E Advisor	Marcello Di Paolo	Richard Crookes Constructions	0418 272 205 dipaolom@richardcrookes.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 RCC’s Environmental Policy

RCC promotes and encourages a sustainable environment throughout their business activities and sources supplies and services in ways that prevent pollution and promote compliance with legal and other requirements. As a result, RCC have developed and implemented an Environmental Policy, which will be implemented throughout the duration of the construction of Building 2A.

RCC’s Environmental Management System is certified by Global-Mark to ISO 14001:2016 Environmental Management Systems. A copy of the Environmental Policy is attached as **Appendix C**.

3.2 Roles and Responsibilities

The key personnel responsible for environmental management during construction of Building 2A are listed in **Table 4**.

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

Table 4 Personnel Responsible for Environmental Management

Role	Responsibilities
Project Principal	<ul style="list-style-type: none"> Environmental reporting responsibility associated with the development.
Contract Superintendent	<ul style="list-style-type: none"> Environmental reporting responsibility associated with the development.
Project Manager	<ul style="list-style-type: none"> Environmental reporting responsibility associated with the development.
Contractor’s Project Manager	<ul style="list-style-type: none"> Overall responsibility for environmental management and compliance; Oversee the implementation of this CEMP and request adequate resources to enable implementation of this CEMP; Report on the performance of the CEMP to the Project Manager for review and as a basis for system improvement; Liaise with Goodman to keep them informed of the project’s progress; Coordinate environmental inspections and reporting and authority liaisons; Record, notify, investigate and respond to any environmental incidents and, where necessary, develop and implement corrective actions; 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. Attend the Environmental Review Group (ERG) meetings if ERG meetings are deemed necessary by the Environmental Consultant; and Provide adequate environmental inductions/training to employees and contractors regarding their requirements under this CEMP.

Role	Responsibilities
Contractor's National OHSE Manager	<ul style="list-style-type: none">• 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.
All employees, contractors and subcontractors	<ul style="list-style-type: none">• Ensure familiarity, implementation and compliance with this CEMP and appended management plans;• Support 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

3.3.1 SSD 9794683

The Development will be constructed in accordance with SSD 9794683, including the documents referenced under Condition A2 of the Consent:

- The Conditions of Consent;
- Written directions from the Planning Secretary;
- The EIS (Keylan 2021) and Response to Submissions (Keylan 2021), including all specialist assessments and other appendices;
- The development layout plans and drawings attached to the Development Consent as Appendix 1; and
- The management and mitigation measures attached to the Development Consent as Appendix 3.

If there is any inconsistency between the plans and documentation referred to in Condition A2, the most recent document shall prevail to the extent of the inconsistency. However, the conditions of SSD 9794683 prevail to the extent of any inconsistency. The Project Manager will be notified if any inconsistencies are identified.

SSD 9794683 imposes a number of environmental performance and management requirements applicable to the construction of Building 2A.

A copy of the Consent for SSD 9794683 is attached at **Appendix A**.

3.3.2 SSD 7348

The works at Building 2A will comply with the relevant conditions of SSD 7348.

SSD 7348 incorporates the approval of a 'Concept Proposal' to guide the future development of the estate and consent for the 'Stage 1 Development'. As such, conditions applicable to this CEMP are limited to those contained in Schedule B and Schedule C of SSD 7348.

Schedule D of SSD 7348 is specific to the Stage 1 Development (including the WNSLR) and is therefore generally not applicable to this CEMP. Notwithstanding this, where appropriate, relevant conditions have been considered and addressed to ensure a consistent and robust approach to the management of construction environmental impacts across the Oakdale West Estate.

3.4 Inductions and Environmental Training

The Contractor's Project Manager will ensure that all employees and contractors involved in the construction of Building 2A at 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, and 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;
- the environmental sensitivity of all retained native vegetation, which are critically endangered ecological communities under both State and Federal legislation (Section 4 FFMP);
 - Legal duty of care to ensure that no deliberate or inadvertent clearing or damage resulting from the activities being undertaken;
 - The penalties that apply under both State and Federal legislation for any deliberate or inadvertent clearing or damage resulting from the activities being undertaken;
 - The stop work procedure required should any damage occur to native vegetation (refer Section 5).
- Site-specific issues including:
 - Sound erosion and sediment control practices, water quality controls and sediment basin management (see **Section 4.6**);
 - Responsibilities under the *Heritage Act 1977* if an object of potential non-Aboriginal heritage is uncovered during construction;
 - The potential to encounter wildlife; and the protocols that will be implemented in the event wildlife is encountered;
 - 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**);
- 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 9794683 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 9794683 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 Building 2A 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 Oakdale West's 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 Building 2A 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 Environmental Consultant 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 will 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 5 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 5 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	131 444	In case of emergency – 000
	NSW Fire and Rescue	1300 729 579	
	NSW Ambulance Service	-	

In accordance with Condition C7 of Development Consent SSD 9794683, once Goodman becomes aware of an incident Goodman is required to immediately (within 24 hours) provide a written incident notification via the Major Projects website 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 C8 of SSD 9794683, the DPIE will be notified in writing via the Major Projects website within seven days of becoming aware of any non-compliance.

C9 and C10 of SSD 9794683 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 C7 and Appendix 4 of Development Consent SSD 9794683 require 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 RCC's Incident Report Form (**Appendix D**). A copy of the completed report will be maintained for at least five years by RCC.

Condition C7 and Appendix 4 of Development Consent SSD 9794683 requires that a detailed incident report be provided to the DPIE within 30 days of the incident occurring.

The Incident 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 C9 of SSD 9794683.

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 3** and the contact details for the regulatory authorities listed in **Table 5**;
- Blank hard copies of RCC's Incident Report Form; and
- Copies of all completed Incident Report Forms, 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 Oakdale West's 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 2021) (see **Appendix L**).

3.6.1 Performance Objective

To ensure that all environmental complaints in relation to the construction of Building 2A at 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 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 3**.

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 2021).

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 RCC's Complaint Form (**Appendix E**). 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 3**;
- Blank hard copies of the RCC's Complaint Form (see **Appendix E**); and
- Copies of all completed Complaint Forms 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 Building 2A at 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.

Additional information can be located in the CCS (SLR 2021) attached as **Appendix L**.

4 Environmental Management Commitments

Environmental aspects with the potential to be impacted through the construction of Building 2A are addressed in the following sub-sections. These issues have specific regulatory requirements imposed 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 6 lists the general environmental controls that will be implemented throughout the construction of Building 2A to minimise the potential for adverse impacts on the local environmental and surrounding receptors.

Table 6 General Construction Environmental Management Controls

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
The total area of warehousing and office space at the development must not exceed a maximum gross lettable area of 35,612 square metres.	RCC/Goodman	Ongoing	SSD 9794683 Condition A6
All monitoring records will be maintained to demonstrate compliance with the CEMP, including: <ul style="list-style-type: none"> • 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 	RCC	For 5 years after completion date	Best practice
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 relating to Building 2A works will be managed in accordance with the CNVMP (SLR 2021c) prepared to support this CEMP, attached as **Appendix F**.

Table 7 outlines the project specific Noise Management Levels (NMLs) to be adhered to during construction as outlined in the CNVMP (SLR 2021c).

Table 7 Project Specific Construction Noise Management Levels

Receiver	Period	LAeq,15min Construction NMLs (dBA)	
		Standard Hours	Highly Noise Affected
N1, N7 & N8	Day	49	75
N9 – N14	Day	44	75
N2 & N6	Day	55 ¹	n/a

Note 1: Noise level of LAeq 55 dBA has been adopted, with consideration to the generally accepted 10 dB noise reduction typically achieved through a partially open window.

It is understood that a Noise Agreement between the applicant and receiver N3, N4 and N5 has been made. As such, no criteria are applicable at receivers N3, N4 and N5.

The environmental management controls in **Table 8** will be implemented to minimise the potential for adverse noise emissions from the construction of Building 2A.

Table 8 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.	RCC	Ongoing	CNVMP / Best practice
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			

Measure	Person Responsible	Timing / Frequency	Reference / Notes
<p>Respite offers will be considered where high-noise works are predicted to exceed 75 dBA for residential 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.</p> <p>Consultation with these receivers will be undertaken to determine appropriate respite periods, such as exam periods for schools.</p>	Communications and Community Liaison Representative	Ongoing	CNVMP / Best practice
<p>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.</p>	Communications and Community Liaison Representative	Ongoing	CNVMP / Best practice
<p>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.</p>			
Site Layout			
Compounds and worksites will be designed to promote one-way traffic and minimise the need for vehicle reversing.	RCC	Ongoing	CNVMP / 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.	RCC	Ongoing	CNVMP / Best practice
Plant and Equipment Source Mitigation			
<p>All construction plant and equipment used on site, or to monitor the performance of the development, must be:</p> <p>a) maintained in a proper and efficient condition; and</p> <p>b) operated in a proper and efficient manner.</p>	RCC	Ongoing	SSD 9794683 Condition A20

Measure	Person Responsible	Timing / Frequency	Reference / Notes
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).	RCC	Ongoing	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.			
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.	RCC	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.			
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	CNVMP / 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 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.	RCC	Ongoing	CNVMP / 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 5 for full details of monitoring requirements.			

4.3 Vibration

Vibration during the construction of Building 2A will be managed in accordance with the CNVMP (SLR 2021c) prepared to adhere to best practice standards, and attached as **Appendix C**.

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 9**.

Table 9 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 10**. 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 10 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
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.

The environmental management controls in **Table 11** will be implemented to minimise the potential for adverse vibration impacts from the construction of Building 2A.

Table 11 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.	RCC	Ongoing	CNVMP / Best practice
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.			
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 Goodman before the commencement of any vibration intensive activities.		Before and after any vibration activities within minimum distances	
A copy of the Building Condition Inspection Reports and CNVMP will be submitted to 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

Construction air quality will be managed in accordance with the CAQMP (SLR 2021) prepared to support this CEMP, attached as **Appendix G**.

The CAQMP will be implemented during the construction of Building 2A at 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 12** will be implemented to minimise the potential for adverse dust emissions and impacts during the construction.

Note: **Table 12** is replicated as Table 7 in the CAQMP.

Table 12 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.	RCC		
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.	RCC	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.	RCC	Ongoing	SSD 7348 Condition D98 SSD 9794683 Condition B30

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Exposed surfaces and stockpile will be suppressed by regular watering or use of approved dust suppressants.	RCC	Ongoing	SSD 7348 Condition D99a
Land stabilisation works will be carried out in such a way on site to minimise exposed surfaces.	RCC	Ongoing	SSD 7348 Condition D99e
Construction of Lot 2A 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 the public road network.	RCC	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: <ul style="list-style-type: none"> • 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.			RCC

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Operations			
Only cutting, grinding or sawing equipment fitted with suitable dust suppression systems, such as water sprays will be used.	RCC	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.			
Water carts will be used on all denuded or exposed surfaces and unsealed roads to minimise dust emissions.	RCC	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.	RCC	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.	RCC	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 RCC Project Manager to identify the scope of work or source of the emission prior to undertaking and applying any additional mitigation measures.		Ongoing	

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
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.	RCC	Ongoing	Best practice
Trackout			
Water-assisted road sweeper(s) will be used on an as required basis should any material be tracked out of the site.	RCC	Ongoing	Best practice
Record all regular inspections and maintenance undertaken of site haul routes and project related access roads 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			
Ensure effective water suppression of dust is used during demolition operations.	RCC	Ongoing	Best practice
Bag and remove any biological debris or damp down such material before demolition.			

4.5 Traffic

Construction traffic will be managed in accordance with the Construction Traffic Management Plan (CTMP) (Ason 2021) prepared to support this CEMP and is attached as **Appendix H**.

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.

The anticipated vehicle movements generated by the construction of the Site have been estimated having consideration of the likely requirements for construction staff, plant, equipment and haulage. The anticipated construction schedule has been provided by the contractor, with the estimated traffic volumes are as follows:

- Building 2A Construction Works – up to 620 light vehicle movements per day and 190 heavy vehicle movements per day (including truck and dog and 3 tonne rigid trucks) shall access the Site, although not in the same time period per day. Notwithstanding the estimated maximum daily construction vehicle generation is up to 900 vehicle movements per day. See Section 4.1.2 of the CTMP for further details.

The environmental management controls in **Table 13** will be implemented to ensure road safety and network efficiency during construction.

Table 13 Environmental Management Controls for Traffic

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Emergency vehicle access to and from the Site will be available at all times while the site is occupied by construction activities.	Drivers / RCC	Ongoing	CTMP Section 2.3
Drivers will not use Bakers Lane for access to and from the Site.	Drivers / RCC	Ongoing	CTMP Section 2.3, 4.1.3 and 5.2
All construction vehicles will access the site via Compass Drive, the Link Road, and Emporium Ave and Sepia Rd as shown in Figure 4.	Drivers / RCC	Ongoing	CTMP Section 3.1
Any TGS shall maintain a suitable level of access past work areas for pedestrians or cyclists at all times.	RCC	Ongoing	CTMP Section 3.2
A bus route is available from St Marys Train Station to Oakdale West Estate for additional access for construction workers.	RCC	Ongoing	CTMP Section 3.3
A schedule for deliveries of materials and goods will be established on the previous day, and Traffic Controllers will maintain radio contact with construction vehicles at all times.	RCC	Ongoing	CTMP Section 4.1.3
At no stage will queueing occur on the public road network. In the event that vehicles are required to use a layover prior to arrival at site, they will laydown within Compass Drive before arriving to site in order to avoid any on-street queueing.			

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
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, as per Section 4.1.3 of the CTMP.	RCC	As required	CTMP Section 4.1.3
All drivers will adhere to the Driver Code of Conduct outlined in Section 5 of the CTMP.		Ongoing	CTMP Section 4.2.1 Section 5
Contractors shall nominate the parking zones without obstructing any vehicle manoeuvre routes. The location of Contractor parking lots are expected to change as construction continues and encompasses various portions of the Site.			CTMP Section 4.2.2
Vehicles will be tracked upon entry and exit of the Site's access to ensure that vehicles are abiding by both the timed restrictions and construction volume constraints.			CTMP Section 4.2.3
All material loading will occur within the construction site boundary.			CTMP Section 4.2.4
No loading will occur outside of the provisioned areas			
Equipment, materials and waste will be kept within the construction site boundary.			
During latter stages of construction, tie in works will be required within the kerbside of Emporium Avenue and Sepia Road. All materials handling shall be undertaken off the public roadway, however in the event materials handling are required from the roadway, then prior approval shall be sought and obtained from the relevant Authorities. Noting that Estate Roads are currently in private ownership, this would require consent of the Estate Management and be subject to special management.			As required
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.		Prior to commencing construction and ongoing	CTMP Section 4.2.6
Temporary exclusion fencing will be erected along the entire boundary of the site and will be maintained for the duration of the construction program. The fencing is to ensure unauthorised persons are kept out of the Site.		Ongoing	CTMP Section 4.2.7
Site access gates would be provided within Emporium Avenue and Sepia Road and will be closed at all times outside of the permitted construction hours			
Pedestrians and cyclists using the footpath fronting the Site are to be managed using pedestrian boom gates or equivalent, as outlined in Section 4.2.7 of the OTMP.			

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Chain mesh construction fencing will be provided along all site frontages accessible by the public to prevent unwanted pedestrian and/or cyclist access.		Prior to commencing construction and ongoing	CTMP Section 4.2.7
Any Signage and/or line marking to be installed as a result of these construction works shall be installed as per Council's Engineering Construction Specification For Civil Works document (October 2017).	RCC	Ongoing	CTMP Section 4.2.8
Any Traffic Guidance Schemes (TGSs), associated risk assessment, consultation schedules, TGS verification checklist, and inspection checklists shall be prepared by an accredited person, in accordance with the TfNSW Traffic Control at Worksites Manual (Issue 6.0) and AS1742.3:2019. All TGSs involving signage or impacts to public roads shall be approved by the Traffic Management Centre (TMC), prior to the works for which they relate. These TGSs shall be updated to respond to any changes to prevailing traffic conditions throughout the life of the works.	RCC	Ongoing	CTMP Section 4.2.9
Safety to motorists and pedestrians throughout the area will be maintained during construction through the preparation and execution of TGS's, which will be monitored and updated accordingly throughout the project.	RCC		CTMP Section 6.2
Drivers are to be issued with a copy of the Drivers Code of Conduct if driving any vehicle for work-related purposes.	RCC		CTMP Section 5.2
Drivers will be responsible and accountable for their actions when operating a company vehicle or driving for the purposes of work.	Drivers		CTMP Section 5.3
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 / RCC		
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.			
Daily pre-start checks of oil, tyre pressures, radiator and battery levels of all company vehicles regularly used will be undertaken.	Drivers / RCC		
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.	Drivers / RCC				
All drivers will obey the weight, length and height restrictions imposed by the National Vehicle Regulator, and other Government agencies.					
Heavy Vehicles will adhere to the routes outlined in Section 2.4.					
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 public roads unless a prior approval has been sought.	Drivers	Ongoing	CTMP Section 5.3		
No tracked vehicles will be driven on a paved road.	Drivers				
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 / RCC				
All drivers to report to their supervisor if they have been prescribed medication prior to the start of work.	Drivers				
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.	Drivers				
All near-hits, crashes and scrapes will be reported to management.	Drivers / RCC			Prior to the next vehicle use	
All infringements will be reported to management at the earliest opportunity.					
Vehicle defects will be reported to management.					
The authorised site access and egress route will be followed.	Drivers			Ongoing	CTMP Section 5.4
The speed limits within the construction site will be adhered to.					
Loads will be covered at all times					
Ensure that all drivers adhere to the designated heavy vehicle routes, shown as entry and exit routes in Section 2.4. If a driver accesses the Site contrary to the approved routes, then approval to drive to and from the Site will be revoked by Management.	RCC				
Pre-commencement checks will be undertaken for all new traffic related plant arriving on site and prior to undertaking any work.	Drivers / RCC	Prior to first use			

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Prestart inspections will be completed for all traffic related plant and equipment currently on-site.	Drivers / RCC	Daily	
All construction plant will be fitted with a flashing light, fire extinguisher and reverse alarms.	RCC	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.	RCC	Ongoing	CTMP Section 5.4
All maintenance requirements will be completed.	RCC	Ongoing	CTMP Section 5.4
Appropriate driver training or re-training will be arranged (where required), including: <ul style="list-style-type: none"> 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). 	RCC	Ongoing	CTMP Section 5.4
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: <ul style="list-style-type: none"> 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. Ensure your own safety first, then help any injured people and seek assistance immediately if required.	Drivers / RCC	Following a vehicle crash	CTMP Section 5.5
If a vehicle crash occurs, follow the instructions listed in Section 5.5 of the CTMP.			
No dirt or debris from the construction vehicles is tracked on to the public road network.	Drivers / RCC	Ongoing	CTMP Section 5.6
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.			

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
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.			
Noting that construction works for the remainder of the OWE infrastructure and Building works will still be underway, each contractor shall liaise regularly in order to avoid any conflict of large deliveries and to ensure that the cumulative construction impacts are minimised and do not exceed approved operational limits.	RCC	Ongoing	CTMP Section 6.3
The CTMP will be reviewed in accordance with Section 7.1 of the CTMP.	RCC	Monthly, at minimum	CTMP Section 7.1

4.6 Soil and Water

The following documents have been prepared to ensure appropriate soil and water management during the construction of Building 2A:

- Soil and Water Management Plan (SWMP) (Rubicon Enviro 2021) – attached as **Appendix I**. The SWMP aims to ensure appropriate controls and procedures are implemented during construction activities to avoid or minimise erosion and sedimentation impacts and potential impacts to water quality in creeks, waterways and groundwater along the project corridor.
- Erosion and Sediment Control Plan (ESCP) (Rubicon Enviro 2021a) – attached as **Appendix Ia**. The ESCP aims to reduce the potential for risk of environmental impacts caused by erosion and sedimentation associated with project activities.

While these documents should be referred to for specifics, the environmental management controls are summarised in **Table 14**.

Table 14 Environmental Management Controls for Water and Soil

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
General			
Prior to the commencement of any construction or other surface disturbance for the development, the Applicant must install and maintain suitable erosion and sediment control measures on-site, in accordance with the relevant requirements of the Managing Urban Stormwater: Soils and Construction - Volume 1: Blue Book (Landcom, 2004) guideline and the Erosion and Sediment Control Plan included in the CEMP required by condition C2.	Goodman / RCC	Prior to construction	SSD 9794683 Condition B18
Construction will comply with section 120 of the POEO Act, which prohibits the pollution of waters.	RCC	Ongoing	SSD 9794683 Condition B19
Planning, permits and personnel for soil and water management activities and controls will be managed as per Table 9 in the ESCP.		Ongoing	ESCP Section 9
Training will be provided to all project personnel, including relevant sub-contractors on sound erosion and sediment control practices and the requirements from this plan through inductions, toolbox talks and pre-start briefings.		Pre-construction / Ongoing	SWMP Section 6

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
A Project Soil Conservationist (Certified Professional in Erosion & Sediment Control - CPESC) will be engaged and consulted throughout construction to provide advice and review SWMP preparation, erosion and sediment control design, installation, maintenance and the development of Progressive Erosion and Sediment Control Plans (PESCPs).	RCC	Pre-construction / Ongoing	SWMP Section 6
Environmental Work Method Statements (EWMs) may be required to be prepared and implemented to manage soil and water impacts for activities assessed as having high environmental risk (see SWMP Section 6 for further examples of these activity types).		Ongoing	SWMP Section 6
Contaminated soils and Acid Sulfate Soils and / or Potential Acid Sulfate Soils are to be managed in accordance with the ESCP (see Appendix Ia).		Pre-construction / Ongoing	SWMP Section 6
Erosion and Sediment Control			
The ESCP is based on the assumption that controls will generally be installed in the progression outlined in Section 8 of the ESCP	RCC	Ongoing	ESCP Section 8
Sediment and Pollution Controls for soil and water management activities will be managed as per Table 9 in the ESCP.	RCC	Ongoing	ESCP Section 9
The Primary ESCP includes arrangements for managing wet weather events, including monitoring of potential high-risk events (such as storms) and specific controls and follow-up measures to be applied in wet weather. The ESCP is to be referred to and considered when preparing progressive erosion and sediment control plans.	RCC / Project Soil Conservationist	Pre-construction / Ongoing	SWMP Section 6 ESCP Appendix E
Progressive Erosion and Sediment Control Plans (PESCPs) will be prepared and implemented in advance of construction. PESCPs will be updated as required.	RCC / Project Soil Conservationist	Pre-construction / Ongoing	SWMP Section 6 ESCP Section 7.5

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Prior to the commencement of any construction or other surface disturbance for the development, suitable erosion and sediment control measures to be installed and maintained on-site, in accordance with the relevant requirements of the Managing Urban Stormwater: Soils and Construction - Volume 1: Blue Book (Landcom, 2004) guideline and the approved Erosion and Sediment Control Plan included as Appendix Ia .	RCC	Pre-construction / Ongoing	SWMP Section 6
Hardstand material, rumble grids or similar will be provided at exit points from construction areas onto public roads to minimise the tracking of soil and particulates onto public roads.	RCC	Pre-construction / Ongoing	SWMP Section 6
Site compounds, access tracks, stockpile sites and temporary work areas will be designed and located to minimise erosion.	RCC	Pre-construction / Ongoing	SWMP Section 6
Works will be programmed to minimise the extent and duration of unstabilised soil surfaces.	RCC	Pre-construction / Ongoing	SWMP Section 6
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.	RCC	Pre-construction / Ongoing	SWMP Section 6
Stabilisation will be implemented for dormant areas exposed for four weeks or more (including stockpiles and batters); by providing soil surface protection (i.e. geotextile fabric, stabilised mulch, soil binder or spray grass).	RCC	Ongoing	SWMP Section 6
Drains, banks or diversions will be formed (and stabilised where required) to direct runoff from disturbed areas to sediment basins or to areas with adequate sediment control devices, and away from watercourses or tributary drainage lines. Lip berms and batter chutes with velocity dams will be progressively formed and maintained on fill formations.	RCC	Ongoing	SWMP Section 6
Staged re-vegetation and/or other permanent stabilisation will be implemented in Site areas as work proceeds.	RCC	Ongoing	SWMP Section 6

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Specialist expertise and advice will be sought from an accredited Project Soil Conservationist (CPESC) in regards to the broad spectrum of erosion and sediment control issues, including but not limited to site establishment, temporary access routes, off-site water diversion, on-site drainage, sediment basin construction / operation / decommissioning, soil handling and storage, water management, stabilisation and rehabilitation / revegetation of Project areas.	RCC	As required	ESCP Section 7.4
A structured erosion and sediment control training program will be implemented for all relevant site personnel in the form of inductions, toolbox talks and workshops / training presentations.	RCC	Ongoing	ESCP Section 7.4 and Section 7.6
The extent and duration of construction disturbance will be minimised.			ESCP Section 7.4
Off-site water flows around or across site will be controlled and diverted.			
On-site flows to installed sediment controls and sediment basins will be controlled and diverted.			
Topsoils for site rehabilitation and revegetation will be conserved.			
Progressive erosion methods and techniques will be implemented throughout various work stages.			
Suitable sediment controls including sediment filters, traps, sumps and basins will be constructed and managed.			ESCP Section 7.4
A thorough inspection and maintenance program will be developed to monitor, record and schedule actions for maintenance and upgrades of controls, rectification works, and sediment removal and handling.			ESCP Section 7.4 and Section 7.7
A procedure will be established to monitor forecast weather events and implementing response plans for significant wind or rainfall events and flooding.			ESCP Section 7.4 and Section 9
Timely and progressive stabilisation will be undertaken of disturbed areas prior to final landscaping.			
Stabilisation measures will be monitored, and prompt and effective revegetation and permanent stabilisation promoted.			

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
<p>The erosion and sediment control measures required for Project areas during the various construction areas will be determined by reference to the guidance and measures detailed in Appendix D of the 'Blue Book' Volume 2D: Main Road Construction 2007.</p> <p>Commonly employed methods and techniques that may be likely to be utilised on the Project are detailed in Table 9 of the ESCP.</p>			ESCP Section 7.4 and Section 9
Stockpiles			
<p>Stockpiles will be located in designated stockpile sites, above 10-year flood levels, and at least 5 m from likely areas of concentrated water flows and drainage lines,</p> <p>Topsoil stockpiles will be formed to heights no greater than 2 m, and all other soil materials to be no higher than 5m, and batter slopes to be no steeper than 2:1.</p> <p>Stockpiles will be established so that any slump of the stockpile will not affect erosion and sediment control measures or infringe on specified minimum clearance requirement.</p> <p>Stockpiles will be covered or otherwise protected from erosion where stockpiles will be in place for more than 20 days, or temporary stockpiles that are susceptible to wind or water erosion, within 5 days of forming each stockpile.</p> <p>Stockpiles will be managed to avoid contamination with noxious weeds and cross-mixing with other stockpiled materials. Weed growth on stockpiles will be monitored and suppressed as required.</p>	RCC	Ongoing	SWMP Section 6
<p>Clearing, site establishment, topsoil stripping and stockpiling will be managed as per Table 9 in the ESCP</p>		Pre-construction / Ongoing	ESCP Section 9
Sediment Basins			
<p>Construction sediment basins will be designed and constructed in accordance with the requirements and procedures detailed in the Blue Book Volume's 1 & 2D.</p> <p>The construction sediment basin design/s, restoration and revegetation methodology will be formulated and/or reviewed by the Project Soil Conservationist.</p>	RCC	Pre-construction / Ongoing	SWMP Section 6

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
All sediment basins will have depth indicators installed that clearly show the sediment storage zone together with basin identification signage basin number.	RCC	Ongoing	SWMP Section 6
Run-off from areas within catchments (that are controlled by sediment basins) is to be diverted to the sediment basins in stabilised drainage lines where possible.		Pre-construction / Ongoing	
Suitable all-weather access will be constructed and maintained to sediment basins to allow for basin testing, treatment, discharge and maintenance.		Ongoing	
Water quality basins shall be flocculated with an appropriate approved flocculant (eg. gypsum) using an early dosing system to minimise the settling time of suspended dispersible and small sediment particles and to maximise the efficiency of the basins		Ongoing	
Prior to discharging any water from a sediment basin, representative water samples will be obtained and tested to ensure that it meets the NSW EPA water quality criteria. See Table 7-4 in SWMP for discharge water quality criteria.		Ongoing	
Flocculant or coagulant (whether gypsum or another approved material) will be applied to settle suspended sediments within 24 hours of the conclusion of each rain event causing runoff. The cycle time to treat, dewater and return the maximum storage capacity to any individual construction water quality basin prior to the next rainfall event shall not exceed 5 days.		Ongoing	
Subsequent to the initial series of basin sample tests, where a statistical correlation can be demonstrated between turbidity and Total Suspended Solids (TSS), an application will be made to the Principal to allow for the discharge of supernatant waters based on turbidity measurements before confirmatory laboratory data is available.		Ongoing	

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
<p>A sediment basin management register will be maintained for each sediment basin that records;</p> <ul style="list-style-type: none"> • personnel approving the dewatering activities; • time & date; • water quality test results and estimated volumes for each discharge. 	RCC	Ongoing	SWMP Section 6 ESCP Appendix D
<p>The Sediment Basin Management and Dewatering Procedure will be referred to for actions to be taken for site dewatering in general and specific measures for the construction and maintenance of sediment basins including steps to be taken prior to any discharge.</p>	RCC	Ongoing	ESCP Appendix C
Dewatering			
<p>Personnel responsible for approval and/or carrying out dewatering activities will be adequately trained and inducted on the dewatering procedures and requirements.</p>	RCC	Ongoing	SWMP Section 6 ESCP Appendix C
<p>Water to be discharged from site will be discharged in accordance with a Site Dewatering Procedure.</p> <p>In accordance with NSW EPA water quality criteria, the water quality parameters for discharge from site discharge points will be:</p> <ul style="list-style-type: none"> • Total Suspended Solids <50mg/L • pH 6.5 - 8.5 • Oil & grease – not visible. 		Ongoing	
<p>A site dewatering register will be maintained for site areas (other than sediment basins) that require treatment, dewatering and discharge to off-site areas. The register will record;</p> <ul style="list-style-type: none"> • dewatering procedure; • date and time for each discharge at each location; • water quality test results for each discharge; • personnel approving the dewatering activities; • evidence of discharge monitoring, or risk assessment and mitigation; and • measures used to eliminate the risks of pollution or erosion. 		Pre-construction / Ongoing	

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Water captured in sediment basins and other site works areas will be reused for dust suppression, compaction, or other construction activities where possible. If a proposed source, other than a town water supply or natural water source, procedures will be developed for regular testing to ensure that the water is suitable for the purpose and is not hazardous to health and the environment.	RCC	Ongoing	SWMP Section 6
All dewatering activities will be subject to prior approval from relevant project personnel. The dewatering activities will be monitored to ensure: <ul style="list-style-type: none"> • intake suction devices are positioned to prevent extraction or disturbance of settled sediments, • no erosion is occurring at discharge locations and/or downstream areas, • no inadvertent or intentional controlled discharge of untreated waters occurs. 			
Drainage and water management will be managed as per Table 9 in the ESCP.	RCC	Ongoing	ESCP Section 9
Site stabilisation and restoration			
Management and procedures for site stabilisation will be in accordance with the primary Erosion and Sediment Control Plan (Appendix 1a).	RCC	Ongoing	SWMP Section 6
The rehabilitation of disturbed areas will be undertaken progressively as construction stages are completed and in accordance with procedures detailed in the Blue Book Volume's 1 & 2D.		Ongoing / Post-construction	SWMP Section 6
Restoration of these areas will include; <ul style="list-style-type: none"> • topsoiling of the areas; • seeding, planting, watering and maintenance; • removal of temporary erosion control devices and of accumulated sediments; • removal of unused construction materials and waste materials. 		Ongoing / Post-construction	

4.7 Waste

Construction waste will be managed in accordance with the Waste Management Plan (WMP) (SLR 2021a) prepared to support the EIS and attached as **Appendix M**.

The environmental management controls in **Table 15** will be implemented to minimise the potential for adverse waste impacts from the construction of Building 2A.

Table 15 Environmental Management Controls for Waste

Reporting Requirement	Person Responsible	Timing / Frequency	References / Notes
Waste must be secured and maintained within designated waste storage areas and must not leave the site onto neighbouring public or private properties.	RCC	Ongoing	SSD 9794683 Condition B34
All waste materials removed from the site must only be directed to a waste management facility or premises lawfully permitted to accept the materials.			SSD 9794683 Condition B36
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.			SSD 9794683 Condition B37
Waste generated outside the site must not be received at the site for storage, treatment, processing, reprocessing, or disposal.			SSD 9794683 Condition B38
Waste avoidance and minimisation measures from the WMP will be implemented to meet construction waste recycling and landfill reduction targets.			WMP Section 5
Suitable measures will be implemented to manage pests, vermin and declared noxious weeds on the Site.			Best Practice
The Site will be inspected on a regular basis to ensure that the pest/weed/vermin measures are working effectively, and that they are not present on Site in sufficient numbers to pose an environmental hazard or cause the loss of amenity in the surrounding area.			
Waste Avoidance In accordance with Council's Development Control Plan (DCP) and better practice waste management waste avoidance measures listed in the WMP should be followed.			
Reuse, Recycling and Disposal In accordance with Council's DCP and better practice waste management waste reuse, recycling and disposal measures listed in the WMP should be followed.			WMP Section 5.6

Reporting Requirement	Person Responsible	Timing / Frequency	References / Notes
<p>Waste Storage and Servicing In accordance with Council’s DCP and better practice waste management waste reuse, recycling and disposal measures listed in the WMP should be followed.</p>	RCC	Ongoing	WMP Section 5.7
<p>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.</p>			WMP Section 5.8
<p>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.</p>			WMP Section 5.9

4.8 Visual Amenity

As outlined in the EIS (Keylan 2021), Building 2A is designed to ensure it will be consistent with surrounding development and the Concept Plan approval for the site (as modified by MOD 7). The proposed design reflects high commercial and industrial standards and provides a visually balanced form.

Potential visual impacts during construction of Stage 3 would include the use of cranes and scaffolding during the erection of Building 2A and temporary infrastructure commonly associated with construction activities such as site compounds and lighting. These visual impacts are considered insignificant given their temporary nature.

Table 16 outlines the mitigation measures to be implemented during construction to manage the impacts to visual amenity.

Table 16 Environmental Management Controls for Visual Amenity

Reporting Requirement	Person Responsible	Timing / Frequency	References / Notes
The development must be consistent with the development controls in the OWE, as shown in <i>Table 1: Development Controls</i> in the Conditions of Consent.	RCC	Ongoing	SSD 9794683 Condition A7
Notwithstanding the controls listed in Table 1 in Condition A7, no warehouse building in the development, except Buildings 2A and 2C in Precinct 2, shall exceed a ridgeline height of 13.7 m, excluding roof mounted mechanical plant and solar panels.		Ongoing	SSD 9794683 Condition A8
The Applicant must construct Building 2A in accordance with and RTS and as shown on the figures in Appendix 1.		Ongoing	SSD 9794683 Condition B13
Lighting will comply with the latest version of AS 4282-2019 - Control of the obtrusive effects of outdoor lighting (Standards Australia, 2019)		Prior to commencing construction and ongoing	SSD 9794683 Condition B16
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.			
All signage and fencing will be erected in accordance with the development plans included in the RTS. Note: This condition does not apply to temporary construction and safety related signage and fencing.		Ongoing	SSD 9794683 Condition B17
Suitable measures will be implemented to manage pests, vermin and declared noxious weeds on the Site.			
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.		During Environmental Consultant inspections	Best practice

4.9 Flora and Fauna

A Flora and Fauna Management Plan (FFMP) has been prepared by Ecologique (2021) and is attached as **Appendix K**. The FFMP outlines mitigation measures relevant to manage potential impacts to biodiversity during both construction and operation.

Table 17 outlines the mitigation measures to be implemented during construction to manage the impacts to flora and fauna.

Table 17 Environmental Management Controls for Flora and Fauna

Reporting Requirement	Person Responsible	Timing / Frequency	References / Notes
Protection of Native Vegetation			
All contractors will be made aware during site induction of the environmental sensitivity of all retained native vegetation, which are critically endangered ecological communities under both State and Federal legislation.	Management / Contractors	Pre-construction	FFMP Table 3.1 (FF1)
Site induction will clearly describe the following: <ul style="list-style-type: none"> • Legal duty of care to ensure that no deliberate or inadvertent clearing or damage resulting from the activities being undertaken; • The penalties that apply under both State and Federal legislation for any deliberate or inadvertent clearing or damage resulting from the activities being undertaken; and • The stop work procedure required should any damage occur to native vegetation (refer Section 5). 			
Wildlife Protection			
All personnel including contractors will be made aware through the site induction process of the potential to encounter wildlife; and the protocols that will be implemented in the event wildlife is encountered.	Management / Contractors	Ongoing throughout construction	FFMP Table 4.1 (FF2)
Vehicle and mobile plant operators shall remain vigilant when entering and exiting the works area, particularly at dusk and dawn;			
Should kangaroos be observed transiting across the entrance/exit to the works area, vehicle/mobile plant is to stop until animals have moved to a safe distance to ensure vehicle/mobile plant strike is prevented; and			
All on site personnel including contractors are to report any injured or near miss incidents with wildlife.	Management / Contractors	Ongoing throughout construction	FFMP Table 4.1 (FF3)
Should unexpected fauna be encountered within the works site, the stop works procedure provided in Section 5 of FFMP will be followed.			

Reporting Requirement	Person Responsible	Timing / Frequency	References / Notes
Erosion and Sediment Control			
Offsite discharge shall be managed in strict accordance with Erosion & Sediment Control Plans prepared for Lot 2A;	Management / Contractors	Throughout construction	FFMP Table 4.1 (FF4)
A spill kit should be provided in an easily accessible location in the event that fuel or other contaminant spills occur.			
The contractor will continually monitor works to ensure that erosion and sediment controls are functioning optimally and compliance with site induction requirements are being adhered to.			
Weed, Pest Species and Pathogen Management			
<p>The following hygiene procedures are to be implemented to avoid the introduction and/or spread of soil borne pathogens and weeds:</p> <ul style="list-style-type: none"> • Minimise work during wet/rainy periods; • Vehicles, plant and machinery are to be clean and free of soil on arrival to the works 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; <p>Mud spilt on roads to be immediately removed by a road sweeper.</p>	Management / Contractors / Employees	Ongoing throughout construction	FFMP Table 4.1 (FF5)
Future tenants are to install rodent (electronic or sonar) repellents to minimise prey for snakes	Management / Future tenants	Post construction, operation	FFMP Table 4.1 (FF6)
<p>Waste management shall ensure the following:</p> <ul style="list-style-type: none"> • 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; • Lids on skips or bins are to be kept closed at all times; and • Employ adequate environmental management controls to prevent off-site migration of waste materials and contamination from the waste. 	Management / Contractors / Future Tenants	Ongoing throughout construction	FFMP Table 4.1 (FF7)

4.10 Hazardous Goods and Contamination

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 18**. This includes an Unexpected Finds Protocol - Contamination (AECOM 2019), which has been prepared for Oakdale West to ensure that potentially contaminated material is appropriately managed, attached as **Appendix J**.

Table 18 Environmental Management Controls for Dangerous Goods

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
Hazardous Goods			
The quantities of dangerous goods stored and handled at the Site will be below the threshold quantities listed in <i>Hazardous and Offensive Development Application Guidelines - Applying SEPP 33</i> at all times.	RCC	Ongoing	SSD 9794683 Condition B28
All chemicals, fuels and oils used on-site will be stored in bunded areas in accordance with relevant Australian Standards and/or the <i>EPA's Storing and Handling of Liquids: Environmental Protection – Participants Manual</i> (Department of Environment and Climate Change 2007).			SSD 9794683 Condition B29
Any material identified as contaminated will be disposed off site, with the disposal location and results recorded prior to its removal from the site.	RCC / Environmental Consultant	As required	Best practice
The Contractor's Project Manager and the Environmental Consultant 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.	RCC	Immediately	
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.		Prior to commencing construction and ongoing	
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 use potentially dangerous goods will be appropriately trained in the proper storage, use and handling.	RCC	Ongoing	Best practice
Any liquid wastes or dangerous goods waste 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.	RCC	Ongoing	Best practice
Unexpected Finds - Contamination			
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 2019).	RCC / Project Manager / AECOM	As required	UCP Section 3.1
In the event that unexpected contamination finds are encountered: <ul style="list-style-type: none"> RCC will immediately inform the Project Manager and AECOM. The Project Manager will inform Goodman. AECOM will inspect the unexpected find (if 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.	RCC	Ongoing	UCP Section 4
AECOM will prepare a Validation Report in accordance with the requirements of the NSW OEH (2011) <i>Guidelines for Consultants Reporting on Contaminated Sites</i> and EPA (2017) <i>Guidelines for the NSW Site Auditor Scheme (3rd Edition)</i> .	RCC / AECOM	At the completion of the earthworks and if any unexpected finds were encountered that required remediation	UCP Section 5
Soil Contamination & Acid Sulphate Soils will be managed as per Table 9 in the ESCP.	RCC	Ongoing	ESCP Section 9

4.11 Fire Safety and Emergency

The environmental controls that will be implemented to minimise the potential for environmental incidents relating to fire during the construction of Building 2A are presented in **Table 19**.

Table 19 Environmental Management Controls for Fire Safety and Emergency

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
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.	RCC	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.			

4.12 Community

As required by Condition B39 of SSD 9794683, community engagement shall be undertaken in accordance with the Community Consultation Strategy (CCS) for Oakdale West, prepared by SLR (2021) and is attached as **Appendix L**.

The community management controls in **Table 20** will be implemented during the construction of Building 2A.

Table 20 Environmental Management Controls for the Community

Reporting Requirement	Person Responsible	Timing / Frequency	References / Notes
The community must be consulted with regularly throughout the development, including consultation with the nearby sensitive receivers identified in Figure 9 of the consent conditions, relevant regulatory authorities, Registered Aboriginal Parties and other interested stakeholders.		Ongoing	SSD 9794683 Condition B39
Community engagement shall be undertaken in accordance with the Community Communication Strategy for the OWE.			
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	

Reporting Requirement	Person Responsible	Timing / Frequency	References / Notes
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	CCS Section 5.3
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	
Individual Community Meetings will be held with stakeholders as required to discuss a specific item.	Community Consultation Team	Prior to commencing construction and ongoing	
Newspaper Advertisements will be published in The Western Weekender and Mt Druitt – St Marys Standard identifying the project hotline number and web page address.		As required in accordance with Table 7 of the CCS	
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.		Prior to commencing construction and ongoing	
Site Signage will display project information details including the hotline and web page, along with relevant project and safety information.			
Online Feedback Forms will be available on the web page, with feedback provided to be incorporated into the consultation register and actioned as required.	Communications and Community Liaison Representative		
A 24 hour Project Information and Complaints Number will be available for reporting project feedback.	RCC		
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

4.13 Heritage

The environmental management controls in **Table 21** will be implemented to minimise the potential for adverse heritage impacts from the construction of Building 2A.

These controls outline the Unexpected Finds Protocol from Conditions D106, D107 and D108 of SSD 7348 to be followed in the event that unanticipated archaeological items are uncovered.

In addition to this, if any further instruction is required, please refer to the Oakdale West Estate-Wide Unexpected Finds Protocol – Archaeological Items, prepared by Artefact (2019) and attached as **Appendix N**.

Table 21 Environmental Management Controls for Heritage

Reporting Requirement	Person Responsible	Timing / Frequency	References / Notes
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) Heritage NSW must be contacted immediately.	RCC	Ongoing	SSD 7348 Condition D106
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 <i>National Parks and Wildlife Act 1974</i> .	RCC	Ongoing	SSD 7348 Condition D107
D109. If any archaeological relics are uncovered during the course of the work, then all works must cease immediately in that area. Unexpected finds must be evaluated and recorded in accordance with the requirements of Department of Premier and Cabinet, Heritage Division.			SSD 7348 Condition D108

5 Monitoring and Reporting

5.1 Environmental Monitoring and Inspections

Table 22 summarises the monitoring requirements for the construction of Building 2A at Oakdale West as set out in SSD 9794683 and relevant management plans.

Table 22 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.	RCC	As specified by the manufacturer / supplier	Best practise
RCC 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 9794683.	Environmental Consultant	Weekly	SSD 9794683 Condition C1(a)(iii)
All monitoring will be undertaken in accordance with Division 9.4 of Part 9 of the EP&A Act.	Environmental Consultant / RCC	Ongoing	SSD 9794683 Condition C13
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.	RCC	Weekly	Best practice
Noise			
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	RCC	Prior to commencing noise intensive works	CNVMP Section 8.1
Attended monitoring will also be undertaken in response to any complaints regarding construction noise and will take place during the expected noisiest construction periods and be representative / indicative of any impact across all potentially affected sensitive receivers.	RCC	Following a noise-related complaint	CNVMP Section 8.1

Monitoring / Inspection Requirement	Person Responsible	Timing / Frequency	References / Notes
All items of acoustic instrumentation utilised will be designed to comply with applicable guidelines and carry current calibration certificates.	RCC	Ongoing	CNVMP Section 8.1
Vibration			
Vibration will be monitored continuously within the minimum working distances (see Table 10) 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.	RCC	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	
Air Quality			
Visual inspections will be undertaken to assess 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	RCC	Daily	CAQMP Section 8
Meteorological data recorded at Horsley Park AWS will be monitored and reviewed on a daily basis.			
The air quality monitoring program currently in place at Oakdale West will continue to be implemented throughout the construction of Building 2A.	Goodman	Ongoing	CAQMP Section 10
Traffic			
Delivery volumes will be monitored against the volumes outlined within the Traffic Impact Assessment report, including registration and time of entry	RCC	Ongoing	CTMP Section 7.1

Monitoring / Inspection Requirement	Person Responsible	Timing / Frequency	References / Notes
Monitoring of movements to ensure drivers are adhering to the approved construction hours, and to ensure that the approved traffic generation, and subsequent impacts on the road network, are in line with those approved	RCC	Fortnightly	CTMP Section 7.1
Monitor parking and access to identify shortfalls and issues.	RCC	Ongoing	CTMP Section 7.1
Monitor TGSs (if necessary) to ensure they are consistent with set-up on site.	RCC	Ongoing	CTMP Section 7.1
Regular checks will be undertaken to ensure all loads are entering and leaving site covered.	RCC	Ongoing	CTMP Section 7.1
A Dilapidation report shall 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.	RCC	Monthly	CTMP Section 7.1
Monitor designated heavy vehicle routes being used on site, and parking and access issues.	RCC	Ongoing	CTMP Section 7.1
A program will be developed to monitor the effectiveness of the CTMP.	RCC	Ongoing	CTMP Section 7.1
Soil and Water			
Any material transported onto road surfaces to be removed.	RCC	Daily and before rainfall	Best practice
Environmental Site Inspection to evaluate the effectiveness of erosion and sediment control measures in accordance with Table 6-1 of SWMP.	Environmental Site Representative	Weekly	SWMP Section 7.3
Rainfall Inspection (10mm or greater rainfall) to evaluate the effectiveness of erosion and sediment control measures in accordance with Table 6-1 of SWMP. A rain gauge is to be installed in the main compound as per Section 7.5 of SWMP.		Prior to rainfall event, during event, within 24 hours after the event.	
Establish a thorough inspection and maintenance program to monitor, record and schedule actions for maintenance and upgrades of controls, rectification works, and sediment removal and handling.	RCC	Ongoing	ESCP Section 7.4
Monitor forecast weather events and implement response plans for significant wind or rainfall events and flooding.			
Stabilisation measures will be monitored, and prompt and effective revegetation and permanent stabilisation promoted.	RCC	Ongoing	ESCP Section 7.4
Waste			

Monitoring / Inspection Requirement	Person Responsible	Timing / Frequency	References / Notes
As per Council's DCP, records of waste volumes recycled, reused or contractor removed are to be maintained.	RCC	Daily	WMP Section 5.10
Visual inspections of waste storage areas will be undertaken.			
Visual Amenity			
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.	RCC / ER	During Environmental Consultant inspections	Best practice
Community			
The following will be monitored: <ul style="list-style-type: none"> • 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 23 summarises the reporting requirements for the construction of Building 2A at Oakdale West as set out in SSD 9794683 and relevant management plans.

Table 23 Reporting Requirements

Reporting Requirement	Person Responsible	Timing / Frequency	References / Notes
General Environmental Performance			
Compliance Reports of the Development will be carried out in accordance with the <i>Compliance Reporting Post Approval Requirements (Department 2020)</i> .	Goodman	As set out in the DPE guidelines	SSD 9794683 Condition C11
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 9794683 Condition C12
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 9794683.		48 hours prior to commencing construction and ongoing	SSD 9794683 Condition C14
The RCC will report environmental performance during regular management meetings and/or 'toolbox talks'. Items to be discussed include: <ul style="list-style-type: none"> 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 	RCC	Weekly	Section 3.4
A copy of all environmental records will be maintained, including: <ul style="list-style-type: none"> 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 	RCC	For at least 5 years after completion	Best practice
Meteorological data including rainfall will be recorded.		Daily	

Reporting Requirement	Person Responsible	Timing / Frequency	References / Notes
Incident / Non-Compliance Reporting			
The DPIE will be notified of any incident in writing via the Major Projects website and include the requirements outlined in Appendix 4 of SSD 9794683.	Goodman / RCC	Within 7 days after Goodman becomes aware of the incident	SSD 9794683 Condition C7 and Appendix 4
A detailed incident report will be provided to the Planning Secretary and include the requirements outlined in Appendix 4 of SSD 9794683.		Within 30 days of the incident occurring	
The DPIE will be notified of any non-compliance in writing via the Major Projects website.		Within 7 days after Goodman becomes aware of the non-compliance	SSD 9794683 Condition C8
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 and provided to Goodman for review.	RCC	Following each monitoring survey	CNVMP Section 8.1
Vibration			
Vibration monitoring reports will be prepared at the following stages: <ul style="list-style-type: none"> 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 	RCC	Monthly at minimum	CNVMP Section 8.2
Traffic			
Reporting of movements to ensure drivers are adhering to the approved construction hours, and to ensure that the approved traffic generation, and subsequent impacts on the road network, are in line with those approved.	RCC	Fortnightly	CTMP Section 7.1
Hazardous Goods and Contamination			
Any material identified as contaminated will be disposed off site, with the disposal location and results of testing recorded prior to its removal from the site.	RCC / Environmental Consultant	As required	Best practice

Reporting Requirement	Person Responsible	Timing / Frequency	References / Notes
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 2019).	RCC	As required	UCP Section 3.1
AECOM will prepare a Validation Report in accordance with the requirements of the NSW OEH (2011) <i>Guidelines for Consultants Reporting on Contaminated Sites</i> and EPA (2017) <i>Guidelines for the NSW Site Auditor Scheme (3rd Edition)</i> .	RCC / AECOM	At the completion of the earthworks and if any unexpected finds were encountered that required remediation	UCP Section 5
Community			
<p>The monthly community consultation summary will be made publicly available on the project web page and shall include:</p> <ul style="list-style-type: none"> • A summary of community consultation activities undertaken within the preceding month • A summary of community consultation activities proposed within the following month <p>A summary of all enquiries and complaints received within the preceding month, including details of response and/or remediation activities</p>	Communications and Community Liaison Representative	Monthly	CCS Section 6.2

5.3 Auditing

Table 24 summarises the auditing requirements for Building 2A works as set out in SSD 9794683 and relevant management plans.

Table 24 Audit Requirements

Reporting Requirement	Person Responsible	Timing / Frequency	References / Notes
All audits will be undertaken in accordance with Division 9.4 of Part 9 of the EP&A Act.	Environmental Consultant / RCC	Ongoing	SSD 9794683 Condition C13
A project audit will be undertaken to ensure all aspects of the project are implemented.	Environmental Consultant	Within 6 months of the commencement of construction	Environmental Consultant recommendation
Soil and Water			
An audit program will be developed: <ul style="list-style-type: none"> Noting the condition of installed erosion and sediment controls onsite Detailing maintenance requirements (if any) for installed erosion and sediment controls Recording the volumes of sediment removed from sediment controls and sediment traps, where applicable Recording the location to where extracted sediments are disposed. 	RCC	Weekly, before extended shut-down and after rainfall events over 10 mm	ESCP Section 7.7
Audits (both internal and external) will be undertaken to assess the effectiveness of environmental mitigation and management measures.	RCC	As required	SWMP Section 7.6

5.4 Contingency Management Plan

Table 25 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 Oakdale West's Environmental Representative Monthly Report and discussed during the toolbox talks.

Table 25 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	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
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: <ul style="list-style-type: none"> • <i>Deployment of additional water sprays, water trucks etc</i> 	Undertake an investigation of the dust generating activities, and if necessary, temporarily halt the dust generating activities
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.	<ul style="list-style-type: none"> • OWE Project Manager to analyse data to try to identify the source(s) of dust. • RCC to review operations to reduce dust emissions from the identified key source(s). Implement any additional mitigation measures as required, such as additional watering. 	<ul style="list-style-type: none"> • OWE Project Manager to review and investigate construction activities and respective control measures for the monitoring period. • If it is concluded that construction activities at Lot 2A 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), RCC to submit an incident report to government agencies.

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.	<ul style="list-style-type: none"> Report the complaint to the regulator, in line with complaints handling procedure (See Section 3.6.3). 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.	<p>OWE Project Manager to review and investigate construction activities and respective control measures.</p> <p>Where appropriate, implement additional remedial measures, such as:</p> <ul style="list-style-type: none"> • 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 <p>If elevated dust levels are due to regional dust event (fire, dust storm etc) – still take action to minimise dust from the Lot 2A site to minimise cumulative impacts, but also record details of the cause of the elevated background levels.</p>	<ul style="list-style-type: none"> • OWE Project Manager to review and investigate construction activities and respective control measures for the monitoring period, in an air pollution incident report. <p>If it is concluded that construction activities at Lot 2A 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), RCC to submit an incident report to government agencies.</p>

Key Element	Trigger / Response	Condition Green	Condition Amber	Condition Red
Construction movements	Trigger	Construction traffic does not exceed the permissible volume and time constraints.	Construction traffic just exceeds the permissible volume and time constraints.	Construction traffic far exceeds the 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: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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
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: <ul style="list-style-type: none"> • 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 Guidance Scheme	Trigger	No observable issues.	Minor inconsistencies with TGS to onsite operations.	Near miss or incident occurring regardless of / as a result of the TGS being implemented.
	Response	No response required. Continue monitoring TCPs.	Traffic Controller to amend TGS on site and to keep a log of all changes.	Stop work until an investigation has been undertaken into the incident. There are to be changes made to the TGS 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: <ul style="list-style-type: none"> • 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.
Waste	Trigger	Weekly Environmental Consultant inspections identified no waste outside of dedicated bins and stockpiles.	Weekly Environmental Consultant inspections identified minimal waste outside of dedicated bins and stockpiles.	Weekly Environmental Consultant 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.

Key Element	Trigger / Response	Condition Green	Condition Amber	Condition Red
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 assess the contamination according to the UFP (AECOM 2019).	Stop work immediately and a RAP is to be prepared. A validation report is to be prepared following remediation.
Heritage Find	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 follow unexpected finds protocol as outlined in SSD9794683 B49.	Stop work and follow unexpected finds protocol as outlined in SSD9794683 B51. Heritage item to be salvaged and removed from site by a qualified archaeologist.
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.

Key Element	Trigger / Response	Condition Green	Condition Amber	Condition Red
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.
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 Review and Improvement of Environmental Performance against CEMP

As per Condition C1(e) of SSD 9794683, 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 C5 of SSD 9794683 also states that all strategies, plans and programs required under SSD 9794683 will be reviewed and the Planning Secretary notified in writing of any outcomes of the review within three months of:

- the submission of a Compliance Report under condition C11;
- the submission of an incident report under condition C7;
- the approval of any modification of the conditions of this consent; or
- the issue of a direction of the Planning Secretary under Condition A2(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.

Notwithstanding the review requirements outlined above, in accordance with the requirements of Condition C1(g) the following is provided as the protocol for periodic review of this CEMP and all management plans required under SSD 9794683.

- All management plans required under SSD 9794683 are to be reviewed every 6 months by their original Author.
- The periodic review is to take account of any required changes to procedures, updates or changes to best practice, any non-compliances in the preceding 6 month period and whether changes can be made to improve the environmental performance of the development.

As per Condition C6 where documents are revised under the above reviews 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

AECOM (2019) *Unexpected Finds Protocol – Contamination*

Artefact (2019) *Unexpected Finds Protocol – Archaeological*

Ason (2021) *Construction Traffic Management Plan*

Australian Bushfire Protection Planners Pty Limited (2020) *Bushfire Protection Assessment for the Oakdale West SSD 7348 Modification 3 and the proposed SSD 9794683 Building 2A Development Application*

Department of Infrastructure, Planning and Natural Resources (2004) *Guideline for the Preparation of Environmental Management Plans*

Ecologique (2021) *Flora and Fauna Management Plan*

Keylan Consulting (2021) *Environmental Impact Statement (EIS) State Significant Development Application (SSD 9794683)*

Keylan Consulting (2021) *Response to Request for further Information*

Rubicon Enviro (2021) *Soil and Water Management Plan*

Rubicon Enviro (2021a) *Erosion and Sediment Control Plan*

SLR (2021) *Community Consultation Strategy*

SLR (2021a) *Waste Management Plan*

SLR (2020) *Oakdale West Industrial Estate Construction Environmental Management Plan (CEMP) SSD 7348*

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

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

APPENDIX A

Development Consent SSD 9794683

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 26 April 2021, I approve the Development Application referred to in Schedule 1, subject to the conditions specified in Schedule 2.

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.



Chris Ritchie
Director
Industry Assessments

Sydney

16 December 2021

File: SF20/107249

SCHEDULE 1

Application Number:	SSD-9794683
Applicant:	Goodman Property Services (Aust) Pty Ltd
Consent Authority:	Minister for Planning and Public Spaces
Site:	2 Sepia Road, Kemps Creek NSW 2178 (Lot 105 DP 1262310) 19 Emporium Avenue, Kemps Creek NSW 2178 (Lot 107 DP 1262310)
Development:	Oakdale West Estate Stage 3 Development including construction, fit out, operation and use of warehouse buildings 2A, 2C and 2D, associated office space and parking

TABLE OF CONTENTS

DEFINITIONS	III
PART A ADMINISTRATIVE CONDITIONS.....	5
Obligation to Minimise Harm to the Environment.....	5
Terms of Consent	5
Limits of Consent.....	5
Notification of Commencement.....	6
Evidence of Consultation	6
Staging, Combining and Updating Strategies, Plans or Programs	6
Protection of Public Infrastructure.....	6
Structural Adequacy	7
Compliance.....	7
Contributions to Council.....	7
Operation of Plant and Equipment.....	7
External Walls and Cladding.....	7
Utilities and Services	7
Work as Executed Plans.....	7
Applicability of Guidelines.....	7
PART B SPECIFIC ENVIRONMENTAL CONDITIONS.....	9
Traffic and Access	9
Noise	10
Visual Amenity.....	11
Soils, Water Quality and Hydrology	11
Bushfire Protection	11
Hazards and Risk	12
Air Quality	12
Waste Management.....	13
Community Engagement	13
PART C ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING	14
Environmental Management.....	14
Construction Environmental Management Plan.....	14
Revision of Strategies, Plans and Programs	14
Reporting and Auditing	15
Access to Information	15
APPENDIX 1 DEVELOPMENT LAYOUT PLANS.....	17
APPENDIX 2 SENSITIVE RECEIVERS.....	27
APPENDIX 3 APPLICANT'S MANAGEMENT AND MITIGATION MEASURES	28
APPENDIX 4 INCIDENT NOTIFICATION AND REPORTING REQUIREMENTS	30

DEFINITIONS

Applicant	Goodman Property Services (Aust) Pty Ltd, or any person carrying out any development to which this consent applies
BCA	Building Code of Australia
Carrier	Operator of a telecommunication network and/or associated infrastructure, as defined in section 7 of the <i>Telecommunications Act 1997</i> (Cth)
Certifier	A council or an accredited certifier (including principal certifiers) who is authorised under section 6.5 of the EP&A Act to issue Part 6 certificates
CEMP	Construction Environmental Management Plan
Conditions of this consent	Conditions contained in Schedule 2 of this consent
Construction	The carrying out of works for the purpose of the development, including detailed earthworks, erection of buildings 2A, 2C and 2D, internal fit-out and construction of associated infrastructure permitted by this consent
Council	Penrith City Council
Day	The period from 7 am to 6 pm on Monday to Saturday, and 8 am to 6 pm on Sundays and Public Holidays
Department	NSW Department of Planning, Industry and Environment
Development	The development described in Schedule 1, the EIS and RTS, including construction and operation of three warehouses and associated office space and infrastructure
Development layout	The plans at Appendix 1 of this consent
DPIE	Has the same meaning as the definition of the Department in development consent
Earthworks	Bulk earthworks, site levelling, import and compaction of fill material, excavation for installation of drainage and services, to prepare the site for construction
EES	Environment, Energy and Science Group of the Department
EIS	The Environmental Impact Statement titled <i>Oakdale West Industrial Estate – Stage 3, 2 Aldington Road, Kemps Creek</i> , prepared by Keylan Consulting Pty Ltd dated February 2021, submitted with the application for consent for the development
Environment	As defined in section 1.4 of the EP&A Act
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i> (NSW)
EP&A Regulation	Environmental Planning and Assessment Regulation 2000 (NSW)
Evening	The period from 6 pm to 10 pm
Fibre ready facility	As defined in section 372W of the <i>Telecommunications Act 1997</i> (Cth)
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 <i>Heritage Act 1977</i> , and assessed as being of local, State and/ or National heritage significance, and/or an Aboriginal Object or Aboriginal Place as defined under the <i>National Parks and Wildlife Act 1974</i> , the World Heritage List, or the National Heritage List or Commonwealth Heritage List under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (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
Material harm	Is harm that: <ul style="list-style-type: none"> 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
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
Operation	The use of Buildings 2A, 2C and 2D for storage and distribution as described in the EIS and RTS
OWE	Oakdale West Estate including the approved Concept Plan for 22 warehouse buildings and associated infrastructure and Stage 1 development including bulk earthworks across the site, construction and operation of 3 warehouses and the Western North-South Link Road, as described in the development consent SSD 7348, approved on 13 September 2019, as modified
Principal Certifier	The certifier appointed as the principal certifier for the building work under section 6.6(1) of the EP&A Act or for the subdivision work under section 6.12(1) of the EP&A Act.
Planning Secretary	Planning Secretary under the EP&A Act, or nominee
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 " <i>Aboriginal cultural heritage consultation requirements for proponents 2010</i> " (DECCW)
Rehabilitation	The restoration of land disturbed by the development to a good condition, to ensure it is safe, stable and non-polluting
Response to Submissions (RtS)	The Applicant's response to issues raised in submissions received in relation to the application for consent for the development under the EP&A Act and includes the document titled <i>Oakdale West Estate Stage 3 (SSD 9794683) – Response to Submissions</i> prepared by Goodman Property Services (Aust) Pty Ltd and dated April 2021 and <i>Oakdale West Industrial Estate Stage 3 (SSD 9794683) – Amended Development Application</i> prepared by Keylan Consulting Pty Ltd and dated 9 November 2021
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 Schedule 1
SLR	Proposed Southern Link Road as shown in the WSEA SEPP and the document titled <i>Broader WSEA SLRN Options Refinement Report</i> prepared by AECOM, 2014
TfNSW	Transport for New South Wales
Waste	Has the same meaning as the definition of the term in the Dictionary to the POEO Act
WNSLR	Western North-South Link Road as shown in the WSEA SEPP and approved under the OWE development consent SSD 7348
WSEA	Western Sydney Employment Area
WSEA SEPP	State Environmental Planning Policy (Western Sydney Employment Area) 2009
Year	A period of 12 consecutive months

SCHEDULE 2

PART A ADMINISTRATIVE CONDITIONS

OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT

- A1. 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 the development, and any rehabilitation required under this consent.

TERMS OF CONSENT

- A2. 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 Development Layout in Appendix 1; and
 - (e) in accordance with the management and mitigation measures in Appendix 3.
- A3. 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 A3(a).
- A4. 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 A2(c) or A2(e). In the event of an inconsistency, ambiguity or conflict between any of the documents listed in condition A2(c) or A2(e), the most recent document prevails to the extent of the inconsistency, ambiguity or conflict.

LIMITS OF CONSENT

Lapsing

- A5. This consent lapses five years after the date from which it operates, unless the development has physically commenced on the land to which the consent applies before that date.

Development Controls

- A6. The total area of warehousing and office space at the development must not exceed the following maximum gross lettable area:
- (a) Building 2A – 35,612 square metres;
 - (b) Building 2C – 10,565 square metres; and
 - (c) Building 2D – 6,235 square metres.
- A7. The development must be consistent with the development controls in the OWE, as shown in **Table 1**.

Table 1: Development Controls

Development Aspect	Control
Minimum building setbacks from:	
• Southern Link Road	17.15 m
• Compass Drive	20 m
• Local Estate Roads	7.5 m
• Western boundary of the OWE	40 m
• Southern boundary of the OWE	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
- Building 2A	18 m

Development Aspect	Control
- Building 2C	22.2 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)

- A8. Notwithstanding the controls listed in Table 1 in Condition A7, no warehouse building in the development, except Buildings 2A and 2C in Precinct 2, shall exceed a ridgeline height of 13.7 m, excluding roof mounted mechanical plant and solar panels.

NOTIFICATION OF COMMENCEMENT

- A9. The date of commencement of each of the following phases of the development must be notified to the Planning Secretary in writing, at least one month before that date, or as otherwise agreed with the Planning Secretary:
- construction;
 - operation; and
 - cessation of operations.
- A10. If the construction or operation of the development is to be staged, the Planning Secretary must be notified in writing, at least one month before the commencement of each stage (or other timeframe agreed with the Planning Secretary), of the date of commencement and the development to be carried out in that stage.

EVIDENCE OF CONSULTATION

- A11. Where conditions of this consent require consultation with an identified party, the Applicant must:
- consult with the relevant party prior to submitting the subject document to the Planning Secretary for approval; and
 - provide details of the consultation undertaken including:
 - the outcome of that consultation, matters resolved and unresolved; and
 - 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

- A12. With the approval of the Planning Secretary, the Applicant may:
- 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);
 - 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
 - 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).
- A13. 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.
- A14. 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

- A15. Before the commencement of construction of the development, the Applicant must consult with the relevant owner and provider of services that are likely to be affected by the development to make suitable arrangements for access to, diversion, protection and support of the affected infrastructure;
- A16. Unless the Applicant and the applicable authority agree otherwise, the Applicant must:
- repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by carrying out the development; and
 - relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the development.

STRUCTURAL ADEQUACY

A17. 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 BCA.

Note:

- 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

A18. 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 the development.

CONTRIBUTIONS TO COUNCIL

A19. Before the issuing of an occupation certificate for any part of the development, a payment of a levy of 1% of the proposed cost of carrying out the development must be paid to Council under section 7.12 of the EP&A Act.

Note: There are approval requirements for imposing a condition under section 7.12 in respect of land within a special contributions area.

OPERATION OF PLANT AND EQUIPMENT

A20. All plant and equipment used on site, or to monitor the performance of the development, must be:

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

EXTERNAL WALLS AND CLADDING

A21. The external walls of all buildings including additions to existing buildings must comply with the relevant requirements of the BCA.

A22. Prior to the issuing of:

- (a) any Construction Certificate relating to the construction of external walls (including the installation of finishes and claddings such as synthetic or aluminium composite panels); and
- (b) an Occupation Certificate,

the Applicant must provide the Certifier 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 BCA.

A23. The Applicant must provide a copy of the documentation given to the Certifier to the Planning Secretary within seven days after the Certifier accepts it.

UTILITIES AND SERVICES

A24. Before the construction of any utility works associated with the development, the Applicant must obtain relevant approvals from service providers.

A25. Before the commencement of operation of the development, the Applicant must obtain a Compliance Certificate for water and sewerage infrastructure servicing of the site under section 73 of the *Sydney Water Act 1994*.

A26. The Applicant must demonstrate that the carrier has confirmed in writing they are satisfied that the fibre ready facilities are fit for purpose.

A27. Before the issuing of the Occupation Certificate for the development the Applicant must demonstrate that the carrier has confirmed in writing it is satisfied that the fibre ready facilities are fit for purpose.

WORK AS EXECUTED PLANS

A28. Before the issuing of the Occupation Certificate for the development, work-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 Principal Certifier.

APPLICABILITY OF GUIDELINES

A29. 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.

A30. 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 the development. No condition of this consent removes any obligation to obtain, renew or comply with such licences, permits, approvals and consents.

PART B SPECIFIC ENVIRONMENTAL CONDITIONS

TRAFFIC AND ACCESS

Construction Traffic Management Plan

- B1. Prior to the commencement of construction of the development, the Applicant must prepare a Construction Traffic Management Plan for the development to the satisfaction of the Planning Secretary. The plan must form part of the CEMP required by condition C2 and must:
- be prepared by a suitably qualified and experienced person(s);
 - detail the measures that are to be implemented to ensure road safety and network efficiency during construction;
 - detail heavy vehicle routes, access and parking arrangements;
 - include a Driver Code of Conduct (see Condition B12);
 - include a program to monitor the effectiveness of these measures; and
 - if necessary, detail procedures for notifying residents and the community (including local schools), of any potential disruptions to routes.
- B2. The Applicant must:
- not commence construction until the Construction Traffic Management Plan required by condition B1 is approved by the Planning Secretary; and
 - implement the most recent version of the Construction Traffic Management Plan approved by the Planning Secretary for the duration of construction.

Parking

- B3. The Applicant must provide sufficient parking facilities on-site, including for heavy vehicles and for site personnel, to ensure that traffic associated with the development does not utilise public and residential streets or public parking facilities.

Operating Conditions

- B4. The Applicant must ensure:
- internal roads, driveways and parking (including grades, turn paths, sight distance requirements, aisle widths, aisle lengths and parking bay dimensions) associated with the development are constructed and maintained in accordance with the latest version of *AS 2890.1:2004 Parking facilities Off-street car parking* (Standards Australia, 2004), *AS 2890.2:2018 Parking facilities Off-street commercial vehicle facilities* (Standards Australia, 2018) and *AS 2890.6:2009 Parking facilities Off-street parking for people with disabilities* (Standards Australia, 2009)
 - 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;
 - the development does not result in any vehicles queuing on the public road network;
 - heavy vehicles and bins associated with the development are not parked on local roads or footpaths in the vicinity of the site;
 - all vehicles are wholly contained on site before being required to stop;
 - all loading and unloading of materials is carried out on-site;
 - all trucks entering or leaving the site with loads have their loads covered and do not track dirt onto the public road network; and
 - the proposed turning areas in the car park are kept clear of any obstacles, including parked cars, at all times.

Sustainable Travel Plan

- B5. Prior to the commencement of operation of any part of the development, the Applicant must prepare a Sustainable Travel Plan. The Sustainable Travel Plan must:
- be prepared in consultation with TfNSW;
 - outline facilities and measures to promote public transport usage, such as car share schemes and employee incentives; and
 - describe pedestrian and bicycle linkages and end of trip facilities available on-site.
- B6. The Applicant must implement the Sustainable Travel Plan throughout operation of the development.

NOISE

Hours of Work

- B7. The Applicant must comply with the hours detailed in **Table 2**, unless otherwise agreed in writing by the Planning Secretary.

Table 2: Hours of Work

Activity	Day	Time
Construction	Monday – Friday	7 am to 6 pm
	Saturday	8 am to 1 pm
Operation	Monday – Sunday	24 hours

- B8. Works outside of the hours identified in Condition B7 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.

Operational Noise Limits

- B9. The Applicant must ensure that noise generated by operation of the development does not exceed the noise limits in **Table 3**.

Table 3: Noise Limits (dB(A))

Location	Day	Evening	Night	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
N9 to N14 Kemps Creek	47	42	42	52
N2 Emmaus Catholic College (school)	When in use: 45 L _{Aeq} (1h)			

Note 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.

- B10. The noise limits in Table 2 do not apply to receiver N3, N4 and N5 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.

Construction Noise Limits

- B11. The development must be constructed to achieve 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 management and mitigation measures in the Appendix 3.

Road Traffic Noise

- B12. Prior to the commencement of construction of the development, the Applicant must prepare a Driver Code of Conduct and induction training for the development to minimise road traffic noise. The Applicant must update the Driver Code of Conduct and induction training for construction and operation and must implement the Code of Conduct for the life of the development.

VISUAL AMENITY

Building Design

B13. The Applicant must construct Buildings 2A, 2C and 2D in accordance with the RtS and as shown on the figures in **Appendix 1**.

Landscaping

B14. Prior to the commencement of operation of the development, the Applicant must implement the Landscape Plan included in the RtS and shown on the figures in **Appendix 1**.

B15. The Applicant must maintain the landscaping on the site in accordance with the approved Landscape Plan for the life of the development. If any aspect of the landscaping has not been successful, the Applicant must undertake replanting and rehabilitation works, as reasonably practicable.

Lighting

B16. The Applicant must ensure the lighting associated with the development:

- (a) complies with the latest version of AS 4282-2019 - *Control of the obtrusive effects of outdoor lighting* (Standards Australia, 2019); 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.

Signage and Fencing

B17. All signage and fencing must be erected in accordance with the development plans included in the RtS.

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

SOILS, WATER QUALITY AND HYDROLOGY

Erosion and Sediment Control

B18. Prior to the commencement of any construction or other surface disturbance for the development, the Applicant must install and maintain suitable erosion and sediment control measures on-site, in accordance with the relevant requirements of the *Managing Urban Stormwater: Soils and Construction - Volume 1: Blue Book* (Landcom, 2004) guideline and the Erosion and Sediment Control Plan included in the CEMP required by condition C2.

Discharge Limits

B19. The development must comply with section 120 of the POEO Act, which prohibits the pollution of waters, except as expressly provided for in an EPL.

Stormwater Management System

B20. The Applicant must install and operate a stormwater management system for the development that:

- (a) is designed by a suitably qualified and experienced person(s);
- (b) is generally consistent with the *Civil, Stormwater and Infrastructure Services Report DA Modification No.7, Rev 01, report REP005-01-15-272-MOD 7 Civil Report, prepared by AT&L, dated June 2021*;
- (c) is in accordance with applicable Australian Standards and Penrith City Council's *Design Guidelines for Engineering Works, Water Sensitive Urban Design Policy December 2013* and *Water Management Development Control Plan*;
- (d) ensures peak stormwater flows from the site are in accordance with *DA Modification No.7, Rev 01, report REP005-01-15-272-MOD 7 Civil Report, prepared by AT&L, dated June 2021*;
- (e) incorporate rainwater harvesting measures to supplement non-potable water demand for the development.

B21. All stormwater drainage infrastructure on the site shall remain under the care, control and ownership of the registered proprietor of the lot.

BUSHFIRE PROTECTION

B22. The Applicant must ensure the development complies with:

- (a) the relevant provisions of *Planning for Bushfire Protection, 2019*;
- (b) the recommendations of the Bushfire Report prepared by Blackash Bushfire Consulting dated 13 October 2021; and
- (c) the relevant sections of Australian Standard AS3959-2018 *Construction of buildings in bush fire-prone areas* or NASH Standard (1.7.14 updated) *National Standard Steel Framed Construction in Bushfire Areas – 2014* as appropriate, and Section 7.5 of *Planning for Bushfire Protection 2019*.

- B23. The Applicant must ensure the part of Building 2A located in the Bushfire Attack Level (BAL) 12.5 area is constructed entirely with non-combustible materials and provided with measures to improve ember protection. Ember protection improvements include enclosing all openings (excluding roof sheet and tile spaces) or covering openings with a non-corrosive metal screen mesh with a maximum aperture of 2 mm. This includes any subfloor areas, openable windows, vents, weep holes and eaves. External doors are to be fitted with draft excluders.
- B24. The Applicant must ensure the entire site, including landscaping, is managed as an inner protection area (IPA) in accordance with *Planning for Bushfire Protection 2019*.
- B25. Prior to the commencement of operation, the Applicant must prepare a Fire Management Plan (FMP) for the development. The FMP must:
- (a) be prepared in consultation with the NSW RFS;
 - (b) include 24-hour emergency contact details including alternative telephone contact
 - (c) include plans of site infrastructure plan, firefighting water supply, site access and internal roads;
 - (d) include implementation of asset protection zones (APZ) and on-going maintenance;
 - (e) include location of hazards that will impact on firefighting operations and procedures to manage identified hazards during firefighting operations; and
 - (f) any additional matters required by the RFS Fire Control Centre (e.g. FMP review and updates)
- B26. The Applicant must implement the most recent version of the Fire Management Plan for the duration of the development.
- B27. Prior to the commencement of operation, the Applicant must prepare a Bushfire Emergency and Evacuation Management Plan for the development, consistent with the NSW RFS' *A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan* and must include planning for the early relocation of occupants.

HAZARDS AND RISK

Dangerous Goods

- B28. 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

- B29. The Applicant must store all chemicals, fuels and oils used on-site in appropriately banded areas in accordance with the requirements of all relevant Australian Standards, and/or EPA's *Storing and Handling of Liquids: Environmental Protection – Participants Manual* (Department of Environment and Climate Change, 2007).

AIR QUALITY

Dust Minimisation

- B30. The Applicant must take all reasonable steps to minimise dust generated during all works authorised by this consent.
- B31. During construction of the development, the Applicant must comply with the dust minimisation measures detailed in the Construction Environmental Management Plan required by Condition C2.

Operational Air Quality – Building 2A

- B32. Prior to the commencement of operation of Building 2A, the Applicant must prepare an Air Quality Management Plan (AQMP) for Building 2A. The AQMP must:
- (a) be prepared by a suitably qualified and experienced person(s);
 - (b) detail all emission sources from the operation of Building 2A;
 - (c) describe a program that is capable of evaluating the performance of the operation and determining compliance with key performance indicators;
 - (d) identify the control measures that will be implemented for each emission source, including details of extractions systems and rooftop vents;
 - (e) nominate the following for each of the proposed controls:
 - (i) key performance indicator;
 - (ii) monitoring method, location, frequency and duration of monitoring;
 - (iii) response procedures; and
 - (iv) compliance monitoring.
 - (f) Include a complaint register and response procedures
- B33. The Applicant must implement the AQMP for the duration of operation of Building 2A.

WASTE MANAGEMENT

Waste Storage

B34. Waste must always be secured and maintained within designated waste storage areas and must not leave the site onto neighbouring public or private properties.

Waste Management Plan

B35. The Applicant must implement the Waste Management Plan (WMP) in the RtS for the duration of construction and operation of the development.

Statutory Requirements

B36. All waste materials removed from the site must only be directed to a waste management facility or premises lawfully permitted to accept the materials.

B37. 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.

B38. Waste generated outside the site must not be received at the site for storage, treatment, processing, reprocessing, or disposal.

COMMUNITY ENGAGEMENT

B39. The Applicant must consult with the community regularly throughout the development, including consultation with the nearby sensitive receivers identified in **Figure 9**, relevant regulatory authorities, Registered Aboriginal Parties and other interested stakeholders. Community engagement shall be undertaken in accordance with the Community Communication Strategy for the OWE.

PART C ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING

ENVIRONMENTAL MANAGEMENT

Management Plan Requirements

- C1. 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, the development 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 the development; and
 - (ii) effectiveness of the management measures set out pursuant to paragraph (c) 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 the development 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

- C2. The Applicant must prepare a Construction Environmental Management Plan (CEMP) for the development in accordance with the requirements of condition C1 and to the satisfaction of the Planning Secretary.
- C3. As part of the CEMP required under Condition C2 of this consent, the Applicant must include the following:
- (a) Construction Traffic Management Plan (see Condition B1);
 - (b) a Driver Code of Conduct (see Condition B12);
 - (c) an Erosion and Sediment Control Plan (see Condition B18); and
 - (d) a Waste Management Plan (see Condition B35).
- C4. The Applicant must:
- (a) not commence construction of the development until the CEMP is approved by the Planning Secretary; and
 - (b) carry out the construction of the development in accordance with the CEMP approved by the Planning Secretary and as revised and approved by the Planning Secretary from time to time.

REVISION OF STRATEGIES, PLANS AND PROGRAMS

- C5. Within three months of:
- (a) the submission of a Compliance Report under condition C11;
 - (b) the submission of an incident report under condition C7;
 - (c) the approval of any modification of the conditions of this consent; or
 - (d) the issue of a direction of the Planning Secretary under condition A2(b) which requires a review,
- the strategies, plans and programs required under this consent must be reviewed, and the Planning Secretary must be notified in writing of the outcomes of any review.
- C6. If necessary to either improve the environmental performance of the development, 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 required under condition C8, or such other timing as agreed by the Planning Secretary.

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 the development.*

REPORTING AND AUDITING

Incident Notification, Reporting and Response

- C7. The Planning Secretary must be notified in writing via the Major Projects website 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 4.

Non-Compliance Notification

- C8. The Planning Secretary must be notified in writing via the Major Projects website within seven days after the Applicant becomes aware of any non-compliance.
- C9. 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.
- C10. A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.

Compliance Reporting

- C11. Within six months after the first year of commencement of operation of the development, and in the same month each subsequent year (or such other timing as agreed by the Planning Secretary), the Applicant must submit a Compliance Report to the Planning Secretary reviewing the environmental performance of the development to the satisfaction of the Planning Secretary. Compliance Reports must be prepared in accordance with the Compliance Reporting Post Approval Requirements (Department 2020) and must also:
- (a) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and
 - (b) describe what measures will be implemented over the next year to improve the environmental performance of the development.
- C12. The Applicant must make each Compliance Report publicly available no later than 60 days after submitting it to the Planning Secretary and notify the Planning Secretary in writing at least seven days before this is done.

Monitoring and Environmental Audits

- C13. 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

- C14. At least 48 hours before the commencement of construction of the development 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 A2 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) 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;
 - (v) 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;
 - (vi) a summary of the current stage and progress of the development;
 - (vii) contact details to enquire about the development or to make a complaint;
 - (viii) a complaints register, updated monthly;

- (ix) the Compliance Report of the development;
 - (x) 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 DEVELOPMENT LAYOUT PLANS

Architectural Plans prepared by SBA Architects Pty Ltd			
Lot 2A			
Drawing	Revision	Title	Date
OAK 2A DA000	H	Cover Page	21 October 2021
OAK 2A DA001	H	Perspectives – Office 2A	21 October 2021
OAK 2A DA010	O	Site Plan	25 October 2021
OAK 2A DA200	I	Roof Plan	20 October 2021
OAK 2A DA201	J	Floor Plans - Office	22 October 2021
OAK 2A DA203	F	Floor Plans – Dock Offices	20 October 2021
OAK 2A DA210	N	Warehouse Elevations & Section	29 October 2021
OAK 2A DA211	I	Elevations Office	21 October 2021
OAK 2A DA300	I	Signage Plan	20 October 2021
Lot 2C and 2D			
OAK 2C & 2D DA000	H	Cover Page	29 October 2021
OAK 2C & 2D DA001	G	Office Perspectives	29 October 2021
OAK 2C & 2D DA002	PF	Warehouse Perspective	28 October 2021
OAK 2C DA20	L	Site & Warehouse Plan	16 November 2021
OAK 2C & 2D DA300	D	Roof Plan	15 October 2021
OAK 2C & 2D DA305	E	Floor Plan – Office 2C1	28 October 2021
OAK 2C & 2D DA306	F	Floor Plan – Office 2C2	16 November 2021
OAK 2C & 2D DA307	F	Floor Plan – Office 2D	16 November 2021
OAK 2C & 2D DA310	H	Elevations – Warehouse 2C	29 October 2021
OAK 2C & 2D DA311	H	Elevations – Warehouse 2D	29 October 2021
OAK 2C & 2D DA312	G	Office Elevations – 2C1	29 October 2021
OAK 2C & 2D DA313	G	Office Elevations – 2C2	29 October 2021
OAK 2C & 2D DA314	G	Office Elevations – 2D	29 October 2021
OAK 2C & 2D DA315	D	Sections - Warehouse	28 October 2021
OAK 2C DA400	E	Signage Plan	16 November 2021
Landscape Plans prepared by Scape Design Pty Ltd			
Drawing	Revision	Title	Date
L.SK.00	H	Cover Sheet	23 November 2021
L.SK.01	F	Landscape Sketch Plan – Lot 2A	1 November 2020
L.SK.02	E	Landscape Sketch Plan – Lot 2C & 2D	23 November 2021
L.SK.03	F	Planting Plan – Lot 2A	1 November 2020
L.SK.04	H	Planting Plan – Lot 2C & 2D	23 November 2021
L.SK.05	F	Planting Schedule – Lot 2A	1 November 2020
L.SK.06	E	Planting Schedule – Lot 2C & 2D	23 November 2021
L.SK.07	D	Character & Materials	23 November 2021
L.SK.105	F	Landscape – Detailed Plan & Notes – Lot 2A	1 November 2020

Landscape Plans prepared by Scape Design Pty Ltd			
L.SK.106	D	Landscape – Detailed Plan & Notes – Lot 2C & 2D	23 November 2021
L.SK.200	F	Carpark Details	23 November 2021
L.SK.201	E	Landscape – Typical Street Sections – Lot 2A	1 November 2020
L.SK.202	D	Landscape – Typical Street Sections – Lot 2C & 2D	23 November 2021

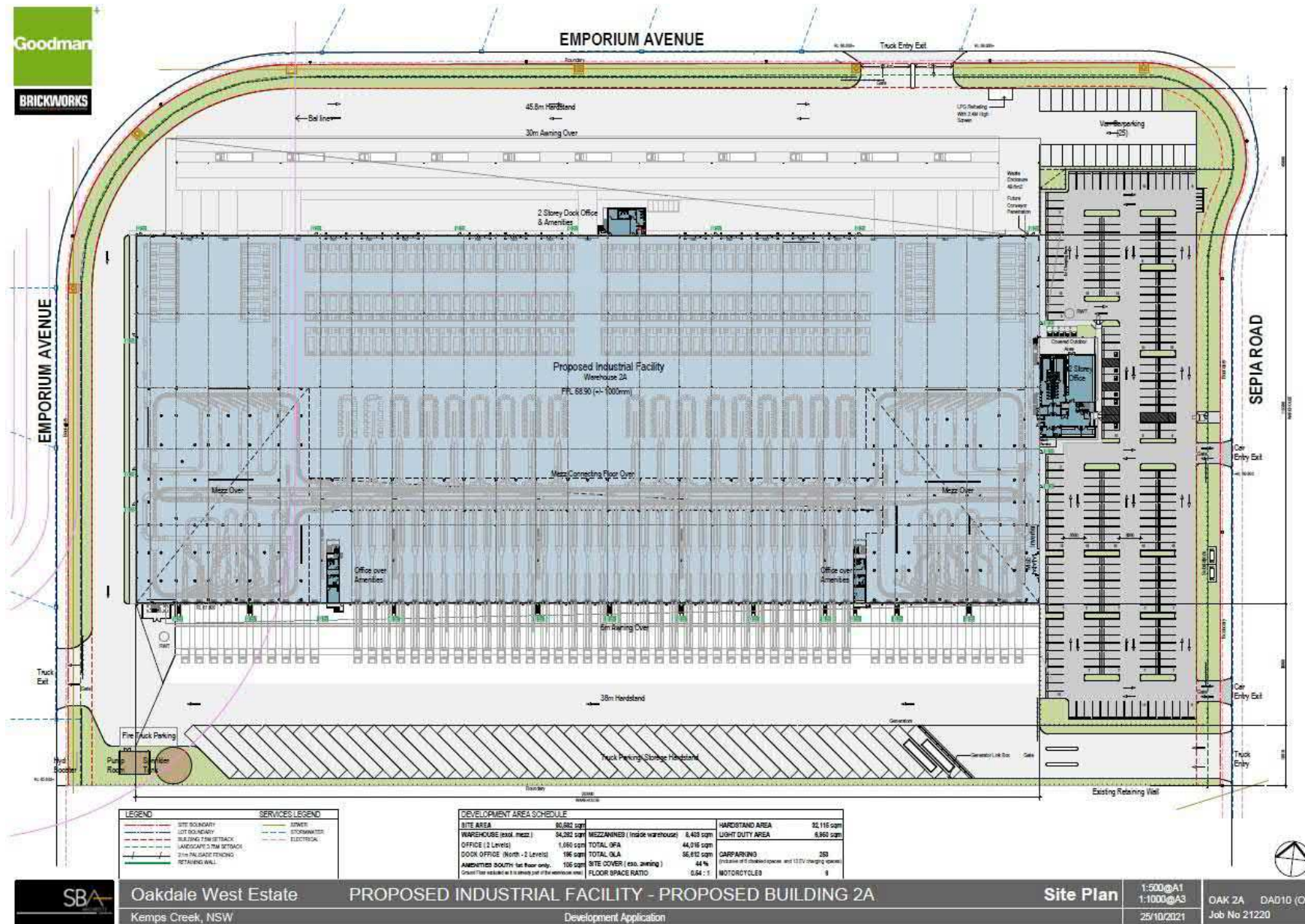
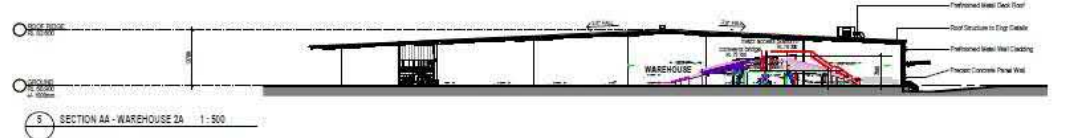
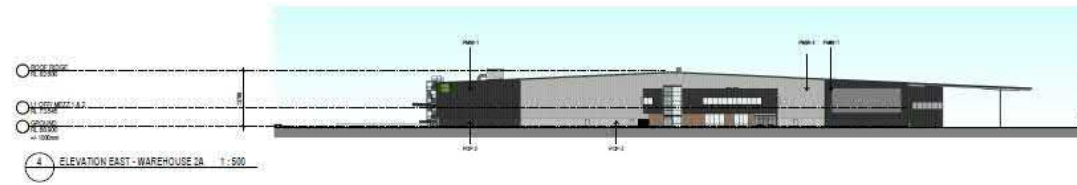
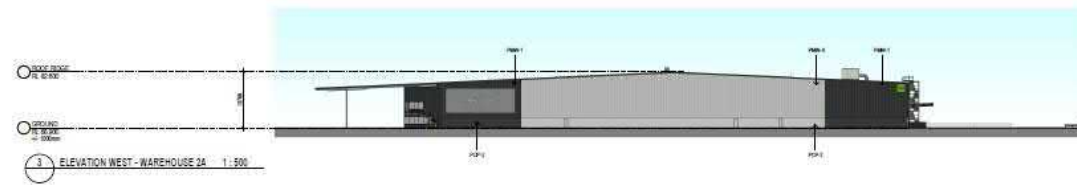
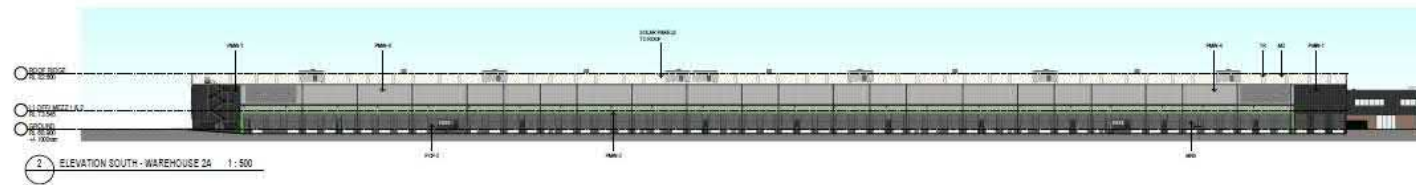


Figure 1: Building 2A Site Plan

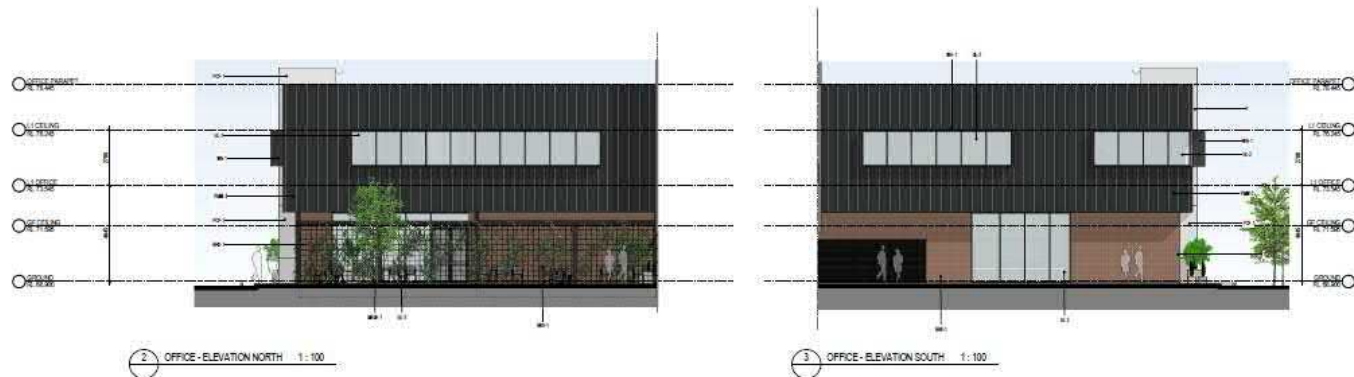


EXTERNAL FINISHED LEGEND

1:1000 @ A1 1:1000 @ A3 ROOF: POLYURETHANE INSULATED SANDWICH PANELS CORROSION RESISTANT MORTAR Joints	2:1000 @ A1 2:1000 @ A3 ROOF: CORRUGATED GALVANIZED STEEL SHEATHING WITH COLORBOND COATING	3:1000 @ A1 3:1000 @ A3 ROOF: CORRUGATED GALVANIZED STEEL SHEATHING WITH COLORBOND COATING	4:1000 @ A1 4:1000 @ A3 ROOF: CORRUGATED GALVANIZED STEEL SHEATHING WITH COLORBOND COATING	5:1000 @ A1 5:1000 @ A3 ROOF: CORRUGATED GALVANIZED STEEL SHEATHING WITH COLORBOND COATING	6:1000 @ A1 6:1000 @ A3 ROOF: CORRUGATED GALVANIZED STEEL SHEATHING WITH COLORBOND COATING	7:1000 @ A1 7:1000 @ A3 ROOF: CORRUGATED GALVANIZED STEEL SHEATHING WITH COLORBOND COATING	8:1000 @ A1 8:1000 @ A3 ROOF: CORRUGATED GALVANIZED STEEL SHEATHING WITH COLORBOND COATING	9:1000 @ A1 9:1000 @ A3 ROOF: CORRUGATED GALVANIZED STEEL SHEATHING WITH COLORBOND COATING	10:1000 @ A1 10:1000 @ A3 ROOF: CORRUGATED GALVANIZED STEEL SHEATHING WITH COLORBOND COATING	11:1000 @ A1 11:1000 @ A3 ROOF: CORRUGATED GALVANIZED STEEL SHEATHING WITH COLORBOND COATING	12:1000 @ A1 12:1000 @ A3 ROOF: CORRUGATED GALVANIZED STEEL SHEATHING WITH COLORBOND COATING	13:1000 @ A1 13:1000 @ A3 ROOF: CORRUGATED GALVANIZED STEEL SHEATHING WITH COLORBOND COATING	14:1000 @ A1 14:1000 @ A3 ROOF: CORRUGATED GALVANIZED STEEL SHEATHING WITH COLORBOND COATING	15:1000 @ A1 15:1000 @ A3 ROOF: CORRUGATED GALVANIZED STEEL SHEATHING WITH COLORBOND COATING	16:1000 @ A1 16:1000 @ A3 ROOF: CORRUGATED GALVANIZED STEEL SHEATHING WITH COLORBOND COATING	17:1000 @ A1 17:1000 @ A3 ROOF: CORRUGATED GALVANIZED STEEL SHEATHING WITH COLORBOND COATING	18:1000 @ A1 18:1000 @ A3 ROOF: CORRUGATED GALVANIZED STEEL SHEATHING WITH COLORBOND COATING	19:1000 @ A1 19:1000 @ A3 ROOF: CORRUGATED GALVANIZED STEEL SHEATHING WITH COLORBOND COATING	20:1000 @ A1 20:1000 @ A3 ROOF: CORRUGATED GALVANIZED STEEL SHEATHING WITH COLORBOND COATING
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SBA Oakdale West Estate PROPOSED INDUSTRIAL FACILITY - PROPOSED BUILDING 2A Warehouse Elevations & Section
Kempas Creek, NSW Development Application 1:500@A1 1:1000@A3 OAK 2A DA210 (N)
29/10/2021 Job No 21220

Figure 2: Building 2A Warehouse Elevations



INDICATIVE EXTERNAL FINISHES LEGEND



	Oakdale West Estate Kemp's Creek, NSW	PROPOSED INDUSTRIAL FACILITY - PROPOSED BUILDING 2A Development Application	Elevations - Office	OAK 2A DA211 (I) Job No 21220
				21/10/2021

Figure 3: Building 2A Office Elevations



Figure 4: Building 2A Landscape Plan

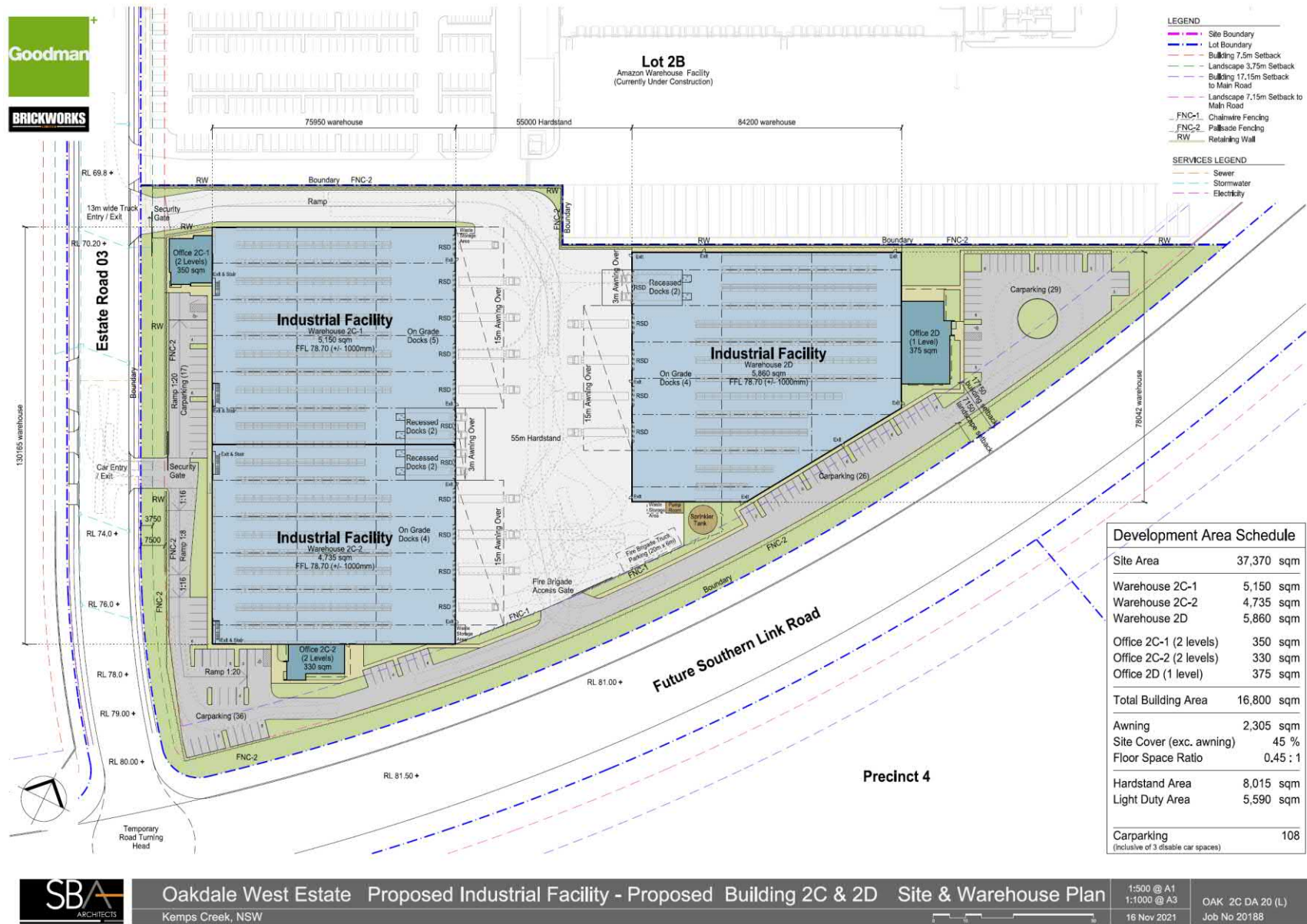


Figure 5: Building 2C and 2D Site Plan



	Oakdale West Estate PROPOSED INDUSTRIAL FACILITY - PROPOSED BUILDING 2C & 2D			ELEVATIONS - WAREHOUSE 2C		1:250@A1	OAK 2C&2D DA310 (H)
	Kemps Creek, NSW			Development Application		1:500@A3	
						29 Oct 2021	

Figure 6: Building 2C Elevations



INDICATIVE EXTERNAL FINISHES LEGEND



	Oakdale West Estate PROPOSED INDUSTRIAL FACILITY - PROPOSED BUILDING 2C & 2D Kemps Creek, NSW	ELEVATIONS - WAREHOUSE 2D	1:250@A1 1:500@A3 29 Oct 2021	OAK 2C&2D DA311 (H) Job No 20188
	Development Application			

Figure 7: Building 2D Elevations



Figure 8: Building 2C and 2D Landscape Plan

APPENDIX 2 SENSITIVE RECEIVERS

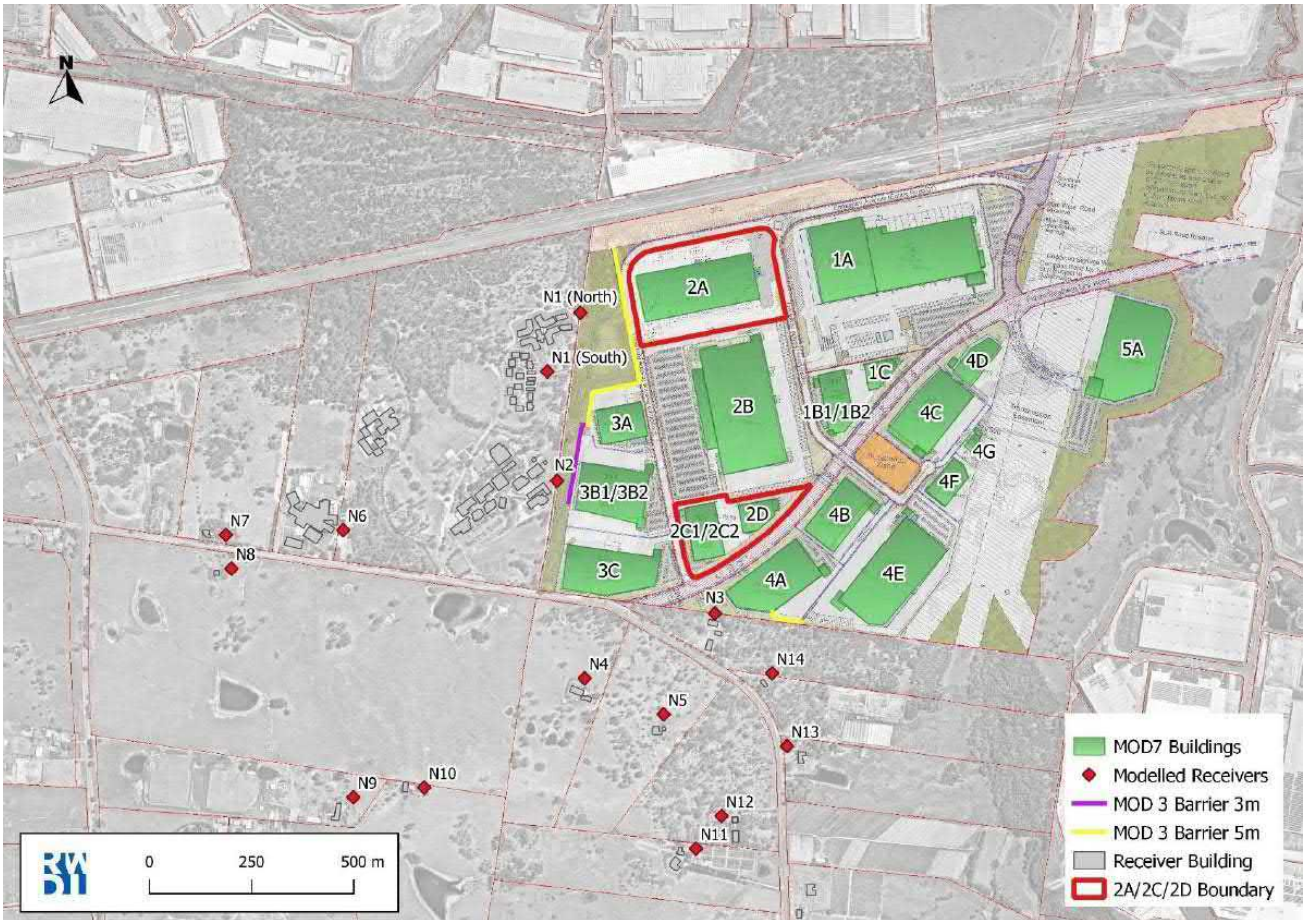


Figure 9: Sensitive Receiver Locations

APPENDIX 3 APPLICANT'S MANAGEMENT AND MITIGATION MEASURES

Issue	Mitigation measures
General	<ul style="list-style-type: none"> preparation of updated CEMP for OWE Stage 3 Developments preparation of updated OEMP for OWE Concept Proposal for Stage 3
Visual amenity	<ul style="list-style-type: none"> the existing vegetation on the eastern, southern and western boundary will be retained where possible to assist filtering views to the proposed buildings warehouses have been articulated to reduce the overall visual impact of the development from surrounding viewpoints the proposed material palette assists in articulating the built form and providing consistent materials within the OWE the proposed landscape design is consistent with the OWE landscape masterplan and provides vegetated setbacks to estate roads and within parking areas to provide shade
Traffic and transport	<ul style="list-style-type: none"> construction traffic management measures to be described in the CEMP use of WNSLR for construction traffic detailed STP to be implemented
Noise and vibration	<ul style="list-style-type: none"> minimising coinciding use of noisy plant items shutting down intermittently used equipment when not in use regular compliance checks on the noise emissions of all plant and machinery non-tonal reversing alarms used on all items of plant and heavy vehicles equipment oriented away from sensitive receivers pre-construction and ongoing consultation with adjoining sensitive receivers
Soil and water	<ul style="list-style-type: none"> CEMP to include erosion and sediment controls consistent with the requirements of Landcom (2004)
Waste management	<ul style="list-style-type: none"> implementation of the Stage 3 Waste Management Plan recycling of packaging and pallets where possible
Air quality	<ul style="list-style-type: none"> CEMP to include standard air quality control measures, contingency plans and response procedures and suitable reporting and performance monitoring procedures CEMP to include standard odour mitigation measures for construction including keeping excavation surfaces moist, covering excavation faces and/or stockpiles, use of soil vapour extraction systems and regular monitoring of discharges as appropriate Operational air quality management in Building 2A to include: <ul style="list-style-type: none"> vehicles will not be left to 'idle' while loading/unloading (appropriate signage is required). no refuelling is to occur inside the building. building air pollutants will be captured by a BCA and AS1668.2-2012 compliant extractions system and directed to rooftop vents. locating exhaust as far as practicable from the sources of make-up air to ensure effluents are effectively removed from all paRtS of the enclosure effluent shall be collected as it is produced, as close as practicable to the source of generation objectionable air discharges shall be: <ul style="list-style-type: none"> emitted vertically with discharge velocities not less than 5 m/s. situated at least 3 m above the roof at point of discharge. treated to reduce the concentration of contaminants where required. emitted to the outside at velocities and in a direction that will ensure, to the extent practicable, a danger to health or a nuisance will not occur. situated a minimum separation distance of 6 m (where the airflow rate is $\geq 1,000$ L/s) from any outdoor) air intake opening, natural ventilation device or opening, and boundary to an adjacent allotment, except that where the dimensions of the allotment make this impossible, then the greatest possible distance shall apply.
Energy efficiency	<ul style="list-style-type: none"> use of a 750 kW photovoltaic solar system in Building 2A use of a 300 kW photovoltaic solar system in Buildings 2C and 2D embodied carbon offset strategy use of low energy LED lighting with zone controls via motion sensors maximise the access to natural lighting, particularly in offices use of efficient air conditioning systems design of facades and roofing to comply with NCC performance requirements installing 4-star rated toilets, urinals and taps and rainwater harvesting facility

	<ul style="list-style-type: none"> • a Building Users' Guide to provide details regarding the everyday operation of a building, include energy minimisation initiatives • quarterly reviews to verify the performance of energy and water efficiency measures
BCA	<ul style="list-style-type: none"> • preparation of the Performance Solutions and corresponding fire safety measures during detailed design to ensure compliance with BCA and International Fire Engineering Guidelines
Fire safety	<ul style="list-style-type: none"> • preparation of Performance Solutions and fire safety measures in the detailed design phase
Bushfire	<ul style="list-style-type: none"> • establish and maintain asset protection zones as indicated in the BHA • provide fire hydrants in accordance with the BCA • buildings to be constructed in accordance with <i>AS 3959 Construction of buildings in bushfire-prone areas</i> and measures outlined in the BHA

APPENDIX 4 INCIDENT NOTIFICATION AND REPORTING REQUIREMENTS

WRITTEN INCIDENT NOTIFICATION REQUIREMENTS

1. A written incident notification addressing the requirements set out below must be submitted to the Planning Secretary via the Major Projects website 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 C7 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.

APPENDIX B

Relevant Conditions of Consent

Table A Development Consent SSD 9794683

Relevant Consent Conditions SSD 9794683	Where Addressed in CEMP
PART A – ADMINISTRATIVE CONDITIONS	
Obligation to Minimise Harm to the Environment	
<p>A1. 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 the development, and any rehabilitation required under this consent.</p>	Section 4.1
Terms of Consent	
<p>A2. The development may only be carried out:</p> <ul style="list-style-type: none"> 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 Development Layout in Appendix 1; and e) in accordance with the management and mitigation measures in Appendix 3. 	Noted
<p>A3. Consistent with the requirements in this consent, the Planning Secretary may make written directions to the Applicant in relation to:</p> <ul style="list-style-type: none"> 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 A3a). 	Noted
<p>A4. 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 A2(c) or A2(e). In the event of an inconsistency, ambiguity or conflict between any of the documents listed in condition A2(c) or A2(e), the most recent document prevails to the extent of the inconsistency, ambiguity or conflict.</p>	Noted
Limit of Consent	
Lapsing	
<p>A5. This consent lapses five years after the date from which it operates, unless the development has physically commenced on the land to which the consent applies before that date.</p>	Noted
Development Controls	
<p>A6. The total area of warehousing and office space at the development must not exceed the following maximum gross lettable area:</p> <ul style="list-style-type: none"> a) Building 2A – 35,612 square metres; b) Building 2C – 10,565 square metres; and c) Building 2D – 6,235 square metres. 	Section 4.1

A7. The development must be consistent with the development controls in the OWE, as shown in **Table 1**.

Table 1: Development Controls

Development Aspect	Control
• Minimum building setbacks from:	•
• Southern Link Road	17.15 m
• Compass Drive	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
• Building 1A	• 39 m
• Building 2A	• 18 m
• Building 2B	• 28 m
• Building 2C	• 22.2 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)

Section 4.8

A8. Notwithstanding the controls listed in Table 1 in Condition A7, no warehouse building in the development, except Buildings 2A and 2C in Precinct 2, shall exceed a ridgeline height of 13.7 m, excluding roof mounted mechanical plant and solar panels.

Section 4.8

Notification of Commencement

A9. The date of commencement of each of the following phases of the development must be notified to the Planning Secretary in writing, at least one month before that date, or as otherwise agreed with the Planning Secretary:

- (a) construction;
- (b) operation; and
- (c) cessation of operations;

Noted

A10. If the construction or operation of the development is to be staged, the Planning Secretary must be notified in writing, at least one month before the commencement of each stage (or other timeframe agreed with the Planning Secretary), of the date of commencement and the development to be carried out in that stage.

Noted

Relevant Consent Conditions SSD 9794683	Where Addressed in CEMP
Evidence of Consultation	
<p>A11. Where conditions of this consent require consultation with an identified party, the Applicant must:</p> <p>a) consult with the relevant party prior to submitting the subject document to the Planning Secretary for approval; and</p> <p>b) provide details of the consultation undertaken including:</p> <p>(i) the outcome of that consultation, matters resolved and unresolved; and</p> <p>(ii) details of any disagreement remaining between the party consulted and the Applicant and how the Applicant has addressed the matters not resolved.</p>	Section 1.2.3
Protection of Public Infrastructure	
<p>A15. Before the commencement of construction of the development, the Applicant must consult with the relevant owner and provider of services that are likely to be affected by the development to make suitable arrangements for access to, diversion, protection and support of the affected infrastructure.</p>	Noted. This will be completed by Goodman.
<p>A16. Unless the Applicant and the applicable authority agree otherwise, the Applicant must:</p> <p>(a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by carrying out the development; and</p> <p>(b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the development.</p>	Noted
Structural Adequacy	
<p>A17. 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 BCA.</p> <p><i>Note:</i></p> <ul style="list-style-type: none"> 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	
<p>A18. 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 the development.</p>	Section 3.4
Contributions to Council	
<p>A19. Before the issuing of an occupation certificate for any part of the development, a payment of a levy of 1% of the proposed cost of carrying out the development must be paid to Council under section 7.12 of the EP&A Act.</p> <p><i>Note: There are approval requirements for imposing a condition under section 7.12 in respect of land within a special contributions area.</i></p>	Noted
Operation Of Plant And Equipment	
<p>A20. All plant and equipment used on site, or to monitor the performance of the development must be:</p> <p>a) maintained in a proper and efficient condition; and</p> <p>b) operated in a proper and efficient manner.</p>	Section 4.1
External Walls and Cladding	

Relevant Consent Conditions SSD 9794683	Where Addressed in CEMP
A21. The external walls of all buildings including additions to existing buildings must comply with the relevant requirements of the BCA.	Noted
<p>A22. Prior to the issuing of:</p> <p>a) any Construction Certificate relating to the construction of external walls (including the installation of finishes and claddings such as synthetic or aluminium composite panels); and</p> <p>b) an Occupation Certificate,</p> <p>the Applicant must provide the Certifier 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 BCA.</p>	Noted
A23. The Applicant must provide a copy of the documentation given to the Certifier to the Planning Secretary within seven days after the Certifier accepts it.	Noted
Utilities And Services	
A24. Before the construction of any utility works associated with the development, the Applicant must obtain relevant approvals from service providers.	Noted
A25. Before the commencement of operation of the development, the Applicant must obtain a Compliance Certificate for water and sewerage infrastructure servicing of the site under section 73 of the <i>Sydney Water Act 1994</i> (NSW).	Noted
A26. The Applicant must demonstrate that the carrier has confirmed in writing they are satisfied that the fibre ready facilities are fit for purpose.	Noted
A27. Before the issuing of the Occupation Certificate for the development the Applicant must demonstrate that the carrier has confirmed in writing it is satisfied that the fibre ready facilities are fit for purpose.	Noted
Work as Executed Plans	
A28. Before the issuing of the Occupation Certificate for the development, work-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 Principal Certifier.	Noted
Applicability of Guidelines	
A29. 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.	Noted
A30. 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.	Noted
Advisory Notes	
<p>AN1. All licences, permits, approvals and consents as required by law must be obtained and maintained as required for the development. No condition of this consent removes any obligation to obtain, renew or comply with such licences, permits, approvals and consents.</p>	Noted

SCHEDULE B: ENVIRONMENTAL PERFORMANCE CONDITIONS

TRAFFIC AND ACCESS

Construction Traffic Management Plan

B1. Prior to the commencement of construction of the development, the Applicant must prepare a Construction Traffic Management Plan for the development to the satisfaction of the Planning Secretary. The plan must form part of the CEMP required by condition C2 and must:

- (a) be prepared by a suitably qualified and experienced person(s);
- (b) detail the measures that are to be implemented to ensure road safety and network efficiency during construction;
- (c) detail heavy vehicle routes, access and parking arrangements;
- (d) include a Driver Code of Conduct (see Condition B13);
- (e) include a program to monitor the effectiveness of these measures; and
- (f) if necessary, detail procedures for notifying residents and the community (including local schools), of any potential disruptions to routes.

Section 4.5

B2. The Applicant must:

- (a) not commence construction until the Construction Traffic Management Plan required by condition B1 is approved by the Planning Secretary; and
- (b) implement the most recent version of the Construction Traffic Management Plan approved by the Planning Secretary for the duration of construction.

Section 4.5

Parking

B3. The Applicant must provide sufficient parking facilities on site for heavy vehicles and for site personnel, to ensure that traffic associated with the development does not utilise public and residential streets or public parking facilities.

Noted

NOISE

Hours of Work

B7. The Applicant must comply with the hours detailed in Table 1, unless otherwise agreed in writing by the Planning Secretary.

Table 2 Hours of Work

Activity	Day	Time
Construction	Monday – Friday	7 am to 6 pm
	Saturday	8 am to 1 pm
Operation	Monday – Sunday	24 hours

Section 4.2

B8. Works outside of the hours identified in condition B20 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

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

Section 4.2

Relevant Consent Conditions SSD 9794683	Where Addressed in CEMP
Construction Noise Limits	
B11. The development must be constructed to achieve 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 management and mitigation measures in the Appendix 3.	CNVMP
Road Traffic Noise	
B12. Prior to the commencement of construction of the development, the Applicant must prepare a Driver Code of Conduct and induction training for the development to minimise road traffic noise. The Applicant must update the Driver Code of Conduct and induction training for construction and operation and must implement the Code of Conduct for the life of the development.	Section 4.2
VISUAL AMENITY	
Building Design	
B13. The Applicant must construct Buildings 2A, 2C and 2D in accordance with the RtS and as shown on the figures in Appendix 1.	Section 4.8
Landscaping	
B14. Prior to the commencement of operation of the development, the Applicant must implement the Landscape Plan included in the RTS and shown on the figures in Appendix 1.	Noted
Lighting	
B16. The Applicant must ensure the lighting associated with the development: <ul style="list-style-type: none"> a) complies with the latest version of AS 4282-2019 - Control of the obtrusive effects of outdoor lighting (Standards Australia, 2019); 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 4.8
Signage and Fencing	
B17. All signage and fencing must be erected in accordance with the development plans included in the EIS. <i>Note: This condition does not apply to temporary construction and safety related signage and fencing.</i>	Section 4.8
SOILS, WATER QUALITY AND HYDROLOGY	
Erosion and Sediment Control	
B18. Prior to the commencement of any construction or other surface disturbance for the development, the Applicant must install and maintain suitable erosion and sediment control measures on-site, in accordance with the relevant requirements of the Managing Urban Stormwater: Soils and Construction - Volume 1: Blue Book (Landcom, 2004) guideline and the Erosion and Sediment Control Plan included in the CEMP required by condition C2.	Section 4.6
Discharge Limits	
B19. The development must comply with section 120 of the POEO Act, which prohibits the pollution of waters, except as expressly provided for in an EPL.	Section 4.6

Relevant Consent Conditions SSD 9794683	Where Addressed in CEMP
Stormwater Management System	
<p>B20. The Applicant must install and operate a stormwater management system for the development that:</p> <ul style="list-style-type: none"> a) is designed by a suitably qualified and experienced person(s); b) is generally consistent with the Civil, Stormwater and Infrastructure Services Report DA Modification No.7, Rev 01, report REP005-01-15-272-MOD 7 Civil Report, prepared by AT&L, dated June 2021; c) is in accordance with applicable Australian Standards and Penrith City Council’s Design Guidelines for Engineering Works, Water Sensitive Urban Design Policy December 2013 and Water Management Development Control Plan; d) ensures peak stormwater flows from the site are in accordance with DA Modification No.7, Rev 01, report REP005-01-15-272-MOD 7 Civil Report, prepared by AT&L, dated June 2021; e) incorporate rainwater harvesting measures to supplement non-potable water demand for the development. 	Section 4.6
<p>B21. All stormwater drainage infrastructure on the site shall remain under the care, control and ownership of the registered proprietor of the lot.</p>	Noted
BUSHFIRE PROTECTION	
<p>B22. The Applicant must ensure the development complies with:</p> <ul style="list-style-type: none"> a) the relevant provisions of Planning for Bushfire Protection, 2019; b) the recommendations of the Bushfire Report prepared by Blackash Bushfire Consulting dated 13 October 2021; and c) the relevant sections of Australian Standard AS3959-2018 Construction of buildings in bush fire-prone areas or NASH Standard (1.7.14 updated) National Standard Steel Framed Construction in Bushfire Areas – 2014 as appropriate, and Section 7.5 of Planning for Bushfire Protection 2019. 	Noted
<p>B23. The Applicant must ensure the part of Building 2A located in the Bushfire Attack Level (BAL) 12.5 area is constructed entirely with non-combustible materials and provided with measures to improve ember protection. Ember protection improvements include enclosing all openings (excluding roof sheet and tile spaces) or covering openings with a noncorrosive metal screen mesh with a maximum aperture of 2 mm. This includes any subfloor areas, openable windows, vents, weep holes and eaves. External doors are to be fitted with draft excluders.</p>	Noted
<p>B24. The Applicant must ensure the entire site, including landscaping, is managed as an inner protection area (IPA) in accordance with Planning for Bushfire Protection 2019.</p>	Noted
HAZARD AND RISK	
Dangerous Goods	
<p>B28. 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.</p>	Section 4.10
Bunding	
<p>B29. The Applicant must store all chemicals, fuels and oils used on-site in appropriately banded areas in accordance with the requirements of all relevant Australian Standards, and/or EPA’s Storing and Handling of Liquids: Environmental Protection – Participants Manual (Department of Environment and Climate Change, 2007).</p>	Section 4.10

Relevant Consent Conditions SSD 9794683	Where Addressed in CEMP
AIR QUALITY	
Dust Minimisation	
B30. The Applicant must take all reasonable steps to minimise dust generated during all works authorised by this consent.	Section 4.4
B31. During construction of the development, the Applicant must comply with the dust minimisation measures detailed in the Construction Environmental Management Plan required by Condition C2.	Section 4.4
Operational Air Quality – Building 2A	
B32. Prior to the commencement of operation of Building 2A, the Applicant must prepare an Air Quality Management Plan (AQMP) for Building 2A. The AQMP must: <ul style="list-style-type: none"> a) be prepared by a suitably qualified and experienced person(s); b) detail all emission sources from the operation of Building 2A; c) describe a program that is capable of evaluating the performance of the operation and determining compliance with key performance indicators; d) identify the control measures that will be implemented for each emission source, including details of extractions systems and rooftop vents; e) nominate the following for each of the proposed controls: <ul style="list-style-type: none"> (i) key performance indicator; (ii) monitoring method, location, frequency and duration of monitoring; (iii) response procedures; and (iv) compliance monitoring. f) Include a complaint register and response procedures 	Section 4.4
WASTE MANAGEMENT	
Waste Storage	
B34. 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	
B35. The Applicant must implement the Waste Management Plan (WMP) in the EIS for the duration of construction and operation of the development.	Section 4.7
Statutory Requirements	
B36. All waste materials removed from the site must only be directed to a waste management facility or premises lawfully permitted to accept the materials.	Section 4.7
B37. 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
B38. Waste generated outside the site must not be received at the site for storage, treatment, processing, reprocessing, or disposal.	Section 4.7
COMMUNITY ENGAGEMENT	
B39. The Applicant must consult with the community regularly throughout the development, including consultation with the nearby sensitive receivers identified in Figure 9, relevant regulatory authorities, Registered Aboriginal Parties and other interested stakeholders. Community engagement shall be undertaken in accordance with the Community Communication Strategy for the OWE.	Section 1.2.3 and Section 4.12

Relevant Consent Conditions SSD 9794683	Where Addressed in CEMP
PART C – ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING	
ENVIRONMENTAL MANAGEMENT	
Management Plan Requirements	
<p>C1. Management plans required under this consent must be prepared in accordance with relevant guidelines, and include:</p> <ul style="list-style-type: none"> a) details of: <ul style="list-style-type: none"> (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, Building 2A 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: <ul style="list-style-type: none"> (i) impacts and environmental performance of the development; and (ii) effectiveness of the management measures set out pursuant to paragraph (c) 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 the development over time; f) a protocol for managing and reporting any: <ul style="list-style-type: none"> (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. <p>Note: <i>The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans</i></p>	Section 1.2.1
CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN	
C2. The Applicant must prepare a Construction Environmental Management Plan (CEMP) in accordance with the requirements of Condition C1 and to the satisfaction of the Planning Secretary.	This document
<p>C3. As part of the CEMP required under Condition C2 of this consent, the Applicant must include:</p> <ul style="list-style-type: none"> a) measures for managing construction traffic as detailed in Appendix 2; b) a Driver Code of Conduct (see Condition B6); c) an Erosion and Sediment control Plan (see Condition B12); and d) measures to protect retained native vegetation adjacent to the site (see Condition B36). 	Section 1.2.1
<p>C4. The Applicant must:</p> <ul style="list-style-type: none"> (a) not commence construction of the development until the CEMP is approved by the Planning Secretary; and (b) carry out the construction of the development in accordance with the CEMP approved by the Planning Secretary and as revised and approved by the Planning Secretary from time to time. 	Noted

Relevant Consent Conditions SSD 9794683	Where Addressed in CEMP
REVISION OF STRATEGIES, PLANS AND PROGRAMS	
<p>C5. Within three months of:</p> <ul style="list-style-type: none"> a) the submission of a Compliance Report under condition C11; b) the submission of an incident report under condition C7; c) the approval of any modification of the conditions of this consent; or d) the issue of a direction of the Planning Secretary under condition A2(b) which requires a review, <p>the strategies, plans and programs required under this consent must be reviewed, and the Planning Secretary must be notified in writing of the outcomes of any review.</p>	Section 6
<p>C6. If necessary, to either improve the environmental performance of the development, 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.</p> <p><i>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 the development.</i></p>	Noted
REPORTING AND AUDITING	
Incident Notification, Reporting and Response	
<p>C7. The Planning Secretary must be notified in writing via the Major Projects website 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 4.</p>	Sections 3.5 and 5.2
Non-Compliance Notification	
<p>C8. The Planning Secretary must be notified in writing via the Major Projects website within seven days after the Applicant becomes aware of any non-compliance.</p>	Sections 3.5 and 5.2
<p>C9. 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.</p>	Noted
<p>C10. A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.</p>	Noted
Compliance Reporting	
<p>C11. Within six months after the first year of commencement of operation of the development, and in the same month each subsequent year (or such other timing as agreed by the Planning Secretary), the Applicant must submit a Compliance Report to the Planning Secretary reviewing the environmental performance of the development to the satisfaction of the Planning Secretary. Compliance Reports must be prepared in accordance with the Compliance Reporting Post Approval Requirements (Department 2020) and must also:</p> <ul style="list-style-type: none"> a) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and b) describe what measures will be implemented over the next year to improve the environmental performance of the development. 	Noted

Relevant Consent Conditions SSD 9794683	Where Addressed in CEMP
C12. The Applicant must make each Compliance Report publicly available no later than 60 days after submitting it to the Planning Secretary and notify the Planning Secretary in writing at least seven days before this is done.	Noted
Monitoring and Environmental Audits	
<p>C13. 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.</p> <p><i>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.</i></p>	Section 5
ACCESS TO INFORMATION	
<p>C14. At least 48 hours before the commencement of construction until the completion of all works under this consent, the Applicant must:</p> <p>a) make the following information and documents (as they are obtained or approved) publicly available on its website:</p> <ul style="list-style-type: none"> (i) the documents referred to in Condition A2 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) minutes of CCC meetings; (vi) 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; (vii) 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; (viii) a summary of the current stage and progress of the Development; (ix) contact details to enquire about the development or to make a complaint; (x) a complaints register, updated monthly; (xi) the Compliance Report of the Development; (xii) 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; (xiii) any other matter required by the Planning Secretary; and <p>b) keep such information up to date, to the satisfaction of the Planning Secretary.</p>	Section 5.2

APPENDIX C

RCC's Environmental Policy

ENVIRONMENTAL POLICY

Richard Crookes Constructions Pty Limited promotes and encourages a sustainable environment throughout our business activities and sources our supplies and services in ways that prevent pollution and promote compliance with legal and other requirements.

The company implements Environmental Management System to aid us in meeting our corporate responsibilities. The System is certified by Global-Mark as meeting the requirements of AS/NZS ISO 14001:2016 Environmental Management Systems.

These form part of the company's Project Management Plans and are supported by company procedures and guidelines.

Management intends that all employees of our company, relevant subcontractors and suppliers, are made aware of their environmental responsibilities and the environmental impacts associated with their activities, products and services.

Our company objectives for continual improvement in environmental management include:

- Reducing the number of environmental notices issued on the projects by implementing a program of inductions, training and monitoring.
- Minimising the impacts to the community through the development of project specific Environmental, Traffic management plans, stakeholder consultation plans and by timely and appropriate response to complaints.
- Minimising impacts on the environment using dust, soil and water, waste and chemical management practices that are regularly inspected and maintained.
- Achieve a waste minimisation figure of 85% through monthly reporting

The Continual improvement of the project environmental management plans and progress with achieving the company's objectives will be reviewed during management meetings, project reviews and following the results of internal and external audits.

The Policy will be made available to the public and interested parties on request. This Policy will be reviewed every two years.



Jamie Crookes
Managing Director

26th February 2020

APPENDIX D

RCC's Incident Report Form

01.1 Incident/Injury Record

PROJECT DETAILS		
Project Name:	Project No:	Report No:
SUBMIT WITHIN 24 HOURS OF THE INCIDENT		
Location of Incident:		
Date:	Time:	
TYPE OF INJURY/INCIDENT		
Workplace Injury Class 1 <input type="checkbox"/> Class 2 <input type="checkbox"/> Class 3 <input type="checkbox"/>	Non Injury Major <input type="checkbox"/> Minor <input type="checkbox"/> Near Miss/ Dangerous Occurrence <input type="checkbox"/>	Other Safety <input type="checkbox"/> Environmental <input type="checkbox"/>
Have any authorities/stakeholder been notified?		
Yes <input type="checkbox"/>		
No <input type="checkbox"/>		
PERSONAL DATA		
Name of Injured Person(s):		Date of Birth:
Persons Involved in Incident		Type of Employment:
Employee <input type="checkbox"/>		Permanent <input type="checkbox"/>
Subcontractor <input type="checkbox"/>		Casual <input type="checkbox"/>
Other:		Labour Hire <input type="checkbox"/>
Employee's Company Name:	Contact Number	Trade
DETAILS OF INJURY/INCIDENT		
What work activity was being undertaken at time of the incident?		
Summary of Incident/Injury Description: (Describe what happened – who, when, how & why) in first aid patients/involved persons own words		

--

DETAILS OF ACTIONS TAKEN

Actions taken to control the Incident/Treat the injury

--

DETAILS OF INJURY

Nature of Injury or Illness No	Bodily location of Injury No.	Mechanism of Injury No.
---------------------------------------	--------------------------------------	--------------------------------

Call MEND Injury Management Ph 1300 176 774 to log/discuss injury record

Yes <input type="checkbox"/>	No <input type="checkbox"/>
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Employee Involved	Signature	Date
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Record/First Aid conducted by	Signature	Date
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01.1 Incident/Injury Record

Page 1 only is required for Class 2 and Class 3 incidents. Class 2 incidents may be investigated on the Discretion of the HOS/BSM		

01.1 Incident/Injury Record

TO BE PLACED ON WALL AT FIRST AID BOX IN ROOM *(do not submit with report)*

Nature of Injury		Bodily Location of Injury/Disease	
01	Fractures (excluding of vertebral column)	01	Eye
02	Fracture of vertebral column with or without mention of spinal cord lesion	02	Ear
03	Dislocations	03	Face
04	Sprains and strains of joints and adjacent muscles (including acute trauma sprains and strains only)	04	Head (Other than eye, ear and face)
05	Intracranial injury, including concussion	05	Neck
06	Internal injury of chest, abdomen and pelvis	06	Back
07	Traumatic amputation, including enucleation of eye (loss of eyeball)	07	Trunk (other than back and excluding internal organs)
08	Open wound not involving traumatic amputation	08	Shoulders and arms
09	Superficial injury	09	Hands and fingers
10	Contusion with intact skin surface and crushing injury, excluding those with fracture	10	Hips and legs
11	Foreign body on external eye, in ear or nose or in respiratory, digestive or reproductive system (including choking)	11	Feet and toes
12	Burns	12	Internal organs (located in the trunk)
13	Injuries to nerves and spinal cord without evidence of spinal bone injury	98	Multiple locations (more than one of the above)
14	Poisoning and toxic effects of substances		
15	Effects of weather, exposure, air pressure and other external causes (including bends, drowning, electrocution)		
16	Multiple injuries (only to be used where no principal injury can be identified)		
17	Damage to artificial aids		
19	Disease		
Mechanism of Injury/Disease			
01	Falls from a height	11	Contact with electricity
02	Falls on the same level (including trips and slips)	12	Contact or exposure to heat and cold
03	Hitting objects with a part of the body	13	Exposure to radiation
04	Exposure to mechanical vibration	14	Single contact with chemical or substance (excludes insect and spider bites and stings)
05	Being hit by moving objects	15	Long term contact with chemical or substance
06	Exposure to sharp, sudden sound	16	Other contact with chemical or substance (includes insect and spider bites and stings)
07	Long term exposure to sounds	17	Contact with, or exposure to, biological factors
08	Exposure to variations in pressure (other than sound)	18	Exposure to mental stress factors
09	Repetitive movement with low muscle loading	19	Slide or cave in
10	Other muscular stress	20	Vehicle accident

APPENDIX E

RCC's Complaint Form

COMPLAINTS REGISTER			
DATE	TIME	COMMENTS	FROM

APPENDIX F

Construction Noise and Vibration Management Plan

OAKDALE WEST INDUSTRIAL ESTATE - LOT 2A

Construction Noise and Vibration Management Plan

Prepared for:

Goodman Property Services (Aust) Pty Ltd
The Hayesbery
1-11 Hayes Road
Rosebery NSW 2018

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 (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

Reference	Date	Prepared	Checked	Authorised
630.30081-R03-v1.1	17 December 2021	Joshua Ridgway	Antony Williams	Antony Williams
630.30081-R03-v1.0	10 December 2021	Joshua Ridgway	Antony Williams	Antony Williams

CONTENTS

1	INTRODUCTION	5
1.1	Development Overview.....	5
1.2	Objectives of the CNVMP	7
1.3	Terminology.....	7
2	STATUTORY REQUIREMENTS.....	8
2.1	Development Consent.....	8
2.2	Relevant Guidelines	10
3	PROJECT OVERVIEW	11
3.1	Description	11
3.2	Location	11
3.3	Surrounding Land Uses.....	11
3.4	Construction Timing and Activities	12
3.5	Construction Hours	13
3.6	Construction Site Access	13
4	CONSTRUCTION NOISE AND VIBRATION CRITERIA AND GUIDELINES.....	14
4.1	Construction Noise Criteria	14
4.1.1	Interim Construction Noise Guideline.....	14
4.1.2	Project Specific NML Summary.....	16
4.2	Construction Vibration Criteria.....	16
4.2.1	Cosmetic Damage Vibration Thresholds	17
4.2.1.1	WaterNSW Pipelines.....	18
4.2.2	Human Exposure Vibration Thresholds.....	18
4.2.3	Minimum Working Distances	19
5	CONSTRUCTION NOISE AND VIBRATION IMPACTS	21
5.1	Construction Noise Impacts.....	21
5.2	Construction Vibration Impacts.....	22
6	MITIGATION AND MANAGEMENT MEASURES	23
7	COMPLAINTS HANDLING AND RESPONSE PROCEDURE	27
7.1	Performance Objective	27
7.2	Responsibility.....	27
7.3	Complaints Handling Procedure	27
7.4	Complaints Register	28
8	MONITORING	29

CONTENTS

8.1	Construction Noise Monitoring	29
8.2	Construction Vibration Monitoring	29
8.2.1	Sensitive Receivers and Structures	29
9	CONTINGENCY MANAGEMENT PLAN	31
10	ROLES AND RESPONSIBILITIES	32
10.1	Contractor’s Project Manager	32
10.2	Environmental Coordinator	32
10.3	All Workers on Site	32
11	REVIEW AND IMPROVEMENT OF THE CNVMP	33

DOCUMENT REFERENCES

TABLES

Table 1	Development Consent Conditions	8
Table 2	Construction Noise and Vibration Guidelines	10
Table 3	Determination of NMLs for Residential Receivers	14
Table 4	Construction Noise Management Levels at Other Sensitive Land Uses	15
Table 5	Project Specific Noise Management Levels	16
Table 6	Transient Vibration Guide Values for Minimal Risk of Cosmetic Damage (BS 7385)	17
Table 7	Guideline Values for Short-term Vibration on Structures (DIN 4150)	18
Table 8	Acceptable Vibration Dose Values for Intermittent Vibration ($m/s^{1.75}$) (<i>Assessing Vibration: a technical guideline</i>)	19
Table 9	Recommended Minimum Working Distances for Vibration Intensive Equipment	20
Table 10	Predicted LAeq,15min Construction Noise Levels	21
Table 11	Environmental Management Controls for Construction Noise and Vibration	23
Table 12	Contingency Management Plan	31

FIGURES

Figure 1	Oakdale West Masterplan	6
Figure 2	Lot 2A Plan	7
Figure 3	Receiver Locations	12

APPENDICES

Appendix A	Acoustic Terminology
Appendix B	Author CV

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 Lot 2A of the Oakdale West Industrial Estate (Oakdale West) 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 Lot 2A as part of the *Oakdale West Estate – Buildings 2A, 2C & 2D Noise and Vibration Assessment* (Report No 2102730 Version B) prepared by RWDI in October 2021 (the NVA).

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 obtained Development Consent SSD 7348 for the staged development of Oakdale West Industrial Estate (Oakdale West) comprising a warehousing and a distribution hub at Kemps Creek in Western Sydney. SSD 7348 incorporates the approval of a 'Concept Proposal' to guide the future development of the estate and consent for the 'Stage 1 Development' and all subsequent stages. The Stage 1 Development includes construction of the proposed Western North South Link Road (WNSLR), site-wide bulk earthworks, estate wide basins, and lead-in services. It also includes infrastructure and associated services, landscaping, and construction and use approval for Precinct 1.

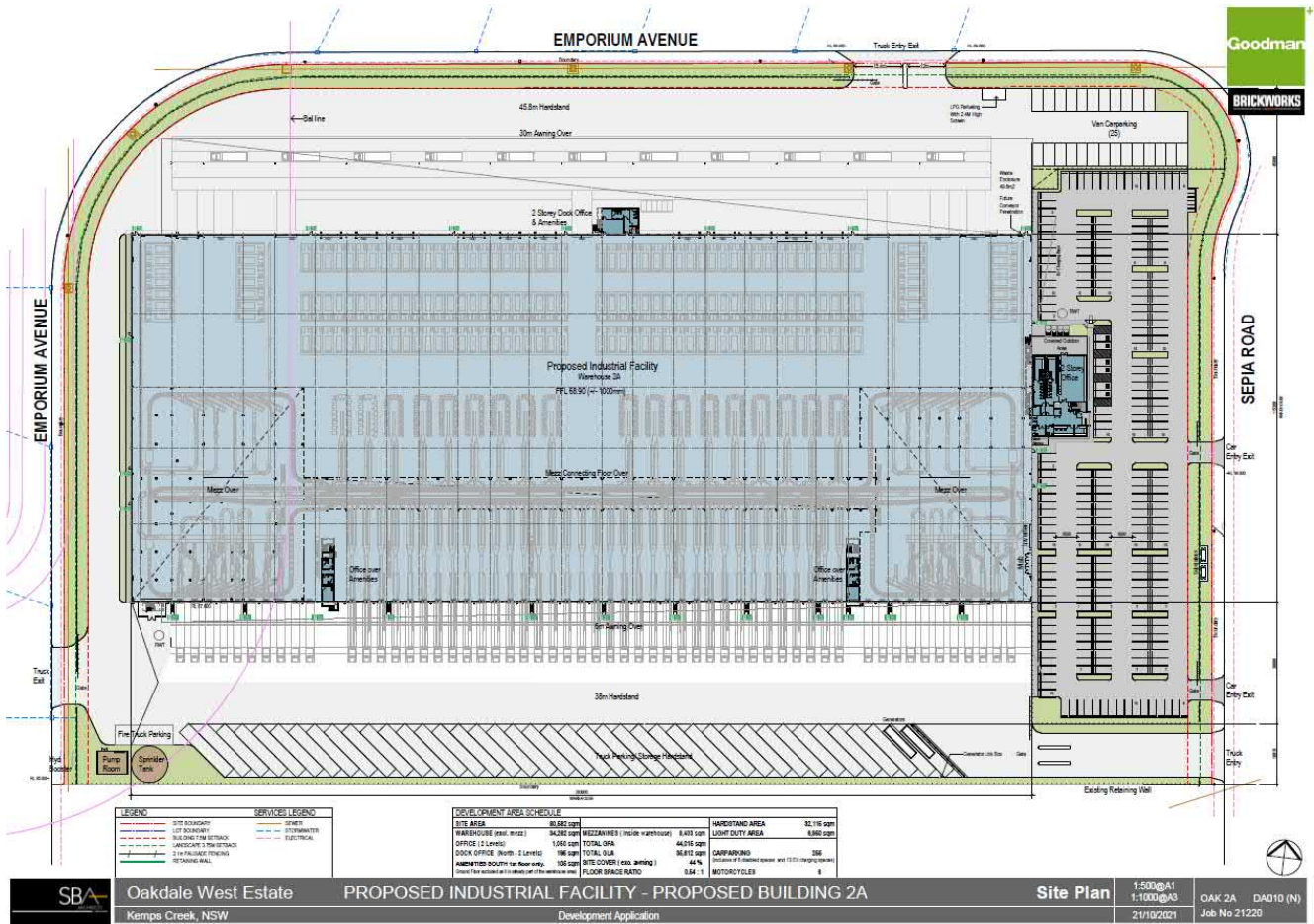
This CNVMP has been prepared to cover the construction at Lot 2A of Oakdale West (see **Figure 2**). Note: Where Goodman is nominated as having responsibility as the Applicant, this may be delegated to their specialist consultants.

The development of Lot 2A was approved in December 2021 under SSD 9794683.

Figure 1 Oakdale West Masterplan



Figure 2 Lot 2A 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 to 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 Lot 2A at Oakdale West.

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 Lot 2A at Oakdale West. The conditions relevant to this CNVMP are outlined in the following sections.

2.1 Development Consent

Conditions for Lot 2A of Oakdale West are specified Development Consent SSD 9794683, dated December 2021. The conditions relevant to this CNVMP are reproduced in **Table 1**.

Table 1 Development Consent Conditions

Development Consent Conditions	Section / Comment											
Operation of Plant and Equipment												
A20. All plant and equipment used on site, or to monitor the performance of the development must be: a) maintained in a proper and efficient condition; and b) operated in a proper and efficient manner.	Section 6 / Table 11											
Hours of Work												
B7. The Applicant must comply with the hours detailed in Table 2, unless otherwise agreed in writing by the Planning Secretary. Table 2: Hours of Works	Section 3.5											
<table border="1"> <thead> <tr> <th>Activity</th> <th>Day</th> <th>Time</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Construction</td> <td>Monday – Friday</td> <td>7 am to 6 pm</td> </tr> <tr> <td>Saturday</td> <td>8 am to 1 pm</td> </tr> <tr> <td>Operation</td> <td>Monday – Sunday</td> <td>24 hours</td> </tr> </tbody> </table>	Activity	Day	Time	Construction	Monday – Friday	7 am to 6 pm	Saturday	8 am to 1 pm	Operation	Monday – Sunday	24 hours	
Activity	Day	Time										
Construction	Monday – Friday	7 am to 6 pm										
	Saturday	8 am to 1 pm										
Operation	Monday – Sunday	24 hours										
B8. Works outside the hours identified in Condition B7 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 3.5											
Construction Noise Limits												
B11. The development must be constructed to achieve the construction noise management levels detailed in the <i>Interim Construction Noise Guideline</i> (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 management and mitigation measures in the Appendix 3.	Section 4.1, Section 5.1 and Section 6 / Table 11											
Management Plan Requirements												
C1. Management plans required under this consent must be prepared in accordance with relevant guidelines, and include:	Noted											

Development Consent Conditions	Section / Comment
a) details of: <ul style="list-style-type: none"> 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, the development or any management measures; 	<ul style="list-style-type: none"> i) Section 2 ii) Section 4 iii) Section 4, Section 6 / Table 11 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 11
c) a program to monitor and report on the: <ul style="list-style-type: none"> i) impacts and environmental performance of the development; 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 the development over time;	Section 11, and Section 6 of the CEMP
f) a protocol for managing and reporting any: <ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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) <i>Interim Construction Noise Guideline</i> (ICNG)	Assessment of noise impacts on sensitive receivers.
Roads and Maritime Services (2016) <i>Construction Noise and Vibration Guideline</i> (CNVG)	Assessment and management protocols for noise and vibration impacts.
Environment Protection Authority (EPA) (2006) <i>Assessing Vibration: a technical guideline</i>	Assessment of vibration impacts on sensitive receivers.
British Standard Institution (BSI) (1993) <i>BS 7385 Part 2-1993 Evaluation and measurement for vibration in buildings Part 2</i> (BS 7385)	Assessment of vibration impacts (structural damage) to sensitive structures.
German Institute for Standardisation (Deutsches Institut für Normung) (1999) <i>DIN 4150 – Structural vibration - Effects of vibration on structures</i> (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.

Lot 2A is located in Precinct 2 of Oakdale West (see **Figure 1**).

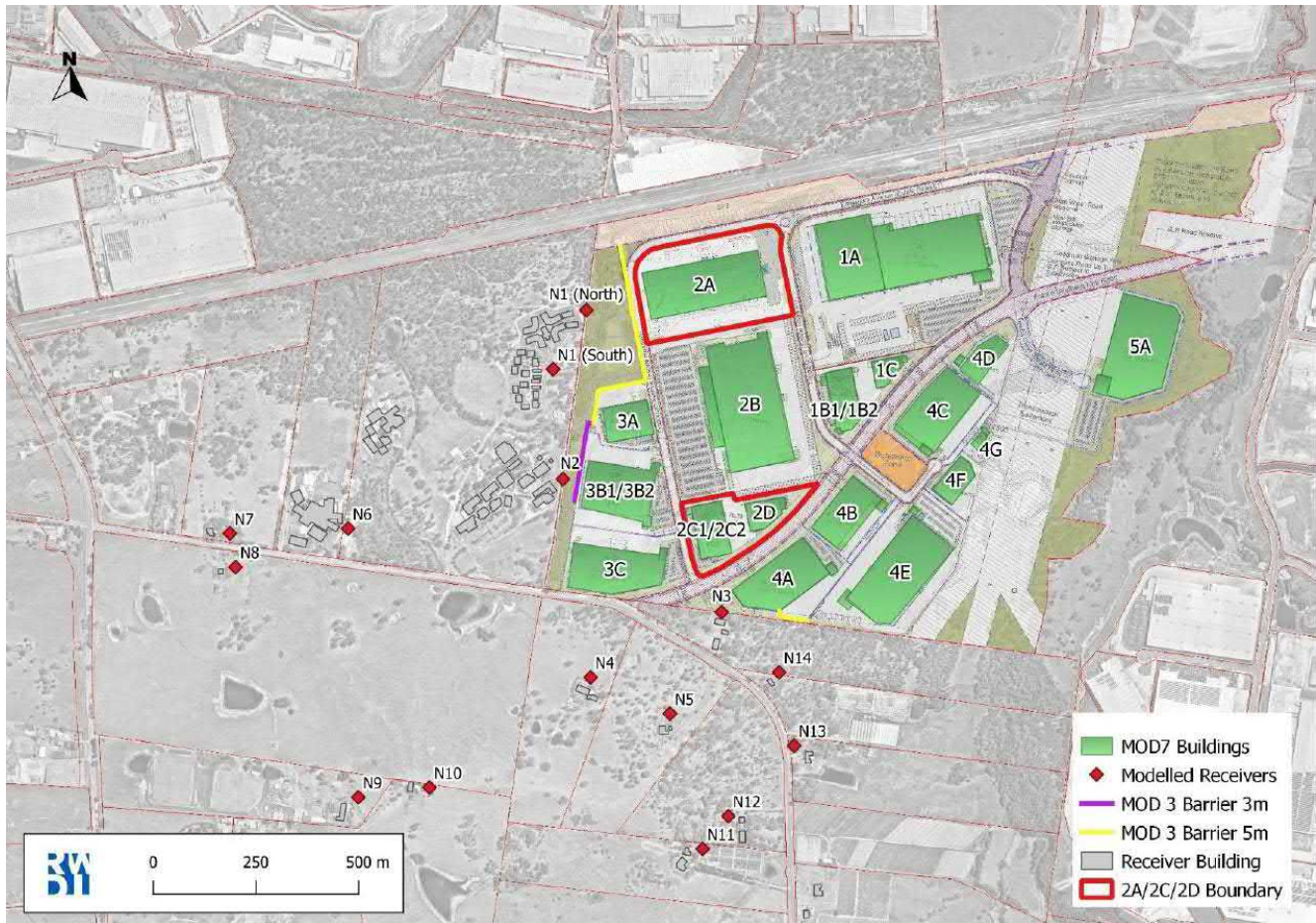
3.2 Location

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 111 DP 1262310, owned by Goodman.

3.3 Surrounding Land Uses

The noise and vibration assessment locations representative of the nearest sensitive receivers surrounding Oakdale West were identified in the NVA for the project and are shown in **Figure 3**.

Figure 3 Receiver Locations



Note 1: Figure sourced from *Oakdale West Estate – Buildings 2A, 2C & 2D Noise and Vibration Assessment (Report No 2102730 Version B)* prepared by RWDI in October 2021 (the NVA).

3.4 Construction Timing and Activities

Construction at Lot 2A is proposed to commence in 2022 and be completed in 2023.

Construction activities will include:

- Minor earthworks to accommodate the building and external levels;
- Pouring of concrete slabs;
- Construction of the warehouse and office including wall and roof cladding;
- Internal fit-outs (office area and warehouse racking);
- Construction of loading bays
- Construction of truck and car parking areas; and
- Site landscaping.

3.5 Construction Hours

Construction hours will be in accordance with Conditions B7 and B8 of Development Consent SSD 9794683, which are reproduced below:

B7. The Applicant must comply with the hours detailed in Table 2, unless otherwise agreed in writing by the Planning Secretary.

Table 2: Hours of Work

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

B8. Works outside of the hours identified in Condition B7 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 B8(a) of Development Consent SSD 9794683 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 B8(b) of Development Consent SSD 9794683, 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 B8(c) or B8(d).

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.

3.6 Construction Site Access

Access to Lot 2A will be via Compass Drive (the WNSLR) and Estate Roads 01 and 03 (refer to **Figure 1**).

4 Construction Noise and Vibration Criteria and Guidelines

4.1 Construction Noise Criteria

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 3**.

Table 3 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	Noise affected RBL + 10 dBA	<ul style="list-style-type: none"> 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 practices 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	<ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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	Noise affected RBL + 5 dBA	<ul style="list-style-type: none"> • 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 4**.

Table 4 Construction Noise Management Levels at Other Sensitive Land Uses

Land use	NML LAeq(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 LAeq(15minute)
- Offices, retail outlets: external 70 dBA LAeq(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 NVA defined the airborne NMLs for the various surrounding receivers for standard construction hours. The NMLs applicable for the receivers surrounding Oakdale West are outlined in **Table 5**.

Table 5 Project Specific Noise Management Levels

Receiver	Period	LAeq(15minute) Construction NMLs (dBA)	
		Standard Hours	Highly Noise Affected
N1, N7 & N8	Day	49	75
N9 – N14	Day	44	75
N2 & N6	Day	55 ¹	n/a

Note 1: Noise level of LAeq 55 dBA has been adopted, with consideration to the generally accepted 10 dB noise reduction typically achieved through a partially open window.

It is understood that a Noise Agreement between the applicant and receiver N3, N4 and N5 has been made. As such, no criteria are applicable at receivers N3, N4 and N5.

As noted in **Table 3**, where the predicted or measured LAeq(15minute) construction noise levels exceed the NMLs in **Table 5**, 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), respite periods may be required 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

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 are 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 6**. 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 6 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 of 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 7**. These are maximum levels measured in any direction at the foundation or in the horizontal axes in the plane of the uppermost floor.

Table 7 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 90 m from the closest point of the Lot 2A works. The CNVMP for the Oakdale West Masterplan estate works specified that vibration impacts should be considered for vibration intensive works within 50 m of the pipeline (refer to SLR Report 610.17948-R05-Oakdale West CNVMP-v1.9, dated May 2020). As such, the separation distance is sufficient to mitigate vibration from the Lot 2A site to the pipelines, and no further assessment has been undertaken.

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 VDV’s 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 8**.

Table 8 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). These minimum working distances are summarised in **Table 9**.

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 9 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.

5 Construction Noise and Vibration Impacts

5.1 Construction Noise Impacts

The NVA presented construction noise predictions from a number of construction scenarios likely to occur on site. These construction scenarios are representative of the activities which will be required during the construction of the site. These included:

- Earthworks
- Pad and hardstand works
- Construction of warehouse and office structures

The predicted worst-case noise levels from the various construction works at Oakdale West Lot 2A are presented in **Table 10**.

Table 10 Predicted LAeq,15min Construction Noise Levels

Receiver	Period (weather)	LAeq,15min Noise Level (dBA)				
		CNML	Highly Affected NML	Predicted		
				Earthworks	Hardstand	Construction
N1 – Emmaus Village Residential	Day (Standard)	49	75	50	48	43
N2 – Emmaus Catholic College (School)	Day (Standard)	55	n/a	55	52	46
N6 – Mamre Anglican College	Day (Standard)	55	n/a	41	39	34
N7 – 21-42 Bakers Ln, Kemps Creek	Day (Standard)	49	75	39	37	32
N8 – 706-752 Mamre Rd, Kemps Creek	Day (Standard)	49	75	25	22	18
N9 – 754-770 Mamre Rd, Kemps Creek	Day (Standard)	44	75	37	34	30
N10 – 784-786 Mamre Rd, Kemps Creek	Day (Standard)	44	75	39	36	32
N11 – 99-111 Aldington Rd, Kemps Creek	Day (Standard)	44	75	36	34	29
N12 – 53 Aldington Rd, Kemps Creek	Day (Standard)	44	75	35	32	28
N13 – 54-72 Aldington Rd, Kemps Creek	Day (Standard)	44	75	41	39	34
N14 – 74-88 Aldington Rd, Kemps Creek	Day (Standard)	44	75	39	37	32

Note 1: **Bold** text indicates and exceedance of the ICNG CNML.

As detailed in the NVA and shown in **Table 10** above, the construction noise impacts are predicted to be within the daytime NMLs with the exception of noise impacts from earthworks at N1. The exceedance of the NMLs is minor (up to 1 dBA) and would generally be limited to when works are closest to the nearest receivers. Noise impacts 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 school, commercial or other residential receiver areas.

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.

The nearest receiver buildings (N1) are over 150 m from the boundary of construction works of Lot 2A. As such, vibration intensive equipment is not anticipated to have the potential to be operated within the recommended minimum working distances of the nearest receivers.

Vibration at the nearest receivers is unlikely to be perceptible during the works.

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 11**.

Note: **Table 11** is replicated in the CEMP.

Table 11 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.	Construction Contractor	Ongoing	Best practice
Works will be completed during the approved 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. 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	Best practice
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.			
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.			

Measure	Person Responsible	Timing / Frequency	Reference / Notes
Site Layout			
Compounds and worksites will be designed to promote one-way traffic and minimise the need for vehicle reversing.	Construction Contractor	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.	Construction Contractor	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.	Construction Contractor	Ongoing	SSD 9794683 Condition A20 Best practice
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).			
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.			
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.			

Measure	Person Responsible	Timing / Frequency	Reference / Notes
Community Consultation			
Notifications will be provided to the affected community where high impacts are anticipated or where works outside approved construction hours 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.	Construction Contractor	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.	Construction Contractor	Ongoing	Best practice
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	
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 Goodman before the commencement of any vibration intensive activities.			
A copy of the Building Condition Inspection Reports and CNVMP will be submitted to 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.			

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 11** 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 G of the CEMP).

7.1 Performance Objective

To ensure that all environmental complaints in relation to the construction of Lot 2A 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 5 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 Community Correspondence Register (Appendix H 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 5 of the CEMP;
- Blank hard copies of the Community Correspondence Register (see Appendix H of the CEMP); and
- Copies of all completed Community Correspondence Register entries 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.

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 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 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.

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 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.

9 Contingency Management Plan

The following contingency management plan, shown in **Table 12**, 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 approved construction hours detailed in **Section 3.5**.
- Any works occurring outside the approved construction hours, where those works do not meet the allowable circumstances defined in **Section 3.5**.
- Trigger of Condition Red for vibration impacts at sensitive receiver locations.

Table 12 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.

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);
- 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.

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

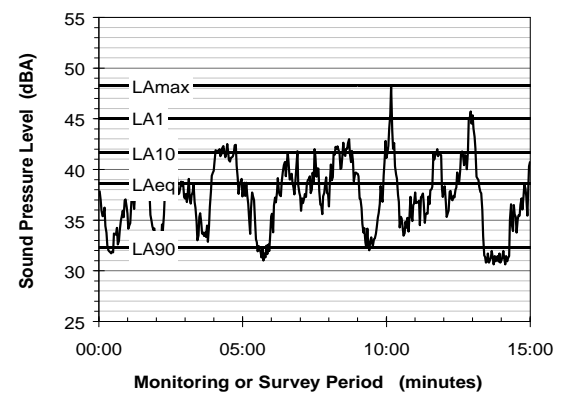
The Sound Power of a source is the rate at which it emits acoustic energy. As with Sound Pressure Levels, Sound Power Levels are expressed in decibel units (dB or dBA), but may be identified by the symbols SWL or LW, or by the reference unit 10^{-12} W.

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 LAN, where LAN is the A-weighted sound pressure level exceeded for N% of a given measurement period. For example, the LA1 is the noise level exceeded for 1% of the time, LA10 the noise exceeded for 10% of the time, and so on.

The following figure presents a hypothetical 15 minute noise survey, illustrating various common statistical indices of interest.



Of particular relevance, are:

- LA1 The noise level exceeded for 1% of the 15 minute interval.
- LA10 The noise level exceeded for 10% of the 15 minute interval. This is commonly referred to as the average maximum noise level.
- LA90 The noise level exceeded for 90% of the sample period. This noise level is described as the average minimum background sound level (in the absence of the source under consideration), or simply the background level.
- LAeq The A-weighted equivalent noise level (basically, the average noise level). It is defined as the steady sound level that contains the same amount of acoustical energy as the corresponding time-varying sound.

5. Frequency Analysis

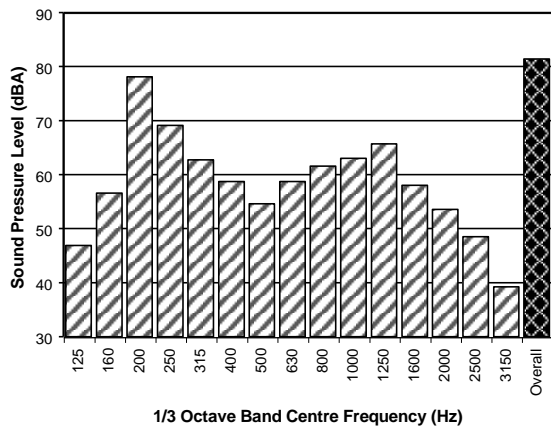
Frequency analysis is the process used to examine the tones (or frequency components) which make up the overall noise or vibration signal.

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 $20 \log (V/V_0)$, where V_0 is the reference level (10^{-9} m/s). Care is required in this regard, as other reference levels may be used.

8. Human Perception of Vibration

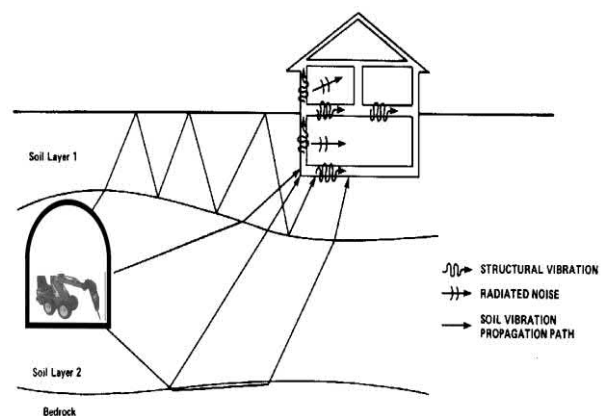
People are able to 'feel' vibration at levels lower than those required to cause even superficial damage to the most susceptible classes of building (even though they may not be disturbed by the motion). An individual's perception of motion or response to vibration depends very strongly on previous experience 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	OOHVs 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.
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APPENDIX G

Construction Air Quality Management Plan

OAKDALE WEST INDUSTRIAL ESTATE - LOT 2A

Construction and Operational Air Quality Management Plan

Prepared for:

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The Hayesbery
1-11 Hayes Road
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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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630.30081-2A-R22-v1.1	17 December 2021	Sahar Bagheri	Kirsten Lawrence	Varun Marwaha
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CONTENTS

1	INTRODUCTION	6
1.1	Development Overview	6
1.2	Objectives of this AQMP	8
2	STATUTORY REQUIREMENTS	9
3	PROJECT OVERVIEW	12
3.1	Surrounding Land Uses	12
3.2	Lot 2A Layout	13
3.3	Construction Activities.....	13
3.3.1	Proposed Works	13
3.3.2	Construction Hours.....	14
3.3.3	Construction Contact Details.....	14
3.3.4	Construction Site Access	15
3.4	Operational Activities	16
4	POTENTIAL SOURCES OF AIR EMISSIONS	17
4.1	Air Emissions During Construction.....	17
4.2	Air Emissions During Operation.....	18
5	RELEVANT POLLUTANTS AND AIR QUALITY CRITERIA.....	19
5.1	Pollutants of Concern	19
5.2	Ambient Air Quality Criteria	20
5.3	Local Government Air Quality Toolkit.....	22
6	EXISTING ENVIRONMENT.....	23
6.1	Local Meteorology	23
6.2	Background Air Quality	23
7	ASSESSMENT OF DUST EMISSIONS DURING CONSTRUCTION	28
7.1	Construction Impact Assessment Methodology.....	28
7.2	Risk Assessment.....	28
8	ASSESSMENT OF AIR EMISSIONS DURING OPERATIONS.....	30
9	MITIGATION MEASURES	31
9.1	Construction Mitigation Measures	31
9.2	Operational Mitigation Measures.....	34
10	COMPLAINTS HANDLING AND RESPONSE PROCEDURE	37
10.1	Construction	37
10.1.1	Performance Objectives	37

CONTENTS

10.1.2	Responsibility	37
10.1.3	Complaints Handling Procedure	37
10.1.4	Complaints Register	38
10.2	Operational	39
11	AIR QUALITY MONITORING PROGRAM	40
11.1	Construction	40
11.2	Operations	42
12	CONTINGENCY MANAGEMENT PLAN	43
12.1	Construction	43
12.2	Operations	43
13	ROLES AND RESPONSIBILITIES	46
13.1	Construction	46
13.2	Operations	47
14	REVIEW AND IMPROVEMENT OF THE AQMP	48
15	REFERENCES	49

CONTENTS

DOCUMENT REFERENCES

TABLES

Table 1	SSD 7348 Conditions	9
Table 2	SSD 9794683 Conditions	10
Table 3	Construction Contact List	14
Table 4	Air Quality Assessment Criteria	21
Table 5	Recent Changes to National Ambient Air Quality Criteria Relevant to this Assessment.....	21
Table 6	NSW EPA Criterion of Nuisance Dust Deposition.....	22
Table 7	Summary of Ambient PM ₁₀ , PM _{2.5} and NO ₂ Data - St Marys AQMS (2016 – 2020)	24
Table 8	Summary of Ambient CO and SO ₂ Data - Prospect AQMS (2016 – 2020).....	26
Table 9	Preliminary Risk of Air Quality Impacts from OWE Construction Activities (Uncontrolled)	29
Table 10	Risk Assessment of Impacts from Products of Combustion – Operational Phase Traffic	30
Table 11	Dust Mitigation Measures.....	31
Table 12	Summary of the Parameters to Assess the Effectiveness of Control Measures	34
Table 13	Summary of On-Site Monitoring Programme	40
Table 14	Air Quality Contingency Management Plan for the Construction of Lot 2A.....	44

FIGURES

Figure 1	Regional Locality.....	7
Figure 2	Oakdale West Masterplan.....	8
Figure 3	Surrounding Land Use	12
Figure 4	Lot 2A Layout.....	13
Figure 5	Construction Site Access	15
Figure 6	24-Hour Average PM ₁₀ and PM _{2.5} Concentrations - St Marys AQMS.....	24
Figure 7	1-Hour Average NO ₂ Concentrations - St Marys AQMS.....	25
Figure 8	Rolling 8-Hour Average CO and 1-Hour Average SO ₂ Concentrations - Prospect AQMS (2016 – 2020)	26
Figure 9	Air Quality Monitoring Locations for the OWE Construction Project	41

APPENDICES

Appendix A	Wind Roses and Rainfall Data Analysis
Appendix B	Construction Phase Risk Assessment Methodology
Appendix C	Operational Phase Risk Assessment Methodology
Appendix D	Air Quality Notification Form
Appendix E	Curriculum Vitae of Author

1 Introduction

SLR Consulting Australia Pty Ltd (SLR) has been commissioned by Goodman Property Services (Aust) Pty Ltd (Goodman) to prepare an Air Quality Management Plan (AQMP) for Lot 2A (Development Site) within Precinct 2 of the Oakdale West Estate (OWE) located in the western Sydney area of Erskine Park, New South Wales (NSW).

A construction-phase AQMP for construction for the OWE was finalised by SLR in January 2020 (SLR 2020), which was required under Condition D100 of the Development Consent for State Significant Development 7348 (SSD 7348).

Whilst Development Consent SSD 7348 has been granted for the OWE 'Concept Proposal' and 'Stage 1 Development', this AQMP is specifically for the construction and operation of Lot 2A. The development of Lot 2A was approved under SSD 9794683. The construction sections of this AQMP generally adhere to the requirements stipulated in the overarching OWE AQMP.

1.1 Development Overview

The OWE 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).

The OWE 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 are located to the west of the site. Other boundaries interface with adjoining rural lands accommodating a mix of rural-residential and agricultural uses (see **Figure 1**).

Development Consent for the OWE was granted for the OWE 'Concept Proposal', 'Stage 1 Development' and all subsequent development stages. The Concept Proposal essentially comprises a Master Plan to guide the staged development of OWE 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;
- 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 Precincts 1-5, 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 (now complete); and
 - Western boundary landscaping.

This AQMP has been prepared to cover the construction and operation of Lot 2A. Lot 2A is located in Precinct 2 of the OWE as shown in **Figure 2**. At the time of writing this report, a Construction Contractor has yet to be engaged. Building 2A comprises the following:

- Construction and fit out of a single 44,000 sqm warehouse building with loading bays and dual office facilities;
- Truck delivery access, two car parking areas with dedicated entrances; and one heavy vehicle entrance;
- site landscaping; signage; and
- Lighting.

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

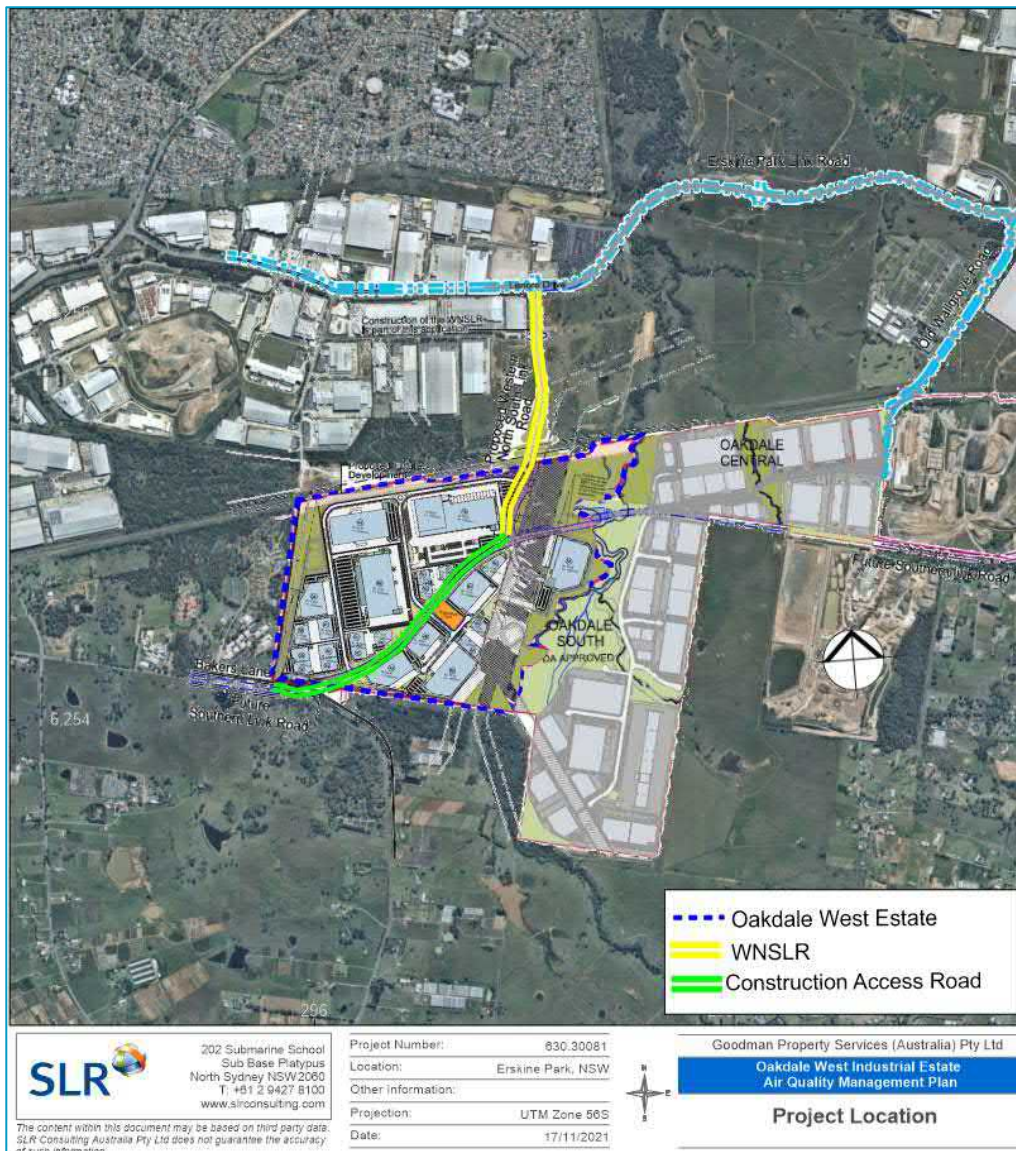


Figure 2 Oakdale West Masterplan



1.2 Objectives of this AQMP

The objectives of this AQMP are as follows:

- Details of all emissions from all construction and operational activities, including fugitive particulate emissions and vehicle emissions;
- A program that is capable of evaluating the performance of air quality management during construction and operation, and determining compliance with key performance indicators (KPIs);
- Identification of control measures that may be suitable for each emission source;
- Relevant regulatory requirements, including development consents, guidelines and air quality limits/criteria;
- Location of sensitive receivers;
- Air Quality management commitments and responsibilities, including air quality compliance monitoring and reporting requirements (where relevant); and
- Potential contingency measures in the event of an air quality criterion exceedance.

2 Statutory Requirements

The Development Consent requirements stipulated for the construction and operation of Lot 2A under SSD 7348 (construction) and SSD 9794683 (construction and operation), and where they have been addressed in this AQMP, are shown in **Table 1** and **Table 2** respectively.

Table 1 SSD 7348 Conditions

Conditions	Response / Section Reference
Condition D98 (Dust Minimisation)	
The Applicant must take all reasonable steps to minimise dust generated during all works authorised by this consent.	Section 9
Condition D99 (Dust Minimisation)	
During construction of Stage 1, the Applicant must ensure that: <ul style="list-style-type: none"> (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 9
Condition D100 (Construction Air Quality Management Plan)	
(a) be prepared by a suitably qualified and experienced person(s)	2-page CV of the author is attached in Appendix E
(b) detail and rank all emissions from all construction activities, including particulate emissions	Section 4 and Section 7
(c) describe a program that is capable of evaluating the performance of the construction and determining compliance with key performance indicators	Section 11
(d) identify the control measures that will be implemented for each emission source	Section 9
(e) nominate the following for each of the proposed controls: <ul style="list-style-type: none"> - key performance indicator - monitoring method - location, frequency and duration of monitoring - record keeping - complaints register - response procedures - compliance monitoring 	Section 9 and Section 11
Condition D118 (Management Plan Requirements)	
(a) details of: <ul style="list-style-type: none"> 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

Conditions	Response / Section Reference
(b) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	Section 9
(c) a program to monitor and report on the: <ul style="list-style-type: none"> i. impacts and environmental performance of Stage 1; and ii. effectiveness of the management measures set out pursuant to paragraph (b) above; 	Section 11
(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 12
(e) a program to investigate and implement ways to improve the environmental performance of Stage 1 over time;	Section 11 and Section 14
(f) a protocol for managing and reporting any: <ul style="list-style-type: none"> 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 10 and Appendix D See overarching CEMP
(g) a protocol for periodic review of the plan.	Section 14

Table 2 SSD 9794683 Conditions

Conditions	Response / Section Reference
Condition B30 (Dust Minimisation)	
The Applicant must take all reasonable steps to minimise dust generated during all works authorised by this consent.	Section 9
Condition B31 (Dust Minimisation)	
During construction of the development, the Applicant must comply with the dust minimisation measures detailed in the Construction Environmental Management Plan required by Condition C2.	Section 9
Condition B32 (Operational Air Quality)	
(a) be prepared by a suitably qualified and experienced person(s)	2-page CV of the author is attached in Appendix E
(b) detail all emission sources from the operation of Lot 2A	Section 4
(c) describe a program that is capable of evaluating the performance of the operation and determining compliance with key performance indicators	Section 12
(d) identify the control measures that will be implemented for each emission source, including details of extractions systems and rooftop vents	Section 9

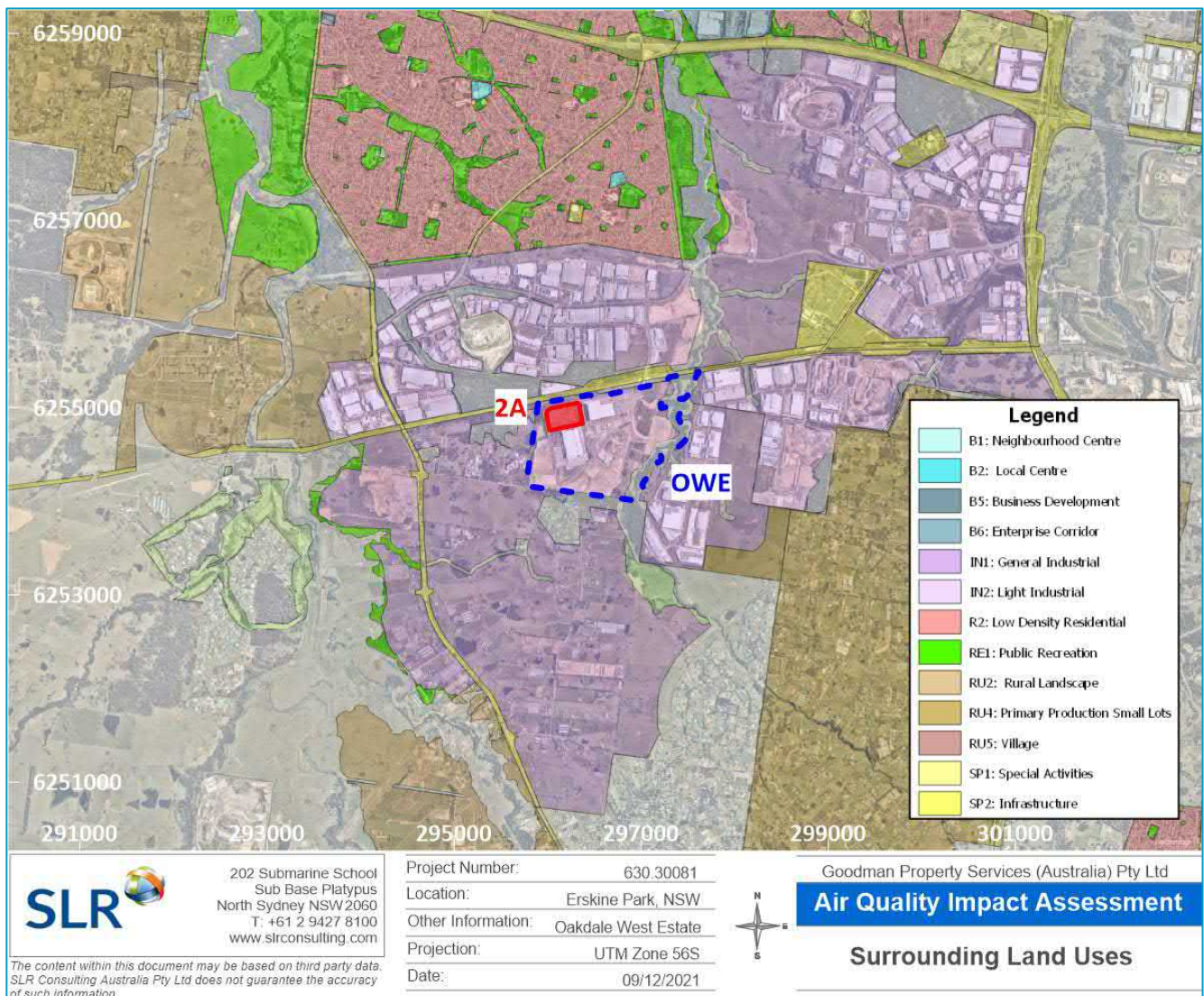
Conditions	Response / Section Reference
(e) nominate the following for each of the proposed controls: <ul style="list-style-type: none"> i. key performance indicator ii. monitoring method, location, frequency, and duration of monitoring iii. response procedures; and iv. compliance monitoring. 	Section 9 and Section 11
(f) Include a complaint register and response procedures	Section 10 and Appendix D See overarching CEMP
Condition B33 (Operational Air Quality)	
The Applicant must implement the AQMP for the duration of operation of Lot 2A.	As applicable

3 Project Overview

3.1 Surrounding Land Uses

The area immediately surrounding the OWE is zoned light or general industrial, (see **Figure 3**) and 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 the OWE boundary are located approximately 50 metres (m) south on Aldington Road, Erskine Park. However, Precinct 2 is located on the north western side of the OWE and is approximately 200 m away from the nearest sensitive receptor (the Emmaus College building).

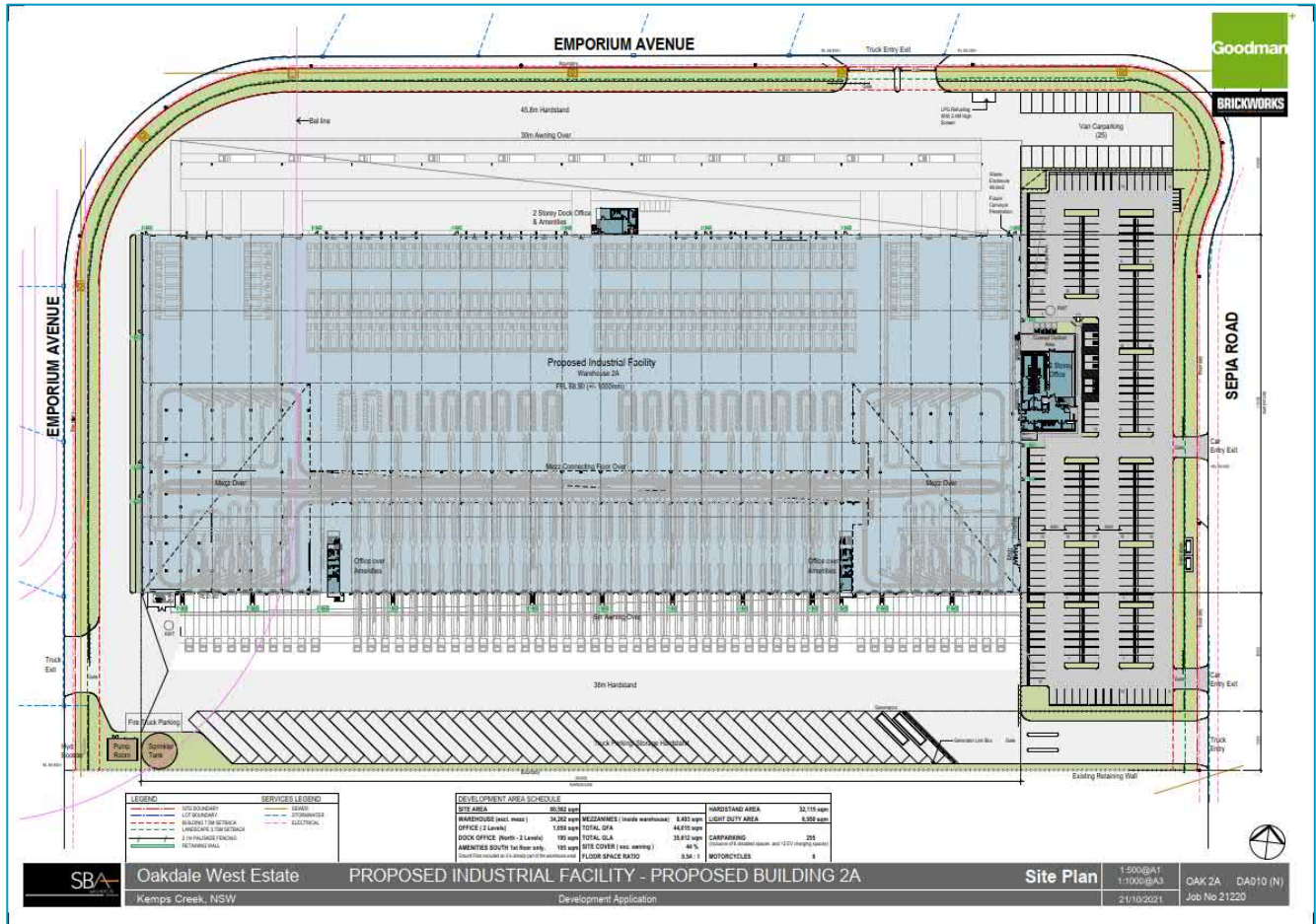
Figure 3 Surrounding Land Use



3.2 Lot 2A Layout

The Lot 2A layout is shown in **Figure 4**.

Figure 4 Lot 2A Layout



3.3 Construction Activities

3.3.1 Proposed Works

This AQMP relates to the construction works to be undertaken on Lot 2A at Precinct 2.

No vegetation clearing, bulk earthworks or supporting infrastructure will be required as part of this Project as this has been approved and undertaken as part of Stage 1 in accordance with SSD 7348.

All works will be undertaken in accordance with the Approved Development Consent SSD 9794683.

The activities to be undertaken include:

- Minor earthworks to prepare foundations/footings for the buildings to be constructed
- Construction of a 44,000 m² steel framed and steel-clad warehouse

- Sealing of internal roads and hardstand areas,
- Fit out of warehouse and offices

3.3.2 Construction Hours

Construction hours will be in accordance with Conditions B7 and B8 of Development Consent SSD 9794683, which are reproduced below:

B7. The Applicant must comply with the hours detailed in Table 1, unless otherwise agreed in writing by the Planning Secretary.

Table 2: Hours of Work

Activity	Day	Time
Construction	Monday – Friday Saturday	7 am to 6 pm 8 am to 1 pm
Operation	Monday – Sunday	24 hours

B8. Works outside of the hours identified in Condition B7 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.*

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.

3.3.3 Construction Contact Details

Table 3 lists the key contacts during the construction of Lot 2A.

Table 3 Construction Contact List

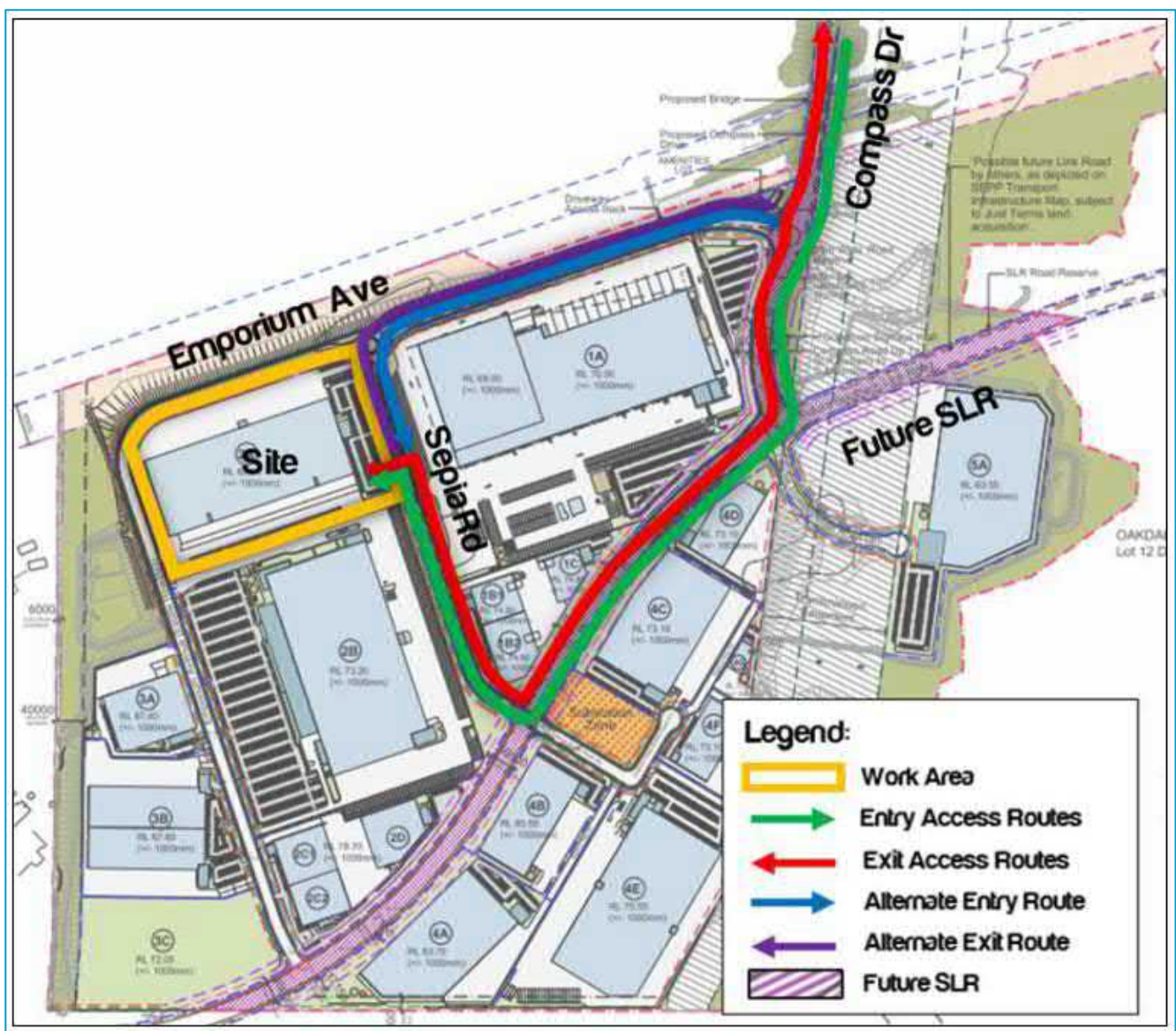
Role	Name	Company	Contact Details
Project Principal/Superintendent	Rob Moody	Goodman	0418 275 745 Rob.moody@goodman.com
Contractor's Project Manager	Mitchell Kay	Richard Crookes Constructions	0413 611 842 kaym@richardcrookes.com.au
Contractor's WHS&E Advisor	Marcello Di Paolo	Richard Crookes Constructions	0418 272 205 dipaolom@richardcrookes.com.au
Environmental Representative	Carl Vincent	ERSED	0424 203 046 carl.vincent@ersed.com.au

Role	Name	Company	Contact Details
Communications and Community Liaison Representative	Dan Thompson	SLR	0428 060 995 dthompson@slrconsulting.com

3.3.4 Construction Site Access

During construction, heavy vehicles will access travel south from the site towards Estate Road 03, then northeast to exit at northern boundary of the OWE precinct. Two car entry/exit points will also be provided directly onto Compass Drive to facilitate access to the proposed car parking areas, as shown in **Figure 5**.

Figure 5 Construction Site Access



Source: CTMP (Ason 2021)

3.4 Operational Activities

The tenant for Lot 2A has proposed operations which will include a number of vehicles (approximately 100 vehicles per hour during peak hours and 900 vehicles per day) entering and existing the building, including parking in the building while loading/unloading goods. It has been notified by Goodman that idling of vehicles will not occur inside the building.

4 Potential Sources of Air Emissions

4.1 Air Emissions During Construction

During the construction works, fugitive dust emissions are considered to be the primary air 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 Lot 2A have been identified as:

- Dust emissions from earthworks activities (e.g. 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 on the local road network due to road closures or diversions (if any).

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 the whole 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 suspended particulate matter 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 same sources, excluding excavation and rehabilitation, demolition, clearing and grading (which related to the Stage 1 works), are also identified for construction of Lot 2A.

The proposed construction activities are broadly divided into three categories i.e. earthworks, construction (building) and trackout. Potential air quality impacts associated with construction of Lot 2A and the relative risk ratings are addressed in **Section 7**.

4.2 Air Emissions During Operation

While idling of vehicles will not occur inside the building, emissions due to fuel combustion are still anticipated to occur inside the building during the vehicle entry and exit through the building. A carbon monoxide (CO) monitoring system will be fitted to ensure that CO concentrations within the building meet indoor air quality criteria.

According to the Air Quality Impact Assessment (AQIA) for OWE, off-site air quality impacts due to the traffic movements from the whole OWE are expected to be well below relevant air quality criteria. Notwithstanding this, a high-level risk assessment has been presented in **Section 8** for the operational phase air quality impacts from Building 2A and relevant mitigation measures are outlined in **Section 9.2**, as required by Condition B32 of SSD 9794683.

5 Relevant Pollutants and Air Quality Criteria

5.1 Pollutants of Concern

The potential air pollutants of interest during construction and operation of Lot 2A are suspended particulate matter, deposited dust and the products of fuel combustion.

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.

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 term “particulate matter” refers to a category of airborne particles, typically less than 30 microns (μm) in diameter and ranging down to 0.1 μm and is termed total suspended particulate (TSP).

The annual criterion for TSP recommended by the NSW EPA is 90 micrograms per cubic metre of air ($\mu\text{g}/\text{m}^3$). The TSP criterion was developed before the more recent results of epidemiological studies which suggested a relationship between health impacts and exposure to concentrations of finer particulate matter.

Emissions of particulate matter less than 10 μm and 2.5 μm in diameter (referred to as PM_{10} and $\text{PM}_{2.5}$ respectively) are considered important pollutants due to their ability to penetrate into the respiratory system. In the case of the $\text{PM}_{2.5}$ category, recent health research has shown that this penetration can occur deep into the lungs. Potential adverse health impacts associated with exposure to PM_{10} and $\text{PM}_{2.5}$ include increased mortality from cardiovascular and respiratory diseases, chronic obstructive pulmonary disease and heart disease, and reduced lung capacity in asthmatic children.

Deposited Dust

The above section 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.

Oxides of Nitrogen

NO_x is a general term used to describe any mixture of nitrogen oxides formed during combustion. In atmospheric chemistry NO_x generally refers to the total concentration of nitric oxide (NO) and nitrogen dioxide (NO_2). NO will be converted to NO_2 in the atmosphere after leaving a car exhaust.

NO is a colourless and odourless gas that does not significantly affect human health. However, in the presence of oxygen, NO can be oxidised to form NO_2 which can have significant health effects including damage to the respiratory tract and increased susceptibility to respiratory infections and asthma. Long term exposure to NO_2 can lead to lung disease.

Carbon Monoxide

CO is an odourless, colourless gas formed from the incomplete burning of fuels in motor vehicles. CO bonds to the haemoglobin in the blood and reduces the oxygen carrying capacity of red blood cells, thus decreasing the oxygen supply to the tissues and organs, in particular the heart and the brain.

It can be a common pollutant at the roadside and highest concentrations are found at the kerbside with concentrations decreasing rapidly with increasing distance from the road. CO in urban areas results almost entirely from vehicle emissions and its spatial distribution follows that of traffic flow.

Sulphur Dioxide

SO₂ is a colourless, pungent gas with an irritating smell. When present in sufficiently high concentrations, exposure to SO₂ can lead to impacts on the upper airways in humans (i.e. the nose and throat irritation). SO₂ can also mix with water vapour to form sulphuric acid (acid rain) which can damage vegetation, soil quality and corrode materials.

The main sources of SO₂ in the air are industries that process materials containing sulphur (i.e. wood pulping, paper manufacturing, metal refining and smelting, textile bleaching, wineries etc.). SO₂ is also present in motor vehicle emissions, however since Australian fuels are relatively low in sulphur, high ambient concentrations are not common.

Volatile Organic Compounds

VOCs are organic compounds (i.e. contain carbon) that have high vapour pressure at normal room-temperature conditions. Their high vapour pressure leads to evaporation from liquid or solid form and emission release to the atmosphere.

VOCs are emitted by a variety of sources, including motor vehicles, chemical plants, automobile repair services, painting/printing industries, and rubber/plastics industries. VOCs that are often typical of these sources include benzene, toluene, ethylbenzene and xylenes (often referred to as 'BTEX'). Biogenic (natural) sources of VOC emissions (e.g. vegetation) are also significant.

Impacts due to emissions of VOCs can be health or nuisance (odour) related. Benzene is a known carcinogen and a key VOC linked with the combustion of motor vehicle fuels.

5.2 Ambient Air Quality Criteria

There are no air quality criteria specified within Development Consent SSD 9794683, therefore the NSW EPA criteria have been adopted, as discussed below.

Products of Combustion

Section 7.1 of the Approved Methods set out impact assessment criteria for the air pollutants identified in **Section 5.1**. The criteria listed in the Approved Methods are derived from a range of sources (including NHMRC, NEPC, WHO, ANZECC and DoE). The criteria specified in the Approved Methods are the defining ambient air quality criteria for NSW, and are considered to be appropriate for the setting. The following sections outline the potential health impacts of each of the identified pollutants, and the relevant criteria from the Approved Methods are summarised in **Table 4**.

Table 4 Air Quality Assessment Criteria

Pollutant	Averaging Period	Ambient Air Quality Criterion	
		µg/m ³	pphm
Total suspended particulate (TSP)	Annual	90	-
Particulate matter less than 10 microns (PM ₁₀)	24-Hour	50	-
	Annual	25	-
Particulate matter less than 2.5 microns (PM _{2.5})	24-Hour	25	-
	Annual	8	-
Nitrogen dioxide (NO ₂)	1-hour	246	12
	Annual	62	3
Carbon monoxide (CO)	15-minutes	100,000	8,700
	1-hour	30,000	2,500
	8-hour	10,000	900
Sulfur dioxide (SO ₂)	10-minutes	712	25
	1-hour	570	20
	24-hour	228	8
	Annual	60	2
Benzene	1-hour	29	0.9
Toluene	1-hour	360	9
Ethylbenzene	1-hour	8,000	180
Xylenes	1-hour	190	4

In relation to the air quality criteria shown in **Table 4**, it is noted that on 18 May 2021, the National Environment Protection Council (NEPC) varied the National Environment Protection (Ambient Air Quality) Measure (hereafter the Ambient Air NEPM) standards for ozone, NO₂ and SO₂ based on the latest scientific understanding of the health risks arising from these pollutants. In addition, the updated Ambient Air NEPM includes a reduced goal for PM_{2.5} by 2025. As the ambient air quality criteria set out in the Approved Methods are based on the standards in the Ambient Air NEPM, and given that this assessment is based on traffic projections out to 2041, an assessment of the proposal's compliance with the new standards set out in the Ambient Air NEPM has also been performed. A summary of the updated standards for NO₂ and PM_{2.5} is provided below in **Table 5**.

Table 5 Recent Changes to National Ambient Air Quality Criteria Relevant to this Assessment

Pollutant	Averaging Period	Previous NEPM Standard (µg/m ³)	New NEPM Standard (µg/m ³)
NO ₂	1-Hour	246	165
	Annual	62	31
PM _{2.5}	24-Hour	25	20
	Annual	8	7

Deposited Dust

The relevant criterion for nuisance dust deposition is provided in **Table 6**. 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 6 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 km southeast of the OWE. 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 air emissions from Lot 2A towards the nearest sensitive receptors located to the west and south of the proposed site 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 construction activities at the Development Site have the greatest potential to impact on surrounding sensitive receptors during the months of May (autumn), and July to October (mid-winter to spring).

Full analysis of the wind roses and rainfall data can be found in **Appendix A**.

6.2 Background Air Quality

The nearest DPIE-operated air quality monitoring stations (AQMS) to the proposal is located at St Marys. The St Marys AQMS was commissioned in 1992, and is located on a residential property 5.5 km northwest of the proposal at an elevation of 29 m, and monitors the concentration levels of following air pollutants:

- Oxides of nitrogen (NO, NO₂ and NO_x)
- Fine particles (PM_{2.5} and PM₁₀)

Due to unavailability of ambient concentrations for CO and SO₂ from St Marys AQMS, data is being sought from Prospect AQMS. The Prospect AQMS is located 21 km to the east of the proposal. It was commissioned in February 2007 and is located at William Lawson Park, Prospect, in a residential area and is at an elevation of 66 m. The Prospect AQMS is also located within 1 km of major road infrastructure (Great Western Highway and M4 Motorway). The Prospect AQMS monitors the concentration levels of following air pollutants:

- Oxides of nitrogen (NO, NO₂ and NO_x)
- Fine particles (PM_{2.5} and PM₁₀)
- Sulfur Dioxide (SO₂)
- Ozone (O₃)
- Carbon Monoxide (CO)

Both St Marys and Prospect AQMSs are a part of the Sydney northwest air quality monitoring region.

The available air monitoring data from the St Marys AQMS are summarised in **Table 7** (red font indicates an exceedance of the relevant criterion) and presented graphically in **Figure 6** to **Figure 7**. Air monitoring data from the Prospect AQMS are summarised in **Table 8** and presented graphically in **Figure 8**.

A review of the ambient air quality data presented in the following tables and graphs shows:

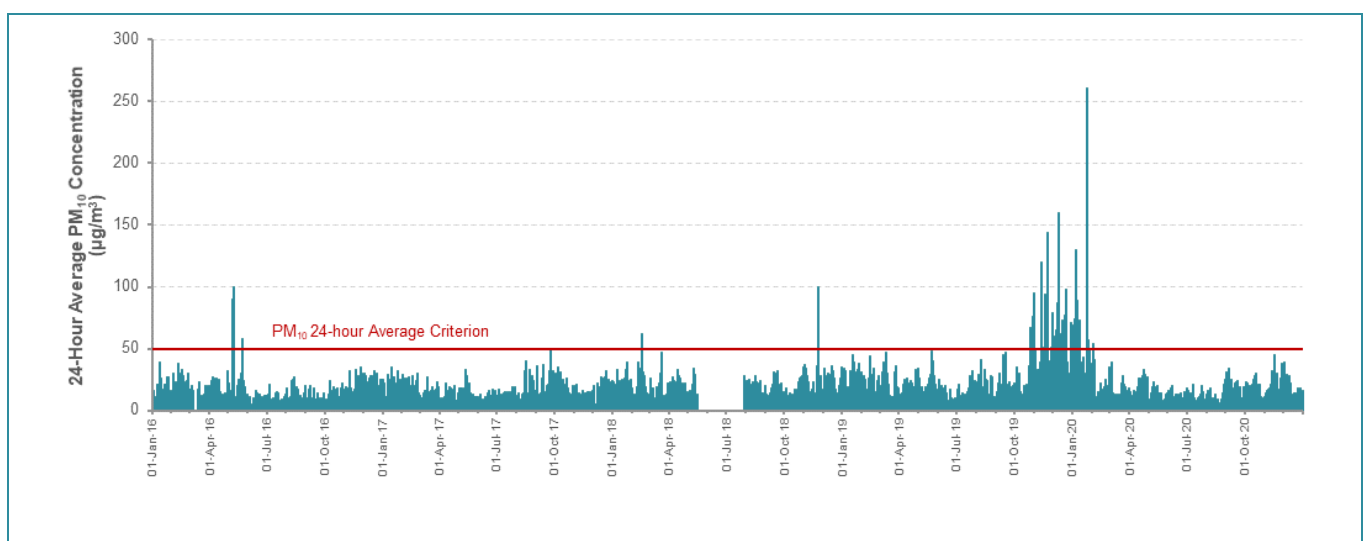
- Generally, the 24-hour average PM₁₀ and PM_{2.5} concentrations recorded by the St Marys AQMS are below the relevant 24-hour average guidelines, however isolated exceedances (normally on less than ten days per year) have been recorded in most years. The exception to this was the November 2019 to January 2020 period, when unprecedented and extensive bushfires within NSW resulted in an extended period of very elevated particulate concentrations across Sydney that were significantly above the 24-hour average PM₁₀ and PM_{2.5} guidelines. A review of the available compliance monitoring reports indicates that the intermittent exceedance days recorded during the other years were also primarily due to exceptional events such as bushfire emergencies, dust storms and hazard reduction burns.
- No exceedances of the annual average PM₁₀ criterion were recorded at St Marys during the five years investigated, however the annual average PM_{2.5} criterion was exceeded in 2019 due to the bushfire event that started in November 2019.
- Ambient concentrations of the gaseous pollutants NO₂, CO and SO₂ were all well below the relevant criteria for all years investigated.

Table 7 Summary of Ambient PM₁₀, PM_{2.5} and NO₂ Data - St Marys AQMS (2016 – 2020)

Pollutant	PM ₁₀ (µg/m ³)			PM _{2.5} (µg/m ³)			NO ₂ (µg/m ³)		
	24-Hours		Annual	24-Hours		Annual	1-hour		Annual
	Maximum	90 th %ile		Maximum	90 th %ile		Maximum	90 th %ile	
2016	100.2 (3)	26.4	16.1	93.2 (7)	11.5	7.9	86	21	7.0
2017	49.8	26.1	16.2	38.2 (3)	10.7	7.0	76	21	8.1
2018	100.5 (2)	29.7	19.4	80.5 (3)	11.3	7.8	76	25	9.6
2019	159.8 (26)	41.9	24.7	88.3 (21)	16.3	9.8	68	21	7.6
2020	260.3 (11)	30.9	18.9	82.5 (9)	11.1	7.6	70	18	7.4
All Years	260.3 (42)	30.8	19.1	93.2 (43)	12.4	8.1	86	21	7.9
Criterion	50		25	25		8	246		62

Notes: %ile = Percentile; ND = No Data; Number in brackets is the number of exceedances

Figure 6 24-Hour Average PM₁₀ and PM_{2.5} Concentrations - St Marys AQMS



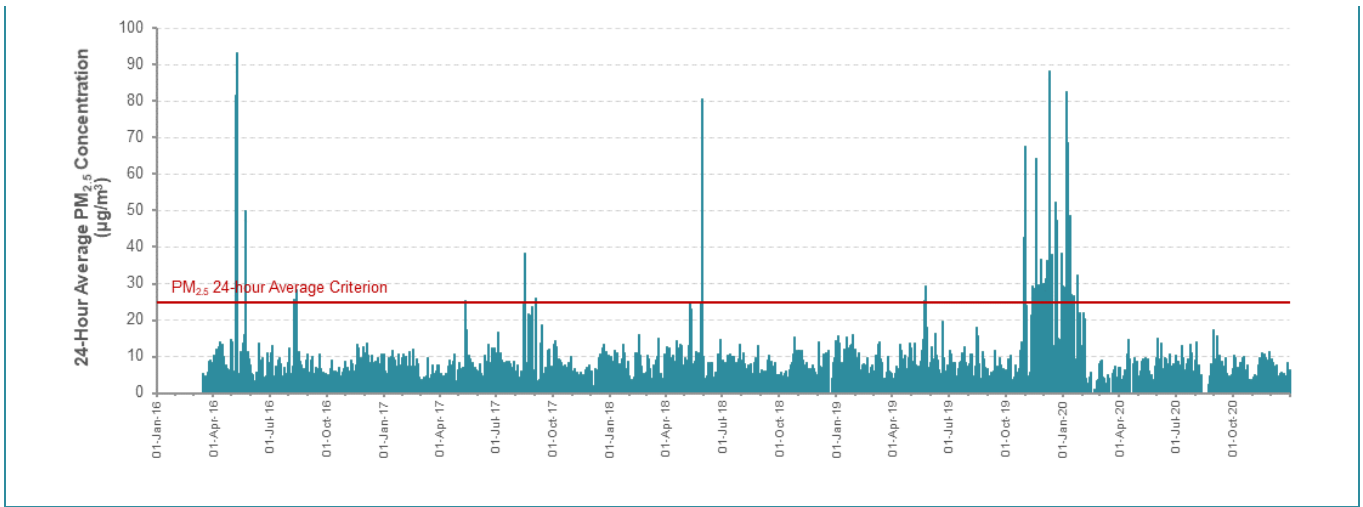


Figure 7 1-Hour Average NO₂ Concentrations - St Marys AQMS

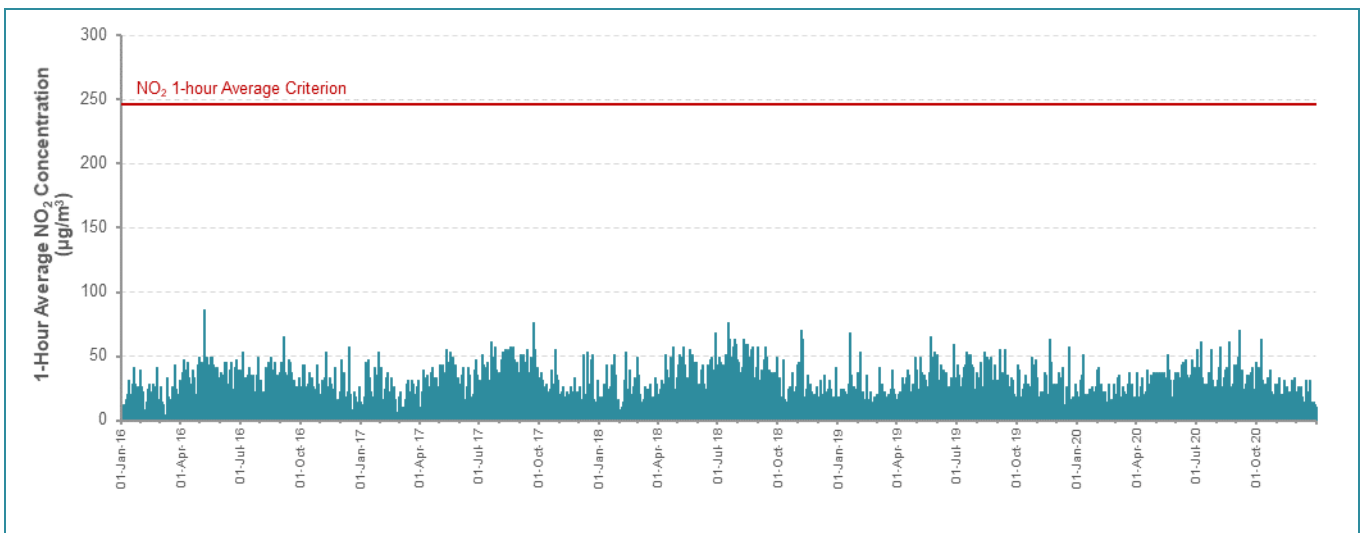
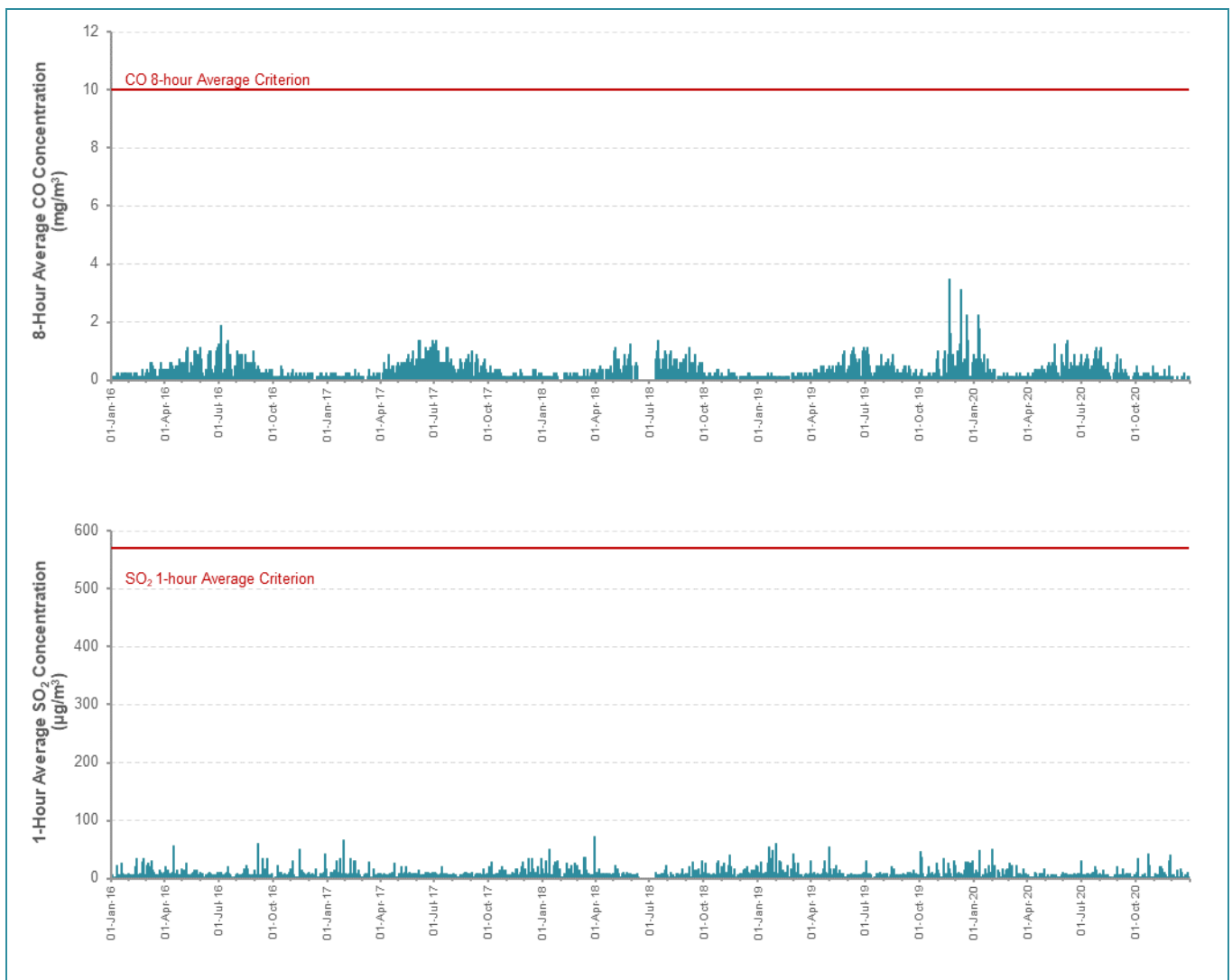


Table 8 Summary of Ambient CO and SO₂ Data - Prospect AQMS (2016 – 2020)

Pollutant	CO (mg/m ³)				SO ₂ (µg/m ³)				Annual
	1-Hour		8-Hours		1-Hour		24-Hours		
	Maximum	90 th %ile	Maximum	90 th %ile	Maximum	90 th %ile	Maximum	90 th %ile	
2016	2.0	0.4	1.9	0.4	60.1	5.7	11.4	2.9	1.7
2017	2.0	0.4	1.4	0.4	65.8	5.7	11.4	4.6	1.9
2018	1.6	0.3	1.4	0.3	71.5	5.7	14.3	5.7	1.8
2019	6.9	0.4	3.5	0.4	60.1	5.7	11.4	5.7	2.0
2020	2.6	0.4	2.3	0.4	51.5	2.9	11.4	2.9	1.4
All Years	6.9	0.4	3.5	0.4	71.5	5.7	14.3	5.7	1.8
Criterion	30		10		570		228		60

Notes: %ile = Percentile

Figure 8 Rolling 8-Hour Average CO and 1-Hour Average SO₂ Concentrations - Prospect AQMS (2016 – 2020)



It has been noted in the latest NSW Annual Air Quality Statement (DPIE 2021) that air quality levels varied across the NSW depending on regions. Daily average PM₁₀ levels exceeded the national standard at one or more metropolitan and regional centres on 24% (87 days) of days in 2020, compared to 48% (175 days) of days in 2019. During 2020, days with extreme air pollution were attributed to the following sources:

- 10 days due to smoke from bushfires (January and February)
- 9 days due to a combination of smoke from bushfires and dust storms (January and February)
- 4 days due to dust storms (January, February and August)
- 1 day due to smoke from hazard reductions burns (September).

Air quality in NSW was greatly affected by the unprecedented extensive bushfires between late 2019 and early 2020. In 2020, the air quality in NSW met national standards between 85% and 99% of the time across regions, a significant improvement compared to 2019 (60% to 92%).

In summary, even though the air quality is generally good in the Sydney region, there is potential for short term elevations in background particulate concentrations associated with regional events such as bushfires and dust storms etc to elevate local ambient particulate concentrations at the Development Site. Care needs to be taken to minimise emissions of dust from the construction works during these periods, to avoid exacerbating these particulate pollution events.

7 Assessment of Dust Emissions During Construction

The key potential health and amenity issues associated with construction of Lot 2A are:

- Elevated suspended particulate concentrations (PM₁₀); 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 have 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 B** 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 9 presents the preliminary risk of air quality impacts from uncontrolled construction activities at the OWE derived using the risk matrix provided in **Table B4** in **Appendix B**, based on the identified receptor sensitivity and sensitivity of the area. It is noted that these risks are for the whole OWE construction project, not for the construction of Lot 2A in isolation.

Table 9 Preliminary Risk of Air Quality Impacts from OWE 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

NOTE: Assessed risks are for the whole OWE construction project, not for the construction of Lot 2A in isolation

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 Assessment of Air Emissions During Operations

An AQIA was completed by SLR (SLR 2016) for the whole OWE in June 2016. In addition, a semi-quantitative assessment was completed to assess the impacts from operations of Lot 2A (SLR 2021). A summary of the assessment completed for Lot 2A is presented in this section, with full methodology presented in **Appendix C**.

The nearest sensitive receptors (ie residential aged care buildings) to the Lot 2A are located approximately 200 m southwest from the closest boundary. With regard to the methodology outlined in **Appendix C**, the sensitivity of the surrounding college and aged care residential areas to air pollutant emissions generated by Lot 2A has been classified as **very high**.

Given the scale of on-site vehicle parking and delivery van and truck operations it is considered that the emissions generated due to the combustion of fuel in light and heavy vehicles generated by the Lot 2A are small compared to the emissions generated by traffic by the new Estate Roads (SLR, 2021) ie 5.5% of the peak hour traffic, and 7.3% of the total daily traffic.

Given the above considerations, the magnitude for nearby sensitive receptors is predicted to be **slight** (i.e. predicted impact may be tolerated, **Table**).

Given the **very high sensitivity** of the potentially affected receptors and the **slight magnitude** of the potential impacts from products of combustion from operational phase traffic activities, the potential impact significance for the local receptors is concluded to be of **intermediate significance** for the closest receptors.

Table 10 Risk Assessment of Impacts from Products of Combustion – Operational Phase Traffic

Sensitivity		Impact Magnitude [Defined by Table A2]			
		Substantial Magnitude	Moderate Magnitude	Slight Magnitude	Negligible Magnitude
[Defined by Table A1]	Very High Sensitivity	Major Significance	Major/ Intermediate Significance	Intermediate Significance	Neutral Significance
	High Sensitivity	Major/ Intermediate Significance	Intermediate Significance	Intermediate/Minor Significance	Neutral Significance
	Medium Sensitivity	Intermediate Significance	Intermediate/Minor Significance	Minor Significance	Neutral Significance
	Low Sensitivity	Intermediate/Minor Significance	Minor Significance	Minor/Neutral Significance	Neutral Significance

In order to further reduce the impact significance, additional mitigation can be put in place to reduce or remove these impacts (refer to **Section 9.2**). It is expected that the residual risk of air quality impacts could be reduced to **neutral significance** if additional mitigation measures (such as the controls listed in **Section 9.2**) are put in place.

9 Mitigation Measures

9.1 Construction Mitigation Measures

The potential for dust emissions during construction of Lot 2A and the potential air quality impacts (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 construction of Lot 2A are detailed in **Table 11**, which are consistent with those stipulated in the CAQMP for the OWE (SLR 2020). The dust mitigation measures specific to the key emission activities (ie earthworks, construction, track out and demolition) are also provided in **Table 11**.

Table 11 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.	Construction Contractor's Representative		
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.	Construction Contractor's Representative	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.	Construction Contractor's Representative	Ongoing	SSD 7348 Condition D98 SSD 9794683 Condition 34
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.			SSD 7348 Condition D99e
Construction of Lot 2A will not cause or permit the emission of any offensive odour, as defined in the POEO Act.	Construction Contractor's Representative	Ongoing	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 the public road network.	Construction Contractor's Representative	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: <ul style="list-style-type: none"> • 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.			
Operations			
Only cutting, grinding or sawing equipment fitted with suitable dust suppression systems, such as water sprays will be used.	Construction Contractor's Representative	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.			
Water carts will be used on all denuded or exposed surfaces and unsealed roads to minimise dust emissions.	Construction Contractor's Representative	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.	Construction Contractor's Representative	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.	Construction Contractor's Representative	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 Construction Contractor 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.	Construction Contractor's Representative	Ongoing	Best practice
Trackout			
Water-assisted road sweeper(s) will be used on an as required basis should any material be tracked out of the site.	Construction Contractor's Representative	Ongoing	Best practice
Record all regular inspections and maintenance undertaken of site haul routes and project related access roads in a site log book.			

Environmental Management Control	Person Responsible	Timing / Frequency	Reference / Notes
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.	Construction Contractor's Representative	Ongoing	Best practice
Bag and remove any biological debris or damp down such material before demolition.			

As required by condition D100 (e), **Table 12** summarises the parameters identified to assess the effectiveness of the control measures shown in **The potential for dust emissions during construction of Lot 2A and the potential air quality impacts (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 construction of Lot 2A are detailed in **Table 11**, which are consistent with those stipulated in the CAQMP for the OWE (SLR 2020). The dust mitigation measures specific to the key emission activities (ie earthworks, construction, track out and demolition) are also provided in **Table 11**.

Table 11.

Table 12 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 µg/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 10	Section 10	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 10**). The monitoring system used however, does not meet the requirements of a compliance instrument. Should compliance-level monitoring be required as per **Table 13**, then this table will be updated to reflect the expanded monitoring programme.

9.2 Operational Mitigation Measures

A number of mitigation measures are proposed for Lot 2A. These include the following:

No Refuelling Onsite

- No refuelling is to occur inside the building.

Minimisation of Onsite Vehicles Idling Times

Vehicle idling times around the Site are to be managed using best management practices, including:

- Vehicle engines must be turned off when loading/unloading;
- Vehicle engines must be turned off when drivers are on a break, or waiting to get administrative clearances, etc; and
- Appropriate signage is required at multiple locations within the warehouse encouraging drivers to switch off engines when not in use.

Onsite Vehicle Movements

The movement of vehicles around the site is to be managed using best management practices, including:

- Clearly marked lanes; and
- A one-way traffic system, where possible.

The use of a clearly marked, one-way traffic lane system for onsite vehicle movements will assist in minimising traffic congestion, which in turn reduces the exhaust air emissions due to fuel combustion.

Fugitive Dust

Vehicles movements are to be limited to designated areas of the Site only, whenever possible.

If the movement of vehicles on unsealed areas is unavoidable, and dust emissions are visible, the following mitigation actions should be considered for the Site:

- Use of water hose to suppress the visible dust emissions;
- Laying gravel or grassing the unsealed area to minimise the exposed soil surface; and
- Sweeping up or washing away of dust from sealed areas if trackout is observed.

Exhaust Air Discharge

- Discharges of pollutants to the air from the building will be captured by a Building Code of Australia (BCA) and Australian Standard (AS1668.2-2012) "*The use of ventilation and air conditioning in building, Part 2: Ventilation design for indoor air contaminant control*" compliant extractions system and directed to rooftop vents.

Section 5 of the AS 1668.2-2012 states the following:

- 5.2.2 Exhaust locations: As far as practicable, exhaust-air intakes used for general exhaust-air collection shall be located on the opposite sides of the enclosure from the sources of make-up air, to ensure that the effluents are effectively removed from all parts of the enclosure.
- 5.3.2.1 General requirements: The effluent shall be collected as it is being produced, as close as practicable to the source of generation.
- 5.10.1 Air discharges: Where discharges are deemed to be objectionable (i.e. nuisance related), discharges shall:
 - Be emitted vertically with discharge velocities not less than 5 m/s.

-
- Be situated at least 3 m above the roof at point of discharge.
 - Treated to reduce the concentration of contaminants where required.
 - Be emitted to the outside at velocities and in a direction that will ensure, to the extent practicable, a danger to health or a nuisance will not occur.
 - Be situated a minimum separation distance of 6 m (where the airflow rate is $\geq 1,000$ L/s) from any outdoor) air intake opening, natural ventilation device or opening, and boundary to an adjacent allotment, except that where the dimensions of the allotment make this impossible, then the greatest possible distance shall apply.

Staff Awareness and Training

In addition to general environmental awareness training, specific training is to be provided to relevant staff, which is to include:

- Familiarisation with the contents and requirements of this AQMP;
- Familiarisation with the best management practices to be implemented by staff, including minimising onsite vehicle movements and idling times, avoiding driving on unsealed areas and watering of dusty areas etc.
- A review of potential air quality impacts that could potentially occur as a result of normal and abnormal operations on site;
- Training in the use of spill kits and where they are located on site;
- Appropriate reporting channels if air quality issues (or potential for air quality impacts) are identified on site (e.g. smoky vehicles, unsafe storage of volatile chemicals, excessive wind-generated dust); and
- Procedures for complaint handling.

Staff responsible for maintenance activities on the vehicles are to have appropriate training regarding the tuning and maintenance of engines to minimise exhaust fumes and in the installation and maintenance of exhaust system requirements.

10 Complaints Handling and Response Procedure

All complaints will be handled in accordance with the sections below and the *OWE Community Communication Strategy (CCS)* (SLR 2021).

10.1 Construction

10.1.1 Performance Objectives

To ensure that all environmental complaints in relation to air emissions from construction of Lot 2A are promptly and effectively received, handled and addressed.

10.1.2 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.

10.1.3 Complaints Handling Procedure

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

1. Record and Acknowledge

Any employee who takes 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 2021).

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 12**, 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 9** and/or the air quality monitoring programme outlined in **Section 11** 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.

10.1.4 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.

10.2 Operational

A complaints register is to be maintained and kept on Site. The complaints register is to include prompts to note down the following details:

- the date/time of the complaint;
- details of the staff member logging the complaint;
- the contact details of the complainant;
- detailed description of the incident;
- nature of the complaint (e.g. in case of a smoky vehicle, the registration number, the road being travelled on, date and time it was observed);
- activities occurring on Site at the time of the complaint (if relevant);
- perceived or assumed source of the emissions giving rise to the complaint (if known);
- weather conditions (i.e. wind, rainfall, temperature) experienced on the day of the complaint (if relevant).

An investigation is to be carried out in the event of a complaint being received to identify whether it is related to Site activities. In the case of a smoky vehicle report, the relevant vehicle is to be scheduled for a maintenance service as a priority and (where possible) removed from service until it has been serviced. If the Site operations are identified as the source of the emissions, the actions taken to rectify the situation and prevent a reoccurrence are to be documented alongside the complaint record.

If a substantiated air pollution complaint is made to the Penrith Council that cannot be rectified through the above procedures, a suitably qualified person will be engaged to develop mitigation measures and ongoing management strategies to prevent such impacts occurring in future. The developed mitigation measures and ongoing management strategies will be submitted to the Council's Health and Building Unit for review and to the Secretary for approval. Until suitable remedial control measures are in place, activities at the Site will be managed to the satisfaction of an authorised officer of the Council in order to reduce emissions to a level that does not cause a continuation of unacceptable nuisance.

11 Air Quality Monitoring Program

11.1 Construction

As discussed in **Section 7**, the risk of OWE 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 9**).

An air quality monitoring program has been implemented by Goodman as part of the management of air emissions during construction of the OWE. The data from ongoing monitoring program for OWE will be utilised to inform the management measures and contingency response for the construction of Lot 2A.

The data from ongoing monitoring program for OWE will be utilised to inform the management measures and contingency response for the construction of Lot 2A.

A summary of the on-site air quality monitoring programme at the OWE is shown in **Table 13**. The locations of these monitors are shown in **Figure 9**. Further details are provided in the OWE AQMP.

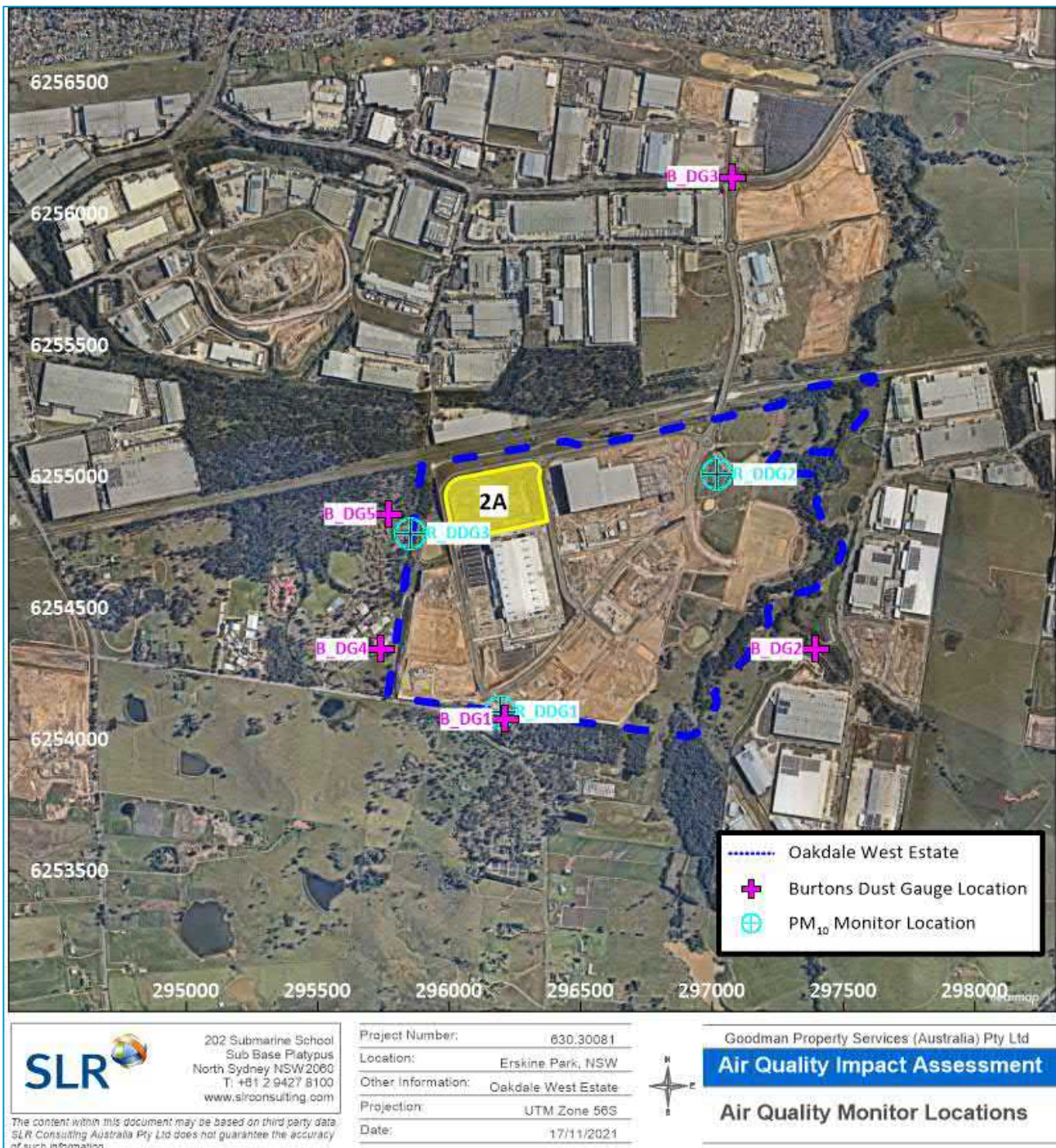
Table 13 Summary of On-Site Monitoring Programme

Pollutant	Equipment Used	Number of Monitoring Sites	Criterion (Averaging Period)
PM ₁₀	Dust Pro 7000 ^a (with telemetric capacity managed by Sentinex systems)	3	50 µg/m ³ (24-hour average)
Deposited dust	Dust Deposition Gauges (DDGs) - Burtons ^b	7	4 g/m ² /month (annual average)

^a The Dust Pro 7000 system is non-compliant with the *Approved Methods for Sampling and Analysis of Air Pollutants in NSW* (December 2006), and is used as a management tool to proactively manage the onsite operations to reduce dust impacts.

^b The dust gauges were installed and maintained by construction contractor (Burtons). It has not been confirmed by SLR if the installation of these dust gauges was undertaken in compliance with the AS/NZS 3580.1.1:2016.

Figure 9 Air Quality Monitoring Locations for the OWE Construction Project



Note: The yellow highlighted area represents approximate area covered by Lot 2A.

11.2 Operations

- Reviewing the CO monitoring data to ensure compliance with indoor limits;
- Making sure vehicles owned and operated by the tenant are appropriately maintained and serviced to minimise emissions; and
- Monitor vehicles to meet vehicle emission standards (ADR 79/04) and exhaust configuration requirements.

12 Contingency Management Plan

12.1 Construction

The air quality contingency management plan for the construction of Lot 2A is shown in **Table 14**. As noted in **Section 11**, data from the ongoing construction-phase monitoring program for the OWE will be utilised to inform the appropriate contingency response for the construction of Lot 2A.

12.2 Operations

At the time of preparing this AQMP, a contingency management plan is not anticipated to be necessary for the operational phase. This will be reassessed at the completion of the construction works, prior to occupancy of the building, and during the subsequently quarterly reviews of this AQMP, and a contingency plan developed if deemed appropriate.

Table 14 Air Quality Contingency Management Plan for the Construction of Lot 2A

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: <ul style="list-style-type: none"> 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
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.	<ul style="list-style-type: none"> OWE Project Manager to analyse data to try to identify the source(s) of dust. Construction Contractor to review operations to reduce dust emissions from the identified key source(s). Implement any additional mitigation measures as required, such as additional watering. 	<ul style="list-style-type: none"> OWE Project Manager to review and investigate construction activities and respective control measures for the monitoring period. If it is concluded that construction activities at Lot 2A 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), Construction Contractor to submit an incident report to government agencies.

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.	<ul style="list-style-type: none"> Report the complaint to the regulator, in line with complaints handling procedure (See Section 10). Review and investigate construction activities and increase dust suppression measures (additional watering, covering stockpiles etc), where appropriate. 	<ul style="list-style-type: none"> Review real-time monitoring data at the existing continuous monitors to investigate the likelihood of onsite activities contributing.
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.	<p>OWE Project Manager to review and investigate construction activities and respective control measures. Where appropriate, implement additional remedial measures, such as:</p> <ul style="list-style-type: none"> 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 <p>If elevated dust levels are due to regional dust event (fire, dust storm etc) – still take action to minimise dust from the Lot 2A site to minimise cumulative impacts, but also record details of the cause of the elevated background levels.</p>	<ul style="list-style-type: none"> OWE Project Manager to 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 at Lot 2A 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), Construction Contractor to submit an incident report to government agencies.

13 Roles and Responsibilities

13.1 Construction

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:

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 PM₁₀ 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 10**).

Environmental Coordinator

- Undertaking dust monitoring program; and
- Review that control measures are working in accordance with the CAQMP.

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.

13.2 Operations

The key responsibilities in regards to effective noise management at the Site are as follows:

Site Manager

The Site Manager is responsible for the following:

- Ensuring appropriate resources are available for the implementation of this NMP.
- Providing assistance and advice to all employees to fulfil the requirements of this NMP, reviewing data from regular inspections and providing site-wide advice to ensure consistent approaches and outcomes are achieved.
- Ensuring the required checks and approvals are obtained for all vehicles using the Site to confirm their compliance with the automatic engine turn-off system requirements.
- Maintaining a complaints register and liaising with relevant regulatory agencies (if required) in the event of complaints being received.
- Ensuring that site inductions include familiarisation for all staff on the requirements and responsibilities of this NMP.
- A review and update (if required) of this NMP following any significant site and/or operational changes.

Vehicle Drivers

Vehicles drivers using the Site will be responsible for:

- Reporting to the Site Manager if any vehicle is found to not be fitted with an automatic engine turnoff system or the system appears to be faulty.
- Ensuring that the engines are turned off when refuelling and minimise general idling times.
- Observing any noise emission control instructions and procedures that apply to their work.
- Taking action to prevent or minimise noise generating activities.
- Identifying and reporting abnormally noisy plant and equipment to the Site Manager.
- Informing the Site Manager of any noise complaints received during vehicle trips or while on Site.

Vehicle Maintenance Staff/Mechanics

Staff responsible for performing maintenance checks and servicing of vehicles at the Site is responsible for:

- Testing the integrity of the automatic engine turnoff system as part of the routine vehicle maintenance schedule and documenting the results of the test in each vehicle's maintenance record.
- Reporting vehicles that do not have a functioning automatic engine turnoff system to the Site Manager (if it is unable to be repaired), to arrange replacement or maintenance by a specialist.
- Appropriate tuning and maintenance of engines to minimise noise.

14 Review and Improvement of the AQMP

Reviews of the AQMP 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 AQMP will also be reviewed and, if necessary, revised in the following circumstances:

- Where there is any change to the scope of the construction/operational activities;
- Where it is identified that the environmental performance is not meeting the objectives of the AQMP;
- In the event of a substantiated complaint being received regarding air quality impacts; and/or
- At the request of a relevant regulatory authority.

15 References

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- SLR 2020, Oakdale West Estate, Construction Air Quality Management Plan SSD 7348, v1.6 10 January 2020.
- 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 and seasonal wind roses for the years 2016 to 2020 compiled from data recorded by the Horsley Park AWS are presented in **Figure A1**. 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 2016 to 2020 (**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 14% for all the years between 2016 and 2020. Also, 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 years 2016 and 2020 (**Figure A1**) 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 12% 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 other directions. Calm wind conditions were observed to occur approximately 15% 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 other directions. Calm wind conditions were observed to occur approximately 13% 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 generally even in each direction, except for a relatively low frequency of winds originating from southern quadrant. Calm wind conditions were observed to occur approximately 12% 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 2016-2020 is presented in **Figure A2**. The plot showed that the frequency of wind speeds exceeding 5 m/s for the period 2016-2020 at Horsley Park AWS was approximately 6%.

Figure A1 Annual Wind Roses for Horsley Park (2016 to 2020)

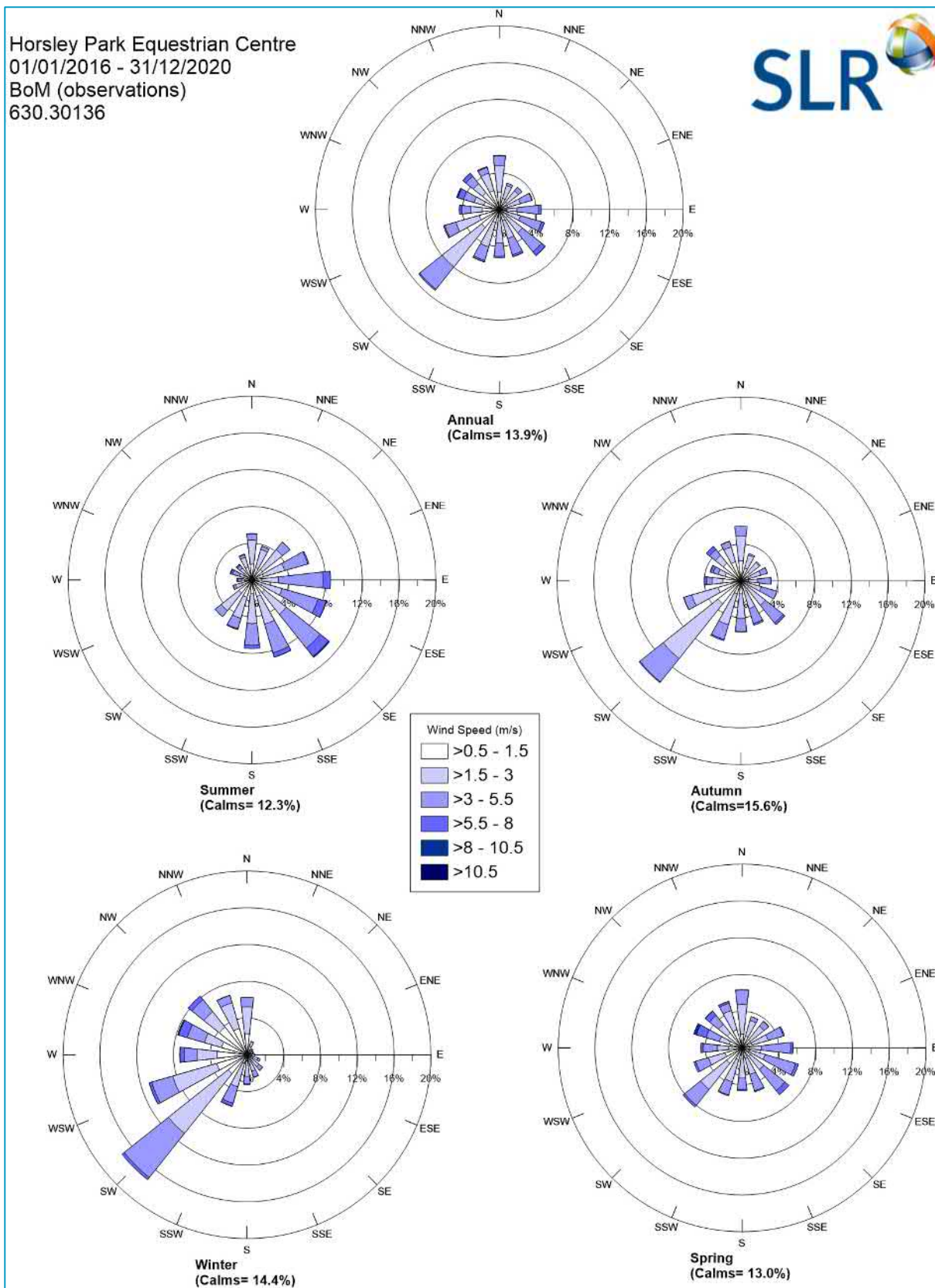
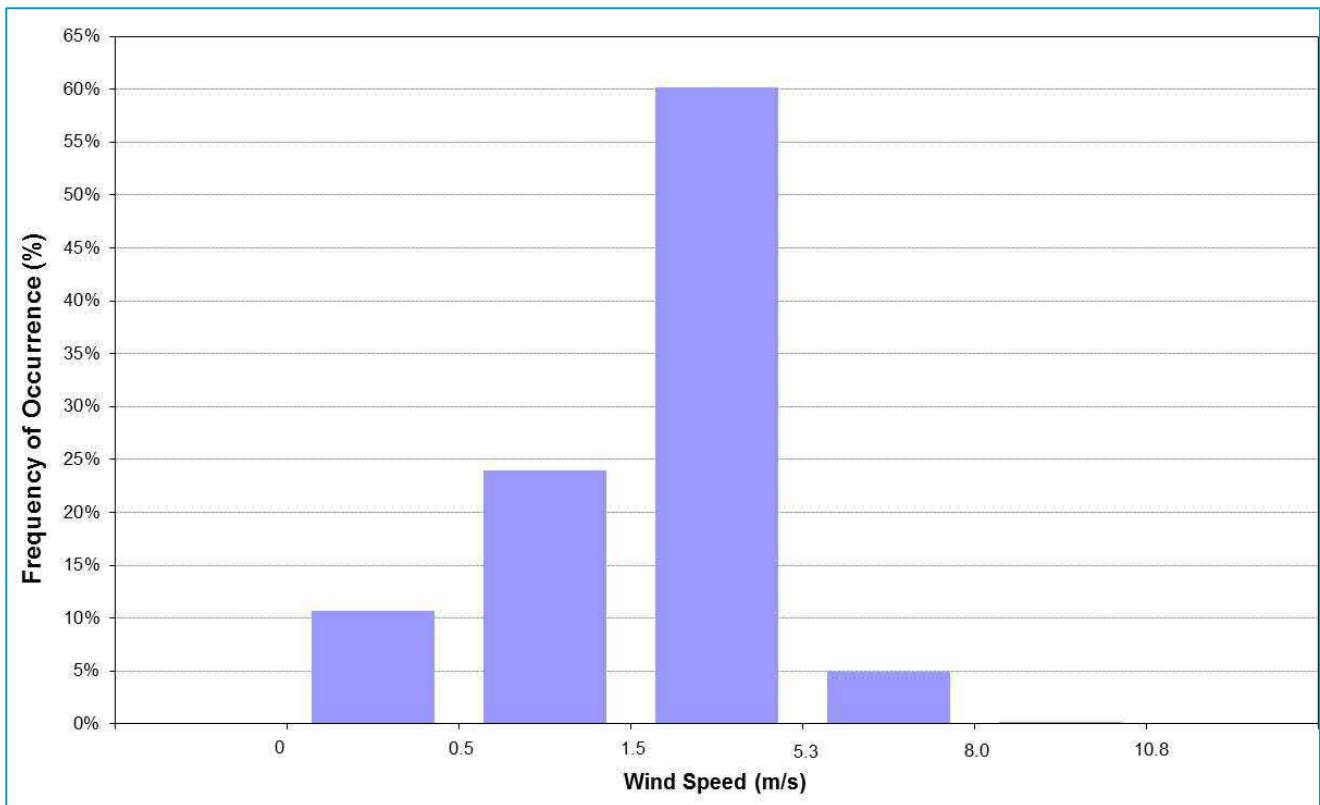


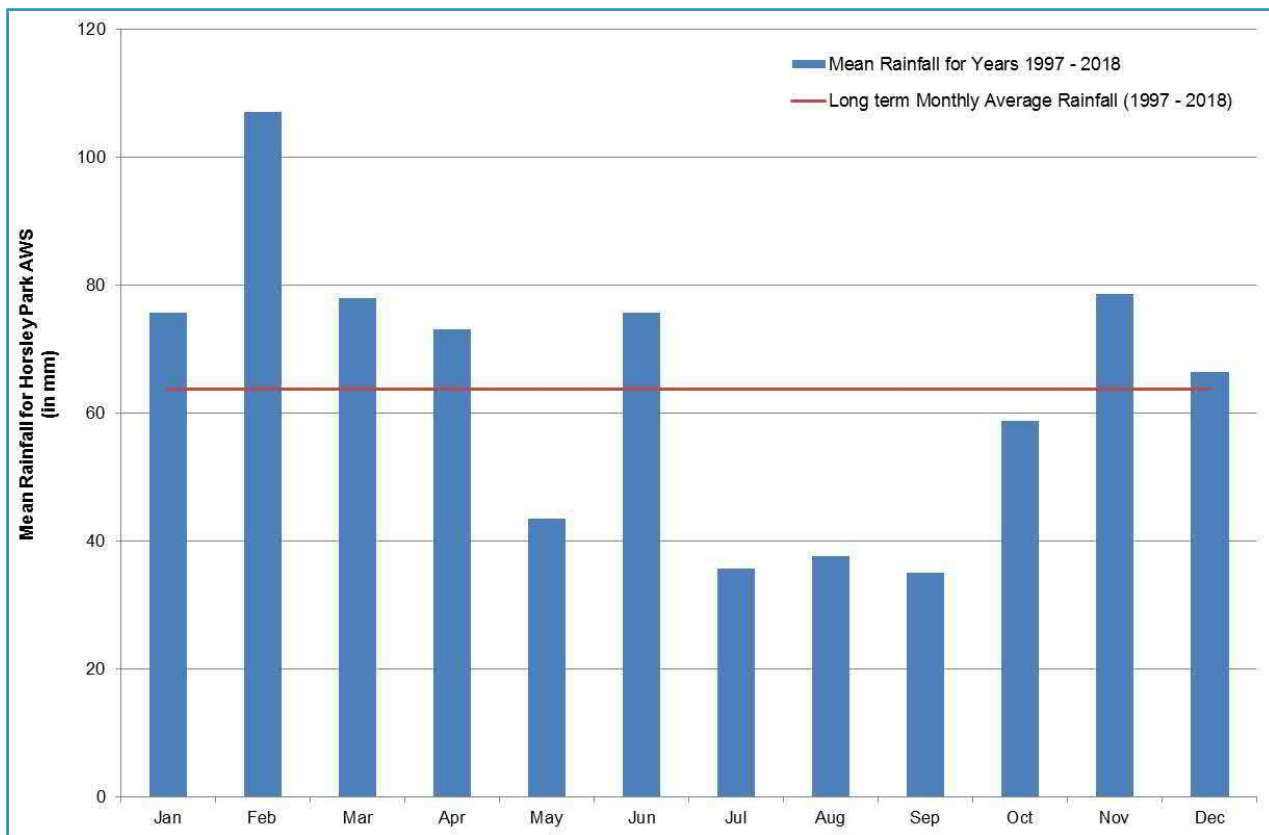
Figure A2 Wind Speed Frequency Chart for Horsley Park AWS – 2016-2020



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 A3 Long term Mean Rainfall for Horsley Park AWS – 1997 to 2018



APPENDIX B

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.

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 m³, 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 m³ – 50,000 m³, potentially dusty construction material, demolition activities 10-20 m above ground level; and
- **Small:** Total building volume <20,000 m³, 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 m², potentially dusty soil type (e.g. 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 m² to 10,000 m², moderately dusty soil type (e.g. 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 m², soil type with large grain size (e.g. 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 m³, piling, on site concrete batching; sandblasting.
- **Medium:** Total building volume 25,000 m³ to 100,000 m³, potentially dusty construction material (e.g. concrete), piling, on site concrete batching.
- **Small:** Total building volume less than 25,000 m³, construction material with low potential for dust release (e.g. 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.

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 B1**.

Table B1 Categorisation of Dust Emission Magnitude

Activity	Dust Emission Magnitude	Basis
Demolition	Small	<p>IAQM Definition: Total building volume <20,000 m³, construction material with low potential for dust release (e.g. metal cladding or timber), demolition activities <10m above ground, demolition during wetter months.</p> <p>Relevance to this Project: Demolition activities will predominantly be limited to removal of any old structures (if any) within Lot 2A site boundary.</p>
Earthworks	Large	<p>IAQM Definition: Total site area greater than 10,000 m², potentially dusty soil type (e.g. 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.</p> <p>Relevance to this Project: The footprint of Lot 2A is approximately 21,500 m² and involves construction of two new buildings (total volume of approximately 46,000 m³).</p>
Construction	Large	<p>IAQM Definition: Total building volume greater than 100,000 m³, piling, on site concrete batching; sandblasting.</p> <p>Relevance to this Project: The footprint of Lot 2A is approximately 21,500 m² and involves construction of two new buildings (total volume of approximately 215,000 m³).</p>
Trackout	Medium	<p>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.</p> <p>Relevance to this Project: <i>The peak traffic volume during construction is estimated to be 20 vehicle movements per hour.</i></p>

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 PM₁₀, 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 B1**. It is noted that user expectations of amenity levels (dust soiling) is dependent on existing deposition levels.

Table B2 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.
	<i>Examples: Dwellings, museums, medium and long term car parks and car showrooms.</i>	<i>Examples: Parks and places of work.</i>	<i>Examples: Playing fields, farmland (unless commercially-sensitive horticultural), footpaths, short term car parks and roads.</i>
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.
	<i>Examples: Residential properties, hospitals, schools and residential care homes.</i>	<i>Examples: Office and shop workers, but will generally not include workers occupationally exposed to PM10.</i>	<i>Examples: Public footpaths, playing fields, parks and shopping street.</i>

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 PM₁₀ 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 B2**, 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 B3**. The sensitivity of the area should be derived for each of activity relevant to the project (ie construction and earthworks).

Table B3 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 B4**. For high sensitivity receptors, the IAQM methods takes the existing background concentrations of PM₁₀ (as an annual average) experienced in the area of interest into account and is based on the air quality objectives for PM₁₀ in the UK. As these objectives differ from the ambient air quality criteria adopted for use in this assessment (i.e. an annual average of 19.1 µg/m³ for PM₁₀) 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 B4 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.

The nearest sensitive receptor is located within 350 m from the nearest OWE boundary. Based on the classifications shown in **Table B3** and **Table B4**, 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 PM₁₀ concentration of 19.4 µg/m³ 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 B5** (earthworks and construction), **Table B6** (track-out) and **Table B7** (demolition) to determine the risk category with no mitigation applied.

Table B5 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 B6 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 B7 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 C

Operational PHASE RISK ASSESSMENT METHODOLOGY

The risk-based assessment takes account of a range of impact descriptors, including the following:

- **Nature of Impact:** does the impact result in an adverse or beneficial environment?
- **Sensitivity:** how sensitive is the receiving environment to the anticipated impacts? This may be applied to the sensitivity of the environment in a regional context or specific receptor locations.
- **Magnitude:** what is the anticipated scale of the impact?

The integration of receptor sensitivity with impact magnitude is used to derive the predicted **significance** of that change.

Nature of Impact

Predicted impacts may be described in terms of the overall effect upon the environment:

- **Beneficial:** the predicted impact will cause a beneficial effect on the receiving environment.
- **Neutral:** the predicted impact will cause neither a beneficial nor adverse effect.
- **Adverse:** the predicted impact will cause an adverse effect on the receiving environment.

Receptor Sensitivity

Sensitivity may vary with the anticipated impact or effect. A receptor may be determined to have varying sensitivity to different environmental changes, for example, a high sensitivity to changes in air quality, but low sensitivity to noise impacts. Sensitivity may also be derived from statutory designation which is designed to protect the receptor from such impacts.

Sensitivity terminology may vary depending upon the environmental effect, but generally this may be described in accordance with the broad categories outlined in **Table** , which has been used in this assessment to define the sensitivity of receptors to air quality impacts.

Table C1 Methodology for Assessing Sensitivity of a Receptor to Air Quality Impacts

Sensitivity	Criteria
Very High	Receptors of very high sensitivity to air pollution (eg dust or odour) such as: hospitals and clinics, retirement homes, painting and furnishing businesses, hi-tech industries and food processing.
High	Receptors of high sensitivity to air pollution, such as: schools, residential areas, food retailers, glasshouses and nurseries, horticultural land and offices.
Medium	Receptors of medium sensitivity to air pollution, such as: farms, outdoor storage, light and heavy industry.
Low	All other air quality sensitive receptors not identified above.

Magnitude of Impact

Magnitude describes the anticipated scale of the anticipated environmental change in terms of how that impact may cause a change to baseline conditions. **Table** outlines the methodology used in this assessment to define the magnitude of the identified potential air quality impacts.

Table C2 Methodology for Assessing Magnitude of Impacts

Magnitude	Description
Substantial	Impact is predicted to cause significant consequences on the receiving environment (may be adverse or beneficial)
Moderate	Impact is predicted to possibly cause statutory objectives/standards to be exceeded (may be adverse)
Slight	Predicted impact may be tolerated.
Negligible	Impact is predicted to cause no significant consequences.

Significance of Impact

The risk-based matrix provided below illustrates how the definition of the sensitivity and magnitude interact to produce impact significance.

Table C3 Impact Significance Matrix

Magnitude		[Defined by Table A2]			
		Substantial Magnitude	Moderate Magnitude	Slight Magnitude	Negligible Magnitude
[Defined by Table A1]	Very High Sensitivity	Major Significance	Major/ Intermediate Significance	Intermediate Significance	Neutral Significance
	High Sensitivity	Major/ Intermediate Significance	Intermediate Significance	Intermediate/Minor Significance	Neutral Significance
	Medium Sensitivity	Intermediate Significance	Intermediate/Minor Significance	Minor Significance	Neutral Significance
	Low Sensitivity	Intermediate/Minor Significance	Minor Significance	Minor/Neutral Significance	Neutral Significance

APPENDIX D

AIR QUALITY NOTIFICATION FORM

APPENDIX E - CURRICULUM VITAE OF AUTHOR

CURRICULUM VITAE



VARUN MARWAHA

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QUALIFICATIONS

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EXPERTISE

- Air Quality Dispersion modelling using a variety of software applications
- Meteorological and Ambient air quality monitoring & assessment for legislative compliance
- Australian state and federal regulatory compliance – Air Quality
- Opportunities and constraints reporting
- Detailed knowledge of air quality/meteorological interactions

Varun is an Associate Air Quality Consultant working within the Air Quality team. He has over 10 years of environmental and process engineering experience.

Varun has acquired a broad environmental experience including air quality (including odour) impact assessments, emission inventories (including National Pollutant Inventory), air quality dispersion modelling (including Ausplume, CALPUFF and CAL3QHCR), air quality monitoring (including odour), meteorological monitoring, meteorological modelling (The Air Pollution Model [TAPM] & CALMET), greenhouse gas assessments and overall project management.

Varun has conducted numerous environmental audits and prepared NPI reports for a range of industries including power stations throughout Australia.

Varun is a Certified Air Quality Professional (CAQP) and a Certified Practicing Project Manager (CPPM), and is respected for his contribution to the air quality industry.

PROJECTS

Sentosa Gateway Project, Singapore	The project involved the assessment of air impacts due to road traffic tunnel from Sentosa Island to mainland Singapore. The project proposed to build a tunnel for the outbound traffic from Sentosa with tunnel exits located on Lower Delta Road and Keppel Road. The emissions were quantified and modelled using CAL3QHCR and CALPUFF modelling suites to predict the roadside impacts. The project also included assessment of other sources of pollutants in the region for the cumulative assessment
Sydney Harbour Bridge, Sydney, NSW, Australia	Compliance Monitoring (Lead, PM ₁₀ and TSP). The project involves repainting the iconic Sydney Harbour Bridge. The process includes stripping the old paint (containing lead), preparation of the surface and repainting. The monitoring was conducted for lead concentration in the air along with the concentration of particulate (PM ₁₀ and TSP) was required. For lead monitoring, membrane filters were used and for particulate monitoring High Volume air samplers (HVAS) were employed.

CURRICULUM VITAE

VARUN MARWAHA

<p>Capital Metro Project, Canberra, ACT, Australia (2018-2019)</p>	<p>The project involved preparation of Air Quality Impact Assessment (AQIA) for the proposed ACT Light Rail Stage 1 – Gungahlin to Civic Project, a 12 kilometre light rail service linking the fast- developing area of Gungahlin in the north, to the City. The emissions due to the operation of light rail network were quantified and compared to the existing regional air emissions levels. It was demonstrated that the regional emissions were likely to decrease significantly when compared with the current situation.</p>
<p>Proposed Residential Development, RMS</p>	<p>Road Traffic Impact Assessment. The project involved assessment of roadside impacts on the proposed residential development due to road traffic on a busy motorway. The aim of the project was to determine the maximum impacts and validating against the monitored roadside data. The emissions were quantified and modelled using CAL3QHCR modelling suite to predict the roadside impacts. The project also included assessment of other sources of pollutants in the region for the cumulative assessment. The modelling skills were put to test when integrating predicted results from several modelling suites (CAL3QHCR and CALPUFF)</p>
<p>Proposed Haul Roads (Fortescue Metals Group), WA, Australia</p>	<p>The project involved assessment of two possible options for building haul roads in separate directions. The aim of the project was to determine mine access route from the nearest transport facility. The emissions were quantified and modelled using CALPUFF modelling suite to predict the roadside impacts on the nearest receptors on each haul road route.</p>
<p>Confidential Highway Project, QLD, Australia</p>	<p>Emissions estimation and modelling for an air quality impact assessment for a proposed new highway in Queensland. Work included the estimation of vehicle emissions for the operational phase using the COPERT-Australia emissions modelling software and dispersion modelling of the road and tunnel emissions using CAL3QHCR and CALPUFF dispersion models.</p>
<p>MEMBERSHIPS</p>	<p>Clean Air Society of Australia and New Zealand (CASANZ) Member of Engineers Australia (EA) Institute of Chemical Engineers (IChemE)</p>
<p>ACCREDITATION</p>	<p>Certified Air Quality Professional (CAQP), CASANZ Certified Practising Project Manager (CPPM), UNE</p>
<p>TRAINING</p>	<p>Advanced CALPUFF Course – Clean Air Society of Australia and New Zealand (CASANZ), 2008 The Role of Meteorology in Dispersion Modelling – CASANZ, 2011 Diploma of Project Management – University of New England, 2012</p>

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APPENDIX H

Construction Traffic Management Plan

asongroup



Construction Traffic Management Plan

Lot 2A, Oakdale West Estate

Oakdale West Estate, Kemps Creek

21/12/2021

P1518r02

Document Control

Project No	P1518r02
Project	Lot 2A – Construction Traffic Management Plan
Client	Goodman Property Services (Aust) Pty. Limited
File Reference	P1518r02v5 CC CTMP_Lot 2A, Oakdale West Industrial Estate

Revision History

Revision No.	Date	Details	Author	Approved by
-	09/11/2021	Draft	J. Laidler	D. Choi
Issue I	18/11/2021	Final	J. Laidler	J. Laidler
Issue II	26/11/2021	Issue II	J. Laidler	J. Laidler
Issue III	09/12/2021	Issue III	J. Laidler	J. Laidler
Issue IV	14/12/2021	Issue IV	S. Bandaranayake	J. Laidler
Issue V	21/12/2021	Issue V	E. Ye	E. Ye

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Contents

Glossary

1	Introduction	1
1.1	Overview	1
1.2	Report Purpose	1
1.3	Site Context	2
1.4	Approved Intersection Layouts	3
1.5	SSD 9794683 Requirements	5
1.6	Council Comments	7
1.7	Site Location	7
1.8	Road Hierarchy	8
1.9	Project Representatives and Stakeholders	10
2	Overview of Works	11
2.1	Works Stages	11
2.2	Hours of Work	16
2.3	Access Arrangements	16
3	Existing Conditions	17
3.1	Site Access	17
3.2	Active Transport Connections	17
3.3	Public Transport Services	18
4	Management Plan	19
4.1	Traffic Movements	19
4.2	Other General Requirements	21
5	Driver Code of Conduct	24
5.1	Objectives of the Driver Code of conduct	24
5.2	Code of Conduct	24
5.3	Driver Responsibilities	24
5.4	The Site Team Responsibilities	26
5.5	Crash or Incident Procedure	27
5.6	Environmental Procedures.	27
6	Transport Impact Assessment	28
6.1	Construction Traffic Generation	28
6.2	Impacts on Surrounding Network	28
6.3	Cumulative Impact	29
7	Plan Administration	31
7.1	Monitoring Program	31
7.2	Contingency Plan	31

Figures

Figure 1: OWE Context Showing Lot 2A	2
Figure 2: Intersection Layout of Lenore Drive & Compass Drive	3
Figure 3: Intersection Layout of Compass Drive & Lockwood Road	4
Figure 4: Intersection Layout of Compass Drive & Emporium Avenue	4
Figure 5: Potential Intersection Layout of Compass Drive & SLR (2021 configuration)	4
Figure 6: Road Hierarchy	9
Figure 7: Access Arrangements	17
Figure 8: Existing Public Transport and Cycle Links	18
Figure 9: TransGrid Easement Within the Estate	21
Figure 10: Construction Vehicle Volumes	28
Figure 11: Cumulative Daily Construction Volumes	30

Tables

Table 2: Expected compliance table	5
Table 3: Expected compliance table	7
Table 4: Stage Summary – stage 1	11
Table 5: Stage Summary – stage 2	12
Table 6: Stage Summary – stage 3	13
Table 7: Stage Summary – stage 4	14
Table 8: Stage Summary – stage 5	15
Table 9: Forecast Construction Volumes	29
Table 9: Contingency Plan	31
Table 10: Communication Strategy	34

APPENDICES

Appendix A. Traffic Guidance Scheme

Appendix B. Risk Assessment

Appendix C. TGS Verification Checklist

Glossary

Acronym	Description
AGRД	Austrоads Guide to Road Design
AGTM	Austrоads Guide to Traffic Management
CC	Construction Certificate
Council	Penrith City Council
DA	Development Application
DCP	Development Control Plan
DoS	Degree of Saturation
DPIE	Department of Planning, Industry and Environment
FSR	Floor space ratio
GFA	Gross Floor Area
HRV	Heavy Rigid Vehicle (as defined by AS2890.2:2018)
LEP	Local Environmental Plan
LGA	Local Government Area
LoS	Level of Service
MOD	Section 4.55 Modification (also referred as a S4.55)
MRV	Medium Rigid Vehicle (as defined by AS2890.2:2018)
NHVR	National Heavy Vehicle Regulator
OC	Occupation Certificate
RMS Guide	Transport for NSW (formerly Roads and Traffic Authority), Guide to Traffic Generating Developments, 2002
S4.55	Section 4.55 Modification (also referenced as MOD)
S96	Section 96 Modification (former process terminology for an S4.55)
SRV	Small Rigid Vehicle (as defined by AS2890.2:2018)
TDT 2013/04a	TfNSW Technical Direction, Guide to Traffic Generating Developments – Updated traffic surveys, August 2013
TfNSW	Transport for New South Wales
TGS	Traffic Guidance Scheme
TIA	Transport Impact Assessment
TIS	Transport Impact Statement
veh/hr	Vehicle movements per hour (1 vehicle in & out = 2 movements)

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 the construction of Lot 2A within the Oakdale West Industrial Estate (OWE) at Kemps Creek (the Site). A site plan and an overview of the proposed surroundings are provided in **Figure 1**.

SSD 9794683 was approved on the 16th December 2021, and as such the CEMP has been prepared accordingly.

1.2 Report Purpose

The purpose of this report is to detail a traffic management plan for construction that seeks:

- To minimise traffic impacts on the surrounding road network and adjacent landowners / occupiers,
- Ensure safety of workers, pedestrians, road users and any site-specific considerations (including schools and neighbours to the west),
- Provide appropriate warnings of changes in road / traffic conditions, and of personnel / workers and plant engaged in the works on or adjacent to roads accessible to the general public.
- Minimise disruptions to public transport.
- Provide information regarding the construction vehicle access routes and any changed road conditions (if applicable); and
- Communicate the arrangements for and impacts of any activities affecting traffic.

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.

This report has been prepared by consultants who hold the TfNSW (formerly RMS) Prepare a Work Zone Traffic Management Plan certification. Details of the accredited personnel are provided below:

- Dora Choi SafeWork NSW No. TCT0021456
- James Laidler Certification No. 0052158569

In accordance with Condition B2 of the consent, no works can commence until a CTMP report is approved by the Planning Secretary of the Department of Planning, Industry & Environment.

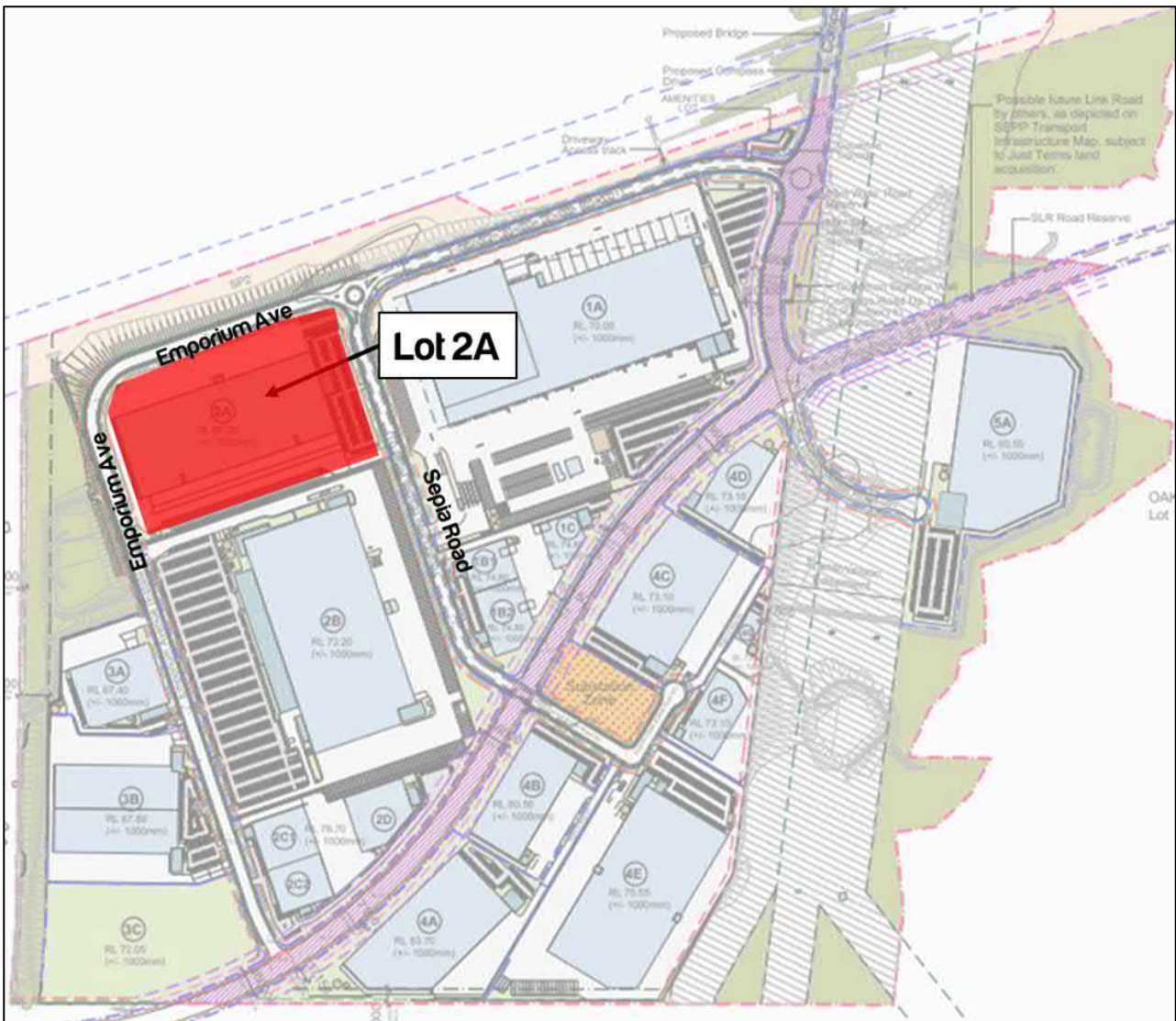


Figure 1: OWE Context Showing Lot 2A

1.3 Site Context

There are existing works associated with the construction of Compass Drive and the OWE. For context, the works are generally summarised as follows:

- OWE is a staged development for warehousing and distribution hub. Stage 1 of the OWE (the proposed works) comprises estate wide earthworks and construction of road infrastructure in preparation of the construction of warehouses, however it currently excludes the actual construction of any warehouses.
- Compass Drive has been constructed as part of a State Significant Development. Compass Drive provides a connection between Lenore Drive and the future Southern Link Road (SLR). In the short-term Compass Drive will be a public road, owned by Council, providing local access to the future Oakdale West Estate and other industrial areas north of the Water NSW Pipeline.

Each of the above has been subject to a separate Construction Traffic Management Plan — versions referenced in preparing this CTMP:

- Ason Group, Construction Traffic Management Plan, Oakdale West Estate, Kemps Creek, 0129r06v19 CTMP_ Oakdale West Estate, Kemps Creek Issue IX, 06/04/2020
- Ason Group, Construction Traffic Management Plan, WNSLR, Erskine Park (Western North South Link Road), 0605r01v5 CTMP_WNSLR, Erskine Park, 12/09/2019
- Ason Group, SSD TA_Lots 2A, 2C & 2D, Oakdale West Estate, P1518r01v6, dated 24/06/2021

The original SSD approval for the OWE (SSD 7348) was granted on 13 September 2019 and envisaged a total GFA of some 475,269 m² GFA (original approved GFA) across the entire Estate spanning 5 precincts. Since that approval, the Estate has gone through several modifications with the latest approval being granted for MOD 7.

For context, the Approved Oakdale West Estate (MOD 7) will generate the following peak hourly traffic volumes associated with future operation of the Estate.

- AM peak 1,326 veh/hr.
- PM peak 1,029 veh/hr
- Daily 11,249 veh/day

1.4 Approved Intersection Layouts

1.4.1 2026 Modelling Scenario

The intersections of Lenore Drive & Compass Drive & Grady Crescent, Compass Drive & Lockwood Road and Compass Drive & Emporium Avenue have been recently constructed in accordance with the approved 2026 interim scenario as part of OWE original concept approval and MOD 3 approval, as indicated from Figure 2 to Figure 4. The approved intersection design of the Compass Drive & SLR intersection under 2026 interim scenario is provided in Figure 5.

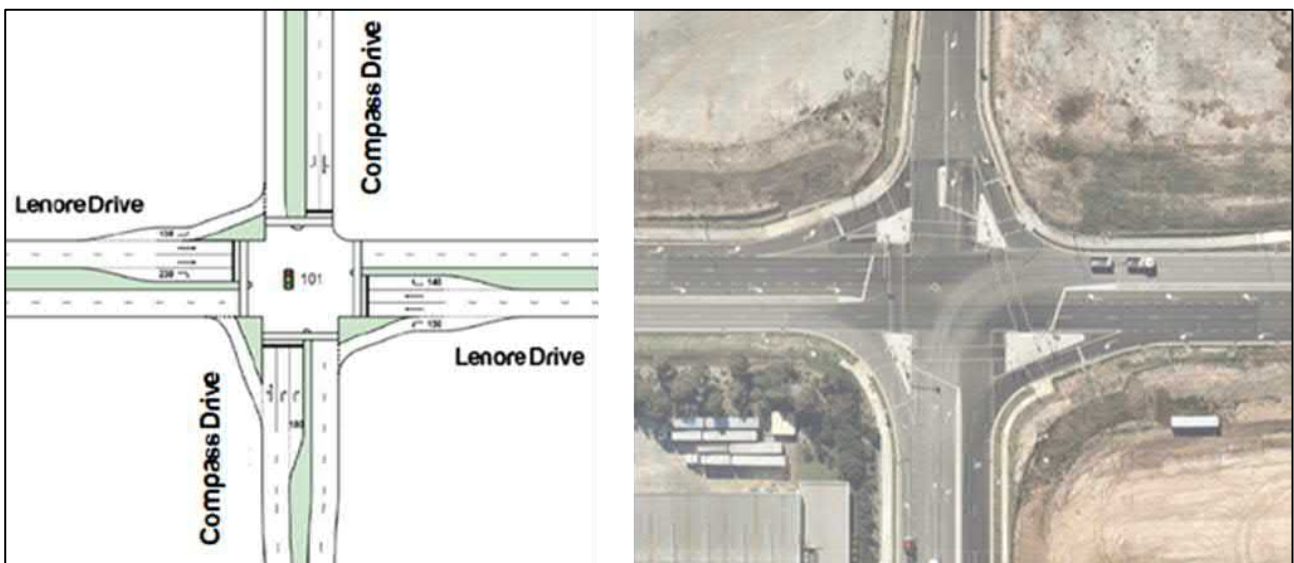


Figure 2: Intersection Layout of Lenore Drive & Compass Drive



Figure 3: Intersection Layout of Compass Drive & Lockwood Road



Figure 4: Intersection Layout of Compass Drive & Emporium Avenue

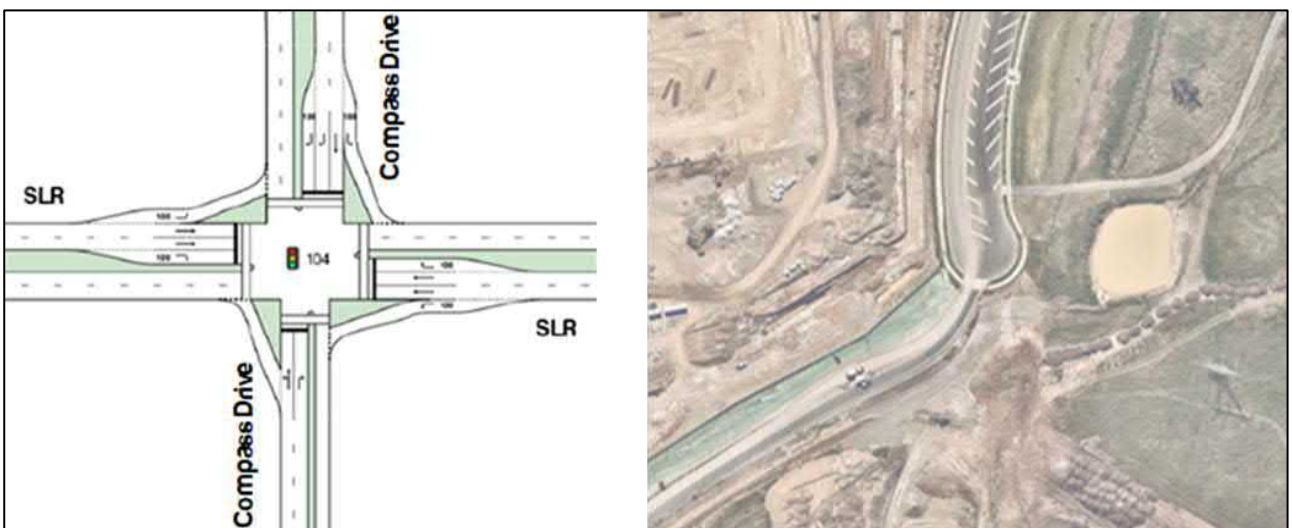


Figure 5: Potential Intersection Layout of Compass Drive & SLR (2021 configuration)

1.5 SSD 9794683 Requirements

The following SSD conditions have been received with respect to construction traffic management specific for Building 2A.

TABLE 1: EXPECTED COMPLIANCE TABLE

Reference	SSD Condition Requirement	Response
B1	Prior to the commencement of construction of the development, the Applicant must prepare a Construction Traffic Management Plan for the development to the satisfaction of the Planning Secretary. The plan must form part of the CEMP required by condition C2 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.
b)	detail the measures to be implemented to ensure road safety and network efficiency during construction,	Refer Section 6.2 with regard to impacts to traffic efficiency. This section concludes that construction traffic can be satisfactorily mitigated to not have a material impact on the road network. Furthermore, Traffic Guidance Schemes (TGSs) shall be developed for all works that impact public roads and approved by the Transport for NSW (TfNSW) Traffic Management Centre. As noted in previous Reference items above, there shall be no limitations to timed deliveries other than being within the approved construction hours (outlined within Section 2.2
c)	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).
d)	include a Driver Code of Conduct (see Condition B12)	A Driver Code of Conduct is a requirement of and included within this CTMP. The Driver Code of Conduct (included in Section 5) addresses ways to minimise the impacts on the road network, with other road users, ensure truck routes are utilised and to manage pedestrian movements.
e)	include a program to monitor the effectiveness of these measures; and	The Contractor / Owner of Estate 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 7.

f)	If necessary, detail procedures for notifying residents and the community (including local schools), of any potential disruptions to routes.	The Contractor will notify the community liaison representative (SLR) when traffic conditions are expected to exceed parameters within Condition Green of Table 7. Measures that may be included within the strategy have been identified within Section 7.2
B2	The Applicant must:	-
a)	not commence construction until the Construction Traffic Management Plan required by condition B1 is approved by the Planning Secretary; and	Noted and reiterated in Section 1.2
b)	implement the most recent version of the Construction Traffic Management Plan approved by the Planning Secretary for the duration of construction.	Noted
B12	Prior to the commencement of construction of the development, the Applicant must prepare a Driver Code of Conduct and induction training for the development to minimise road traffic noise. The Applicant must update the Driver Code of Conduct and induction training for construction and operation and must implement the Code of Conduct for the life of the development.	A Driver Code of Conduct is a requirement of and included within this CTMP. The Driver Code of Conduct (included in Section 5) addresses ways to minimise the impacts on the road network, with other road users, ensure truck routes are utilised and to manage pedestrian movements.
C1	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, the development or any management measures;	Relevant requirements are outlined in this table. Other specific requirements are detailed in Section 4
b)	a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	Refer to Section 7
c)	program to monitor and report on the: i) impacts and environmental performance of the development; and ii) effectiveness of the management measures set out pursuant to paragraph (c) above;	Refer Section 7.1 of this Plan which outlines the requirement for this Plan to be updated regularly.
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 7.1 of this Plan which outlines the requirement for this Plan to be updated regularly. TGS's — outlined in Section 4.2.9 shall be prepared to respond to specific work

		situations and subject to approval by the relevant Roads Authority (Council and/or TfNSW), providing a suitable level of independent oversight.
e)	a program to investigate and implement ways to improve the environmental performance of the development over time	Refer Section 7.1 of this Plan which outlines the requirement for this Plan to be updated regularly.
f)	a protocol for managing and reporting any: <ul style="list-style-type: none"> (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 5.5 of this Plan in relation to incident management.
g)	a protocol for periodic review of the plan.	Refer Section 7.1 of this Plan.

1.6 Council Comments

The following comments were received by Penrith Council via a letter dated 3 Dec 2021 (ECM Ref: 9748485) with respect to construction traffic management specific for Building 2A.

TABLE 2: EXPECTED COMPLIANCE TABLE

Reference	SSD Condition Requirement	Response
1	Finalisation of the CEMP will need to be the satisfaction of the consent authority. Notwithstanding this, Council raises no objections and noted the following:	Noted
a)	Construction access to the site will be via Compass Drive. The public road system has capacity to cater for construction traffic generated by the development. All stormwater management facilities have been provided as part of the parent subdivision. A temporary sediment basin has been constructed on the lot to manage run off from the site during the construction phase. No engineering objections are raised.	The site access arrangements – relevant to construction access - are outlined in subsequent sections of this report (Refer Section 3).

1.7 Site Location

At a regional level, the Site is located approximately 3 kilometres south of the nearest suburban area, Erskine Park, 18 kilometres west of Parramatta, and 37 kilometres west of the Sydney CBD. It is within the Local Government Area (LGA) of Penrith City Council.

Within the context of the OWE, Lot 2A is located on the southern boundary of Emporium Avenue and the western boundary of Sepia Road, with a total site area of 80,582 m².

1.8 Road Hierarchy

The road hierarchy in the locality is presented in **Figure 2** and summarised below for key roads.

1.8.1 Lenore Drive / Old Wallgrove Road

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.

1.8.2 Compass Drive

Compass Drive is a high-capacity road and is part of a State Significant Development. Compass Drive provides a connection between Lenore Drive and the future Southern Link Road (SLR). In the short-term Compass Drive will be a public road, owned by Council, providing local access to the future Oakdale West Estate and other industrial areas north of the Water NSW Pipeline. It has a signalised intersection at both ends of Lockwood Drive and will be a four-lane dual carriageway arterial road with a speed limit of 80km/hr.

1.8.3 Emporium Avenue

Emporium Avenue has been recently dedicated to Council and therefore is considered a public road. Emporium Ave provides access to Precinct 1 and Precinct 2 and links the Future Southern Link Road (SLR) to Compass Drive. It provides a single lane in each direction and has a posted speed limit of 50km/h.

1.8.4 Sepia Road (Formally Topaz Avenue)

Sepia Road has been recently dedicated to Council and therefore is considered a public road. Sepia Road separates Precinct 1 and Precinct 2 and connects to the Future Southern Link Road (SLR). It provides a single lane in each direction and has a posted speed limit of 50km/h.

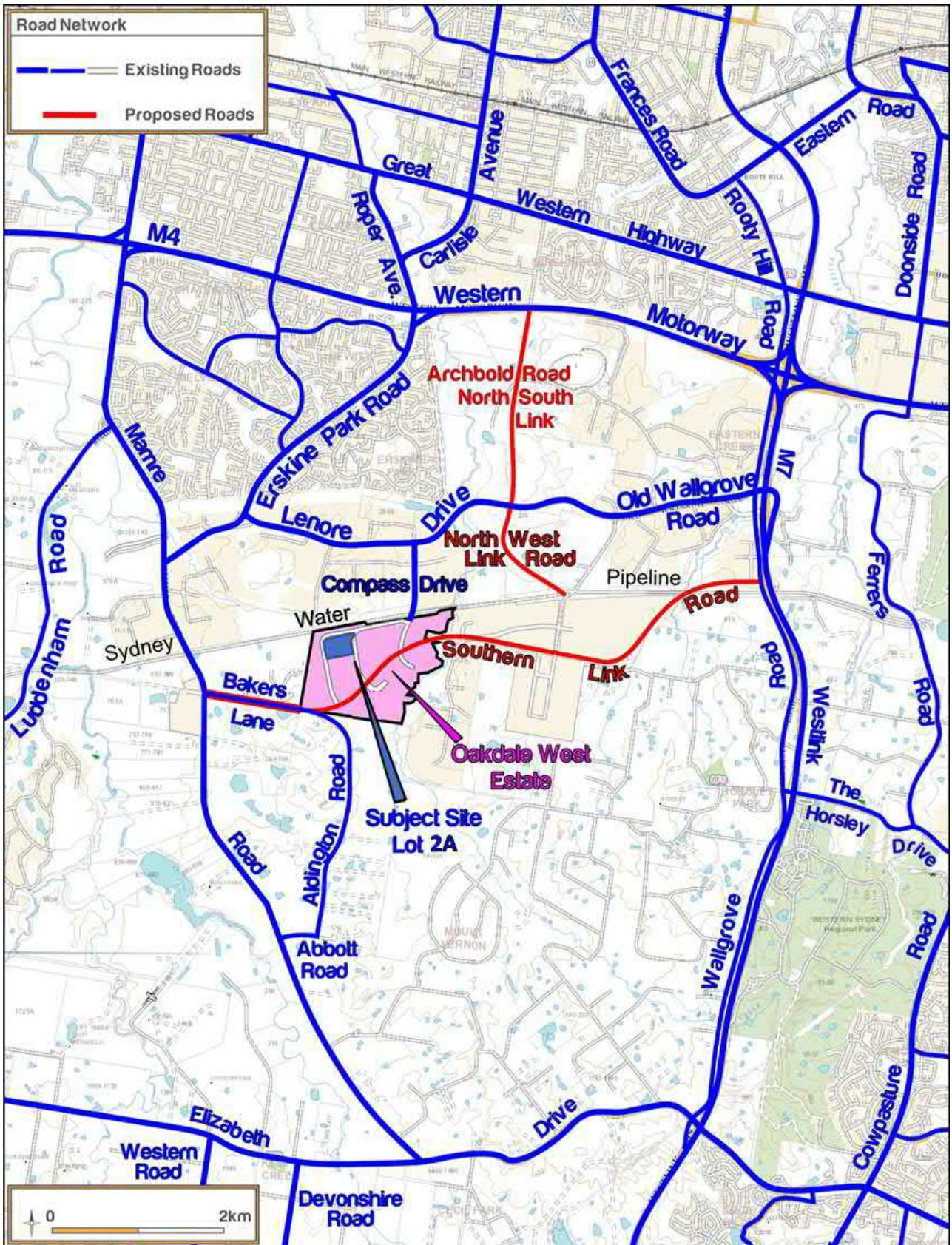


Figure 6: Road Hierarchy

1.9 Project Representatives and Stakeholders

Through the preparation of this CTMP, the project representatives and stakeholders for this project are as follows.

- Goodman Property Services (Aust)
 - Stephanie Partridge (Senior Development Manager)
 - Guy Smith (Planning Manager)
 - Kym Dracopoulos (Manager, Technical Services)
 - Rob Moody (Senior Project Manager)
 - Luke Ridley (Project Manager)
 - Lachlan O'Reilly (Project Administrator)
- Ason Group
 - Ali Rasouli (Principal Traffic Engineer)
 - Dora Choi (Principal Lead: Traffic Management & Operations)
 - James Laidler (Senior Traffic Engineer)

2 Overview of Works

2.1 Works Stages

For the purposes of this CTMP, these works will utilise Compass Drive. The access and traffic management required is outlined later within this report. Recognising the purpose of this CTMP, it is estimated that the total duration of the construction works will be approximately 50 weeks from the commencement date. The following summarises key aspects of the construction stages:

2.1.1 Stage 1 – Excavation and Enabling Works

TABLE 3: STAGE SUMMARY – STAGE 1

Criteria	Response
Description of Key Activities	General earthworks, Construction of the temporary accesses, and Enabling works
Stage Length	6 weeks
Max. Vehicle Size	20.0m Articulated Vehicles (Special Permits may be required for floating in plant)
Vehicle Movement Frequency	Approximately 150 light vehicle movements / day + Approximately 190 heavy vehicle movements / day
Truck Access Requirements	All vehicles shall access via Compass Drive
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 and Type A hoarding
Public Transport Services Affected	Nil
Road Occupancy Requirements (If yes, provide further details)	N
Lane or Footpath Closures (If yes, provide further details)	N
Traffic Guidance Scheme	Refer below.

2.1.2 Stage 2 – Structures

TABLE 4: STAGE SUMMARY – STAGE 2

Criteria	Response
Description of Key Activities	Construction of Warehouse and other structures within Site.
Stage Length	4 weeks
Max. Vehicle Size	20.0m Articulated Vehicles (Special Permits may be required for floating in plant)
Vehicle Movement Frequency	Approximately 200 light vehicle movements / day + Approximately 150 heavy vehicle movements / day
Truck Access Requirements	All vehicles shall access via Compass Drive
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 contractor 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)	N
Lane or Footpath Closures (If yes, provide further details)	N
Traffic Guidance Scheme	Refer below.

2.1.3 Stage 3 – Internal Slab Concrete Pouring Works

TABLE 5: STAGE SUMMARY – STAGE 3

Criteria	Response
Description of Key Activities	Construction of warehouse internal base concrete slab
Stage Length	17 weeks
Max. Vehicle Size	20.0m Articulated Vehicles
Vehicle Movement Frequency	Approximately 650 light vehicle movements / day + Approximately 250 heavy vehicle movements / day
Truck Access Requirements	All vehicles shall access via Compass Drive
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 contractor 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)	N
Lane or Footpath Closures (If yes, provide further details)	N
Traffic Guidance Scheme	Refer below.

2.1.4 Stage 4 – External Finishes

TABLE 6: STAGE SUMMARY – STAGE 4

Criteria	Response
Description of Key Activities	Construction of hardstand, car park and landscaping works
Stage Length	9 weeks
Max. Vehicle Size	20.0m Articulated Vehicles
Vehicle Movement Frequency	Approximately 460 light vehicle movements / day + Approximately 150 heavy vehicle movements / day
Truck Access Requirements	All vehicles shall access via Compass Drive
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)	N
Lane or Footpath Closures (If yes, provide further details)	N
Traffic Guidance Scheme	Refer below.

2.1.5 Stage 5 – Internal Fit out

TABLE 7: STAGE SUMMARY – STAGE 5

Criteria	Response
Description of Key Activities	Internal fit-out of warehouse
Stage Length	14 weeks
Max. Vehicle Size	20.0m Articulated Vehicles
Vehicle Movement Frequency	Approximately 300 light vehicle movements / day + Approximately 100 heavy vehicle movements / day
Truck Access Requirements	All vehicles shall access via Compass Drive
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)	N
Lane or Footpath Closures (If yes, provide further details)	N
Traffic Guidance Scheme	Refer below.

2.2 Hours of Work

Having regard for the expected Conditions of Consent, the permitted hours of works are as follows:

During Construction:

- 7:00AM – 6:00PM Monday – Friday.
- 8:00AM – 1:00PM Saturday

Work outside these hours may be undertaken (with prior consent) under the following conditions:

- 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.

2.3 Access Arrangements

Emergency vehicle access to and from the Site will be available at all times while the site is occupied by construction activities. This process would be implemented through emergency protocols on the site which will be developed by the Contractor and shall be documented within the Contractor's Construction Management Plan.

This is discussed in further detail below. At no stage will vehicles utilise Bakers Lane to access the Site.

3 Existing Conditions

3.1 Site Access

Access to the site shall be available via Compass Drive, the Link Road, and Emporium Ave and Sepia Rd, as shown below.

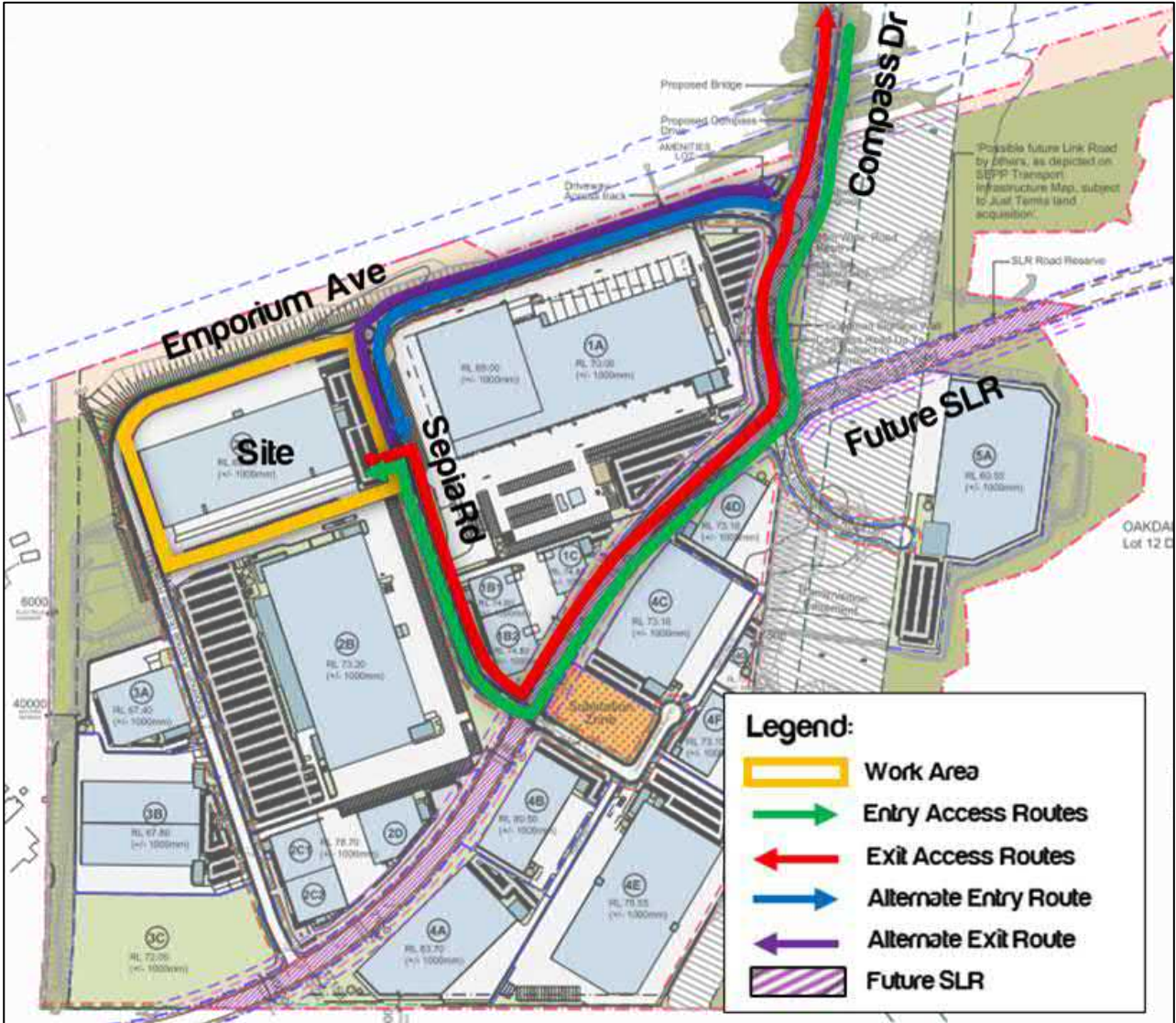


Figure 7: Access Arrangements

3.2 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. Compass Drive and the internal roads will include a 2.5-metre shared path for both pedestrians and cyclists.

Footpaths and cycle routes do not carry high volumes of pedestrians or cyclists. Notwithstanding, any TGS shall maintain a suitable level of access past work areas for these users at all times.

3.3 Public Transport Services

The introduction of a new bus route is confirmed to provide additional access for workers/ visitors within OWE. This new bus service commenced from 24 October 2021 and will provide direct access to and from St Marys Train Station. This introduction of a direct connection with St Marys Train Station increases the accessibility of the site via public transport services.

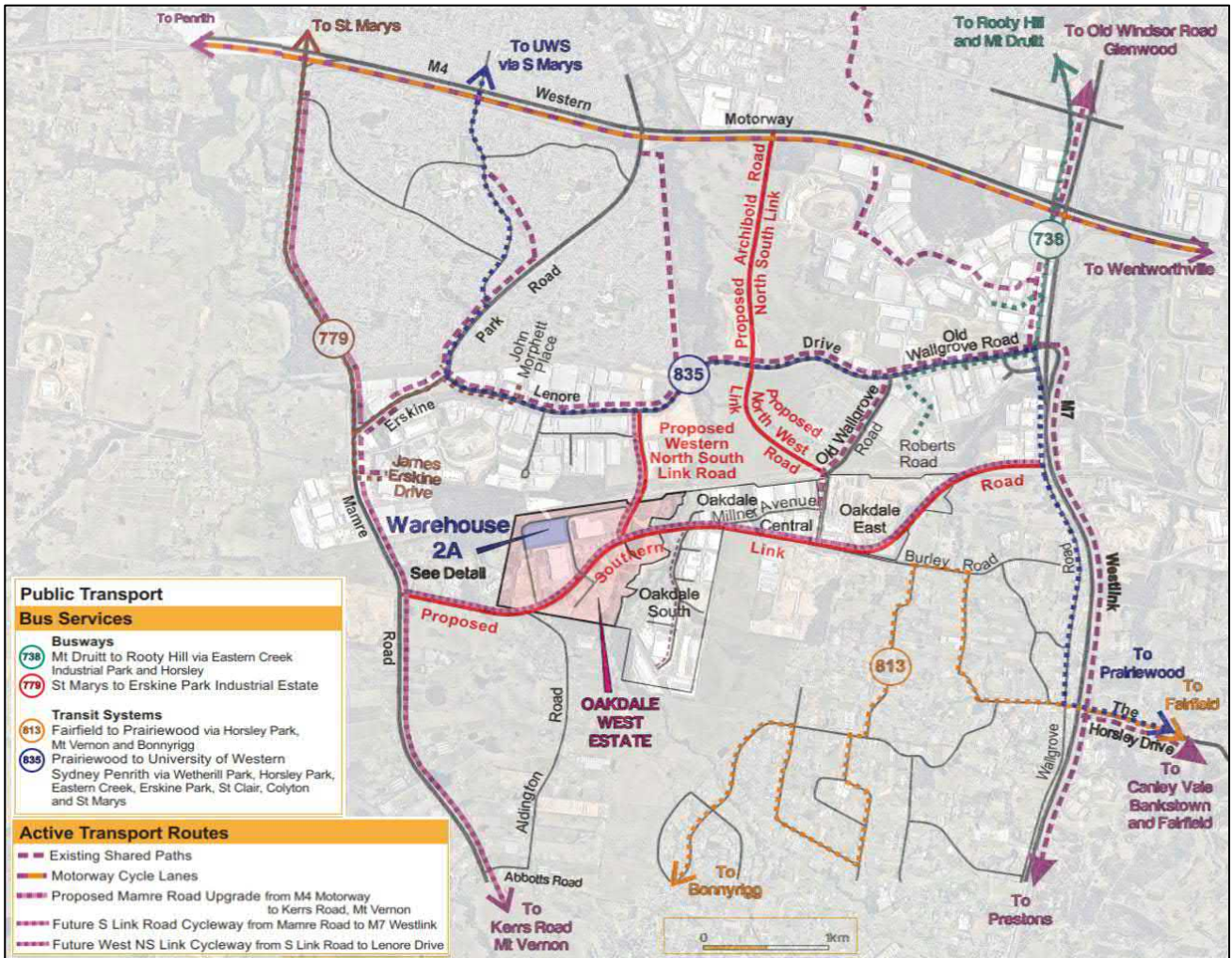


Figure 8: Existing Public Transport and Cycle Links

4 Management Plan

4.1 Traffic Movements

4.1.1 Background

The traffic report (Ason Group Ref: 1518r01v6) supporting the Lot 2A submission, outlined the following relevant figures with regards to future operational traffic volumes associated with the Site:

- AM Peak 8 movements per hour (movements, in & out combined)
- PM Peak 48 movements per hour (movements, in & out combined)
- Daily Total 1,848 daily movements (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.

4.1.2 Current Construction Traffic Estimates

The anticipated vehicle movements generated by the construction of the Site have been estimated having consideration of the likely requirements for construction staff, plant, equipment, and haulage. The anticipated construction schedule has been provided by the contractor, with the estimated traffic volumes are as follows:

- Lot 2A Construction Works – up to 620 light vehicle movements per day and 190 heavy vehicle movements per day (including truck and dog and 3 tonne rigid trucks) shall access the Site, although not in the same time period per day. Notwithstanding the estimated maximum daily construction vehicle generation is up to 900 vehicle movements per day.

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, or four-wheel drive that relates to the construction works of the site.
- 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 that relates to the construction works of the site.

For 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-contractor's 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.

4.1.3 Truck Movements & Contractor Parking

The construction access is from Compass Drive via the Link Road, and an ancillary connection via Emporium Ave, and Sepia Road. Relevant truck routes are outlined within Figure 7. The implementation of the access route shall be done so in accordance with any and all conditions of consent received from Council and/or TfNSW.

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 Compass Drive before arriving to site in order to avoid any on-street queueing.

It is expected that future contractors shall prepare Vehicle Movement Plans (VMP) for on-site circulation for key stages generating more than 200 truck movements (100 in, 100 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.

It should be noted that TfNSW 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. Nevertheless, regular engagement with TfNSW should be undertaken to coordinate any final design and/or construction access requirements.

4.1.4 TransGrid Easement

A TransGrid easement runs to the east of the Work Area which is subject to a number of restrictions. Whilst contractors associated with the subject works are not likely to impact this area, it is important to note that no vehicle circulation is permitted within 5 metres of any transmission structure or guywires unless otherwise pre-arranged. All endeavours shall be undertaken to limit vehicular movements with the easement areas for all construction works, wherever practicable.

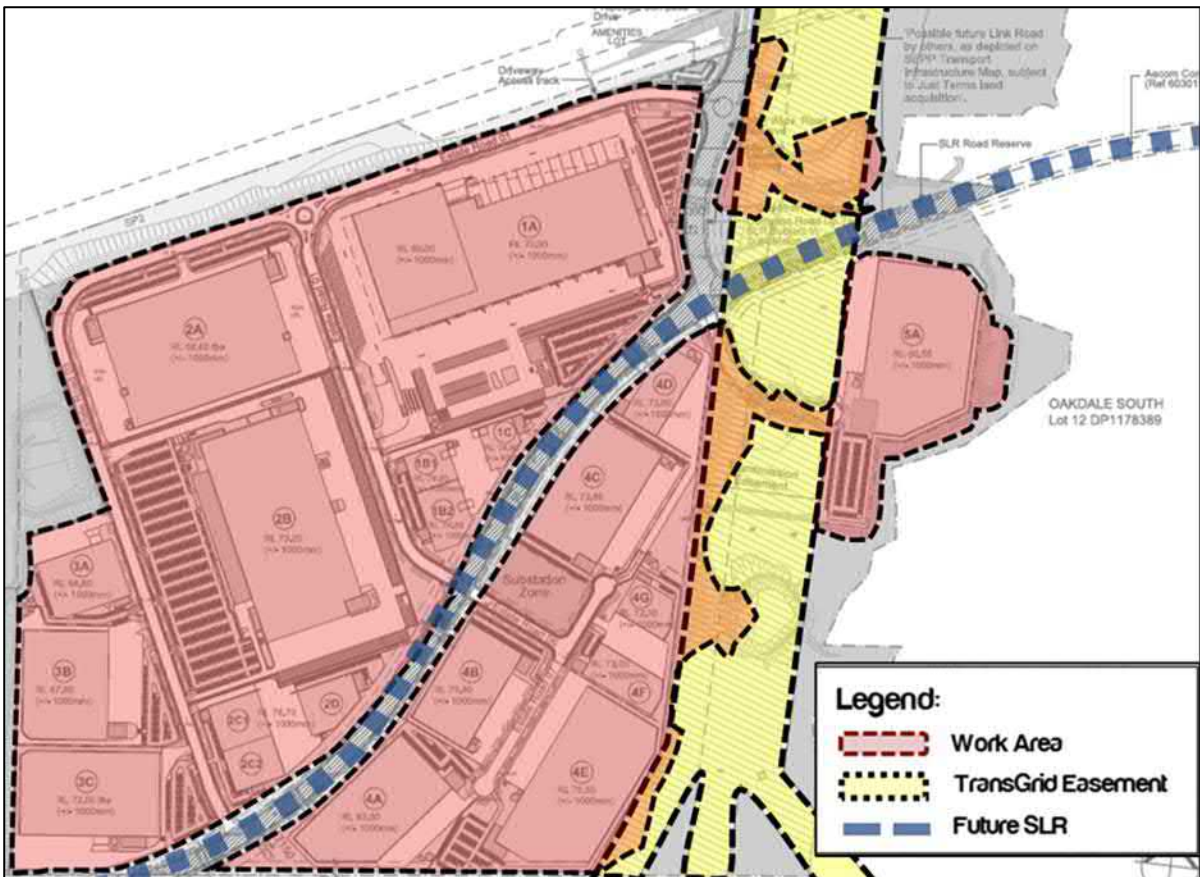


Figure 9: TransGrid Easement Within the Estate

4.2 Other General Requirements

4.2.1 Driver Code of Conduct

All drivers shall adhere to the Driver Code of Conduct, outlined in Section 5.

4.2.2 Contractor Parking

Contactors shall nominate the parking zones without obstructing any vehicle manoeuvre routes. The location of Contractor parking lots are expected to change as construction continues and encompasses various portions of the Site.

4.2.3 Access Road Management

Vehicles shall be tracked upon entry and exit of the Site's access to ensure that vehicles are abiding by both the timed restrictions and construction volume constraints.

4.2.4 Loading & Materials Handling

Handling of all materials throughout the construction shall adhere to the following.

- It is proposed that all material loading will occur within the construction site boundary.
- No loading is proposed to occur outside of the provisioned areas.
- Equipment, materials, and waste will be kept within the construction site boundary.

During latter stages of construction, tie in works will be required within the kerbside of Emporium Ave and Sepia Road. All materials handling shall be undertaken off the public roadway, however in the event materials handling are required from the roadway, then prior approval shall be sought and obtained from the relevant Authorities. Noting that Estate Roads are currently in private ownership, this would require consent of the Estate Management and be subject to special management.

4.2.5 Work Zone Requirements

An on-street Works Zone is proposed for the use of hydrant fill points by Contractor water carts. The locations will be confirmed by the builder at a later date, and subject to approval by 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.

4.2.6 Fencing Requirements

Temporary exclusion fencing will be erected along the entire boundary of the site and will be maintained for the duration of the construction program. The fencing is to ensure unauthorised persons are kept out of the Site. Site access gates would be provided within Emporium Ave and Sepia Road and will be closed at all times outside of the permitted construction hours.

Careful consideration for pedestrian protection shall be included within relevant TGS's, as outlined below.

4.2.7 Pedestrian and Cyclist Management

Chain mesh construction fencing shall be provided along all site frontages accessible by the public to prevent unwanted pedestrian and/or cyclist access.

Pedestrians and cyclists using the footpath fronting the Site will be halted by an accredited Traffic Controller while construction vehicles are entering or exiting the Site. An expandable barrier (pedestrian boom gate or equivalent) would be installed on both sides of the driveway, to be operated when construction vehicles are on approach / ready to depart from the Site. Once the construction vehicles are clear from the footpath, the Traffic Controller can allow the pedestrians and cyclists to continue along their journey. One traffic controller will be allocated to each pedestrian barrier, which will remain closed when not in use and shall only be opened when required.

The Contractor shall make clear to Traffic Controllers that pedestrians have right of way and, as far as reasonable (mostly associated with exit vehicle movements). During peak times, only one truck is to ingress/egress the Site per footpath closure (holding of pedestrians and/or cyclists), and all queued pedestrian and/or cyclists must be cleared before another vehicle may have access to/from the Site.

Traffic Controllers are required to maintain radio communication with construction vehicle drivers at all times.

4.2.8 Engineering Construction Specifications

Any Signage and/or line marking to be installed as a result of these construction works shall be installed as per Council's Engineering Construction Specification for Civil Works document (October 2017).

4.2.9 Traffic Guidance Scheme's

Any Traffic Guidance Schemes (TGSs), associated risk assessment, consultation schedules, TGS verification checklist, and inspection checklists shall be prepared by an accredited person, in accordance with the TfNSW Traffic Control at Worksites Manual (Issue 6.0) and AS1742.3:2019.

All TGSs involving signage or impacts to public roads shall be approved by the Traffic Management Centre (TMC), prior to the works for which they relate. These TGSs shall be updated to respond to any changes to prevailing traffic conditions throughout the life of the works.

5 Driver Code of Conduct

5.1 Objectives of the Driver 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.

5.2 Code of Conduct

The code of conduct applies to users driving any vehicle for work-related purposes. Drivers are to be issued with a copy of the Driver Code of Conduct, and must comply with all 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.
- Drivers must not utilise Bakers Lane for any reason while travelling to or from the Site.

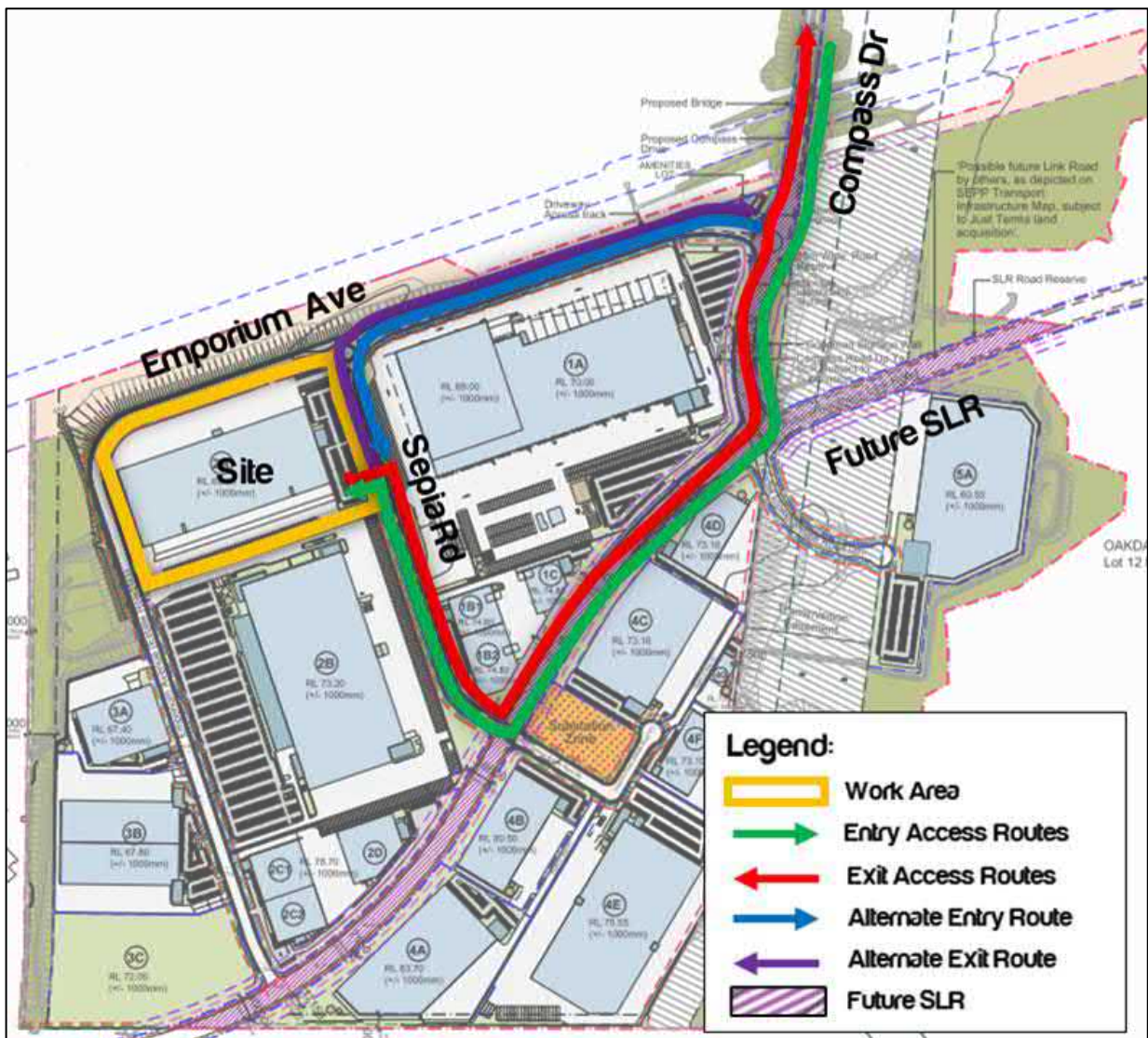
The below activities in any vehicles will be considered as a breach of conduct and will result in removal from site:

- 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
- The use of roads other than internal roads, and Compass Drive to arrive and/depart from the site to access the wider road network.
- Use of Bakers Lane is not permitted, for any reason.

5.3 Driver Responsibilities

All Drivers on site must:

- Abide with the following route to and from the Site. As such at no time shall a vehicle access the Site via Bakers Lane or Aldington Road for operational use



- 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.
- Ensure they have a current driver licence for the class of vehicle they are driving, and this licence is to be always carried.
- 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 use.
- 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 above.
- 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.

5.4 The Site Team Responsibilities

The Contractor is responsible in taking 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:

- Ensure that all drivers adhere to the designated heavy vehicle routes as required by the route designated above. If a driver accesses the Site contrary to the approved routes, then approval to drive to and from the Site will be revoked by Management.
- 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
- 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.

5.5 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.

5.6 Environmental Procedures.

A range of measures 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.

6 Transport Impact Assessment

6.1 Construction Traffic Generation

As discussed above, the construction works are expected to generate up to 900 vehicle movements per day. Vehicle movements will be spread generally throughout the day; however, the majority of works will typically generate peak hourly traffic before and after the 'network peak' periods (as outlined within Section 4.1.1).

Following the above, it is expected that stages are to overlap and will therefore increase the demand during each month. The below figure outlines the cumulative daily total for each month of the construction period.

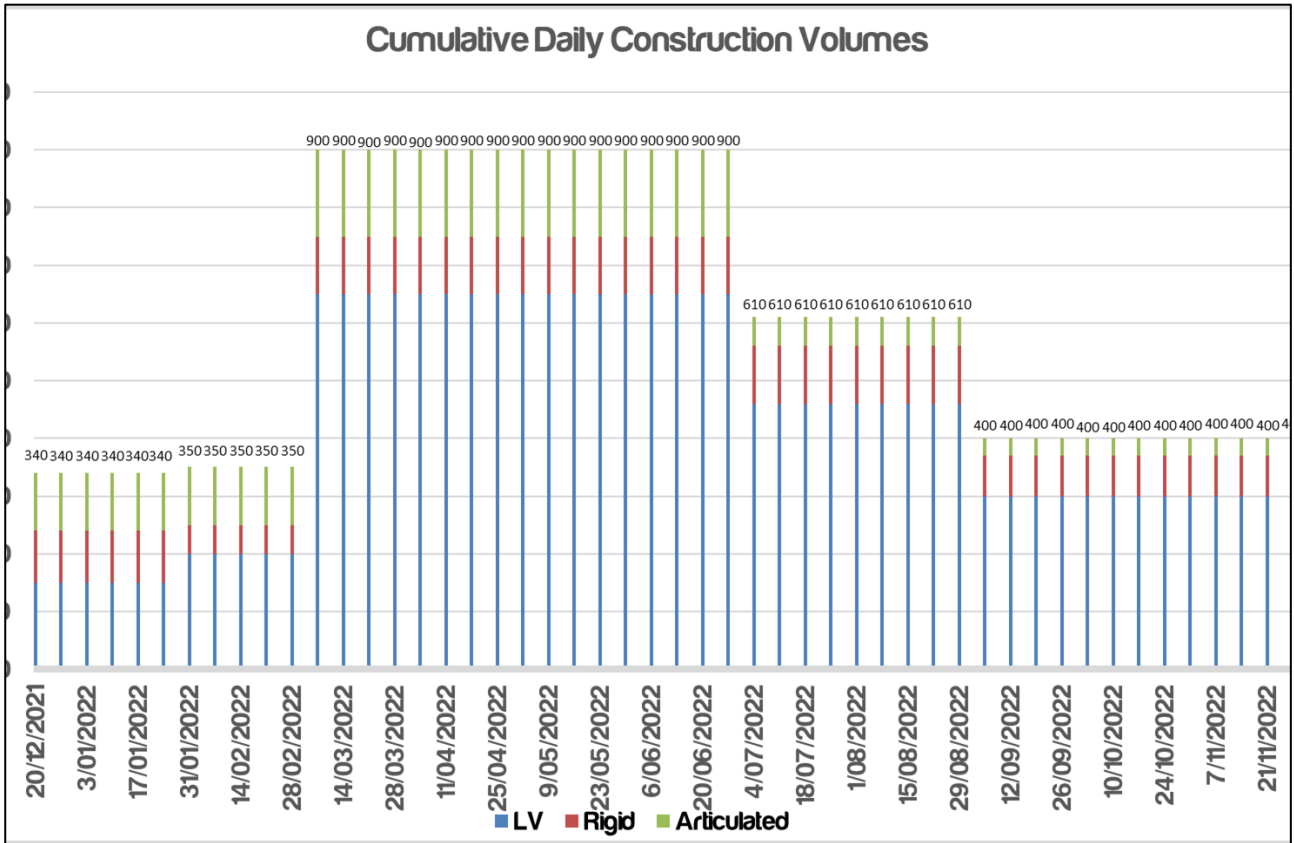


Figure 10: Construction Vehicle Volumes

6.2 Impacts on Surrounding Network

The impacts of construction traffic and the mitigating measures to be implemented are outlined below.

- Construction Traffic within Compass Drive:** 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.
- Safety During Construction:** Safety to motorists and pedestrians throughout the area will be maintained during construction through the preparation and execution of Traffic Guidance Schemes Plans (TGS's). A range of TGS'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. TGS's shall be monitored and updated accordingly throughout the project.

- **Reporting:** Reporting and monitoring of movements is to be undertaken to ensure that drivers are adhering to approved construction hours, 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.

6.3 Cumulative Impact

The above relates to construction traffic associated with Lot 2A works in isolation.

Noting that construction works for the remainder of the OWE infrastructure and Building works will still be underway, each contractor shall liaise regularly in order to avoid any conflict of large deliveries and to ensure that the cumulative construction impacts are minimised and do not exceed approved operational limits.

The following graphs outline cumulative volumes of these projects against the approved daily volumes of the OWE once fully operational (being 11,249 veh/day (MOD 7)). Notwithstanding, the following table outlines the expected construction volumes for the infrastructure and buildings within OWE.

TABLE 8: FORECAST CONSTRUCTION VOLUMES

Development	Approved OWE Volumes (MOD 7)	Forecast Construction Volumes ¹	Difference
Building 1A	11,249	1,310	-3,849
Building 1B/1C		180	
Building 2A		900	
Building 2B		2,076 ²	
Building 3A		180	
Building 3B		180	
Building 4E		1,174	
Infrastructure Works		1,400 ³	
All Other Buildings within OWE		-	
Total		11,249	

Note: 1) Forecast construction volumes only relate to approved CTMP's within the OWE.

2) Building 2B works will cease by December 2021

3) The infrastructure works will cease within Q1 of 2022

4) Following Q1 of 2022, the forecast construction volumes will be lower than those forecast above, resulting in the above being a worst-case scenario.

As you can see, the cumulative volumes are significantly lower than the approved volumes, which suggests that the cumulative construction shall not create any unacceptable traffic impacts to the road network. As such, the existing infrastructure designed and constructed (and shown in section 1.4.1) is sufficient to cater for the proposed traffic volumes

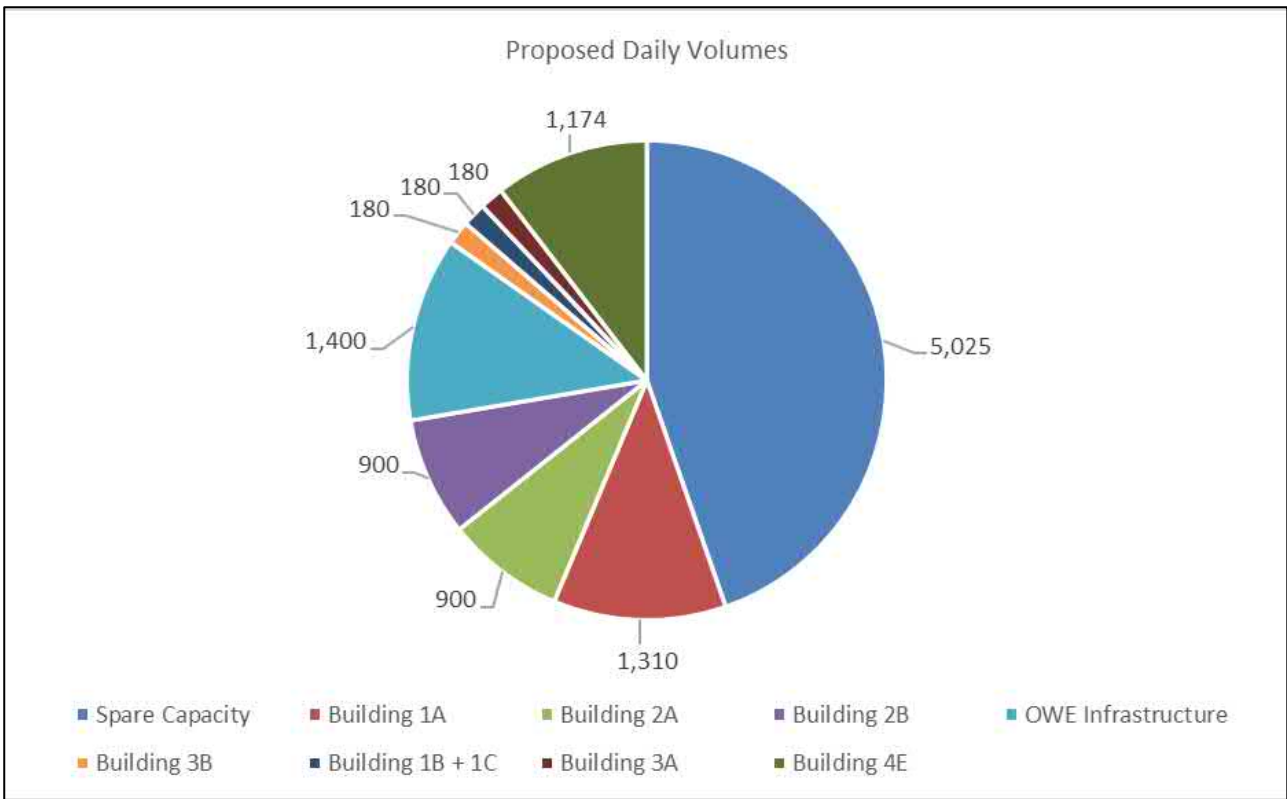


Figure 11: Cumulative Daily Construction Volumes

7 Plan Administration

7.1 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.
- Reporting and monitoring of movements to ensure drivers are adhering to the approved construction hours, and to ensure that the approved traffic generation, and subsequent impacts on the road network, are in line with those approved. This should be undertaken fortnightly during construction.
- To identify any shortfalls and develop an updated action plan to address issues that may arise during construction (Parking and access issues)
- To ensure TGSs 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 (once a month) 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.

7.2 Contingency Plan

A contingency plan shall be established by the Contractor and is to be included in the overarching CEMP. Notwithstanding, Table 9 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 9: 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 permissible volume and time constraints
	Response	No response required	Review and investigate construction activities, and where appropriate, implement additional remediation measures such as:	As with Condition Amber, plus; <ul style="list-style-type: none"> • If it is concluded that construction activities were directly responsible for the exceedance,

			<ul style="list-style-type: none"> Review CTMP and update where necessary Provide additional training. 	<ul style="list-style-type: none"> submit an incident report to government agencies. Stop all transportation into and out of the site.
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	<p>As with Condition Amber, plus</p> <ul style="list-style-type: none"> 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. 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.
Noise	Trigger	Noise levels do not exceed imposed noise constraints	Noise levels in minor excess of imposed noise constraints	Noise levels greatly more than imposed noise constraints
	Response	No response required	Undertake all feasible and reasonable mitigation and management measures to minimise noise impacts.	As with Condition Amber If noise levels cannot be kept below applicable limits, then a different construction method or equipment must be utilised.
Traffic Guidance Scheme	Trigger	No observable issues	Minor inconsistencies with TGS to onsite operations	Near miss or incident occurring regardless of / as a result of the TGS being implemented
	Response	No response required	Traffic Controller to amend TGS on site and to keep a log of all changes	Stop work until an investigation has been undertaken into the incident. There are to be changes made to the TGS 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	Review and investigate construction activities and respective control measures, where appropriate. Implement additional remedial measures, such as: <ul style="list-style-type: none"> • 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 	As with Condition Amber. <ul style="list-style-type: none"> • 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.

7.3 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 9. Notwithstanding, Table 10 outlines an indicative communication strategy to ensure that adequate communication with key stakeholders have been met.

TABLE 10: COMMUNICATION STRATEGY

Risk	Stakeholder	Action
Warehouse Specific Disruption	<ul style="list-style-type: none">• TfNSW• Penrith Council• Transport Management Centre (TMC)• NSW Police• Emergency Services• Goodman• Construction Crews	
Wider Traffic Specific Disruption	<ul style="list-style-type: none">• TfNSW• Penrith Council• Transport Management Centre (TMC)• NSW Police• Emergency Services• Goodman• Construction Crews• Surrounding Residents / Tenants• Schools and Aged Care Facilities in Bakers Lane	Stakeholder meetings Stakeholder emails

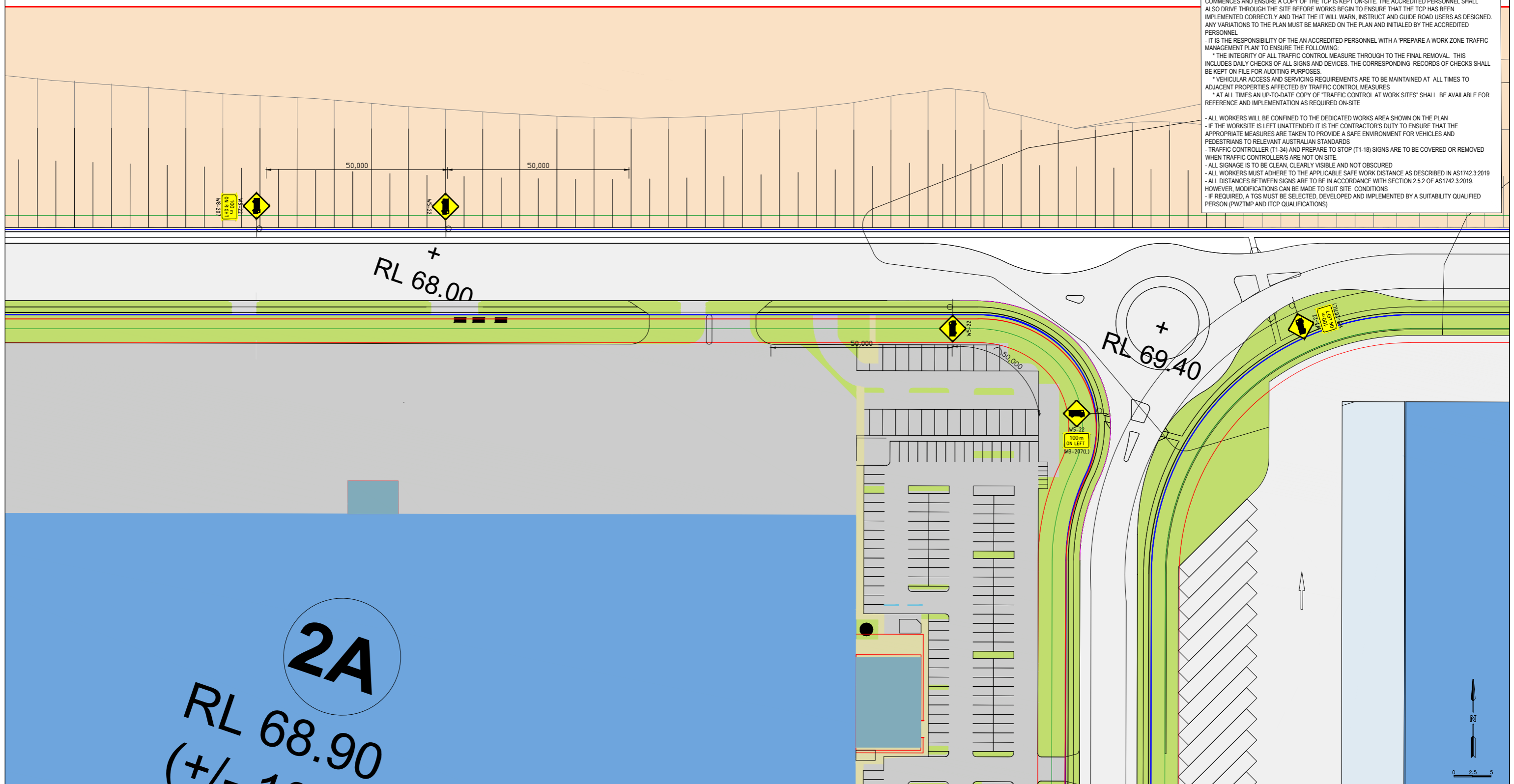
Appendix A. Traffic Guidance Scheme

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LEGEND	
	WORK AREA
	SIGN AND POST
	CLASS A HOARDING
	CONSTRUCTION FENCING

TGS GENERAL NOTES

- ALL PUBLIC ROADS WILL HAVE A SPEED LIMIT OF 50KM/H UNLESS IDENTIFIED OTHERWISE
- NOT ALL DIMENSIONS SHOWN ARE TO SCALE
- LOCATION OF SIGNS ARE TO BE CONFIRMED ON-SITE TO ENSURE APPROPRIATE VISIBILITY
- ALL SIGNS ARE TO BE MINIMUM SIZE A
- ALL SIGNS ARE TO BE CLASS 1 RETROREFLECTIVE
- ALL TRAFFIC CONTROL PLANS ARE TO BE IMPLEMENTED IN ACCORDANCE WITH TfNSW'S TRAFFIC CONTROL AT WORK SITES TECHNICAL MANUAL ISSUE 6 (RELEASED 2020) AND AUSTRALIAN STANDARDS AS1742.3:2019 MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, PART 3: TRAFFIC CONTROL DEVICES FOR WORKS ON ROADS
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AMENDMENTS				
REV	DATE	DESCRIPTION	DRW	CHK
01	11.11.2021	Trucks Turning TGS	JDL	XX
			XX	APP

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Base Plan prepared by JDL, received XXXX.

Emporium Ave has a posted speed limit of 50km/h.

Swept path assessments completed at 10 km/h and 300mm clearance.

DESIGNED	PAPER SIZE
James Laidler	A3 OR A1
CHECKED BY	DATE
X.XXXX	25.08.2021
APPROVED BY	SCALE
X.XXXX	1:500mm

CLIENT	Goodman
PROJECT	1518
	Building 2A, Oakdale West Estate

DOCUMENT INFORMATION	Trucks Turning TGS
DRAWING STATUS	XXXX





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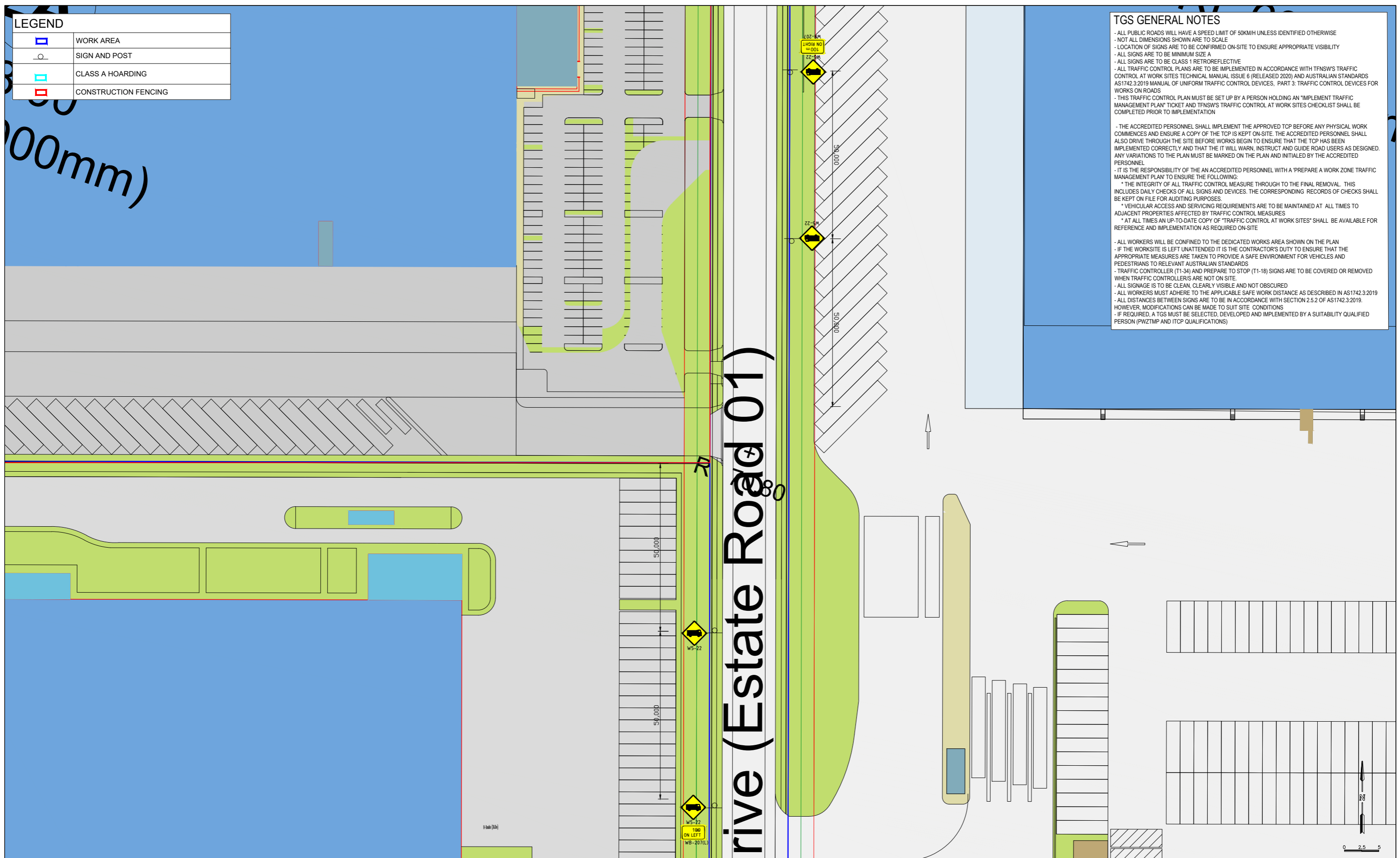
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	SIGN AND POST
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	CONSTRUCTION FENCING

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01	11.11.2021	Trucks Turning TGS	JDL	XX
			XX	APP

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 Topaz Ave has a posted speed limit of 50km/h.
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


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CHECKED BY	X.XXXX
APPROVED BY	X.XXXX

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DATE	25.08.2021
SCALE	1:500mm

CLIENT	Goodman
PROJECT	1518
	Building 2A, Oakdale West Estate

DOCUMENT INFORMATION	
Trucks Turning TGS	
DRAWING STATUS	XXXXX


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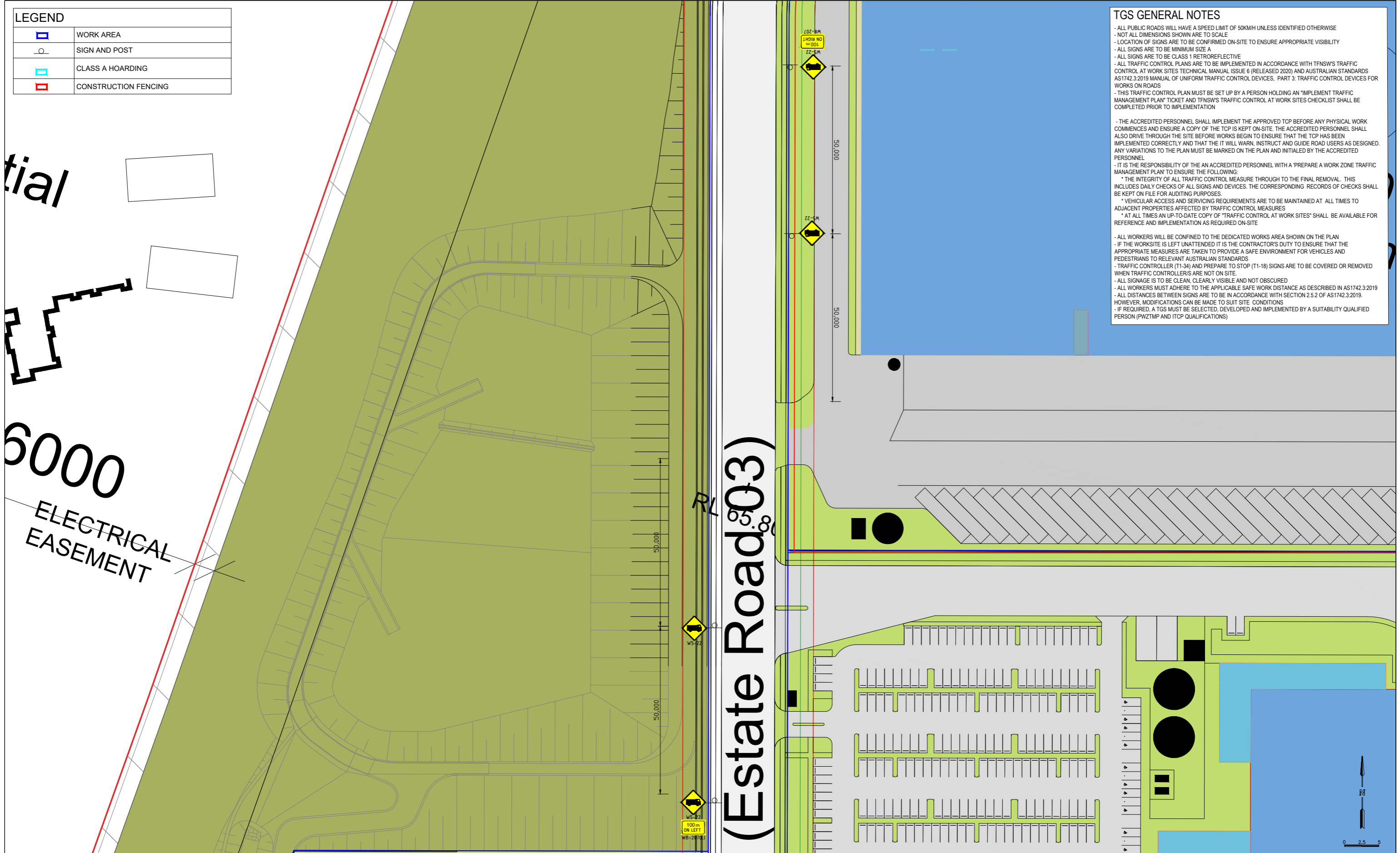
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6000
ELECTRICAL EASEMENT

(Estate Road 03)



AMENDMENTS			
REV	DATE	DESCRIPTION	
01	11.11.2021	Trucks Turning TGS	JDL XX XX
			DRW CHK APP

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Emporium Ave has a posted speed limit of 50km/h.

Swept path assessments completed at 10 km/h and 300mm clearance.

DESIGNED	PAPER SIZE	CLIENT
James Laidler	A3 OR A1	Goodman
CHECKED BY	DATE	PROJECT
X.XXXX	25.08.2021	1518
APPROVED BY	SCALE	Building 2A, Oakdale West Estate
X.XXXX	1:500mm	

DOCUMENT INFORMATION	
Trucks Turning TGS	
DRAWING STATUS	XXXXX

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Sydney NSW 2000
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FILE NAME: 1518-TGS-01-Building 2A OWE.dwg

SHEET: AG03

Appendix B. Risk Assessment

Building 2A, Oakdale West, Kemps Creek

Risk Assessment and Communication Tool

Project Number	1518
Project Name	P1518r02v5 CC CTMP_Lot 2A, Oakdale West Industrial Estate
Site Location	Emporium Ave, Oakdale West Estate, Kemps Creek
Date of Assessment	10 Nov 2021
Revision	Issue 1

Name	Company	Title
Stephanie Partridge	Goodman	Senior Development Manager
Guy Smith	Goodman	Planning Manager
Lachlan O'Reilly	Goodman	Project Administrator
Dora Choi	Ason Group	Principal Lead: Traffic Management & Operations
James Laidler	Ason Group	Senior Traffic Engineer

Document Control			
Date Issued	Revision	Issued By	Checked By
10/11/2021	Issue 1	J. Laidler	

Risk Matrix		Consequence				
		Minor A	Major B	Severe C	Critical D	Catastrophic E
Very Unlikely	1	Low	Low	Medium	Medium	Medium
Unlikely	2	Low	Low	Medium	Medium	High
Possible	3	Low	Medium	High	High	High
Likely	4	Medium	Medium	High	High	Extreme
Almost Certain	5	Medium	High	High	Extreme	Extreme

Consequence Description	
A - Minor	Could result in injury or illness not resulting in a lost workday or minimal environmental damage not required to be notified under jurisdiction requirements.
B - Major	Could result in injury or illness resulting in one or more lost workday(s) or environmental damage can be mitigated and is not required to be notified under jurisdiction requirements where restoration activities can be accomplished.
C - Severe	Could result in permanent partial disability, injuries or illness that may result in hospitalisation of persons or environmental damage can be mitigated and is required to be notified under jurisdiction requirements.
D - Critical	Could result in permanent total disability or reversible environmental damage required to be notified under jurisdiction requirements.
E - Catastrophic	Could result in fatality or irreversible severe environmental damage required to be notified under jurisdiction requirements.

Likelihood Description	Design Likelihood
1 - Very unlikely	Industry experience suggests design failure is very unlikely. It can be assumed failure occurrence may not be experienced.
2 - Unlikely	Industry experience suggests design failure is unlikely to occur in the life of design.
3 - Possible	Industry experience suggests design failure is possible sometime during the life of the design.
4 - Likely	Industry experience suggests design failure is likely to occur during the life of the design.
5 - Almost certain	Industry experience suggests design failure is almost certain to occur during the life of the design.

Risk Assessment and Communication Tool

Example


ID. Ref	Risk and/ or Hazard	Risk Description	Location	Existing Control	Initial Risk Rating			Design Response to risk and /or hazard	Status of Risk	Assignment of risk or hazard	Residual risk rating		
					C	L	RR				C	L	RR
1	Unauthorized Access to the Site	Site prevents unauthorised access	Entire Site	Nil	C	3	High	Boundary fence will be provided as part of the main works. The design provides a defined separation between public areas and work area. Admin area is located in front of the site to minimise unauthorised visitor access	Design Solution	Main Contractor	B	2	Low
2	Interaction between pedestrians and vehicles	Vehicles and pedestrians to be separates as best possible	Entire Site & Access Roads	Nil	D	3	High	Additional signage and implementation of Traffic Controllers shall be provided to separate vehicles and pedestrians as best possible.	Design Solution	Main Contractor	B	2	Low
3	Potential vehicle conflict points	Vehicles can crash with each other while manoeuvring through the site	Entire Site & Access Roads	Nil	B	3	Medium	One-way manoeuvring around the site limits any interaction for oncoming vehicles to the access only, coupled with low speeds throughout the site.	Design Solution	Main Contractor	B	1	Low

4	Fatigue	Injury caused by fatigue	Entire Site	Nil	C	3	High	Toolbox meetings and regular breaks (in line with WHS practices) to minimise fatigue	Design Solution	Main Contractor	B	1	Low
5	Fall risks	Injury due to falls (in general)	Entire Site	Nil	E	3	High	Ensuring level changes across the site to be minimised as best possible, with additional black & yellow hazard tape/markings being installed where appropriate. Installation of handrails where level changes / ramps grades are significant.	Design Solution	Main Contractor	C	2	Medium
6	Misdirected access into wrong site	Vehicle in unsafe locations	Entire Site	Nil	C	3	High	Ensuring appropriate directional signage has been provided to ensure vehicles do not access the wrong construction site, which could create potential safety breaches and hazards for all parties	Design Solution	Main Contractor	B	2	Low
7	Conflicting Traffic Management	Coordinating Traffic Controllers could create misleading and wrong advice	Entire Site	Nil	C	3	High	Toolbox meetings, regular liaison with all construction teams and review of signage plans on site in order to minimise contradicting signage.	Design Solution	Main Contractor	C	2	Medium

Appendix C. TGS Verification Checklist

E.2 TGS verification checklist

TGS Verification must be undertaken after selecting or designing a TGS as a confirmation of appropriateness prior to approval for use. A PWZTMP or TGS qualified person must undertake this verification.

Completed by:			
Name:	James Laidler	Signature:	
Qualification	Senior Traffic Engineer PWZTMP #0052158569		
TGS details:			
TMP Reference:	P1640r02v4 CC CTMP_Lot 2A, Oakdale West Industrial Estate	TGS Reference:	
Date:	10 Nov 2021	Review type	<input checked="" type="checkbox"/> Site Inspection <input checked="" type="checkbox"/> Desktop Review
Sources used for desktop review	Near Map, Dated 09 Nov 2021		
Site details			
Street name:	Compass Drive	Confirmed posted speed limits:	80km/h
Street name:	Emporium Ave	Confirmed posted speed limits:	50km/h
Street name:	Sepia Road	Confirmed posted speed limits:	50km/h
List unique site-specific Hazards / Risks identified on site			
E.g., utilities, infrastructure, vegetation, schools,			
n/a - straight section of road with good sight distance. - low volume of traffic - no trees within the area - low speeds			

TGS details

Have the below been addressed on the TGS for this location?

Traffic volumes	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	Details	Road still private, therefore access is limited, and volumes are low
Predicted queue length	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	Details	Noting the number of access points, the predicted queue length will minimal
Shoulder widths	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	Details	Roads Designed for B-doubles, therefore sufficient shoulder widths
Sight distances	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	Details	Straight road with no obstructions and good sight distance
Existing infrastructure	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	Details	No trees, poles, or other infrastructure
Transport services	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	Details	The bus route will not be affected by the works
Pedestrian generators	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	Details	Pedestrians are given right of way as far as possible
Appropriate site access	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	Details	Roads Designed for B-doubles, therefore appropriate site access
Appropriate escape route for traffic controllers	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A	Details	No Traffic Controllers required for this TGS

Confirmation	
<p>Does TGS require adjustments within tolerances?</p> <p>If yes provide details TGS must include these adjustments with justification.</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>Comments or details of action taken:</p>	
<p>Does TGS require any additional changes or modifications?</p> <p>If yes provide details and return TGS to designer for additional changes or modifications</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>Comments or details of action taken:</p>	
<p>Is TGS appropriate for use for works required at this location?</p> <p>If no provide details and, return TGS into file and select alternative, if design returned to designer for correction</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<p>Comments or details of action taken:</p>	
<p>Have key TTM risks been addressed on site?</p> <p>If no, provide details and return TGS to designer for correction, review, and approval</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<p>Comments or details of action taken:</p>	

Additional comments:

Reset forms - pages 269 to 272

APPENDIX I

Soil and Water Management Plan

PROPOSED INDUSTRIAL DEVELOPMENT – OAKDALE WEST ESTATE – BUILDING 2A

SOIL & WATER MANAGEMENT PLAN

December 2021 - Revision 1

Prepared for:



Prepared by:

ANDREW LITTLEWOOD

CPESC & Senior Soil Conservationist

Document Status

Rev No.	Date	Revision Description	Prepared by	Reviewed		Approved	
				Name	Date	Name	Date
0	29/10/2021	Revision 0	A Littlewood				
1	09/12/2021	Revision 1	A Littlewood				

Document Authorship Information

Project	Proposed Industrial Development – Oakdale West Estate – Building 2A, Lot 105 DP 1262310
Document	Soil & Water Management Plan – Construction of Building 2A
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Oakdale West Estate: Building 2A – Soil and Water Management Plan

Contents

1	Introduction		4
	1.1	Context	4
	1.2	Background	4
	1.3	Environmental management systems overview	5
2	Purpose and objectives		6
	2.1	Purpose	6
	2.2	Objectives	6
	2.3	Targets	6
3	Environmental requirements		7
	3.1	Relevant legislation and guidelines	7
	3.1.1	Legislation	7
	3.1.2	Guidelines and standards	7
	3.2	Environmental management measures	8
	3.3	Construction Environmental Management Plan	8
4	Existing environment		9
	4.1	Topography and soil characteristics	9
	4.1.1	'Luddenham' (lu) landscape unit	10
	4.1.2	'Blacktown' Soil Landscape Unit	11
	4.2	Acid Sulphate Soils	11
	4.3	Surface water	12
	4.4	Water quality and Receiving Environment Assessment	12
	4.5	Groundwater	12
	4.6	Rainfall	13
	4.7	Rainfall erosivity factor & design Rainfall Depth	14
	4.8	Flooding	15
5	Environmental aspects and impacts		15
	5.1	Construction activities	15
	5.2	Impacts	16
6	Environmental control measures		17
7	Compliance management		23
	7.1	Roles and responsibilities	24
	7.2	Training	24
	7.3	Monitoring and inspection	24
	7.4	Licences and permits	25
	7.5	Weather monitoring	25
	7.6	Auditing	25
	7.7	Reporting	25
8	Review and improvement		26
	8.1	Continuous improvement	26
	8.2	SWMP update and amendment	26

Appendix A: Erosion & Sediment Control Plan

Oakdale West Estate: Building 2A – Soil and Water Management Plan

1.0 INTRODUCTION

1.1 Context

This Soil and Water Management Plan (SWMP or Plan) forms part of the Construction Environmental Management Plan (CEMP) for the proposed construction of Building 2A on Lot 105 DP 1262310 (the Project) on the Stage 2 Development of Oakdale West Estate (OWE). Building 2A is being constructed for the purposes of warehousing and distribution uses.

Goodman Group as developer of the OWE has gained the relevant development approvals and has elected to prepare a CEMP for the Project. The CEMP has been developed in preparation for the award of a Construction Contract to a suitably qualified building contractor (Contractor) to undertake the construction of the Project.

This SWMP is required to support the CEMP, and has been prepared to address the requirements of;

- Department of Planning, Industry and Environment Development Application - State Significant Development (SSD) 7348, including subsequent Modifications of Development Consent No's 1 to 7.
- Department of Planning, Industry and Environment Development Application - State Significant Development SSD 9794683 Development Consent.

1.2 Background

Goodman Group received approval on 13 September 2019 for the state significant development of Oakdale West Industrial Estate (OWE). OWE comprises a warehousing and distribution hub located at Kemps Creek in Western Sydney, NSW. The overall site a 154-hectare tract of land that comprises of the combined parcels of land known as Lot 3031 DP 1168407, Lot 6 DP 229784, Lot 2 DP 84578, Lot 3 DP 85393, Lot 11 DP 1178389 off Bakers Lane, at Kemps Creek, extending to Lenore Drive, Erskine Park.

As part of the staged development of OWE, Goodman has gained consent for development (SSD 7348 Development Consent - Mod 7) and separately, has lodged an application for SSD 9794683 Development Consent) for the Stage 3 Development which involves the development of land now known as Lot 107 DP 1262310. The lot has road frontage to the newly proclaimed public roads known as Emporium Avenue and Sepia Road. The relevant portion of the industrial development will entail the construction of Building 2A, a single level warehouse and two-level office building on the 80,582m² site. The buildings comprise of 34,262m² of warehousing space, 1050m² of office facilities, mezzanine levels, loading docks, parking facilities for cars, trucks and motorcycles and associated landscaping.

The EIS produced for NSW DPI&E - DA SSD 7348 has assessed the impacts of the project on surface water and soils. The EIS prepared by Urbis noted at Section 2.3 that;

Topography & landform

- *'Landform is relatively uniform, with undulating rises and alluvial flats bisected by narrow, ridge running from the south-west to the north-east of the site.*
- *No significant height variances with elevations from approximately 92m above AHD to approximately 50m at Ropes Creek in the east of the site.'*

Geology

- *'Underlying geology of the site is the Wiananmatta Group formation (Bringelly Shale) and alluvium associated with Ropes Creek. Surface and sub-surface conditions are as follows:*
 - *Topsoil: Clay, depth 0.0-0.04 m;*
 - *Natural Soil: Clay, depth 0.04-0.5 m;*
 - *Bedrock: Sandstone, Sandstone and shale, depth 0.7-5.0 m.*

Oakdale West Estate: Building 2A – Soil and Water Management Plan

Soils

- *'Residual soils, characteristic of the Blacktown soil landscape, generally consist of shallow duplex soils over a clay base (OEH 2014).*
- *Overlying fluvial soils, part of the South Creek soil landscape, are associated with the alluvium across the low-lying terrain bordering Ropes Creek.*
- *No acid sulphate soils have been identified.'*

Surface Water, Hydrology and Flooding

- *'The OWE is located within the Hawkesbury-Nepean catchment.*
- *Ropes Creek, a third order stream, flows along the eastern boundary of the site in a northerly direction into South/Wianamatta Creek approximately 13 km north of the OWE.*
- *The landscape is characterised by a series of ridgelines incised with drainage lines flowing into Ropes Creek. The drainage system within the development site is in relatively poor condition, due to erosion and trampling by cattle.*
- *An unnamed modified watercourse is to the west of the OWE.*
- *The eastern portion of the site is subject to flooding (associated with Ropes Creek) and is variably affected by the 100-year average recurrence interval (ARI) flood event.'*

Groundwater

- *'Groundwater is expected to be relatively deep below the OWE site – no groundwater was encountered during geotechnical investigations which included boreholes drilled up to 15m below ground level.'*

Prior to the works commencing that are the subject of this SWMP, the site has had bulk earthworks undertaken by others under the approved SSD 7348 - Stage 1 Development. As a result of the preliminary bulk earthworks, the natural topography of the site has been altered, from having localised slopes to being a slightly graded, level pad with a retaining wall on the southern boundary.

The overall disturbance footprint of approximately 8.05 hectares would present a moderate risk of increased sediment and contaminant impacts on water quality of local waterways due to runoff from the Project.

The EIS concluded potential impacts would be minimised through the employment of safeguards and management measures stated in Section 7.1 of the EIS.

1.3 Environmental management systems overview

The overall Environmental Management System for the project is described in the Construction Environmental Management Plan (CEMP).

The SWMP will form part of the selected Contractor's environmental management framework for the project, as described in the CEMP. Management measures identified in this Plan will be incorporated into site or activity specific Environmental Work Method Statements (EWMS).

EWMS will be developed and signed off by environment and management representatives prior to associated works. Construction personnel will be required to undertake works in accordance with the identified mitigation and management measures. Works that are proposed in or near to identified Environmentally Sensitive Areas will have an EWMS prepared that details relevant environmental protection measures.

The Progressive Erosion and Sediment Control Plans (PESCPs) will be prepared in consideration of the Primary Erosion and Sediment Control Plan (ESCP) attached to this SWMP as Appendix A.

Oakdale West Estate: Building 2A – Soil and Water Management Plan

The ESCP describes the intentions and fundamental principles for erosion and sediment control management for the duration of the entire project.

The PESCPs will be developed by the Project environmental team in consultation with construction personnel, and with the assistance of the Project Soil Conservationist (Certified Professional in Erosion & Sediment Control - CPESC) when required.

They will be developed prior to any construction works commencing in the work zone and will be modified as required when:

- Site conditions evolve.
- Flow paths change.
- Construction activities that affect the characteristics of ground conditions change.

A Project Soil Conservationist (CPESC) will be engaged and consulted throughout construction to provide advice on erosion and sediment control design, installation, maintenance and the development of PESCPs.

Used together, the CEMP, strategies, procedures, EWMS and PESCP form management guidelines that clearly identify required environmental management actions for reference by the Contractor's personnel and sub-contractors.

The review and document control processes for this Plan are described in the CEMP

2.0 PURPOSE & OBJECTIVES

2.1 Purpose

The purpose of this Plan is to describe how the Contractor will manage and minimise soil and water impacts during construction of the project.

2.2 Objectives

The key objective of the SWMP is to ensure that the potential impacts to soil and water quality are minimised. To achieve this objective, the Contractor will be required undertake the following:

- Ensure appropriate controls and procedures are implemented during construction activities to avoid or minimise erosion and sedimentation impacts and potential impacts to water quality in creeks, waterways, and groundwater along the project corridor.
- Ensure compliance with the Project's Development Application SSD 7348 Secretary's Environmental Assessment Requirements (SEARS)
- Ensure appropriate measures are implemented to address the relevant mitigation measures detailed in the EIS.
- Ensure appropriate measures are implemented to comply with all relevant legislation and other requirements as described in Section 3.1 of this Plan.

2.3 Targets

The following targets have been established for the management of soil and water impacts during the project:

- Ensure compliance with the relevant legislative requirements and environmental safeguards.
- Meet New South Wales Environment Protection Authority (NSW EPA) water quality discharge parameters for all planned basin discharges.

Oakdale West Estate: Building 2A – Soil and Water Management Plan

- Manage downstream water quality impacts attributable to the project (i.e., maintain waterway health by avoiding the introduction of nutrients, sediment, and chemicals outside of that permitted by the NSW EPA and ANZECC guidelines).
- Ensure training on soil and water management is provided to all construction personnel through targeted training, site inductions and toolbox talks.

3.0 ENVIRONMENTAL REQUIREMENTS

3.1 Relevant legislation and guidelines

3.1.1 Legislation

Legislation and regulations relevant to soil and water management includes:

- *Environmental Planning and Assessment Act 1979* (EP&A Act).
- *Environmental Planning and Assessment Regulation 2000*.
- *Protection of the Environment Operations Act 1997* (POEO Act).
- *Water Management Act 2000*.

Relevant provisions of the above legislation are explained in the register of legal and other requirements included in the CEMP.

Section 120 of the NSW POEO Act states that it is illegal to pollute waters. Under the POEO Act, 'water pollution' includes introducing litter, sediment, oil, grease, wash water, debris, and flammable liquids such as paint etc. into waters or placing such material where it is likely to be washed or blown into waters or the stormwater system or percolate into groundwater. All practicable steps should be taken to minimise the risk of pollution of waters.

3.1.2. Guidelines and standards

The main guidelines, specifications, and policy documents relevant to this Plan include:

- Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (EPA, March 2004).
- Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC and ARMCANZ 2000).
- Department of Environment and Conservation (DEC): Bunding & Spill Management. Insert to the Environment Protection Manual for Authorised Officers - Technical section "Bu" November 1997.
- Managing Urban Stormwater: Soils and Construction. Landcom, (4th Edition) March 2004 (reprinted 2006) (the "Blue Book"). Volume 1 and Volume 2.
- Volume 2A Installation of Services (DECCW 2008).
- Water quality guidelines for the protection of aquatic ecosystems for lowland rivers and estuaries. (ANZECC, 2000).

Oakdale West Estate: Building 2A – Soil and Water Management Plan

3.2 Environmental management measures

Environmental safeguards and management measures are included in the EIS in Section 9. The environmental management measures relevant to this Plan are listed Table 3-1 below. The Table 3.1 includes reference to required outcomes, the timing of when the commitment applies and the section of this Plan or other management system document which addresses the requirement.

Table 3-2: Management measures from the EIS relevant to construction soil and water management

Issue	SSDA Component	Mitigation & Management
General Construction Management	Stage 1 Development	<ul style="list-style-type: none"> 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.
Earthworks	Stage 1 Development	<ul style="list-style-type: none"> Erosion and sediment controls included in SSDA package (Appendix E).
Soils & Water	Stage 1 Development	<ul style="list-style-type: none"> Erosion and sediment controls, as detailed in Appendix E and Appendix J of the EIS, 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.
Groundwater	Stage 1 Development	<ul style="list-style-type: none"> Methods and management of any required dewatering required during construction works to be detailed in the CEMP.
Air Quality and Odour - Construction	Stage 1 Development	<ul style="list-style-type: none"> CEMP to include standard air quality control measures, contingency plans and response procedures and suitable reporting and performance monitoring procedures. CEMP to include standard odour mitigation measures for construction including keeping excavation surfaces moist covering excavation faces and/or stockpiles, use of soil vapour extraction systems and regular monitoring of discharges as appropriate

3.3 Construction Environmental Management Plan

The EIS Section 7.2 ‘*Construction Environmental Management Plan*’ outlines the requirements for the OWE CEMP to address construction methodology and associated management & mitigation measures, as follows;

‘The proposed OWE development would proceed in accordance with a detailed CEMP to be prepared for the site to capture both standard construction methodology, mitigation and management measures and specific measures recommended for the OWE proposal by technical assessments and studies.

The standard construction methodology to be followed in respect of the proposed development includes:

Oakdale West Estate: Building 2A – Soil and Water Management Plan

- *Diversion of “clean” water away from the disturbed areas and discharge via suitable scour protection.*
- *Provision of hay bale type flow diverters to catch drainage and divert to “clean” water drains.*
- *Diversion of sediment laden water into temporary sediment control basins to capture the design storm volume and undertake flocculation (if required).*
- *Provision of construction traffic shaker grids and washdown to prevent vehicles carrying soils beyond the site.*
- *Provision of catch drains to carry sediment-laden water to sediment basins.*
- *Provision of silt fences to filter and retain sediments at source.*
- *Where future construction and building works are not proposed, the rapid stabilisation of disturbed and exposed ground surfaces with hydroseeding.*

The above measures would remain in place for the duration of the total construction period (Stages 1, 2 and 3) until such time as the individual development lots are completed. Regular inspection of erosion and sediment control measures and other construction mitigations would be undertaken by the site contractor in accordance with the protocols established under the CEMP.

The Contractor CEMP for Building 2A will be prepared prior to the commencement of construction works on the site and will detail measures that are in accordance with the OWE CEMP.

4.0 EXISTING ENVIRONMENT

The following sections summarise what is known about factors influencing soils and water quality within and adjacent to the project corridor. The key references in the Project EIS documents are Section 6.7 – Other Issues.

4.1 Topography and soil characteristics

Section 2.3 of the EIS for DA SSD 7348 describes the pre-existing topography and geology of the Project area as follows;

- *“Landform is relatively uniform, with undulating rises and alluvial flats bisected by narrow, ridge running from the south-west to the north-east of the site. No significant height variances with elevations from approximately 92m above AHD to approximately 50m at Ropes Creek in the east of the site.*
- *“Underlying geology of the site is the Wiananmatta Group formation (Bringelly Shale) and alluvium associated with Ropes Creek.*
- *Underlying geology of the site is the Wiananmatta Group formation (Bringelly Shale) and alluvium associated with Ropes Creek. Surface and sub-surface conditions are as follows:*
- *Topsoil: Clay, depth 0.0-0.04 m;*
- *Natural Soil: Clay, depth 0.04-0.5 m;*
- *Bedrock: Sandstone, Sandstone and shale, depth 0.7-5.0 m.’*
- *Residual soils, characteristic of the Blacktown soil landscape, generally consist of shallow duplex soils over a clay base (OEH 2014).*
- *Overlying fluvial soils, part of the South Creek soil landscape, are associated with the alluvium across the low-lying terrain bordering Ropes Creek.*
- *No acid sulphate soils have been identified.’*

Oakdale West Estate: Building 2A – Soil and Water Management Plan

The predominant soil landscape characteristics are described in general terms in the EIS prepared for SSD 7348, however, further reference to NSW Office of Environment & Heritage website resource 'eSPADE', identified the presence of two soil landscape units within the project footprint:

- the 'Luddenham' (lu) soil landscape unit, which encompasses the southern portion of the Project,
- the 'Blacktown' (bt) soil landscape unit which occurs on the north and western areas of the Project.

4.1.1. 'Luddenham' (lu) landscape unit

The 'Luddenham' (lu) soil landscape unit mainly occurs in the south and west in the Cumberland Lowland on the lesser isolated ridgelines. This soil landscape is also underlain by Wianamatta Group, Ashfield Shale and Bringelly Shale formations. The Ashfield Shale consists of laminite and dark grey shale. Bringelly Shale consists of shale, calcareous claystone, and laminite. Between these two shale members is the Minchinbury Sandstone consisting of fine to medium-grained lithic quartz sandstone. This soil landscape occurs on low rolling to steep low hills with slopes ranging from 5-20% grade. The main soils are shallow dark podzolic or massive earthy clays on crests and upper slopes loams ranging to Yellow Podzolic soils and prairie soils on lower slopes and drainage lines.

The erosion hazard of the soil type is rated as Moderate to Very High for non-concentrated flows and High to Very High for concentrated flows. Other physical limitations of the landscape unit include hard setting soil profiles, low wet strength, high shrink swell, mass movement hazard and moderately reactive soil materials. The chemical soil characteristics range from Strongly Acidic to Slightly Acidic (pH commonly ranging from 4.0 – 6.5), low fertility, and generally low available water capacity.

Figure 4.1.1 – Extract map of the occurrence of the 'Luddenham' (lu) soil landscape unit



4.1.2. 'Blacktown' (bt) landscape unit

The 'Blacktown' landscape unit is the predominant soil landscape in the western Sydney area. The soil landscape occurs over the Wianamatta Group and Ashfield Shale which consists of laminite and dark grey siltstone, Bringelly Shale which consists of shale with occasional calcareous claystone, laminite and infrequent coal, and Minchinbury Sandstone consisting of fine to medium-grained quartz lithic sandstone.

The soils are characterised by Red and Brown Podzolic soils on mid to upper slopes grading to Yellow Podzolic soils on lower slopes and drainage lines.

The erosion hazard of the varying soil types is rated as Slight to Moderate for non-concentrated flows, ranging to Moderate to High for concentrated flows. Other physical limitations of the landscape unit include hard setting soil profiles, moderately reactive deep clays and High shrink-swell potential (localised). The chemical soil characteristics include generally acidic soils (pH commonly ranging from 5.0 – 7.0), low to moderate fertility, and localised sub-soil salinity.

Figure 4.1.2 – Extract map of the occurrence of the 'Blacktown' (bt) soil landscape unit



4.2 Acid Sulphate Soils

Potential Acid Sulfate Soils are soils that have concentrations of iron sulphide layers that can oxidise when exposed to oxygen generating sulphuric acid. In general, these soils occur less than 5 metres elevation above sea level and are predominantly restricted to low-lying coastal areas, adjoining estuarine areas. More recently, acid sulphate soils have been identified in long-term, drought-affected inland areas where water levels have dropped in waterways and wetlands, exposing acid sulphate material that has subsequently oxidised.

Oakdale West Estate: Building 2A – Soil and Water Management Plan

Given the general elevation and the soil types described within the Project area, acid sulphate soils are unlikely to occur in the area. A review of the relevant Acid Sulfate Soil Risk Map (ASSMAC – DLWC 1998) confirmed the Project area falls outside the study area of this resource.

Further reference to the online soil mapping resource ‘*eSpade*’ (NSW Department of Environment & Heritage) indicate that the site is not situated in an area at risk of Acid Sulphate soils. The map indicates the closest known occurrence is in the upper reaches of the Parramatta River and Georges River to the east and southeast of the Project.

4.3 Surface water

The Project is located on a level pad with a retaining wall on the north-western and southern boundaries. Preparatory earthworks by others have established cut off drains commencing on the southern boundary, draining to a temporary sediment basin in the north-eastern sector, near to the site boundary. The drainage pattern is ephemeral with runoff generated in response to prolonged rainfall or storm events.

4.4 Water Quality and Receiving Environment Assessment

The Project activities that have the potential risk of negative impacts on water quality parameters include:

- Establishing or relocating ‘dirty’ water drains and ‘clean’ water diversions
- Installing erosion and sediment controls.
- Minor earthworks, site preparation and temporary access roads.
- Trenching and earthworks for service installation.
- In-situ concrete works and concrete curing.
- Stormwater construction and drainage stabilisation.
- Dewatering ‘dirty’ water from site areas and sediment basin operations.
- Spills & leaks of fuels & oils from mobile and static machinery.
- Storage of chemicals, fuels & oils.
- Generation of building and construction waste.
- Importing, handling, stockpiling, and transporting materials & resources.
- Plant maintenance.
- General waste generation from compound/s & works areas.

The determination of the assessment of the drainage patterns, the heavily modified existing receiving environments, and the attributes of the receiving waters in the vicinity of the Project have been assessed as ‘standard’ in accordance with Blue Book Volume 1- Sect. 6.3.4 – (f) & Volume 2D – Table 6.1.

4.5 Groundwater

The presence of groundwater primarily impacts on erosion and sediment control during construction with regard to piling, foundation earthworks, trenching for drainage and services, culvert construction, and sediment basin construction. The EIS prepared for DA SSD 7348 at Section 2.3 describes the groundwater characteristics of the Project area as follows;

“Groundwater is expected to be relatively deep below the OWE site – no groundwater was encountered during geotechnical investigations which included boreholes drilled up to 15m below ground level.”

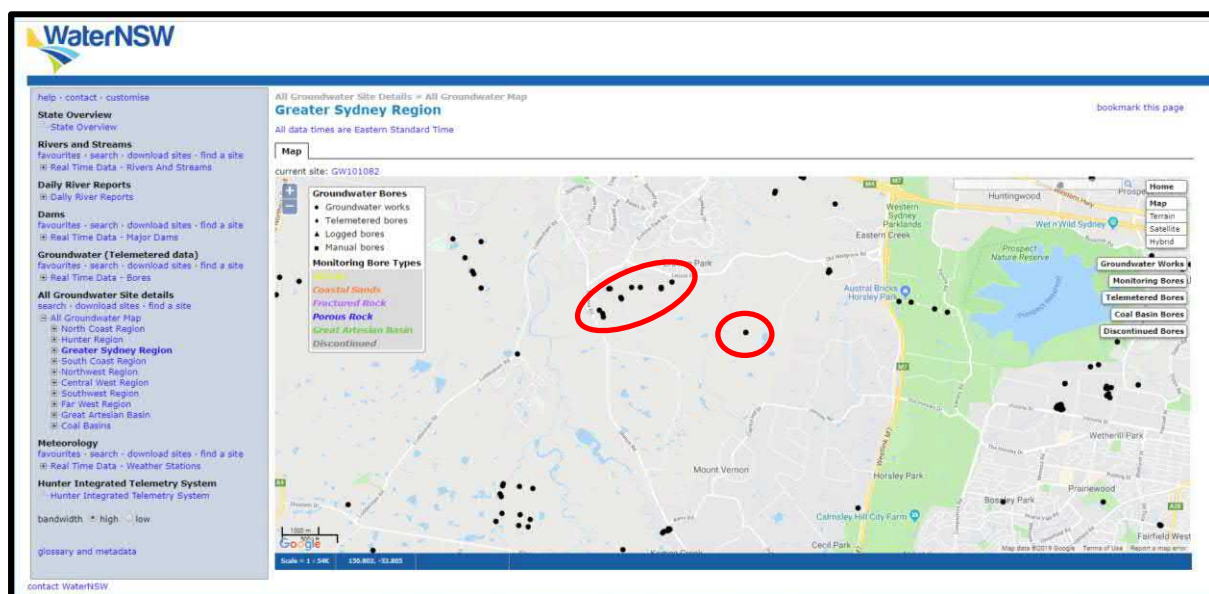
Oakdale West Estate: Building 2A – Soil and Water Management Plan

There are no obvious indicators of shallow groundwater sources, however the detectable presence of groundwater at or near the soil surface is highly dependent on seasonality and rainfall rates. Further assessment was undertaken the NSW Groundwater Bore Database (Department of Primary Industries – Water 2018).

The database was reviewed for information on existing groundwater bores in a three-kilometre radius of the Project area. Thirteen (13) groundwater sites were located in close proximity to the Project. Groundwater drill records for several sites were reviewed with final bore depths commonly being 50-60m below ground level. Groundwater table depths were not indicated.

In summary, the assessment indicates that groundwater is not likely to impact on the scope of the Project works.

Figure 4.5 – Extract map of the occurrence of groundwater bores in the Project vicinity.
(Note the nearest groundwater bores indicated are circled in red)



4.6 Rainfall

Rainfall data was assessed from the Sydney Equestrian Centre Automatic Weather Station (AWS), located approximately 5 kilometres south-east of the Project at Horsley Park. This data was recorded between 1997 to 2021. (Bureau of Meteorology, 2021). The Sydney Equestrian Centre AWS was also selected for the Project as it will provide real time weather monitoring during the proposed construction period.

Rainfall data collected shows that typically rainfall is higher during summer and autumn. Winter and spring are generally drier periods during the year. February is the wettest month, with a mean rainfall total of 103.6 millimetres. Both the mean and median average annual rainfall totals are 771.7 mm and 715.8 mm, respectively. Table 4-6 below provides a summary of climate data at the weather station.

Oakdale West Estate: Building 2A – Soil and Water Management Plan

Table 4-6 - Summary of rainfall records

Summary of rainfall records from 1997 - 2021													
Summer		Autumn			Winter			Spring			Summer		
	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Year
Mean rainfall	73.4	118.3	94.5	67.0	42.9	72.6	39.5	38.2	37.1	61.1	74.8	65.7	771.7
Mean rain days >1mm	7.7	7.3	8.3	6.5	5.0	6.5	5.1	4.0	4.8	5.8	6.9	7.2	75.1

Red = highest value blue = lowest value

4.7 Rainfall erosivity factor and design rainfall depth

The rainfall erosivity factor is a measure of the ability of rainfall to cause erosion (referred to as “R” in the Revised Universal Soil Loss Equation - RUSLE). The rainfall erosivity factor is used to determine the soil loss in tonnes per hectare over one year and is used in calculations when sizing construction sediment basins.

The rainfall erosivity factor which is referred to as the ‘R’ Factor has been assessed from an Intensity Frequency Duration Table (see below) prepared for the site based on the 2-year, 6 hours storm event of 9.2mm/hour. The R Factor value of 1920 is calculated from the 0.5 ‘Exceedances per year’, 6 Hour storm of 9.2mm/hour being ‘S’, where $R = 164.74(1.1177)^S S^{0.6444}$, as per the Blue Book - Appendix A2 & B.

The nearest ‘Blue Book’ centre for detailed rainfall depths is Blacktown which is approximately 12kms north-east of The Project (Blue Book Volume 1- Table 6.3a). As noted above at Section 4.3, the Project was assessed as ‘standard’ in accordance with Blue Book Volume 1- Sect. 6.3.4 – (f) & Volume 2D – Table 6.1, however, we have elected to adopt the 5-day 85th percentile rainfall depth for Blacktown of 32.2mm.

Table 4.7 - Intensity Frequency & Duration Table

Australian Government
Bureau of Meteorology

Location

Label: Not provided

Latitude: -33.8269 [Nearest grid cell: 33.8375 (S)]

Longitude: 150.8027 [Nearest grid cell: 150.8125 (E)]

Issued: 24 June 2021

Very Frequent Design Rainfall Depth (mm)

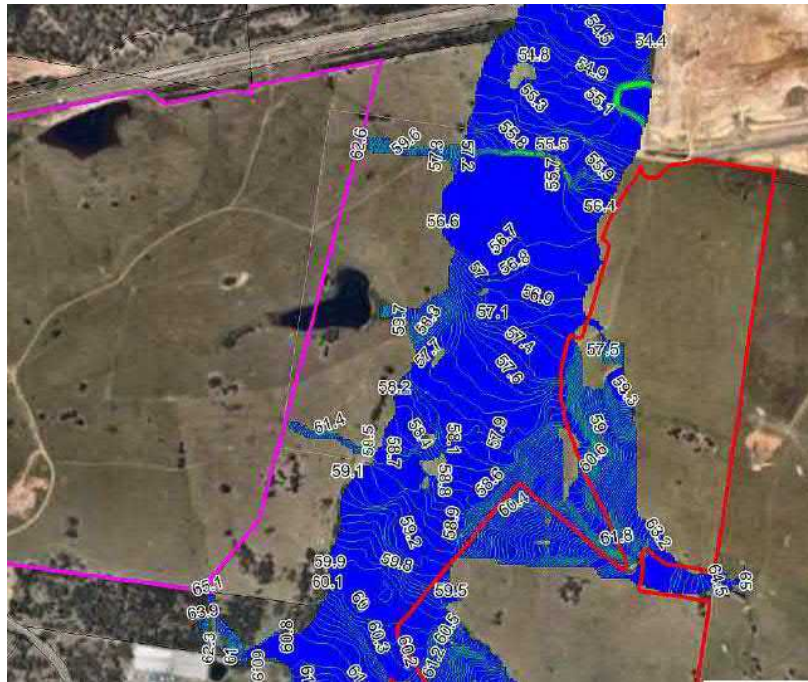
Rainfall depth for Durations, Exceedance per Year (EY), and Annual Exceedance Probabilities (AEP).
[FAQ for New ARR probability terminology](#)

Duration	Exceedance per Year (EY)							
	12EY	6EY	4EY	3EY	2EY	1EY	0.5EY#	0.2EY*
1 min	0.826	0.952	1.18	1.35	1.59	2.04	2.58	3.30
2 min	1.41	1.64	2.02	2.29	2.67	3.33	4.15	5.19
3 min	1.92	2.24	2.78	3.16	3.70	4.64	5.80	7.27
4 min	2.35	2.75	3.44	3.93	4.62	5.83	7.32	9.24
5 min	2.74	3.21	4.02	4.61	5.45	6.92	8.71	11.0
10 min	4.17	4.89	6.19	7.14	8.51	11.0	13.9	17.9
15 min	5.15	6.04	7.65	8.83	10.6	13.7	17.4	22.4
20 min	5.90	6.92	8.75	10.1	12.1	15.7	19.9	25.6
25 min	6.52	7.63	9.64	11.1	13.3	17.3	21.9	28.0
30 min	7.04	8.24	10.4	12.0	14.3	18.5	23.5	30.0
45 min	8.27	9.66	12.1	14.0	16.6	21.5	27.1	34.4
1 hour	9.21	10.7	13.5	15.5	18.4	23.7	29.7	37.5
1.5 hour	10.6	12.4	15.5	17.8	21.1	27.1	33.8	42.3
2 hour	11.8	13.7	17.1	19.6	23.2	29.8	37.1	46.2
3 hour	13.5	15.8	19.7	22.6	26.7	34.3	42.5	52.7
4.5 hour	15.6	18.1	22.7	26.1	31.0	39.8	49.3	61.0
6 hour	17.2	20.1	25.2	29.0	34.5	44.5	55.2	68.4
9 hour	19.7	23.1	29.2	33.8	40.4	52.5	65.3	81.5
12 hour	21.8	25.6	32.5	37.6	45.2	59.1	73.9	93.0

4.8 Flooding

The Flood Impact Assessment was prepared for the approved SSD 7348 Concept Proposal and Stage 1 development EIS (at Appendix P), detailing the flooding risks and characteristics of the Project area. The EIS flood modelling concluded that flood impacts were mainly confined to the Ropes Creek flood plain and we note that Project site is elevated well above the 100-year ARI flood levels. The EIS does not propose any flood mitigation or management measures area during construction. We refer to the Figure 35, Page 145 of the EIS, partly reproduced below (Note the Project footprint is not shown on Figure 35, and its approximate position is to the west of centre, far left of frame).

Figure 4.8 – Extract of Figure 35, Page 145 of the OWE EIS prepared by Urbis



5 ENVIRONMENTAL ASPECTS AND IMPACTS

5.1 Construction activities

Key aspects of the project that could result in adverse impacts to soils and water include:

- Installation of preliminary erosion and sediment controls and establishment of off-site water diversions.
- Establishment of compounds, exclusion zones, stockpile areas, and soils treatment area/s.
- Minor earthworks, site preparation and site access/temporary access roads.
- Trenching and earthworks for service installation.
- In-situ concrete works and concrete curing.
- Asphalt paving activities.
- Operation of internal haulage and access routes.
- Stormwater construction and drainage stabilisation, including temporary sediment basins.
- Dewatering 'dirty' water from site areas and sediment basin operations

Oakdale West Estate: Building 2A – Soil and Water Management Plan

- Importing, handling, stockpiling and transporting materials & resources.
- Compound operation including fuel and chemical storage, refuelling and chemical handling.
- Storage of chemicals, fuels & oils.
- Spills & leaks of fuels & oils from mobile and static machinery.
- Plant maintenance.
- Generation of building and construction waste
- General putrescible waste from compound/s & works areas
- Noxious weed treatment including herbicide spraying.
- Topsoil replacement, revegetation, and landscaping
- Landscaping.

Refer also to the Aspects and Impacts Register included in the CEMP.

5.2 Impacts

The potential for impacts on soil and water will depend on a number of factors. Primarily, impacts will be dependent on the nature, extent and magnitude of construction activities and their interaction with the natural environment. Potential impacts attributable to construction might include:

- Exposure and disturbance of soils during earthworks, creating the potential for off-site transport of eroded sediments and pollutants.
- Alteration of surface and subsurface flows that could cause disturbances to hydrology and hydraulics.
- Off-site discharge of water containing sediment from dewatering activities.
- Contamination of soils, and surface and groundwater from accidental spills or oil leaks. This might include grease or fuel from machinery and vehicles, construction sites or compounds, or spills of other chemicals that may be used during the course of construction.
- Disturbance of unidentified contaminated land e.g., pesticide/chemical concentrations in soil from historical land use practices, and subsequent generation of contaminated runoff.
- Litter and gross pollutants from construction activities.
- Erosion and sedimentation of active construction zones during construction of the project as a result of a large rainfall event or storm event.

Some impacts on soil and water attributable to the Project are anticipated. Relevant aspects and the potential for related impacts have been considered in a risk assessment in the CEMP.

A full list of management measures associated with soil and water are detailed in Section 6 of this Plan below.

Oakdale West Estate: Building 2A – Soil and Water Management Plan

6 ENVIRONMENTAL CONTROL MEASURES

Specific measures and requirements to address soil and water management are outlined in in Table 6-1.

Table 6-1 - Management and mitigation measures

ID	Measure / Requirement	When to implement	Responsibility	Reference
General				
SW1	Training will be provided to all project personnel, including relevant sub-contractors on sound erosion and sediment control practices and the requirements from this plan through inductions, toolbox talks and pre-start briefings.	Pre-construction Construction	Project Manager / Environmental Site Representative	Managing Urban Stormwater: Soils and Construction Volumes 1 & 2A
SW2	A Project Soil Conservationist (CPESC) will be engaged and consulted throughout construction to provide advice and review SWMP preparation, erosion and sediment control design, installation, maintenance, and the development of PESCPs.	Pre-construction Construction	Project Manager / Environmental Site Representative	SSD 7348 Development Consent Condition D80 (a) Best Practice
SW3	EWMSs may be prepared and implemented to manage soil and water impacts that include but are not limited to: <ul style="list-style-type: none"> • Activities assessed as having high environmental risk, • Activities that impact on environmentally sensitive areas, • Activities that pose a risk to receiving water quality, • Earthworks including temporary stockpiling and disposal of excavated material and protocols for the management of contaminated material, • Work around drainage lines and where construction water may be discharged into natural waterways, • Construction and operation of sediment basins including connecting drainage for the associated catchment area; and drainage works. 	Construction	Project Engineer / Supervisor / Environmental Site Representative	Best Practice
SW4	Contaminated soils and Acid Sulfate Soils and / or Potential Acid Sulfate Soils are to be managed in accordance with the Erosion and Sediment Control Plan, which forms Appendix A of this SWMP.	Pre-construction / Construction	Project Manager / Supervisor / Environmental Site Representative	Managing Urban Stormwater: Soils and Construction Volumes 1 & 2A
Erosion and sediment control				
SW5	A Primary Erosion and Sediment Control Plan (ESCP) has been prepared by the Soil Conservationist (CPESC) -See Appendix A of this SWMP. The plan includes arrangements for managing wet weather events, including monitoring of potential high-risk events (such as storms) and specific controls and follow-up measures to be applied in wet weather. The Primary Erosion and Sediment Control Plan is to be referred to and considered when preparing progressive erosion and sediment control plans.	Pre-construction and construction	Environmental Site Representative / Project Soil Conservationist	SSD 7348 Development Consent Condition D80 (a) EIS Section 5.2 - Table 27: SEARs reference table & Section 7.1 – Table 43
SW6	Progressive Erosion and Sediment Control Plans (PESCPs) will be prepared and	Pre-construction	Environmental Site	SSD 7348 Development

Oakdale West Estate: Building 2A – Soil and Water Management Plan

ID	Measure / Requirement	When to implement	Responsibility	Reference
	implemented in advance of construction. PESCPs will be updated as required.	and construction	Representative / Project Soil Conservationist	Consent Condition D81 EIS Section 5.2 - Table 27: SEARs reference table & Section 7.1 – Table 43
SW7	Prior to the commencement of any construction or other surface disturbance for the development, suitable erosion and sediment control measures to be installed and maintained on-site, in accordance with the relevant requirements of the Managing Urban Stormwater: Soils and Construction - Volume 1: Blue Book (Landcom, 2004) guideline and the approved Erosion and Sediment Control Plan included in the CEMP.	Pre-construction / Construction	Project Engineer / Supervisor	SSD 9794683 Development Consent Condition B18 Managing Urban Stormwater: Soils and Construction Volume 1
SW8	Hardstand material, rumble grids or similar will be provided at exit points from construction areas onto public roads to minimise the tracking of soil and particulates onto public roads.	Pre-construction / Construction	Project Engineer / Supervisor	SSD 7348 Development Consent Condition D80 (c) EIS Section 5.2 - Table 27: SEARs reference table, Section 7.1 – Table 43 & Section 7.2
SW9	Site compounds, access tracks, stockpile sites and temporary work areas will be designed and located to minimise erosion.	Pre-construction / Construction	Project Manager / Supervisor / Environmental Site Representative	SSD 7348 Development Consent Condition D80 (c) EIS Section 5.2 - Table 27: SEARs reference table & Section 7.1 – Table 43
SW10	Works will be programmed to minimise the extent and duration of unstabilised soil surfaces.	Pre-construction / Construction	Project Manager / Supervisor / Environmental Site Representative	SSD 7348 Development Consent Condition D80 (c) EIS Section 5.2 - Table 27: SEARs reference table, Section 7.1 – Table 43 & Section 7.2
SW11	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.	Pre-construction / Construction	Supervisor	SSD 7348 Development Consent Condition D80 (c) EIS Section 5.2 - Table 27: SEARs reference table, Section 7.1 – Table 43 & Section 7.2
SW12	Stabilisation will be implemented for dormant areas exposed for four weeks or more (including stockpiles and batters); by providing soil surface protection (i.e., geotextile fabric, stabilised mulch, soil binder or spray grass)	Construction	Project Engineer / Supervisor	SSD 7348 Development Consent Condition D80 (c) EIS Section 5.2 - Table 27: SEARs reference table, Section 7.1 – Table 43 & Section 7.2

Oakdale West Estate: Building 2A – Soil and Water Management Plan

ID	Measure / Requirement	When to implement	Responsibility	Reference
SW13	Drains, banks, or diversions will be formed (and stabilised where required) to direct runoff from disturbed areas to sediment basins or to areas with adequate sediment control devices, and away from watercourses or tributary drainage lines. Lip berms and batter chutes with velocity dams will be progressively formed and maintained on fill formations.	Construction	Project Engineer / Supervisor	SSD 7348 Development Consent Condition D80 (c) EIS Section 5.2 - Table 27: SEARs reference table, Section 7.1 – Table 43 & Section 7.2
SW14	Staged re-vegetation and/or other permanent stabilisation will be implemented in Site areas as work proceeds.	Construction	Project Engineer / Supervisor / Environmental Site Representative	SSD 7348 Development Consent Condition D80 (c) EIS Section 5.2 - Table 27: SEARs reference table, Section 7.1 – Table 43 & Section 7.2
Stockpiles				
SW15	Stockpiles will be: <ul style="list-style-type: none"> • located in designated stockpile sites, above 10-year flood levels, • located at least 5 m from likely areas of concentrated water flows and drainage lines, • Topsoil stockpiles formed to heights to no greater than 2 m, and all other soil materials to be no higher than 5m, and batter slopes to be no steeper than 2:1, • established so that any slump of the stockpile will not affect erosion and sediment control measures or infringe on specified minimum clearance requirement, • covered or otherwise protected from erosion where stockpiles will be in place for more than 20 days, or temporary stockpiles that are susceptible to wind or water erosion, within 5 days of forming each stockpile. • Managed to avoid contamination with noxious weeds and cross-mixing with other stockpiled materials. Weed growth on stockpiles will be monitored and suppressed as required. 	Construction	Project Engineer / Supervisor / Environmental Site Representative	SSD 7348 Development Consent Condition D80 (c) EIS Section 7.2 Managing Urban Stormwater: Soils and Construction Volume 1
Sediment basins				
SW16	Construction sediment basins will be designed and constructed in accordance with the requirements and procedures detailed in the Blue Book Volume's 1 & 2D. The construction sediment basin design/s, restoration and revegetation methodology will be formulated and/or reviewed by the Project Soil Conservationist.	Pre-construction / Construction	Project Soil Conservationist / Supervisor	SSD 7348 Development Consent Condition D81 Managing Urban Stormwater: Soils and Construction Volume 1 & 2D
SW17	All sediment basins will have depth indicators installed that clearly show the sediment storage zone together with basin identification signage basin number.	Construction	Project Engineer / Supervisor / Environmental Site Representative	Managing Urban Stormwater: Soils and Construction Volume 1

Oakdale West Estate: Building 2A – Soil and Water Management Plan

ID	Measure / Requirement	When to implement	Responsibility	Reference
SW18	Run-off from areas within catchments (that are controlled by sediment basins) is to be diverted to the sediment basins in stabilised drainage lines where possible.	Construction	Supervisor	SSD 7348 Development Consent Condition D81 EIS Section 7.2 Managing Urban Stormwater: Soils and Construction Volume 1
SW19	Suitable all-weather access will be constructed and maintained to sediment basins to allow for basin testing, treatment, discharge, and maintenance.	Pre-construction / Construction	Project Engineer / Supervisor / Environmental Site Representative	Best Practice Managing Urban Stormwater: Soils and Construction Volume 1
SW20	Water quality basins shall be flocculated with an appropriate approved flocculant (eg. gypsum) using an early dosing system to minimise the settling time of suspended dispersible and small sediment particles and to maximise the efficiency of the basins.	Construction	Supervisor	SSD 7348 Development Consent Condition D81 & D82 EIS Section 7.2 Managing Urban Stormwater: Soils and Construction Volume 1
SW21	Prior to discharging any water from a sediment basin, representative water samples will be obtained and tested to ensure that it meets the NSW EPA water quality criteria.	Construction	Environmental Site Representative / Supervisor	NSW POEO Act 1997 SSD 7348 Development Consent Condition D81 & D82 EIS Section 6.7.4. Managing Urban Stormwater: Soils and Construction Volume 1
SW22	Flocculant or coagulant (whether gypsum or another approved material) will be applied to settle suspended sediments within 24 hours of the conclusion of each rain event causing runoff. The cycle time to treat, dewater and return the maximum storage capacity to any individual construction water quality basin prior to the next rainfall event shall not exceed 5 days.	Construction	Environmental Site Representative / Supervisor	NSW POEO Act 1997 SSD 7348 Development Consent Condition D81 & D82 EIS Section 6.7.4. & Section 7.1 – Table 43 Managing Urban Stormwater: Soils and Construction Volume 1
SW23	Subsequent to the initial series of basin sample tests, where a statistical correlation can be demonstrated between turbidity and Total Suspended Solids (TSS), an application will be made to the Principal to allow for the discharge of supernatant waters based on turbidity measurements before confirmatory laboratory data is available.	Construction	Environmental Site Representative	Managing Urban Stormwater: Soils and Construction Volume 1

Oakdale West Estate: Building 2A – Soil and Water Management Plan

ID	Measure / Requirement	When to implement	Responsibility	Reference
SW24	<p>A sediment basin management register will be maintained for each sediment basin that records;</p> <ul style="list-style-type: none"> • personnel approving the dewatering activities, • time & date, • water quality test results and estimated volumes for each discharge. 	Construction	Environmental Site Representative / Project Engineer	<p>SSD 7348 Development Consent Condition D81 & D82</p> <p>Best Practice</p> <p>Managing Urban Stormwater: Soils and Construction Volume 1</p>
Dewatering				
SW25	<p>Personnel responsible for approval and/or carrying out dewatering activities will be adequately trained and inducted on the dewatering procedures and requirements.</p>	Construction	Environmental Site Representative / Supervisor	<p>Best Practice</p> <p>Managing Urban Stormwater: Soils and Construction Volume 1</p>
SW26	<p>Water to be discharged from site will be discharged in accordance with a Site Dewatering Procedure.</p> <p>In accordance with NSW EPA water quality criteria, the water quality parameters for discharge from site discharge points will be:</p> <ul style="list-style-type: none"> • Total Suspended Solids <50mg/L • pH 6.5 - 8.5 • Oil & grease – not visible. 	Construction	Environmental Site Representative / Supervisor	<p>NSW POEO Act 1997</p> <p>SSD 7348 Development Consent Condition D81 & D82</p> <p>Managing Urban Stormwater: Soils and Construction Volume 1</p>
SW27	<p>A site dewatering register will be maintained for site areas (other than sediment basins) that require treatment, dewatering and discharge to off-site areas. The register will record;</p> <ul style="list-style-type: none"> • dewatering procedure, • date and time for each discharge at each location, • water quality test results for each discharge, • personnel approving the dewatering activities, • evidence of discharge monitoring, or risk assessment and mitigation measures used to eliminate the risks of pollution or erosion. 	Pre-construction / Construction	Environmental Site Representative / Project Engineer	<p>NSW POEO Act 1997</p> <p>SSD 7348 Development Consent Condition D81 & D82</p> <p>Managing Urban Stormwater: Soils and Construction Volume 1</p>
SW28	<p>Water captured in sediment basins and other site works areas will be reused for dust suppression, compaction, or other construction activities where possible. If a proposed source, other than a town water supply or natural water source, procedures will be developed for regular testing to ensure that the water is suitable for the purpose and is not hazardous to health and the environment.</p>	Construction	Environmental Site Representative / Project Engineer / Supervisor	<p>EIS Section 7.1 – Table 43</p> <p>Managing Urban Stormwater: Soils and Construction Volume 1</p>
SW29	<p>All dewatering activities will be subject to prior approval from relevant project personnel. The dewatering activities will be monitored to ensure:</p> <ul style="list-style-type: none"> • intake suction devices are positioned to prevent extraction or disturbance of settled sediments, 	Construction	Environmental Site Representative / Supervisor	<p>NSW POEO Act 1997</p> <p>SSD 7348 Development Consent Condition D81 & D82</p> <p>Managing Urban</p>

Oakdale West Estate: Building 2A – Soil and Water Management Plan

ID	Measure / Requirement	When to implement	Responsibility	Reference
	<ul style="list-style-type: none"> no erosion is occurring at discharge locations and/or downstream areas, no inadvertent or intentional controlled discharge of untreated waters occurs. 			Stormwater: Soils and Construction Volume 1
Site stabilisation and restoration				
SW30	Management and procedures for site stabilisation will be in accordance with the primary Erosion and Sediment Control Plan at Appendix A of this SWMP.	Construction	Environment Manager / Project Soil Conservationist	EIS Section 7.2 Managing Urban Stormwater: Soils and Construction Volume 1
SW31	The rehabilitation of disturbed areas will be undertaken progressively as construction stages are completed and in accordance with procedures detailed in the Blue Book Volume's 1 & 2D.	Construction / Post construction	Environmental Site Representative / Supervisor	SSD 7348 Development Consent Condition D80 (c) EIS Section 7.2 Managing Urban Stormwater: Soils and Construction Volume 1
SW32	Restoration of these areas includes; <ul style="list-style-type: none"> topsoiling of the areas, seeding, planting, watering, and maintenance, removal of temporary erosion control devices and of accumulated sediments, removal of unused construction materials and waste materials. 	Construction / Post construction	Environmental Site Representative / Supervisor	EIS Section 7.2 Managing Urban Stormwater: Soils and Construction Volume 1
Spill prevention and response				
SW33	Management for spill prevention and response will be in accordance with the CEMP. An Emergency Spill Response Procedure has been developed in the CEMP.	Pre-construction / Construction	Environmental Site Representative / Supervisor / Project Manager	NSW POEO Act 1997 SSD 7348 Development Consent Condition D82 & D109
SW34	Emergency wet and dry spill kits will be kept on site at locations described within the Emergency Spill Response Management Procedures (i.e., at compounds). All personnel will be made aware of the spill kit locations and will be trained in their use.	Construction	Environmental Site Representative / Supervisor	NSW POEO Act 1997 SSD 7348 Development Consent Condition D82
SW35	A schedule of all hazardous materials kept on site during construction will be maintained for the duration of the project.	Construction	Environmental Site Representative / Supervisor	Best Practice
SW36	The ancillary facilities will be managed within the ESCP. The following measures will be included to limit sediment and other contaminations entering receiving waterways: <ul style="list-style-type: none"> Chemicals will be stored within a sealed or bunded area not within 5 m of any aquatic habitat, any areas of concentrated water flow, flood prone or poorly drained areas, or on slopes steeper than 1:10 Vehicle movements will be restricted to designated pathways where feasible and appropriate controls will be in place where plant is stored Areas that will be exposed for extended periods, such as car parks and main 	Contractor	Construction	NSW POEO Act 1997 SSD 7348 Development Consent Condition D82 & D110

Oakdale West Estate: Building 2A – Soil and Water Management Plan

ID	Measure / Requirement	When to implement	Responsibility	Reference
	access roads, will be stabilised where feasible.			
SW37	All spills and associated environmental incidents are to be reported in accordance with the CEMP, and where applicable, in accordance with Section 148 of the NSW POEO Act 1997.	Construction	Environmental Site Representative / Supervisor	NSW POEO Act 1997
Monitoring and inspections				
SW38	Nominated project personnel will conduct site inspections of erosion and sedimentation controls at least weekly.	Construction	Environmental Site Representative / Supervisor	EIS Section 7.2 Managing Urban Stormwater: Soils and Construction Volume 1
SW39	All disturbed areas, revegetated/stabilised areas and all permanent and temporary erosion and sediment control works will be inspected: <ul style="list-style-type: none"> • At least weekly • Immediately before extended site shut down • At the conclusion of all rainfall events exceeding 10mm and during periods of prolonged rainfall as soon as practicable. 	Construction	Environmental Site Representative / Supervisor	EIS Section 7.2 Managing Urban Stormwater: Soils and Construction Volume 1
SW40	Any rectification measures which are identified will be addressed and / or recorded to ensure appropriate rectification within the nominated timeframe. The timeframe for rectification works is based on a risk assessment of deficiencies in controls, being; <ul style="list-style-type: none"> • High: within 24 hours of inspection, • Medium: within 3 working days of inspection; and • Low: within 3 working days of inspection. 	Construction	Environmental Site Representative / Supervisor	EIS Section 7.2 Managing Urban Stormwater: Soils and Construction Volume 1
SW41	Monitoring of rainfall events (with observations of rainfall in millilitres) will be undertaken daily during normal workdays.	Construction	Environmental Site Representative	Best Practice Managing Urban Stormwater: Soils and Construction Volume 1

7 COMPLIANCE MANAGEMENT

7.1 Roles and responsibilities

The Contractor's Project Team's organisational structure and overall roles and responsibilities are outlined in CEMP. Specific responsibilities for the implementation of environmental controls are detailed in Section 6 of this Plan.

7.2 Training

All employees, contractors and utility staff working on site will undergo site induction training relating to soil and water management issues. The induction training will address elements including:

- Existence and requirements of this sub-plan.
- Relevant legislation.
- Incident response, management, and reporting.
- Roles and responsibilities for soil and water management.
- Water quality management and protection measures.

Targeted training in the form of toolbox talks or specific training will also be provided to personnel with a key role in soil and water management. Examples of training topics include:

- ERSED control installation methodology.
- Sediment basin construction.
- Sediment basin operation.
- Sediment basin maintenance.
- Working near or in drainage lines.
- Emergency response measures in high rainfall events.
- Preparedness for high rainfall events.
- Lessons learnt from incidents and other event e.g., high rainfall/flooding.
- Spill response.
- Stockpile location criteria.

Further details regarding staff induction and training are outlined in the CEMP.

7.3 Monitoring and inspection

Regular monitoring and inspections will be undertaken during construction. Monitoring and inspections will include, but not be limited to:

- Immediate areas and drainage lines adjacent to the Project area
- Construction sediment basin water quality prior to discharge.
- Weekly and post rainfall inspections to evaluate the effectiveness of erosion and sediment controls measures in accordance with Table 6-1.

Oakdale West Estate: Building 2A – Soil and Water Management Plan

Table 7-3 Inspection Schedule

Activity	Frequency	Location	Responsibility	Record
Environmental Site Inspection	Weekly	Site wide	Environmental Site Representative	Site inspection log
Rainfall Inspection (10mm or greater rainfall).	Prior to rainfall event, during event, within 24 hours after the event	Site wide	Environmental Site Representative	Site inspection log

Additional requirements and responsibilities in relation to inspections, in addition to those in Table 6-1, are documented in the CEMP.

7.4 Licences and permits

The water quality discharge criteria for the project are listed below, in Table 7-4.

Table 7-4 Discharge water quality criteria

Parameter	Criteria	Sampling method	Frequency
pH	6.5 –8.5	Probe	Daily during any discharge
Turbidity	TBA following correlation with TSS results	Probe or Grab Sample	Likely to be required daily during any discharge
Total Suspended Solids*	50 mg/L	Grab Sample	Daily during any discharge
Oil and Grease*	No visible	Visual inspection	Daily during any discharge

Any other relevant licences or permits will be obtained in the lead up to and during construction as required.

7.5 Weather monitoring

A rain gauge to be installed in the main compound will be used in the monitoring of rainfall events. The Wet Weather Contingency Procedure is detailed in the Project ESCP at Annexure E.

7.6 Auditing

Audits (both internal and external) will be undertaken to assess the effectiveness of environmental mitigation and management measures, compliance with this plan and other relevant approvals, licences and guidelines. Audit requirements are detailed in the CEMP.

7.7 Reporting

Reporting requirements and responsibilities are documented in the CEMP.

8 REVIEW AND IMPROVEMENT

8.1 Continuous improvement

Continuous improvement of this Plan will be achieved by the ongoing evaluation of environmental management performance against environmental policies, objectives and targets for the purpose of identifying opportunities for improvement.

The continuous improvement process will be designed to:

- Identify areas of opportunity for improvement of environmental management and performance.
- Determine the cause or causes of non-conformances and deficiencies.
- Develop and implement a plan of corrective and preventative action to address any non-conformances and deficiencies.
- Verify the effectiveness of the corrective and preventative actions.
- Document any changes in procedures resulting from process improvement.
- Make comparisons with objectives and targets.

8.2 SWMP update and amendment

The processes described in the CEMP may result in the need to update or revise this Plan. This will occur as needed.

Any revisions to the SWMP will be in accordance with the process outlined in the CEMP.

A copy of the updated plan and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure located within the CEMP.

Appendix A
Erosion and Sediment Control Plan

APPENDIX IA

Erosion and Sediment Control Plan

PROPOSED INDUSTRIAL DEVELOPMENT – OAKDALE WEST ESTATE – BUILDING 2A

EROSION AND SEDIMENT CONTROL PLAN

December 2021 - Revision 1

Prepared for:



Prepared by:

ANDREW LITTLEWOOD

CPESC & Senior Soil Conservationist

Document Status

Rev No.	Date	Revision Description	Prepared by	Reviewed		Approved	
				Name	Date	Name	Date
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Document Authorship Information

Project	Proposed Industrial Development – Oakdale West Estate – Building 2A, Lot 105 DP 1262310
Document	Erosion and Sediment Control Plan – Construction of Building 2A
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Contents

1.	Introduction	4
2.	Purpose	4
3.	Scope	4
4.	Objectives	4
5.	Performance Criteria & SSD Development Approval Condition Compliance	4
5.1	Performance Criteria	4
5.2	SSD Development Approval Condition Compliance	5
6.	Guidelines, Standards and Procedures	6
7.	Environmental Planning	6
7.1	Construction Activities	6
7.2	Impacts	7
7.3	'Blue Book' receiving waters classification	7
7.4	Key Management Strategies	7
7.5	Preparation of Progressive Erosion and Sediment Control Plans (PESCP's)	8
7.6	Erosion and Sediment Control Training for Site Personnel	9
7.7	Inspection and Maintenance	9
8.	Erosion Control Measures and Sediment Control Methods	9
9.	Soil & Water Management Activities & Controls	12

Appendices

- Appendix A** Site Characteristics & Revised Universal Soil Loss Equation Assessment
- Appendix B** RUSLE Catchment Assessment & Sediment Basin Calculations
- Appendix C** Sediment Basin Management & Dewatering Procedure
- Appendix D** Sediment Basin Management and Discharge Record
- Appendix E** Wet Weather Contingency Procedure
- Appendix F** Progressive Erosion & Sediment Control Plans
- Appendix G** Standard drawings

Oakdale West Estate: Building 2A – Erosion and Sediment Control Plan

1 Introduction

This Primary Erosion and Sediment Control Plan (Sub-plan) has been prepared as Appendix A in accordance with the Project Soil and Water Management Plan (SWMP).

The Sub-plan has been prepared to reduce the potential for risk of environmental impacts caused by erosion and sedimentation associated with project activities.

2 Purpose

The purpose of this Sub-plan is to outline the planning, methodologies, techniques and monitoring to minimise the potential environmental impacts of erosion and sedimentation arising from the Project construction activities.

3 Scope

The scope of the Primary ESCP will;

- Provide a strategy and framework for construction to be planned, implemented and maintained to mitigate any adverse environmental impacts,
- Propose control measures and management procedures to be implemented during construction, to avoid or minimise potential adverse impacts to soils, surface water and groundwater,

This Primary ESCP has been prepared in accordance with the requirements of the 'Blue Book' being a collective of;

- Managing Urban Stormwater: Soils and Construction 4th Edition Volume 1 – Landcom, reprinted 2006
- Volume 2A: Installation of Services – NSW Department of Environment & Climate Change (DECC), 2007
- Volume 2D: Main Road Construction – (DECC), 2007.

4 Objectives

The key objectives of the Primary ESCP is to;

- Identify potential impacts to soil and water quality such as erosion and sedimentation arising from construction activities,
- Outline the soil and water management strategy for the construction phase of the development,
- Promote the adoption of sound principles and criteria for planning and implementation of erosion and sediment controls,
- Ensure the design and construction of controls is undertaken in accordance with the relevant guidelines,
- Minimise the adverse risks to soils and water by detailing mitigation measures and strategies,
- Provide an outline of a monitoring, inspection and reporting framework for the ongoing assessment of adherence to the ESCP.

5 Performance Criteria & SSD Development Approval Condition Compliance

The performance criteria for the ESCP are to:

- Limit potential for adverse environmental impacts on downstream waterways, riparian zones, and other identified sensitive areas,
- Minimise the risk and subsequent occurrence of erosion and sedimentation, to mitigate the impacts on project areas, sensitive areas, and downstream environments,
- Prevent the occurrence of pollution incidents causing environmental harm,
- Maintain existing downstream waterway attributes and water quality parameters,

Oakdale West Estate: Building 2A – Erosion and Sediment Control Plan

- Manage erosion and sedimentation with sound management practices of effective planning and formation of relevant controls
- Ensure compliance with legislative & regulatory requirements, and to maintain liaison and communication with statutory authorities and/or delegates.

5.2 SSD Development Approval Condition Compliance

The following table details this ESCP's compliance with the State Significant Development (SSD) Consent Condition requirements for SSD 7348 Development Consent – Mod 1-7.

Table 5.2

SSD 7348 Development Consent Condition	ESCP Section & Page
D80(a) – <i>'Erosion and Sediment Control Plan must... be prepared by a suitably qualified and experienced person(s);'</i>	See 'Document Authorship Information' – Page 2
D80(b) – <i>'Erosion and Sediment Control Plan must...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.'</i>	See Section 3 - 'Scope of ESCP' – Page 4. The ESCP has been prepared in accordance with the requirements of the Managing Urban Stormwater - Soils and Construction 4th Edition, Volumes 1, 2A & 2D, known as the 'Blue Book'
D80(c) – <i>'Erosion and Sediment Control Plan must... 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;'</i>	<ul style="list-style-type: none"> • See Section 8 – 'Erosion Control Measures and Sediment Control Methods' – Table 8 – Page 10, and; • See Section 9 – 'Soil & Water Management Activities & Controls' Table 9 – Page 13
D80(d) – <i>'Erosion and Sediment Control Plan must... 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.'</i>	<ul style="list-style-type: none"> • See Section 7.6 'Erosion and Sediment Control Training for Site Personnel' – Page 8, and; • See Section 7.7 'Inspection and Maintenance' – Page 8

The following table details this ESCP's compliance with the SSD Consent Condition requirements for SSD 9794683 Development Consent – Oakdale West Stage 3 Development.

Table 5.2.1

SSD 9794683 Development Consent Condition	ESCP Section & Page
B18 - <i>Prior to the commencement of any construction or other surface disturbance for the development, the Applicant must install and maintain suitable erosion and sediment control measures on-site, in accordance with the relevant requirements of the Managing Urban Stormwater: Soils and Construction - Volume 1: Blue Book (Landcom, 2004) guideline and the Erosion and Sediment Control Plan included in the CEMP required by condition C2.</i>	<ul style="list-style-type: none"> • See Section 7.1 – 'Construction Activities' – Page 6 • See Section 7.4 – Key Management Strategies – Page 7 • See Section 9 – 'Soil & Water Management Activities & Controls' – Table 9 – Section 1 & 2
B19 – <i>'The development must comply with section 120 of the POEO Act, which prohibits the pollution of waters, except as expressly provided for in an EPL.'</i>	<ul style="list-style-type: none"> • See ESCP Appendix C – 'Sediment Basin Management & Dewatering Procedure'
B30 – <i>'The Applicant must take all reasonable steps to minimise dust generated during all works authorised by this consent.'</i>	<ul style="list-style-type: none"> • See Section 9 – 'Soil & Water Management Activities & Controls' – Table 9 – Section 2
B31 - <i>During construction of the development, the Applicant must comply with the dust minimisation measures detailed in the Construction Environmental Management Plan required by Condition C2.</i>	<ul style="list-style-type: none"> • See Section 9 – 'Soil & Water Management Activities & Controls' – Table 9 – Section 2

Oakdale West Estate: Building 2A – Erosion and Sediment Control Plan

6. Guidelines, Standards and Procedures

Name of Document/Publication	Author	Published
Acid Sulfate Soil Manual	ASSMAC	1998
Approved Methods for the Sampling and Analysis of Water Pollutants in NSW	NSW EPA	2004
Australian and New Zealand Guidelines for Fresh and Marine Water Quality	ANZECC and ARMCANZ	2000
Bunding & Spill Management	NSW DEC	1997
Environmental Best Management Practice Guideline for Concreting Contractors	NSW DEC	2004
Guidelines for the Management of Acid Sulphate materials: Acid Sulphate Soils, Acid Sulphate Rock and Monosulphidic Black Ooze	NSW RTA	2005
Guideline for Environmental Management - Spraying Bituminous Materials	VIC EPA	2002
Guideline for Handling Liquids	NSW DECCW	2007
Managing Urban Stormwater ('Blue Book'): Soils and Construction Volume 1, 4 th Edition	NSW Landcom	2004
'Blue Book' - Volume 2A Installation of Services	NSW DECCW	2008
'Blue Book' - Volume 2D Main Roads Construction	NSW DECCW	2008
Noxious and environmental weed control handbook	NSW DPI	2014
Table Drains - Erosion Control Guideline	Brisbane City Council	2001

7. Environmental Planning

Erosion and sediment control planning is based on the principle that preventing erosion where possible provides the best environmental outcomes, is more economical, and effective than controlling the capture of sediment. This is a significant goal, given the Project topography, drainage patterns and soils that have a significant proportion of sodic soils that are highly erodible.

7.1 Construction Activities

The scope and anticipated duration of the Project works present risks of environmental impacts to the environment. Key aspects of the project that could result in adverse impacts to soils and water include:

- Installation of preliminary erosion and sediment controls and establishment of off-site water diversions.
- Establishment of compounds, exclusion zones, stockpile areas, and soils treatment area/s.
- Minor earthworks, site preparation and site access/temporary access roads.
- Trenching and earthworks for service installation.
- In-situ concrete works and concrete curing.
- Asphalt paving activities.
- Operation of internal haulage and access routes.
- Stormwater construction and drainage stabilisation, including temporary sediment basins.
- Dewatering 'dirty' water from site areas and sediment basin operations

Oakdale West Estate: Building 2A – Erosion and Sediment Control Plan

- Importing, handling, stockpiling and transporting materials & resources.
- Compound operation including fuel and chemical storage, refuelling and chemical handling.
- Storage of chemicals, fuels & oils.
- Spills & leaks of fuels & oils from mobile and static machinery.
- Plant maintenance.
- Generation of building and construction waste
- General putrescible waste from compound/s & works areas
- Noxious weed treatment including herbicide spraying.
- Topsoil replacement, revegetation, and landscaping
- Landscaping.

7.2 Impacts

The possible impacts on soil and water from the activities described include;

- Unnecessary disturbance of existing areas outside the Project footprint,
- Erosion of soils that degrade the water quality of runoff to downstream receivers, dependant flora and fauna, and sensitive areas,
- Degraded soil or water quality from exposure to contaminated soils or ASS material, or runoff from these soils,
- Contamination of soils, and surface and groundwater from accidental spills or oil leaks
- Disturbance or degradation of groundwater aquifers,
- Litter and gross pollutants from construction activities
- Atmospheric dust pollution affecting air quality of areas surrounding the Project.

7.3 'Blue Book' receiving waters classification

The recommended minimum design criteria for temporary erosion and sediment control measures are based upon an assessment of the sensitivity of receiving environments. Reference to Project EISs describes the surrounding environmental sensitivity and land uses. In accordance with the REF and SWMP assessment, the attributes of the receiving waters in the vicinity of the Project have been assessed as 'standard' in accordance with Blue Book Volume 1- Sect. 6.3.4 – (f) & Volume 2D – Table 6.1. however, we have elected to adopt the 5-day - 85th percentile rainfall depth for Blacktown of 32.2mm.

7.4 Key Management Strategies

The following list outlines the Key Management Strategies that will be implemented to mitigate potential erosion and sediment impacts;

- Specialist expertise and advice will be sought from an accredited Project Soil Conservationist (CPESC) in regard to the broad spectrum of erosion and sediment control issues, including but not limited to site establishment, temporary access routes, off-site water diversion, on-site drainage, sediment basin construction/operation/decommissioning, soil handling and storage, water management, stabilisation and rehabilitation/revegetation of Project areas.
- Implementation of structured erosion and sediment control training program for all relevant site personnel in the form of inductions, toolbox talks and workshops/training presentations.
- Minimising the extent and duration of construction disturbance.
- Control and diversion of off-site water flows around or across site.
- Control and diversion of on-site flows to installed sediment controls and sediment basins.
- Conservation of topsoils for site rehabilitation and revegetation.

Oakdale West Estate: Building 2A – Erosion and Sediment Control Plan

- Implementation of progressive erosion methods & techniques throughout various work stages.
- Construction and management of suitable sediment controls including sediment filters, traps, sumps and basins.
- A thorough inspection and maintenance program to monitor, record and schedule actions for maintenance and upgrades of controls, rectification works, and sediment removal and handling.
- Establishing a procedure to monitor forecast weather events and implementing response plans for significant wind or rainfall events and flooding.
- Timely and progressive stabilisation of disturbed areas prior to final landscaping.
- Monitoring stabilisation measures and promoting prompt & effective revegetation and permanent stabilisation.

7.5 Preparation of Progressive Erosion and Sediment Control Plans (PESCP's)

This ESCP will be supplemented with Progressive Erosion and Sediment Control Plans (PESCP's) prepared as required for the relevant work areas. The PESCP's illustrate the strategy for erosion and sediment control and provides detail on structures and controls to be implemented in concert with construction activities. The PESCP's will outline structural and non-structural measures to;

- Intercept and divert clean water runoff around worksites
- Prevent erosion
- Limit the movement of sediment
- Remove or filter sediment from runoff
- Detain or control the discharge of runoff from site
- Promote timely rehabilitation or stabilisation of disturbed areas.

There are a number of control measure options available for selection and use. The selection of controls will be in accordance with sound management practices to achieve the desired outcomes.

The PESCP's will be revised as necessary to address changes in the site conditions and nature of works. The PESCP's will be formulated in conjunction with construction personnel prior to the commencement of specific onsite activities. The plans will be prepared to manage the various works or construction stages such as:

- Compound, access, stockpile operations, and construction facilities
- Bulk earthworks for road formation, drainage, services, etc.
- Major off-site and on-site water drainage works or structures such as diversions, drains and treatment/sediment basins
- Construction activities such as paving, kerbing/guttering, stormwater drainage and outlets, etc.
- Stabilisation of disturbed areas, access and works areas, and perimeter areas
- Decommissioning of temporary erosion and sediment controls.

The formulation of Environmental Work Method Statements (EWMS) will be sub-ordinate to the requirements of the primary ESCP, supplement the PESCP's, and will outline methods and strategies for works in critical areas such as clearing & grubbing, topsoil stripping & earthworks, works around watercourses & culvert works, construction & operation of sediment basins, drainage works and dewatering.

Oakdale West Estate: Building 2A – Erosion and Sediment Control Plan

7.6 Erosion and Sediment Control Training for Site Personnel

Prior to the commencement of onsite activities, all site personnel will be instructed to observe site constraints and be made aware of environmental controls, in particular;

- Avoidance of disturbing or damaging 'No-Go' zones
- Effects of erosion and sedimentation and off-site or downstream impacts
- Environmental legislation, responsibilities, and 'due diligence'
- Correct establishment and maintenance of erosion and sediment controls
- 'End-of-day' site maintenance, emergency procedures, and spill response
- Personnel to monitor, review and improve controls as appropriate.

Key construction personnel would undertake additional environmental training including a specific training session for erosion and sediment control addressing:

- Environmental impacts
- Relevant legislation
- Principles and techniques of erosion and sediment control
- Preparation of PESCP's.

The structure and content of the Erosion and Sediment Control training would be developed in conjunction with Project management and construction personnel.

7.7 Inspection and Maintenance

A self-auditing program will be established for erosion and sediment control based on a check sheet developed for the site. A site inspection using the developed check sheet will be undertaken by relevant Project personnel:

- At least weekly
- Immediately before extended site shut down
- At the conclusion of all rainfall events exceeding 10mm and during periods of prolonged rainfall as soon as practicable).

The self-audit will include:

- Noting the condition of installed erosion and sediment controls onsite
- Detailing maintenance requirements (if any) for installed erosion and sediment controls
- Recording the volumes of sediment removed from sediment controls and sediment traps, where applicable
- Recording the location to where extracted sediments are disposed.

8. Erosion Control Measures and Sediment Control Methods

The formulation of the ESCP is based on the assumption that controls will generally be installed in the following progression;

- Installation of preliminary erosion and sediment controls and exclusion fencing to nominated areas of initial works and establishing exclusion zones
- Establishing any temporary roads and machinery access points in addition to those existing
- Installation of stabilised site access, site compound and facilities
- Forming temporary drains or banks to maximise diversion of off-site flows away from works area to watercourses, existing drainage lines or to temporary drainage diversion structures
- Construction of on-site water diversion drains or banks to direct runoff to the installed sediment controls

Oakdale West Estate: Building 2A – Erosion and Sediment Control Plan

- Installation of diversion drains/banks upslope and sediment controls down slope of proposed topsoil and spoil stockpile areas
- Bulk earthworks such as cut excavations, filling, trenching, and engineered formation are controlled with a suite of erosion controls such as exclusion bunding, surface stabilisation treatments, trench stops, batter berms/chutes, contour banks, check dams, etc.
- Drainage and run-off from site areas directed to adequately designed and constructed sediment controls with regular maintenance and repair as required
- Completed areas are progressively stabilised as soon as practical with emphasis on critical areas such as drainage outlets, batters, etc.
- Sediment controls are to be maintained until adequate soil surface protection levels (>70% ground cover) are achieved in the catchment.

The erosion and sediment control measures required for Project areas during the various construction areas will be determined by reference to the guidance and measures detailed in the 'Blue Book' - Volume 2A: 'Installation of Services' – NSW Department of Environment & Climate Change (DECC), 2007. Commonly employed methods and techniques that may be likely to be utilised on the Project are detailed in the following table;

Table 8

Erosion Control – Raindrop Impact	
Situation	Control measure or method
Soil surface protection - Vegetation	<ul style="list-style-type: none"> • Temporary vegetation (cover crop only) • Permanent vegetation – introduced (exotic) pasture species or native (endemic) species
Soil surface protection - Batter protection	<ul style="list-style-type: none"> • Organic rolled erosion control products (RECP's) such as jute mesh, jute mat, coir fibre blankets • Non-organic RECP's such as non-woven geotextile membrane or heavy grade plastic sheeting.
Soil surface protection - Mulching	<ul style="list-style-type: none"> • Hydromulch or hydraulic bonded-fibre matrix • Straw mulching with bitumen tack • Rock or gravel mulch
Soil surface protection - geobinders	<ul style="list-style-type: none"> • Organic tackifiers • Co-polymer emulsions • Bitumen emulsion
Erosion control - Concentrated Water Flow	
Up-slope diversions	<ul style="list-style-type: none"> • Excavated channel-type bank • Back push-type bank or windrow • Catch drains
Soft armour channels	<ul style="list-style-type: none"> • Trapezoidal or parabolic shape design drain cross sections • Organic rolled erosion control products (RECP's) such as jute mesh, jute mat, coir fibre blankets • Non-organic RECP's such as non-woven geotextile membrane or heavy grade plastic sheeting • Organic tackifiers & co-polymer emulsions • Bitumen emulsion • Hydro mulch • Standard or reinforced turf

Oakdale West Estate: Building 2A – Erosion and Sediment Control Plan

Situation	Control measure or method
Hard armour channels	<ul style="list-style-type: none"> • Loose rock – hard quarry rock • Rock-filled wire mattresses • Grouted rock • Cast in-situ concrete • Underlays utilising heavy grade plastic lining or geotextile lining
Check dams	<ul style="list-style-type: none"> • Stacked rock • Sandbags and aggregate filter bags • Geotextile covered straw bales • Coir logs
Batter drainage	<ul style="list-style-type: none"> • Geotextile lined or heavy grade plastic chutes • Pipes and Half pipes • Loose-rock rip rap • Concrete (pre-cast or on-site) • Rock-filled wire mattresses
Grade control structures and flumes	<ul style="list-style-type: none"> • Geotextile lined or heavy grade plastic chutes • Pipes and Half pipes • Concrete chutes • Loose-rock rip rap • Gully pits and field inlets • Sandbag drop structures • Rock-filled wire gabions and mattress structures
Outlet dissipation structures	<ul style="list-style-type: none"> • Loose-rock rip-rap apron diffusers • Rock-filled wire mattresses • Pinned geotextile aprons • Level spreaders
Revetments and retaining walls	<ul style="list-style-type: none"> • Rip rap • Rock-filled wire gabions and mattresses
Sediment control - Sheet Flows	
Vegetative filters	<ul style="list-style-type: none"> • Turf strips
Sediment barriers/filters	<ul style="list-style-type: none"> • Sediment fencing • Topsoil berms stabilised with vegetation or geotextile with filter outlets at intervals • Excavated and geotextile lined sediment traps • Geotextile/ shade cloth covered rock or gravel windrows • Coir logs
Site exit points	<ul style="list-style-type: none"> • Shaker grids with paved or rock aprons and sediment sumps • Wheel wash equipment and designated/controlled areas
Sediment control - Concentrated Flows	
Sediment traps	<ul style="list-style-type: none"> • Sediment basins • Stacked rock with geotextile • Excavated and geotextile lined sediment traps • Straw bale or sand bag structures • Gully pit, field inlet and kerb inlet traps

Oakdale West Estate: Building 2A – Erosion and Sediment Control Plan

9 Soil & Water Management Activities & Controls

The following table outlines the environmental management and mitigation measures proposed to be implemented, together with responsibilities and frequency of actions;

Table 9

1. Planning, permits & personnel		
Environmental Management Controls	Person Responsible	Timing / Frequency
1. All necessary licences, permits and approvals required by legislation will be obtained prior to works commencing.	Project Manager / Supervisor / Environmental Site Representative	Duration
2. Copies of any relevant licences, permits and approvals will be kept on site for inspection upon request or otherwise, as required.	Project Manager / Supervisor / Environmental Site Representative	Site establishment
3. All works and site activities will comply with the explicit requirements of any relevant licence, permit or approval.	Project Manager / Supervisor / Environmental Site Representative	Duration
4. Recordings and data from site inspections, testing, audits, and monitoring will be retained, with associated documentation maintained to demonstrate remedial action/s have occurred.	Project Manager / Supervisor / Environmental Site Representative	Duration
5. Erosion and sediment control planning and implementation is required prior to the commencement of works. The approved CEMP & SWMP is supplemented by concept Progressive Erosion & Sediment Control Plans (PESCP's) which have been developed in accordance with the requirements of ' <i>Soils and Construction: Managing Urban Stormwater</i> ' 4 th Edition. - Landcom 2004.	Project Manager / Supervisor / Environmental Site Representative	Site establishment & duration
6. The CEMP & SWMP & construction PESCP's may be supplemented by site-specific Environmental Management Plans (EMP's) which would be developed in response to a significant environmental issue emerging. The EMP's would outline the relevant environmental risks and issues, mitigation of potential risks, and detail strategies for remediation and/or management.	Project Manager / Supervisor / Environmental Site Representative	Site establishment & duration
7. The induction of employees and contractors to include a component promoting environmental awareness, legislative requirements & penalties, and basic erosion and sediment control tasks	Project Manager / Supervisor / Environmental Site Representative	Site establishment & duration
8. Toolbox talks will regularly focus on specific works, associated risks, potential impacts and mitigation measures. Specific erosion and sediment control awareness training and workshops will be undertaken by personnel with direct involvement with erosion and sediment control.	Supervisor / Environmental Site Representative	Site establishment & duration
9. Promote planning for seasonal restrictions for high-risk areas and/or activities ((i.e., late summer/autumn rainfall events for culvert works or cold winter temperatures affecting revegetation)	Project Manager / Supervisor / Environmental Site Representative	Site establishment & duration

Oakdale West Estate: Building 2A – Erosion and Sediment Control Plan

Environmental Management Controls	Person Responsible	Timing / Frequency
2. Clearing, site establishment, topsoil stripping, stockpiling and bulk earthworks		
1. Exclusion areas ('No Go' zones) to be identified, delineated where practical, and personnel instructed to avoid disturbance in these areas.	Supervisor / Environmental Site Representative	Site establishment
2. Temporary fencing or barricading such as parawebbing or perimeter tape is to be utilised on the perimeter with accompanying signage as required.	Supervisor / Environmental Site Representative	Site establishment
3. Areas of proposed works with identified noxious weed infestations to be treated with appropriate herbicide, in accordance with product directions. The weed treatment will occur in sufficient time prior to disturbance to ensure complete 'die back' prior to topsoil handling.	Supervisor / Environmental Site Representative	Site establishment
4. In areas requiring weed control, spray drift will be mitigated by conducting spraying activities in calm weather and application by hand sprayer unit where practical.	Supervisor / Environmental Site Representative	Site establishment
5. The extent of earthworks and formation stripping will be demarcated to the footprint necessary for the proposed works. Disturbance outside the earthworks footprint will be limited to necessary operations such as stockpiling, lay downs, etc.	Supervisor / Environmental Site Representative	Site establishment & duration
6. Early establishment of suitable stockpiling and processing areas to reduce unnecessary soil disturbance from double handling of soil by machinery in the early works phase.	Supervisor / Environmental Site Representative	Site establishment & duration
7. The installation of preliminary sediment controls such as perimeter sediment fencing, excavated sediment traps, check dams, coir log/straw bale filters, etc, will be implemented prior to disturbance within the catchment.	Supervisor / Environmental Site Representative	Site establishment
8. Construct erosion resistant access routes, site access/egress points, and compound roads to be formed and stabilised as early works. Car parking areas and frequently utilised areas should be stabilised (e.g. geotextile with asphaltic millings, rock aggregate overlay, bitumen chip seal or similar) to prevent soil churning, where required. Any rock or aggregate required for vehicle access should be clean and free from soil or other contaminants.	Supervisor / Environmental Site Representative	Site establishment & duration
9. Design and construction of haul roads and temporary watercourse crossings as per Blue Book 2C as a minimum requirement.	Supervisor / Environmental Site Representative	Site establishment & duration
10. Vegetation will be progressively cleared to minimise disturbance by area and duration. Cleared vegetation to be windrowed parallel to the contour until mulching/removal to control flows across cleared areas	Supervisor / Environmental Site Representative	Site establishment
11. Temporary drains, banks or diversions are to be formed and stabilised to divert concentrated 'clean' flows around disturbed works areas.	Supervisor / Environmental Site Representative	Site establishment & duration
12. During the process of topsoil stripping, the soils should be handled when it is not wet or dry, but sufficiently moist to avoid damage to the soil structure.	Supervisor / Environmental Site Representative	Site establishment

Oakdale West Estate: Building 2A – Erosion and Sediment Control Plan

Environmental Management Controls	Person Responsible	Timing / Frequency
13. During grubbing and topsoil stripping provide short term, temporary topsoil windrows as upper and mid-slope controls to control 'clean' flows until stabilised 'clean' water drains are installed	Supervisor / Environmental Site Representative	Site establishment & duration
14. Strip any viable topsoil in the required locations and stockpile locally where possible. The topsoil will be handled and stored in the correct manner necessary for successful rehabilitation.	Supervisor / Environmental Site Representative	Site establishment & duration
15. Any viable stripped topsoil to be stored in stockpiles less than two metres in height where possible. The stockpile locations are to avoid concentrated surface flows or areas subject to inundation during wet weather. The height of stockpiles of other soil materials to be minimised where practical and to mitigate wind-blown erosion risks.	Supervisor / Environmental Site Representative	Site establishment & duration
16. The stockpile locations are to avoid concentrated surface flows or areas subject to inundation during wet weather.	Supervisor / Environmental Site Representative	Site establishment & duration
17. Temporary stockpiles are to be covered for the duration of high winds, rainfall and/or storm conditions. Long term stockpiles to be cover crop seeded as appropriate to the season.	Supervisor / Environmental Site Representative	Site establishment & duration
18. The long-term soil stockpile locations are to be located away from major drainage lines, and 5 metres from any waterway. The stockpiles will not be established in areas subject to concentrated surface flows, waterlogging or prolonged inundation during wet weather.	Supervisor / Environmental Site Representative	Site establishment & duration
19. Stockpiles should be stabilised if they are to remain in place for more than 20 days. Rolled Erosion Control Products (RECP's such as geotextile, jute mesh, coco fibre mat, etc) or soil binders can be used on smaller stockpiles, however, larger stockpiles should be formed into crowned structures to minimise erosion and be subsequently stabilised with cover crop seeding or applied geobinders. Plastic covers should only be utilised for short term cover for wind or storm protection.	Supervisor / Environmental Site Representative	Site establishment & duration
20. The use of existing, available materials on-site (i.e. soils, rock, mulch etc) to be salvaged and stored where it can be utilised for temporary or permanent works (where practical) to reduce import requirements.	Supervisor / Environmental Site Representative	Site establishment & duration
21. Prioritise planning for early and rapid cut-to-fill earthworks in periods of seasonal risk and/or other high-risk areas.	Supervisor / Environmental Site Representative	Site establishment & duration
22. Where practical, cut earthworks should be staged from the upslope approaches to control dirty water within the excavation (i.e. the excavation proceeds downslope whilst maintaining unexcavated remnant earth as a control bund)	Supervisor / Environmental Site Representative	Site establishment & duration
23. Subgrade excavations and engineered fill formations at risk of temporary inundation during flood events may be stabilised with moisture-repelling soil binders.	Supervisor / Environmental Site Representative	Duration
24. As the earthworks progress, areas of fill should generally be graded to shed flows away from the edges of fill batters to sediment controls where possible	Supervisor / Environmental Site Representative	Duration

Oakdale West Estate: Building 2A – Erosion and Sediment Control Plan

Environmental Management Controls	Person Responsible	Timing / Frequency
25. Progressively form and maintain lip berms and batter chutes with velocity dams on fill formations	Supervisor / Environmental Site Representative	Duration
26. Maintain minor benches or contour berms on fill batter formations until profiling for topsoiling is imminent	Supervisor / Environmental Site Representative	Duration
27. Temporary scour protection lining for major 'dirty' drains for steep or long drains to sediment basins or other controls.	Supervisor / Environmental Site Representative	Duration
28. Access to the works area, and movements on the site during construction will be limited to the defined access and project areas, where possible. Minimise vehicle movements & speed on unsealed areas and access tracks.	Supervisor / Environmental Site Representative	Duration
29. Earthworks and hauling, and vehicular movements to be limited in wet conditions.	Supervisor / Environmental Site Representative	Duration
30. Appropriate sediment tracking controls such as an aggregate/geotextile apron, shaker grid, etc will be installed at exit points from the site, where required.	Supervisor / Environmental Site Representative	Duration
31. The adjoining local road network to be regularly monitored for tracked sediments with affected areas cleaned as soon as possible in a safe manner.	Supervisor / Environmental Site Representative	Duration
32. Vehicles transporting bulk materials such as soils and fill are to correctly cover loads to prevent loss of load and/or dust generation on public roads.	Supervisor / Environmental Site Representative	Duration
33. Imported quarry product and fill materials required for construction are to be clean, and free of contaminants (ie. weeds, waste, liquids, etc).	Supervisor / Environmental Site Representative	Duration
34. Bunded or controlled areas for re-fueling, material stockpiling, (and contaminated soil treatment area if required) are to be formed prior to commencement of those works in the relevant risk areas.	Supervisor / Environmental Site Representative	Site establishment & duration
35. Water carts are to regularly spray access tracks, works areas, & temporary stockpiles, during dry weather conditions.	Supervisor / Environmental Site Representative	Duration
36. Bunded or controlled areas for re-fuelling, material stockpiling, (and contaminated soil treatment area if required) are to be formed prior to commencement of those works in the relevant risk areas.	Supervisor / Environmental Site Representative	Site establishment & duration
37. The progress of earthworks will minimise slope lengths and gradients where practical utilising contour berms, batter berms, diversion banks, etc.	Supervisor / Environmental Site Representative	Duration
38. Personnel to ensure visual dust monitoring is maintained during works, and dust suppression is undertaken regularly.	Supervisor / Environmental Site Representative	Duration
39. Minimise earthworks, soil handling and general disturbance during periods of strong and/or gusty winds.	Supervisor / Environmental Site Representative	Duration

Oakdale West Estate: Building 2A – Erosion and Sediment Control Plan

Environmental Management Controls	Person Responsible	Timing / Frequency
40. Apply water sprays for dust suppression where earthworks, soil handling, rock saw cutting and/or potentially contaminated soils are generating dust.	Supervisor / Environmental Site Representative	Duration
3. Drainage and water management		
1. Works in high risk zones are to be conducted in low rainfall periods, supported by positive 3-day weather forecasts for the anticipated scope of works.	Supervisor / Environmental Site Representative	Duration
2. Construct diversion drains or banks upslope of proposed works to direct off-site water flows to existing drainage or adequately stable vegetated areas.	Supervisor / Environmental Site Representative	Duration
3. Immediately line any constructed off-site water diversion with appropriate RECP's, OFM's and/or geobinders. Temporary spillways and associated structures to be suitably stabilised for the volume and turbulence of flows.	Supervisor / Environmental Site Representative	Duration
4. Sheet flows in work areas have erosion measures such as surface roughening, scribed drains and/or contour banks to reduce slope lengths. Flows from diversions to have velocities controlled and directed to sediment controls.	Supervisor / Environmental Site Representative	Duration
5. Temporary 'dirty' water drainage will be adjusted progressively to maximise flows to sediment filters and traps.	Supervisor / Environmental Site Representative	Duration
6. Permanent storm water drains, and outlet structures will be stabilised as soon as possible following completion.	Supervisor / Environmental Site Representative	Duration
7. Check dams are to be constructed from geotextile/aggregate bags, sandbags, staked coir logs/straw bales or geotextile/rock formations to reduce flow velocities in unlined drains and other areas of concentrated flow (i.e. against diversion banks). Check dams are to be installed at the required intervals in drains with the frequency of the dams increasing as the grade increases	Supervisor / Environmental Site Representative	Duration
8. Trenching works on grade will be controlled with methods detailed in the 'Blue Book' – Volume 2A' - Section 6	Supervisor / Environmental Site Representative	Duration
9. Flooded excavations, ponded water, etc will be extracted as required and utilised for site purposes or treated to achieve acceptable water quality prior to discharge.	Supervisor / Environmental Site Representative	Duration
10. Flooded excavations and groundwater encountered in ASS areas or potentially contaminated areas will be tested and assessed prior to being extracted for treatment & subsequent discharge or conveyed to a licensed liquid waste facility.	Supervisor / Environmental Site Representative	Duration
11. Site water that is to be discharged directly to a flow line, drain, watercourse, etc, will be tested, treated, and recorded prior to discharge.	Supervisor / Environmental Site Representative	Duration

Oakdale West Estate: Building 2A – Erosion and Sediment Control Plan

Environmental Management Controls	Person Responsible	Timing / Frequency
<p>12. Water quality should meet the following proposed minimum criteria prior to discharge to any waterway or drainage line:</p> <ul style="list-style-type: none"> • Total suspended solids (TSS) – less than 50 mg/L • pH – 6.5 to 8.5 • oil and grease – not visible and less than 10 mg/L 	Supervisor / Environmental Site Representative	Duration
<p>13. Dewatering devices or transfer pumps will be positioned to ensure that settled sediments are not disturbed or extracted. Discharge of concentrated, treated flows to lands will occur in well vegetated areas with diffusers or level spreaders to prevent erosion. Flows transferred from in-stream works to downstream areas be released in a diffused manner.</p>	Supervisor / Environmental Site Representative	Duration
<p>14. The appearance of water quality at the discharge outlet will be regularly monitored for any increase in turbidity, and dewatering suspended until acceptable water quality levels are regained</p>	Supervisor / Environmental Site Representative	Duration
<p>15. Adequately designed and constructed concrete washout facilities will be constructed in a suitable location away from drainage lines and 40m from waterways. Concrete wash down to occur directly into lined receptacles or formed washouts.</p>	Supervisor / Environmental Site Representative	Duration
4. Sediment Controls		
<p>1. Commonly used sediment control devices are outlined in Section 8 – Table 8, and some construction details are shown in the Standard Drawings shown in this ESCP at Appendix F. Alternative controls or methods may be employed in certain circumstances for practicality or efficiency purposes. Alternative controls or methods must demonstrate efficacy and be in accordance with the intent and objectives of the 'Blue Book'.</p>	Supervisor / Environmental Site Representative	Duration
<p>2. Substitute materials may be utilised in the construction of erosion or sediment controls where functionality is not affected.</p>	Supervisor / Environmental Site Representative	Duration
<p>3. Sediment fencing, non-woven geotextile, mulch berms, etc, will be installed on down slope work boundaries, down slope of stockpiles, cut/fill batters, access tracks, etc, to filter sheet flows.</p>	Supervisor / Environmental Site Representative	Duration
<p>4. Sediment filters will be formed from rock & shade cloth/geotextile structures, aggregate & geotextile filter bags, coir logs, etc, to control concentrated on-site water flows as required</p>	Supervisor / Environmental Site Representative	Duration
<p>5. Excavated sediment traps may be utilised at critical locations at the toe of the contributing catchment. They will be desilted at 60% capacity and are to be dewatered prior to the onset of further rainfall.</p>	Supervisor / Environmental Site Representative	Duration
<p>6. The excavated sediment traps should be regarded as a secondary control, relying on retention of coarse sediment in upslope controls within the construction area.</p>	Supervisor / Environmental Site Representative	Duration
<p>7. Aggregate filter bags or sandbag inlet traps are to be deployed on roadside pit inlets or other inlets to the drainage system.</p>	Supervisor / Environmental Site Representative	Duration

Oakdale West Estate: Building 2A – Erosion and Sediment Control Plan

Environmental Management Controls	Person Responsible	Timing / Frequency
8. Gully pit inlets will be protected with filter inlet controls formed from sediment fence, filter bags, straw bales & geotextile, coir logs, etc.	Supervisor / Environmental Site Representative	Duration
9. The sediment captured by control devices is to be removed when 30% of capacity is reached. Regular desilting is also to maintain catchment and settling capacity, and to reduce re-entrainment of settled materials in subsequent rain events.	Supervisor / Environmental Site Representative	Duration
5. Soil Contamination & Acid Sulphate Soils (ASS)		
1. Excavation of sub-soils to be inspected and monitored as works proceeds, to identify potential contamination. Any potentially contaminated soils to be stripped or excavated separately and transported directly to the designated stockpile, treatment area or licensed waste facility.	Supervisor / Environmental Site Representative	Duration
2. Potentially contaminated soils or ASS are to be stored within an appropriately bunded area and covered with heavy grade plastic or other impermeable covers for the duration of rainfall.	Supervisor / Environmental Site Representative	Duration
3. Potentially contaminated excavated material that are required to be removed from site are to be assessed and classified in accordance with the Protection of the Environment Operations Act 1997 and ' <i>Waste Classification Guidelines: Parts 1 and 2</i> (DECC 2008)'.	Supervisor / Environmental Site Representative	Duration
4. Excavated soils and materials (that have been assessed, classified, treated and re-assessed on site) will be re-used as fill material on site where appropriate.	Supervisor / Environmental Site Representative	Duration
5. Vehicles transporting potentially contaminated soils or ASS both on internal access tracks and public roads will correctly cover loads to mitigate dust generation or spillage.	Supervisor / Environmental Site Representative	Duration
6. The ground disturbance and machinery/vehicle movements in potentially contaminated areas will be minimised to essential works.	Supervisor / Environmental Site Representative	Duration
7. Earthworks, soil handling and general disturbance in potentially contaminated areas are to be avoided during periods of strong and/or gusty winds.	Supervisor / Environmental Site Representative	Duration
8. Water sprays are to be utilised to mitigate dust from contaminated soils in works areas, contaminated soil handling or temporary stockpile areas.	Supervisor / Environmental Site Representative	Duration
6. Soil & Water pollution control		
1. All waste will be handled, stored and disposed of in accordance with the ' <i>Waste Classification Guidelines: Parts 1 and 2</i> (DECC 2008)'.	Supervisor / Environmental Site Representative	Duration
2. Waste construction materials such as steel, concrete, etc will be removed to an appropriate recycling facility, to a suitable location for appropriate re-use, or to a licensed waste disposal facility.	Supervisor / Environmental Site Representative	Duration

Oakdale West Estate: Building 2A – Erosion and Sediment Control Plan

Environmental Management Controls	Person Responsible	Timing / Frequency
3. All putrescible, construction, and food wastes are to be immediately captured and stored correctly, prior to removal to a licensed waste facility. Putrescibles and food wastes will be removed from site on a least a weekly basis.	Supervisor / Environmental Site Representative	Duration
4. Large amounts of concrete, excess to construction requirements, should not be discharged on site. Residual concrete from hoppers and discharge lines is to be blown into a concrete washout and the remainder in the concrete delivery vehicle returned to the supplier's batch plant for recycling.	Supervisor / Environmental Site Representative	Duration
5. The effluent from concrete wash down is to be captured by an excavated wash out pit lined with an impervious membrane at least 5 metres away from any waterway or major drainage lines. The pit is to be protected by a diversion bund to prevent entry of site run-off that may subsequently displace alkaline water/slurry. Concrete washouts to be covered for the duration of significant or prolonged rainfall.	Supervisor / Environmental Site Representative	Duration
6. The water levels in concrete washout pits will be monitored and dewatered regularly. The water pH will be tested and treated where it is outside the parameters of pH 6.5-8.5. Where suitable pH is attained, the water can then be used site purposes.	Supervisor / Environmental Site Representative	Duration
7. The site machinery 'lay-up' area, re-fuelling areas and chemical storage areas are to be located at least 5 meters away from major drainage lines.	Supervisor / Environmental Site Representative	Duration
8. The re-fuelling and servicing of machinery is to be undertaken at approved premises off-site where possible. Onsite refuelling and servicing only to occur with appropriate spill control measures at hand, or where established or temporary bunded areas are available.	Supervisor / Environmental Site Representative	Duration
9. Mobile plant, machinery and vehicles are to be regularly inspected and maintained to manufacturer's specifications.	Supervisor / Environmental Site Representative	Duration
10. Appropriate spill kits are to be kept on site at all times and any spillage is to be immediately cleaned up. In the event of a large or hazardous spill, contact will be made with emergency and relevant authorities, where required.	Supervisor / Environmental Site Representative	Duration
11. All site personnel will be instructed about emergency spill procedures, spill kit locations and requirements. The location of spill response kits will be established close to works or operations areas.	Supervisor / Environmental Site Representative	Duration
12. Storage of liquid construction materials (chemicals, fuels, oils, etc) will be provided in appropriately bunded areas on site to prevent leaching into soils, leaking or other transfer of material into waterways.	Supervisor / Environmental Site Representative	Duration
13. Containment bunds are to be monitored regularly and captured materials removed as required to ensure bund capacity is maintained.	Supervisor / Environmental Site Representative	Duration
14. Bunded areas will satisfy requirements of the relevant Australian Standards and 'Bunding and Spill Management (DEC, 1997)'	Supervisor / Environmental Site Representative	Duration

Oakdale West Estate: Building 2A – Erosion and Sediment Control Plan

Environmental Management Controls	Person Responsible	Timing / Frequency
15. The requirements of the Australian Dangerous Goods Code will be observed for storage and transport of any hazardous materials. The compatibility of all chemicals, pesticides and fuels transported and stored will be assessed to avoid potential risk from reactions, explosion, etc.	Supervisor / Environmental Site Representative	Duration
16. All chemicals, pesticides and fuel will be stored and transported in approved containers. Chemicals, pesticides and fuels are to be labelled correctly and clearly, including using approved warning symbols etc.	Supervisor / Environmental Site Representative	Duration
17. A MSDS register and will be maintained and be readily accessible on site for all hazardous chemicals transported, handled or applied.	Supervisor / Environmental Site Representative	Duration
18. An adequate record or log of all environmentally hazardous chemicals received, used and/or disposed of will be maintained.	Supervisor / Environmental Site Representative	Duration
19. Substitution of less hazardous materials or chemicals or modifying methods of use/storage etc. will be implemented where possible.	Supervisor / Environmental Site Representative	Duration
20. The quantities of hazardous materials and chemicals stored or used will be minimised as far as practical.	Supervisor / Environmental Site Representative	Duration
21. Sensitive areas (ie. drainage lines) will be identified before utilising or applying chemicals. Where sensitive areas are identified, appropriate guidance and relevant restrictions will be formulated for chemical use or applications.	Supervisor / Environmental Site Representative	Duration
22. The application methods and dilution ratios specified in manufacturer's directions and/or associated MSDS will be observed by personnel.	Supervisor / Environmental Site Representative	Duration
7 Stabilisation		
1. Promote efficient staging planning for early stabilisation of perimeter or completed areas. (i.e. stabilisation of permanent drains, batters, sealing & paving, and decommissioning of temporary controls)	Supervisor / Environmental Site Representative	Duration
2. Stabilisation of areas is to occur progressively in conjunction with the completion of earthworks.	Supervisor / Environmental Site Representative	Duration
3. Suitable design and construction techniques are to be selected for stabilisation of relevant areas such as drain linings, batter treatments, etc.	Supervisor / Environmental Site Representative	Duration
4. Completed earthworks areas will be backfilled and compacted in a staged manner as soon as possible. Adjacent disturbed areas will be suitably trimmed and stabilised as required.	Supervisor / Environmental Site Representative	Duration
5. Erosion and sediment controls are to be maintained until the relevant catchments are stabilised, re-vegetated, or sealed adequately to achieve soil surface protection factors as per the 'Blue Book', SWMP & ESCP requirements.	Supervisor / Environmental Site Representative	Duration

Oakdale West Estate: Building 2A – Erosion and Sediment Control Plan

Environmental Management Controls	Person Responsible	Timing / Frequency
6. Compounds, lay down areas and other areas of heavy construction impact to be restored to an acceptable condition. Destocking, waste removal & cleaning to be followed by scarification, topsoiling and stabilisation.	Supervisor / Environmental Site Representative	Duration
7. Any aggregate placed for vehicle access or as a work platform should be removed to a suitable location for recycling, appropriate re-use, or to a licensed waste disposal facility.	Supervisor / Environmental Site Representative	Duration
8. Any areas subject to heavy compaction and disturbance from vehicle movements and machinery will be subject to surface roughening and scarification (up to 300mm) to reduce compaction of the upper layer of soil.	Supervisor / Environmental Site Representative	Duration
9. Topsoil to be re-used locally within the precincts, with batters prioritised for topsoil application and timely application of soil stabilisers where applicable.	Supervisor / Environmental Site Representative	Duration
10. The remaining stored topsoil should be utilised to topsoil disturbed areas, rehabilitate compounds and haul roads, or be spread to a uniform depth over the disturbed non-structural areas that are of low gradients.	Supervisor / Environmental Site Representative	Duration
11. Determine the cover crop mix seed blend suitable to the site & seasonal conditions to provide adequate protection until final landscaping commences.	Supervisor / Environmental Site Representative	Duration
12. Lands recently stabilised with cover crops will not be regularly watered except for initial germination or during prolonged hot & dry conditions. During milder seasons the cover crop will be monitored as received precipitation should be adequate.	Supervisor / Environmental Site Representative	Duration
13. Further application of seed may be necessary in latter stages in areas of inadequate vegetation establishment. Pedestrian and vehicular traffic will be restricted from all recently stabilised areas.	Supervisor / Environmental Site Representative	Duration

Appendix A

Site Characteristics & Revised Universal Soil Loss Equation Assessment

Site Characteristics Table & Revised Universal Soil Loss Equation (Rusle) Data

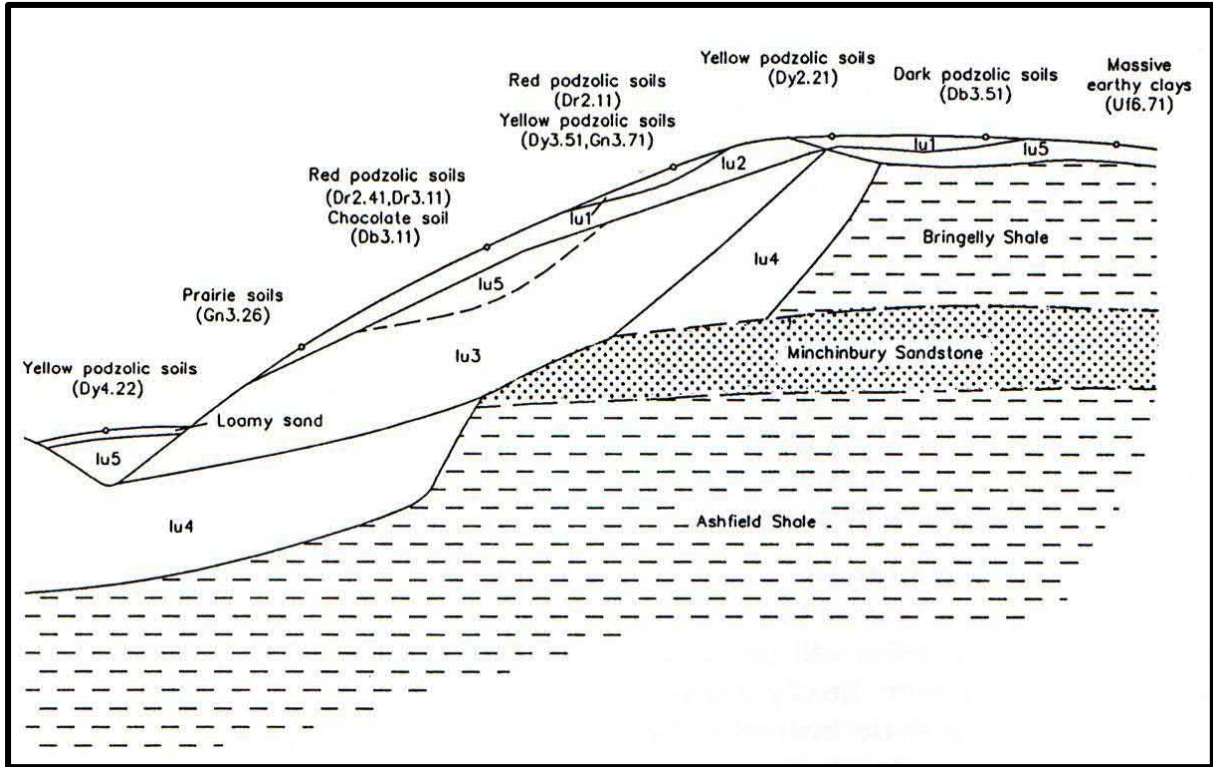
Location	Oakdale West Estate -Building 2A
Construction duration	<12 months earthworks – 85 th ile adopted (Sect. 6.3.4 – (f). Blue Book)
Erosion Hazard	High (On slopes >11%) (Sect 4.4.1 & Figure 4.6 – Blue Book)
Soil Loss Class	Class 1 (Sect 4.4.2. & Table 4.2 – Blue Book)
Batter Restrictions	Yes Generally, >20m batter length @ 2H:1V ranging to >30m @ 3H:1V (Sect 4.4.2 – (a) & Figure 4.7 – Blue Book)
Seasonal erosion hazard	No (Sect 4.4.2 – (c), Figure 4.9 & Table 4.3 – Blue Book)
Soil texture group	
Luddenham (lu) Soil Landscape: High to Very High Hazard landscape	lu1—Friable dark brown loam.
	lu2—Hard setting brown clay loam.
	lu3—Whole coloured, strongly pedal clay.
	lu4—Mottled grey plastic clay.
	lu5—Apedal brown sandy clay.
Blacktown (bt) Soil Landscape: Moderate to High Erosion Hazard landscape	bt1—Friable brownish black loam.
	bt2—Hard setting brown clay loam.
	bt3—Strongly pedal, mottled brown light clay.
	bt4—Light grey plastic mottled clay.
USCS Class	Blacktown: ML (Low Plasticity Silts) to CL (Low Plasticity Clays) Luddenham: CL (Low Plasticity Clays)
Soil erodibility factor – K factor	Blacktown (bt) Soil Landscape: 0.038 Luddenham (lu) Soil Landscape: 0.038 (0.050 Adopted) (Appendix C – Table 19 – Penrith Soil Landscapes – Blue Book)
Sediment Type	Luddenham (lu) Soil Landscape: Type F & D Blacktown (bt) Soil Landscape: Type F & D (Type D Adopted) (Appendix C – Table 19 – Penrith Soil Landscapes – Blue Book))

Site Characteristics Table & Revised Universal Soil Loss Equation (Rusle) Data

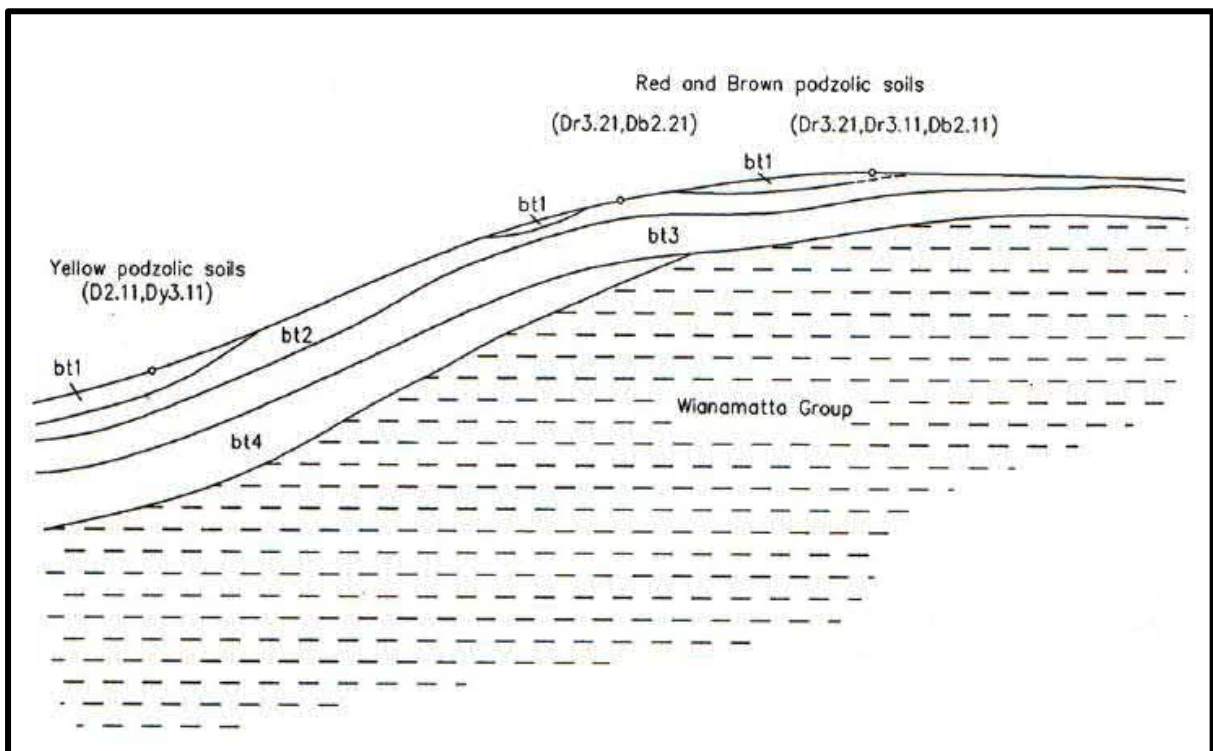
Location	Oakdale West Estate -Building 2A
Soil hydrologic group	Luddenham (lu) Soil Landscape: Group C Blacktown (bt) Soil Landscape: Group C (Group C Adopted) (Appendix C – Table 19 – Penrith Soil Landscapes – Blue Book))
85th %ile, 5-day rainfall event	32.2 mm - Blacktown (Sect 6.3.4 – Table 6.3a - Blue Book)
Rainfall Intensity - millimetres per hour	9.2mm/hour (0.5 Exceedance per Year) 2 Year, 6 Hour storm – BOM IFD Table)
Rainfall Erosivity – R factor	1920 (Calculated from 0.5 Exceedances per Year (EY), 6 Hour storm, where S=9.2mm/hour and where $R = 164.74(1.1177)^{S^{0.6444}}$ Blue Book - Appendix A2 & B)
Volumetric runoff coefficient - Cv	0.51 (Blue Book – Appendix F: Table F2)
Grade	Luddenham (lu) Soil Landscape – 5-20% (commonly 10 -15%) Blacktown (bt) Soil Landscape - commonly 5% occasionally ranging to 10%)
Slope Length	80 metres adopted
LS Factor	Variable
Erosion control practice factor – P factor	1.3
Ground cover – C Factor	1.0
Sediment Storage Zone Volume design	2 months soil loss (Sect 6.3.4.- I (ii) - Blue Book)

Typical Soil Profile diagrams

Luddenham (lu) Soil Landscape



Blacktown (bt) Soil Landscape



Appendix B

RUSLE Catchment Assessment & Sediment Basin Calculations

SWMP Commentary, Detailed Calculations

Note: These "Detailed Calculation" spreadsheets relate only to high erosion hazard lands as identified in figure 4.6 or where the designer chooses to use the RUSLE to size sediment basins. The "Standard Calculation" spreadsheets should be used on low erosion hazard lands as identified by figure 4.6 and where the designer chooses not to run the RUSLE in calculations.

1. Site Data Sheet

Site Name: Oakdale West Estate - Building 2A

Site Location:

Precinct:

Description of Site: Building 2A Construction Area

Site area	Sub-catchments						Remarks
	1%/80	2%/80	1%/85	2%/85			
Total catchment area (ha)	8.05	8.05	8.05	8.05			
Disturbed catchment area (ha)	8.05	8.05	8.05	8.05			

Soil analysis (enter sediment type if known, or laboratory particle size data)

Sediment Type (C, F or D) if known:	D	D	D	D			From Appendix C
% sand (fraction 0.02 to 2.00 mm)							Soil texture should be assessed through mechanical dispersion only. Dispersing agents (e.g. Calgon) should not be used
% 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			Automatic calculation from above

Rainfall data

Design rainfall depth (days)	5	5	5	5			See Sections 6.3.4 (d) and (e)
Design rainfall depth (percentile)	80	80	85	85			See Sections 6.3.4 (f) and (g)
x-day, y-percentile rainfall event	24.6	24.6	32.2	32.2			See Section 6.3.4 (h)
Rainfall R-factor (if known)	1920	1920	1920	1920			See Appendix B
IFD: 2-year, 6-hour storm (if known)	9.2	9.2	9.2	9.2			See IFD chart for the site

RUSLE Factors

Rainfall erosivity (R-factor)	1920	1920	1920	1920			Auto-filled from above
Soil erodibility (K-factor)	0.05	0.05	0.05	0.05			
Slope length (m)	80	80	80	80			
Slope gradient (%)	1	2	1	2			RUSLE LS factor calculated for a high rill/interill ratio.
Length/gradient (LS-factor)	0.19	0.41	0.19	0.41			
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	

Calculations

Soil loss (t/ha/yr)	24	51	24	51			
Soil Loss Class	1	1	1	1			See Section 4.4.2(b)
Soil loss (m ³ /ha/yr)	19	39	19	39			
Sediment basin storage volume, m ³	25	53	25	53			See Sections 6.3.4(i) and 6.3.5 (e)

SWMP Commentary, Detailed Calculations

4. Volume of Sediment Basins, Type D and Type F Soils

Basin volume = settling zone volume + sediment storage zone volume

Settling Zone Volume

The settling zone volume for Type F and Type D soils is calculated to provide capacity to contain all runoff expected from up to the y-percentile rainfall event. The volume of the basin's settling zone (V) can be determined as a function of the basin's surface area and depth to allow for particles to settle and can be determined by the following equation:

$$V = 10 \times C_v \times A \times R_{x\text{-day}, y\text{-site}} \text{ (m}^3\text{)}$$

where:

10 = a unit conversion factor

C_v = the volumetric runoff coefficient defined as that portion of rainfall that runs off as stormwater over the x-day period

$R_{x\text{-day}, y\text{-site}}$ = is the x-day total rainfall depth (mm) that is not exceeded in y percent of rainfall events. (See Sections 6.3.4(d), (e), (f), (g) and (h)).

A = total catchment area (ha)

Sediment Storage Zone Volume

In the detailed calculation on Soil Loss Classes 1 to 4 lands, the sediment storage zone can be taken as 50 percent of the settling zone capacity. Alternately designers can design the zone to store the 2-month soil loss as calculated by the RUSLE (Section 6.3.4(i)(ii)). However, on Soil Loss Classes 5, 6 and 7 lands, the zone must contain the 2-month soil loss as calculated by the RUSLE (Section 6.3.4(i)(iii)).

Place an "X" in the box below to show the sediment storage zone design parameters used here:

	50% of settling zone capacity,
X	2 months soil loss calculated by RUSLE

Total Basin Volume

Site	C_v	$R_{x\text{-day}, y\text{-site}}$	Total catchment area (ha)	Settling zone volume (m ³)	Sediment storage volume (m ³)	Total basin volume (m ³)
1%/80	0.51	24.6	8.05	1009.953	25	1034.953
2%/80	0.51	24.6	8.05	1009.953	53	1062.953
1%/85	0.51	32.2	8.05	1321.971	25	1346.971
2%/85	0.51	32.2	8.05	1321.971	53	1374.971

Note that designers should achieve a minimum 3:1 length:width ratio in Type D or F basins

Appendix C
Sediment Basin Management & Dewatering Procedure

1.1 Purpose

The purpose of the Sediment Basin Management & Dewatering Procedure (the Procedure) is to detail the actions to be taken in regard to site dewatering in general and specific measures for the construction and maintenance of sediment basins including steps to be taken prior to any discharge.

Adherence to the methodology outlined in procedure will ensure that works are carried out in accordance with industry standard and environmental conditions.

1.2. Scope

The Procedure applies to the following works:

- Sediment basin management and maintenance; and
- Dewatering of excavations and construction water generally, and
- Acid sulfate leachate ponds in the event that acid sulfate soils or rock is encountered.

1.3. Objectives

The objectives of this Procedure are to:

- Ensure all Project personnel are aware of the requirements of this procedure
- Detail personnel responsible for undertaking actions relating to sediment basin, construction dewatering and acid sulfate leachate management on the site;
- Providing a uniform, controlled methodology and clear criteria for water releases from the site;
- Implement industry standard methods for managing sediment basins and dewatering in accordance with best practice guidelines such as Managing Urban Stormwater Soils and Construction (Landcom 2004) and Acid Sulfate Soil Manual (ASSMAC 1998);
- Ensure water discharges from site are compliant with:
 - the NSW EPA Water Quality Criteria;
 - Managing Urban Stormwater Soils and Construction (Landcom 2004)
 - Approved Erosion and Control Plan; and
- Comply with environmental requirements of the Project, including all legal requirements and contractual obligations.

The procedure shall ensure appropriate environmental protection measures are in place relating to sediment basins, construction water management (dewatering of excavations, culverts, etc) and management of leachate collected in ponds from acid sulfate material stockpiles.

2. Sediment Basin Management & Dewatering Procedure

Environmental Management Controls	Person Responsible	Timing / Frequency
Planning		
A copy of this Sediment Basin Management and Discharge Procedure will be kept on site and be made available to all relevant project personnel	Supervisor / Environmental Site Representative	Site Establishment / Duration
All relevant project personnel will be made aware of this document during the site induction and again in Toolbox Talks and targeted training sessions.	Supervisor / Environmental Site Representative	Site Establishment / Duration
Training and Awareness		
Training, instruction and equipment familiarisation for environmental personnel undertaking water quality monitoring, equipment calibration and maintenance will be the responsibility of the Environmental Site Representative. This will be completed prior to the initial use of equipment or as new equipment arrives on site.	Environmental Site Representative	Site Establishment / Duration
<p>Training sessions will be conducted with Supervisors, Foreman, and Environmental Work Crew and relevant personnel. The training will address</p> <ul style="list-style-type: none"> • Construction of Sediment Basins • Preliminary post-rainfall inspections • Testing and recording • Treatment methods and recording • Details of the Water Discharge Permit • Dewatering requirements, methods and recording • Maintenance requirements, methods and recording • Storage, Handling and Application of Flocculants 	Supervisor / Environmental Site Representative	Site Establishment / Duration
Any personnel that are responsible for monitoring pumps during dewatering activities, and that have not undertaken training described above, will undertake a specific toolbox talk to ensure awareness of requirements.	Supervisor / Environmental Site Representative	Site Establishment / Duration
Construction of Sediment Basins		
Refer to the relevant PESCPs for the location of the sediment basin/s.	Supervisor / Environmental Site Representative	Site Establishment / Duration
<p>The location and design criteria (volume – length, width & depth) for the sediment basin/s will be outlined in the relevant PESCP. The following criteria will be observed:</p> <ul style="list-style-type: none"> • All requirements of Landcom's - Managing Urban Stormwater: Soils and Construction Volume 1 (the Blue Book). Refer to Section 6.3.3 volume 1 of the Blue Book for detailed design of the sediment basin. • Impervious clay to be used where required in construction of the internal basin invert and embankments. • Inlet and outlet structures will be appropriately constructed to cater for the nominated rainfall event. • Markers will be present to indicate sediment storage volume and to ensure adequate capacity levels are available. 	Supervisor / Environmental Site Representative	Site Establishment / Duration
Sediment basins will be constructed in a way that predominantly only site run-off is collected, and clean water is diverted around them. Earthworks will be conducted in a way so as to avoid ponding of water.	Supervisor / Environmental Site Representative	Site Establishment / Duration

Environmental Management Controls	Person Responsible	Timing / Frequency
The sediment basin/s to be constructed prior to any earthworks or topsoil stripping in the catchment being undertaken. Necessary clearing to access the basin location and associated earthworks will occur with appropriate erosion and sediment controls installed.	Supervisor / Environmental Site Representative	Site Establishment / Duration
Where applicable, the formation of operational sediment basins will be partially or fully constructed in early stages of works and managed as a temporary sediment basin to capture construction runoff.	Supervisor / Environmental Site Representative	Site Establishment / Duration
Effective diversions such as drains and berms will be implemented to ensure that the diversion of site runoff is maximised to basins during all stages of construction.	Supervisor / Environmental Site Representative	Site Establishment / Duration
Water Quality Testing, Treatment & Criteria for Discharge		
<p>Captured water to be discharged from sediment basins must meet the following criteria:</p> <ul style="list-style-type: none"> • pH between 6.5 – 8.5 • TSS < 50mg/L and • Oil and grease - no visible trace. 	Supervisor / Environmental Site Representative	Duration
<p><u>Correlation between TSS and Turbidity</u> A correlation between TSS and turbidity may be developed for the basin/s to allow discharge based on turbidity levels. This correlation will be submitted to the relevant Approval Authority for approval prior to implementation. If approved, a TSS sample will be taken from every tenth discharge and tested to confirm compliance with required criteria. These results will be used to check and revise the correlation. If these tests indicate an exceedance of TSS criteria, discharges on the basis of turbidity measurements will be suspended until the correlation can be re-established and approved.</p>	Environmental Manager/ Environmental Site Representative	Duration
Potential contamination of any basin or ponded waters will be considered prior to discharge. Where the main source is from storm water, TSS and oil and grease are considered to be the likely pollutants. Where groundwater is a significant contributing source, influence from ASS/PASS, or other contaminants will be considered as potential pollutants and additional testing in the form of pH and metals may be undertaken.	Supervisor / Environmental Site Representative	Duration
Water Treatment		
The drain inverts upslope from sediment basin inlets will be pre-dosed with suitable flocculants/coagulants (Gypsum or Calcium Chloride broadcast in the drain invert and/or Anionic Polyacrylamide gel blocks suspended in cages in locations of turbulent water flow.) to pre-treat run-off before it enters the basin during rainfall	Supervisor / Environmental Site Representative	Duration
The implementation of rain-activated, passive dosing units will deploy suitable liquid flocculants/coagulants during prolonged rainfall events to promote rapid coagulation/flocculation of sediment laden water in the treatment forebay of sediment basins.	Supervisor / Environmental Site Representative	Duration
Onsite reuse of ponded stormwater or infiltrated groundwater should always be the first dewatering option considered. Onsite reuse may include application for dust suppression, earthworks compaction and vegetation establishment.	Supervisor / Environmental Site Representative	Duration
If water is to be used for construction purposes (e.g. compaction, dust control) no treatment is required. However, the water should be removed to re-secure design capacity of sediment basins within 5 days.	Supervisor / Environmental Site Representative	Duration

Environmental Management Controls	Person Responsible	Timing / Frequency
All sediment basins to be inspected for capacity and water quality daily on work days and within 24 hours (out of site hours) following cessation of a rain period.	Supervisor / Environmental Site Representative	Duration
<p>Before any de-watering of site areas, excavations, etc, the parameters of pH, T.S.S. and oil and grease are to be tested and meet the following criteria:</p> <ul style="list-style-type: none"> • pH between 6.5 – 8.5 • TSS < 50mg/L; and • Oil and grease < 10mg/L (and no visible trace). <p>Treatment should commence as soon as practical following cessation of a rain to allow enough time for settlement of suspended solids.</p>	Supervisor / Environmental Site Representative	Duration
<p>Records of water quality management must be maintained and the required records include:</p> <ul style="list-style-type: none"> • The date(s) on which the sample was taken; • The time(s) at which the sample was collected; • The name of the person who collected the sample. 	Supervisor / Environmental Site Representative	Duration
<p>pH</p> <p>Treatment should be undertaken as follows:</p> <ul style="list-style-type: none"> • Test basin water with a suitable pH meter. No action is required if the pH reading is between 6.5 and 8.5 • Lime to be added if pH below 6.5 or Hydrochloric Acid (32% Muriatic) or Sulfuric Acid to be added if pH above 8.5 • Determine volume of water to be treated in the sediment basin. • Determine the percentage of lime or acid required by taking a 10-litre sample of basin water and adding a known amount of lime or acid (initially 0.004%). If the pH is still not acceptable, vary the amount of lime or acid until within the limits. • Once the required percentage has been determined, calculate the actual amount of lime or acid to be added by multiplying the volume of water in the basin by the determined percentage. • Add the required amount of lime or acid to the basin and mix the water in the sediment basin well • Treat for pH prior to T.S.S. 	Supervisor / Environmental Site Representative	Duration
<p>Total Suspended Solids</p> <ul style="list-style-type: none"> • Test the sediment basin water initially for NTU using a turbidity tube, nephelometer (Turbidity tester) or by comparing with water samples contained in jars with representative readings up to 100mg/l. • When the comparative NTU readings indicate T.S.S. levels are <50mg/l obtain a grab sample in accordance with approved sampling methods. The water sample to be promptly analysed by a laboratory that is NATA certified in T.S.S. testing. • No further treatment action is required if T.S.S. results are <50mg/l. 	Supervisor / Environmental Site Representative	Duration

Environmental Management Controls	Person Responsible	Timing / Frequency
<p><u>Total Suspended Solids</u></p> <ul style="list-style-type: none"> • Test the sediment basin water initially for NTU using a turbidity tube, nephelometer (Turbidity tester) or by comparing with water samples contained in jars with representative readings up to 100mg/l. • When the comparative NTU readings indicate T.S.S. levels are <50mg/l obtain a grab sample in accordance with approved sampling methods. The water sample to be promptly analysed by a laboratory that is NATA certified in T.S.S. testing. • No further treatment action is required if T.S.S. results are <50mg/l. • If basins require flocculation (e.g. T.S.S. >50mg/l), a flocculant/coagulant is to be utilised at the determined dosage initially, then treated with incremental doses should more flocculant be required. • Basins should be monitored daily after flocculation until desired TSS is achieved and to assist in determination of optimal dosage levels. <p>Methods of application to include:</p> <ul style="list-style-type: none"> • broadcast by shovels on small sumps and excavations is acceptable. This method requires spreading powdered coagulants (i.e. gypsum, calcium chloride, etc) evenly and thinly (i.e. “dusting”) over as much of the water surface as possible. • For sediment basins or areas with a large water surface area. The powdered or flake style coagulants should be pre-mixed thoroughly in a drum with clean water and sprayed over the maximum surface area of water as possible. • When spraying coagulant mixtures, the mixture should hit the water at between 10 to 20 degrees to increase surface areas exposure to the water column. • Alternative water treatment utilising liquid flocculants/coagulants will require the assessed dosage to be pre-mixed and discharged into the basin. Following dosing, the basin water is to be gently re-circulated for a suitable period (2-4 hours) to allow chemical reaction time, and to keep precipitated flocculant/coagulant in suspension a sufficient time to collect the maximum quantity of fine suspended particles into floc clusters. • The process outlined may need to be repeated if acceptable water quality is not achieved initially. <p><u>Oil and Grease</u></p> <ul style="list-style-type: none"> • Examine surface of water for evidence (e.g. sheen, discoloration). • No action if no visual contamination. • Oil absorbent material to be spread if there is contamination (e.g. cell-u-sorb). Leave basins to compensate for 24 to 48 hours. 	<p>Supervisor / Environmental Site Representative</p>	<p>Duration</p>

Environmental Management Controls	Person Responsible	Timing / Frequency
After retesting, and once the above field tests indicate, the water quality is acceptable, pumping or siphoning can commence with the water extraction inlet protected to prevent extraction of sediment.	Supervisor / Environmental Site Representative	Duration
Discharging Water		
Where possible ponded water and sediment basin water will be reused on site for compaction, dust suppression, and irrigation.	Supervisor / Environmental Site Representative	Duration
The whole process of water quality management in sediment basins will be completed within 5 days of cessation of a rain period.	Supervisor / Environmental Site Representative	Duration
Water may be discharged from site where the tested water quality meets NSW EPA criteria and the Site Representative gives approval. The discharge outlet will be constructed to prevent erosion and scour.	Supervisor / Environmental Site Representative	Duration
The Supervisor is to ensure that treated water has been re-tested for pH and turbidity (NTU) in-situ immediately prior to discharge.	Supervisor / Environmental Site Representative	Duration
The preferred method for dewatering a sediment basin is by the use of a static siphon system with sufficient flow capacity to discharge the volume of supernatant water within a reasonable timeframe (i.e. 12 to 24 hours). The siphon inlet is to be positioned so that settled sediments are not extracted during dewatering. The siphon system is to be installed above the sediment basin embankment and <u>not</u> within the basin spillway.	Supervisor / Environmental Site Representative	Duration
Where sediment basins are to be <u>dewatered by pump</u> , suitable inlet protection devices (i.e. float & housing or extraction tube) will be provided to prevent the extraction of settled sediments within the basin. The flows from the pump outlet and basin are to be constantly monitored during discharge.	Supervisor / Environmental Site Representative	Duration
Only personnel who have undertaken the relevant training and been approved by the Supervisor may operate pumps and discharge sediment basins. During dewatering <u>pumps</u> must be monitored at all times to ensure that settled sediment is not disturbed or extracted, and that water is discharged in a diffused manner to prevent erosion.	Supervisor / Environmental Site Representative	Duration
A Sediment Basin Management Register will be maintained for each basin that details discharge volumes, dates, water treatment. The Sediment Basin Management Register will be updated when treated water is discharged from the basin.	Supervisor / Environmental Site Representative	Duration
Maintenance		
<p>Maintenance of the sediment basins will be ongoing for the duration of the Project and will comprise the following:</p> <ul style="list-style-type: none"> • The sediment storage capacity limit will be defined through the installation of a marker inside the basin. Sediment will be removed from the basin in accordance with the maintenance schedule, or when the accumulated sediment exceeds 60% of the sediment storage zone. • Sediment removed from basins may be reused on site by incorporating into spoil. • All sediment that will not be reused on site will be disposed of in locations that it will not be conveyed back into the construction areas or watercourses. • Maintenance inspections will be undertaken and the results incorporated into the Weekly Environmental Inspection Checklist. 	Supervisor / Environmental Site Representative	Duration

Environmental Management Controls	Person Responsible	Timing / Frequency
The stormwater capacity of sediment basins will be reinstated within 5 days of the cessation of a rainfall event that causes runoff to occur	Supervisor / Environmental Site Representative	Duration
Assessment and use of Coagulants & Flocculants		
<p>Coagulation is the neutralisation and/or destabilisation of electrical charge on suspended soil colloids, whereas flocculation utilises bridging type interactions involving polyelectrolyte chains adsorbing to multiple colloid particles and aggregates through electrostatic charge interactions.</p> <p>The following procedure will be implemented to determine the suitability and effectiveness of the various water treatment products.</p> <ul style="list-style-type: none"> • The product will be sourced from a reputable and traceable supplier together with MSDS and any other supporting documentation. • Controlled 'jar testing' will be undertaken using site sourced water from the sediment basin. The jar testing will establish the site-specific dosing rates for any given products. • Initial dosing will be undertaken incrementally up to the site specific/determined dosing rate in the event that the basin water responds to a lower dose in the 'real world' application. • Settling rates in the basin will be assessed to determine the efficiency of each product. • On site water sampling and testing will progressively assess the water's pH and turbidity in NTU's prior to lab testing. • NATA certified lab testing for TSS, NTU & pH will be completed prior to any dry weather/controlled discharge to downstream waterways. 	Supervisor / Environmental Site Representative	Duration
<p>The range and type of suitable flocculants/coagulants (including typical dosing rates described as product required to water volume)) that may be utilised include;</p> <ul style="list-style-type: none"> • Calcium Sulphate (Gypsum - powder) – 300ppm (30kg/100m3) • Anionic Polyacrylamide (gel blocks) – 200ppm (20kg/100m3) • Calcium Chloride (solid - flakes), – 200ppm (20kg/100m3) • Aluminium Chlorohydrate (liquid) – 40ppm (4L/100m3) • PAC23 (poly aluminium chloride 23% - solution) - 50ppm (12.5L/100m3) • Aluminium Sulphate (crystals) – 200ppm (20kg/100m3) 	Supervisor / Environmental Site Representative	Duration
Storage and Handling of Flocculants		
Environmental Management Controls	Person Responsible	Timing / Frequency
Gypsum and agricultural lime will be stored on site as either bagged or bulk product. Storage of bulk gypsum and agricultural lime will be covered, within erosion and sediment controls in a position where run on water will not erode the stockpiles.	Supervisor / Environmental Site Representative	Duration
All treatment chemicals particularly acids and basics will be stored in appropriately bunded and covered locations that are locked to prevent unauthorised access.	Supervisor / Environmental Site Representative	Duration
All chemicals on site will be stored with MSDSs for ease of reference in the event of a spill or irritation/injury to handlers.	Supervisor / Environmental Site Representative	Duration
Requirements of the Material Safety Data Sheets (MSDSs) will be met to ensure compatible storage with other chemicals to ensure safety.	Supervisor / Environmental Site Representative	Duration

Monitoring and Record Keeping		
Environmental Management Controls	Person Responsible	Timing / Frequency
All sediment basins will be inspected on a weekly basis as a minimum, with any defects or maintenance requirements reported immediately. Sediment basins will be inspected immediately after rainfall events to assess: <ul style="list-style-type: none"> Water Storage capacity and water quality treatment requirements prior to discharge Following treatment and discharge from the sediment basin the sediment storage capacity and requirement for clean out will be assessed. 	Supervisor / Environmental Site Representative	Duration
Records to be kept of the rainfall events, inspections undertaken, field tests undertaken, dosage rates and when basin water is released etc.	Supervisor / Environmental Site Representative	Duration
The results of all inspections, including inspection reports will be retained in the site environmental inspection register	Supervisor / Environmental Site Representative	Duration
All discharges will be recorded on a discharge permit which will include: <ul style="list-style-type: none"> Volume to be discharged Treatment details (e.g. Coagulant/ flocculant used, dosage, duration and treatment date) Water quality monitoring results (including date and time of testing) Discharge water quality results Date and time of discharge 	Supervisor / Environmental Site Representative	Duration
Pumped discharge of any water off site will be monitored regularly to ensure that tested water quality meets all applicable criteria.	Supervisor / Environmental Site Representative	Duration
Decommissioning Construction Sediment Basins		
Construction sediment basins will remain in place until all upstream areas have been stabilised to achieve a 'C' Factor of 0.05 which equates to 70% groundcover as per Blue Book 7.1	Supervisor / Environmental Site Representative	Duration
All operational sediment basins will be desilted and reformed as per design requirements prior to completion of major works within the catchment.	Supervisor / Environmental Site Representative	Duration
Construction Sediment basins will be removed by restoring the ground disturbed by the construction of the basin similar to pre-existing conditions. This will be achieved by: <ul style="list-style-type: none"> Removing all redundant basin equipment such as basin markers, siphons, spillway linings, etc. Spreading and compacting the embankment material in the basin area Disturbed ground will be compacted to at least the relative density of the material in the ground adjacent to it. 	Supervisor / Environmental Site Representative	Duration

3. Procedure Review

The procedure will be regularly reviewed as part of the CEMP audit requirements. This document will be updated when needed in response to audit findings or changes to site conditions. The Environmental Site Representative will modify the procedure where improvements are identified.

Appendix D
Sediment Basin Management and Discharge Record

Sediment Basin Management and Discharge Record

Date Inspected		Basin/discharge point ID:	
Date of last rainfall event:		Amount of rainfall received:	
Estimated basin level in %?		Approximate volume of water in basin prior to treatment:	
Initial turbidity reading of the basin in NTU's		Initial pH of the basin? (range of 6.5 -8.5 required)	
The initial amount of acid/lime used if pH correction is required.		Date & time of acid/lime dosing	/ /
			am/pm
Subsequent amount of acid/lime used if pH correction is required.		Date & time of acid/lime dosing	/ /
			am/pm
Type of flocculant or coagulant product used (and typical dosing volume)	Yes	No	Date & time of flocculant or coagulant dosing
Calcium Sulphate (Gypsum - powder) 300ppm (30kg/100m3)			/ /
			am/pm
Anionic Polyacrylamide (gel blocks) 200ppm (20kg/100m3)			/ /
			am/pm
Calcium Chloride (solid - flakes) 200ppm (20kg/100m3)			/ /
			am/pm
Aluminium Chlorohydrate (liquid) 40ppm (4L/100m3)			/ /
			am/pm
PAC23 (poly aluminium chloride 23% - solution) 50ppm (12.5L/100m3)			/ /
			am/pm
Aluminium Sulphate (crystals) 200ppm (20kg/100m3)			/ /
			am/pm
Turbidity reading of the basin in NTU's		Laboratory TSS Result: (if applicable)	
Time and Date of dewatering (i.e. siphon valve opened for discharge or commencement of pump operation)			/ /
			am/pm
Supervisor responsible for discharge:	Name:		
Date:	Signed:		
Comments? (E.g. next rainfall predicted – slight, moderate, severe?) Was rainfall received during treatment period affecting basin (start a new sheet)			

Appendix E

Wet weather contingency procedure

1.1 Purpose

The purpose of the Wet Weather Contingency Procedure (the Procedure) is to detail the actions to be taken by construction personnel in response to an imminent severe rainfall event as forecast by the Australian Government - Bureau of Meteorology (BOM). The procedure provides guidance for monitoring BOM rainfall & storm event forecasts and other resources, to assist with Project preparations to minimise adverse site impacts where practical.

Adherence to the methodology outlined in procedure will ensure that works for wet weather contingency planning & implementation will be carried out in accordance with contract specifications and to maximise adherence to environmental obligations.

The purpose of the Wet Weather Contingency Procedure is to;

- Identify rainfall events which may cause significant precipitation over the site areas which would result in flash flooding and/or exacerbate erosion and sediment impacts;
- Include monitoring procedures of the Bureau of Meteorology (BOM) weather forecasts to predict severe rainfall events;
- Ensure emergency procedures are developed for the management of work areas, facilities and materials in a severe rainfall event that has the potential to impact areas of the Site;
- Ensure hazardous chemical & fuel/oil storage and stockpile areas are positioned in locations to limit the potential for adverse impacts from major runoff flows and/or flash flooding;
- Outline control measures for the protection of water quality in the event of a flood over the site;
- Ensure progressive stabilising methods for areas that may be potentially affected by flash flooding and/or significant scouring & erosion are implemented.

1.2. Scope

The Procedure applies to the following:

- Weather forecast monitoring and works planning,
- Implementation, monitoring and maintenance of erosion and sediment controls,
- Stockpile and hazardous materials storage,
- Sediment basin management, dewatering and maintenance.

1.3. Objectives

The objectives of this Procedure are to:

- Ensure all Project personnel are aware of the requirements of this procedure
- Detail personnel responsible for undertaking actions relating to works planning, erosion and sediment control management, sediment basin management & construction dewatering on the site;
- Comply with environmental requirements of the Project, including all legal requirements and contractual obligations.

2. Wet Weather Contingency & Management

Environmental Management Controls	Person Responsible	Timing / Frequency
Planning		
A copy of this Wet Weather Contingency Procedure will be kept on site and be made available to all relevant project personnel	Supervisor / Environmental Site Representative	Site Establishment / Duration
All relevant project personnel will be made aware of this document during the site induction and again in Toolbox Talks and targeted training sessions.	Supervisor / Environmental Site Representative	Site Establishment / Duration
Training and Awareness		
Training & instruction of site personnel will be the responsibility of the Environment Manager/ Environmental Site Representative.	Environmental Site Representative	Site Establishment / Duration
Training sessions will be conducted with Supervisors, Foreman, Environmental Work Crew and relevant personnel. The training will address <ul style="list-style-type: none"> • Weather forecast monitoring procedures and interpretation of forecasting by BOM and other sources • Site erosion and sediment control status and high-risk areas • Roles and responsibilities for wet weather preparation • Temporary measure selection for augmentation or additional ERSED measures • Pre & post-rainfall inspections and recording • Dewatering requirements, methods and recording • Identification of stabilisation and rectification works required. 	Supervisor / Environmental Site Representative	Site Establishment / Duration
Identification of significant rainfall events		
The daily BOM forecasts for the Penrith area are issued each morning and late afternoon. The forecasts will be monitored daily, at the start of the shift and prior to shut down. The BOM three-day forecast outlook will be reviewed daily.	Supervisor / Environmental Site Representative	Duration
BOM forecasts indicating a high likelihood of storm fronts or rainfall events of >10mm with an occurrence probability of more than 50% will be regarded as a potential rainfall event.	Supervisor / Environmental Site Representative	Duration
In periods of forecast storm weather or likely rainfall events, the tracking and intensity of approaching weather fronts is to be monitored regularly (where possible) to anticipate the time of the onset of wet weather.	Supervisor / Environmental Site Representative	Duration
Wet Weather Management Procedures		
Where a potential rainfall event is deemed likely in the BOM three-day outlook, Project personnel are to review the scope and progress of existing and imminent site works to determine high risk areas and prioritise works to stabilise the nominated areas. High risk works include culvert works, scour protection installation, permanent drainage installation, trenching on grade, and sediment basin construction or maintenance.	Project Manager / Senior Engineer / Supervisors / Environmental Site Representative	Duration

Environmental Management Controls	Person Responsible	Timing / Frequency
Wet Weather Management Procedures		
<p>The high-risk work areas that are identified will be managed by;</p> <ul style="list-style-type: none"> • Completion and temporary/permanent stabilisation of the high-risk work areas where time & resource constraints allow, prior to the onset of the potential rainfall event. • Re-allocating resources from low risk activities to assist with completion of high risk works prior to the onset of a rainfall event. • Implementation of erosion controls in high risk areas to minimise sediment control requirements. Erosion controls will be employed such as; <ul style="list-style-type: none"> ○ temporary geotextile linings or soil binders will be installed around culverts, scour protection works and drain junctions, ○ sandbag check dams, rock baffles, trench stops, etc will be utilised in open trenching on grade, temporary diversion drains, or concentrated flow paths over unstabilised areas. 	Project Manager / Senior Engineer / Supervisors / Environmental Site Representative	Duration
<p>The site sediment controls and sediment basins are to be inspected and any necessary rectification works undertaken such as;</p> <ul style="list-style-type: none"> • Sediment basins are to be managed in accordance with Sediment Basin Management Procedure to regain the maximum runoff capacity parameters, where possible, • Sediment traps and filters to be desilted where more than 60% storage capacity is exceeded, • Spillways and discharge points from sediment traps to be inspected and reinstated as required. • Sediment fences, mulch bunds, earth berms to be inspected and repairs or reinstatement implemented as required. 	Supervisor / Environmental Site Representative	Duration
<p>The chemical, fuel and other hazardous material storage areas to be inspected to ensure their location is protected from the ingress of rainfall or concentrated overland flows. Bund controls to be inspected and accumulated liquids or other residues removed to a controlled waste location on site or for offsite disposal at licensed premises.</p>	Supervisor / Environmental Site Representative	Duration
<p>Following the onset of a significant storm event or rainfall event, the site controls to be inspected as soon as site conditions and safety requirements allow. The inspection to focus on high risk areas to review the function and status of the installed erosion and sediment controls.</p>	Supervisor / Environmental Site Representative	Duration
Post-Rainfall/Storm Procedure		
<p>The Post Rainfall Inspection will be conducted in accordance with Section 7.7 of this ESCP. The identified high-risk areas will be prioritised for any rectification or maintenance works, followed by areas with lower risk.</p>	Supervisor / Environmental Site Representative	Duration
<p>Records detailing the necessary works to reinstate the controls will be conducted in accordance with Section 7.7 of this ESCP.</p>	Supervisor / Environmental Site Representative	Duration
<p>Sediment basins are to be managed in accordance with Sediment Basin Management Procedure. Flocculation of the sediment basins may occur soon after the cessation of a rainfall event to improve the water quality parameters in circumstances where further significant rainfall is anticipated.</p>	Supervisor / Environmental Site Representative	Duration

Environmental Management Controls	Person Responsible	Timing / Frequency
High risk work areas that are inundated will be prioritised for dewatering by; <ul style="list-style-type: none"> • Dewatering to a sediment basin where sufficient capacity is available, • Flocculated in-situ and discharged at a licensed discharge point when EPL water quality parameters are attained, • Dewatered by water cart and utilised for construction purposes. 	Supervisor / Environmental Site Representative	Duration
Repair and reinstatement of erosion and sediment controls to be implemented as site conditions allow, proceeding from high risk areas to lower risk areas on site.	Supervisor / Environmental Site Representative	Duration

3. Procedure Review

The procedure will be regularly reviewed as part of the CEMP audit requirements. This document will be updated when needed in response to audit findings or changes to site conditions. The Project Environmental Representative in consultation with the Client will modify the procedure where improvements are identified.

Appendix F

Progressive Erosion and Sediment Control Plan

NOTES - Administration & General

1. This progressive plan is to be read in conjunction with the SWMP, CEMP, relevant specifications, and procedures.
2. Works programming to maximise the mitigation of erosion by the early implementation of permanent drainage measures, temporary and permanent soil surface stabilisation measures, and minimising the area and duration of soil disturbance.
3. Bureau of Meteorology weather forecasting to be monitored daily for the local 7-Day weather outlook. Site management measures to be planned for imminent storm/rainfall/flood/wind events include, but are not limited to;
 - avoiding additional soil disturbance immediately prior to an event,
 - provision of additional erosion and sediment controls in critical locations,
 - installing, repairing, and/or adjusting 'clean' (off site water) and 'dirty' (on site) water drainage measures,
 - desilting and re-instating sediment controls as required,
 - implementing stockpile protection measures,
 - stabilising and sealing disturbed soil surfaces,
 - minimising dry soil handling in windy conditions,
 - evacuating or protecting erodible materials in lower lying area.
4. The plan is to be revised as necessary (i.e. progression of works, altered site conditions or weather). **The controls depicted are subject to staging and the controls may be progressively implemented or removed according to progression of works. The symbols depicting controls are not to scale and are only indicative of the general location and type of control selected.**
5. All erosion and sediment controls generally to be constructed in accordance with 'Blue Book' specifications and standard drawings & RMS Specifications being
 - MANAGING URBAN STORM WATER: SOILS AND CONSTRUCTION - 4th EDITION, LANDCOM, MARCH 2004;
 - MANAGING URBAN STORM WATER: SOILS AND CONSTRUCTION – VOLUME 2D MAIN ROAD CONSTRUCTION, DEC, 2008;
6. Substitute materials may be utilised in the construction of erosion or sediment controls where functionality is not affected, i.e. compacted mulch bunds in place of sediment fences, stabilised earth Berms in place of excavated drains near underground services or timber pegs in place of star pickets where electrical or gas.
7. Personnel constructing controls to have demonstrated competence and experience. Specific awareness training and workshops to be undertaken by personnel with direct involvement with erosion and sediment control. Toolbox talks to regularly focus on erosion and sediment control for specific works, associated risks, potential impacts and mitigation measures.
8. All existing vegetated or undisturbed areas outside of the works area to be regarded as "No Go" zones and to be delineated with fencing, tape or other markers, as required. All site personnel to be instructed to avoid "No Go" zones or damaging installed controls.

Erosion Control

9. Prior to commencement of significant works, install surface drains, sediment traps, sumps & filters, and other surface runoff control measures to control runoff onto, across, and from the works zones to prevent the loss of sediment from the site.
10. Construction zones in constrained areas to be managed in smaller, defined sub-catchments to reduce slope lengths and minimise sediment loads to boundary controls.
11. Stripped topsoil to be stripped and stockpiled generally as per SD 4-1. Any viable stripped topsoil to be stored in stockpiles, preferably less than two metres in height.
12. Short term on-site stockpiles to be located away from drains and flow lines and be controlled with sediment fence or storm covers.
13. Any significant (long & steep) cut/fill batters should be progressively overlaid with Rolled Erosion Control Products (RECP's such as jute mesh, coir fibre mesh, etc), mulching, Organic Fibre Mulches (OFM's) or geobinders to reduce erosion and rilling, prior to permanent stabilisation with cover crops, mulching or other long-term surface protection
14. Vehicles transporting bulk materials on public roads are to correctly cover loads to prevent loss of load and/or dust generation.
15. Temporary controls in addition to those shown may be required at strategic locations as required by the progression of works or weather conditions

Water Management (Cont'd)

16. Maximise the interception and diversion of 'clean' (off site water) away from works areas. The 'clean' flows to be conveyed in stabilised drainage lines to suitable discharge points. The flows to be discharged to off-site areas at non-erosive velocities with adequate diffusers, level spreaders, etc. Ensure drainage paths and controls are adjusted as required to maximise the separation of 'clean' (off site) and 'dirty' (on site) water flows through/off site.
17. Flows paths with high velocity flows over unstabilised areas to be controlled with
 - applied soil surface stabilisers i.e. geotextile lining, applied soil binders, coarse rock lining, etc
 - suitably constructed check dams placed at intervals to maximise flow suppression and settling of coarse sediment.
18. Where possible, provide sand bag or other bunding controls at on-site collection points & pit inlets to prevent flows bypassing controls to downslope areas.
19. Protect all existing and constructed inlets to pits & culverts from sediment ingress.
20. Where practical, maintain and/or improve existing stabilised drains to assist in the diversion of 'clean' (off site) flows.
21. Flooded excavations, ponded water, etc. to be extracted where required and utilised for site purposes, or treated to achieve acceptable water quality prior to discharge.

Sediment Control

22. The installation of preliminary sediment controls such as perimeter sediment fencing, excavated sediment traps, check dams, coir log filters, etc, will be implemented prior to soil disturbance within the catchment.
23. Accumulated water in sediment traps/sumps cannot be pumped, discharged or released from site without completing a dewatering checklist or approval by an authorised Site Manager.
24. Appropriate sediment tracking controls such as an aggregate/geotextile apron, shaker grid, etc. will be installed at exit points from the site. Personnel to monitor roadways & tracked sediments to be removed as required.
25. Personnel to ensure visual dust monitoring is maintained during works, and dust suppression is undertaken regularly. Dust control to be regularly conducted with water carts and soil stockpiles to suitably covered. Additional dust suppression measures to be utilised to minimise dust pollution during periods of high winds.
26. Temporary 'dirty' water drainage will be adjusted progressively to maximise flows to sediment control devices.

Contamination

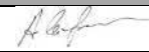
29. Excavation of sub-soils to be inspected and monitored as works proceeds, to identify potential contamination. Any potentially contaminated soils to be stripped or excavated separately and transported directly to the designated stockpile, treatment area or licensed waste facility.
30. Potentially contaminated soils are to be stored within an appropriately bunded area and covered with heavy grade plastic or other impermeable covers for the duration of rainfall.
31. Ground disturbance and machinery/vehicle movements in potentially contaminated areas will be minimised to essential works.

Monitoring & Reporting and Inspection & Maintenance

32. Inspections of erosion and sediment controls will occur following rainfall events >10mm (daily on work days or as soon as practical during site shutdown periods), with any necessary repairs implemented as soon as possible.
33. Relevant checklists and records to be maintained noting details such as rainfall received, repairs to controls and amounts of sediments cleaned from controls.
34. Sediment traps, sumps and filters are to be desilted when 60% of storage capacity is reached.
35. All site personnel to report any spill, leaks, or other failure to relevant response staff as soon as possible.

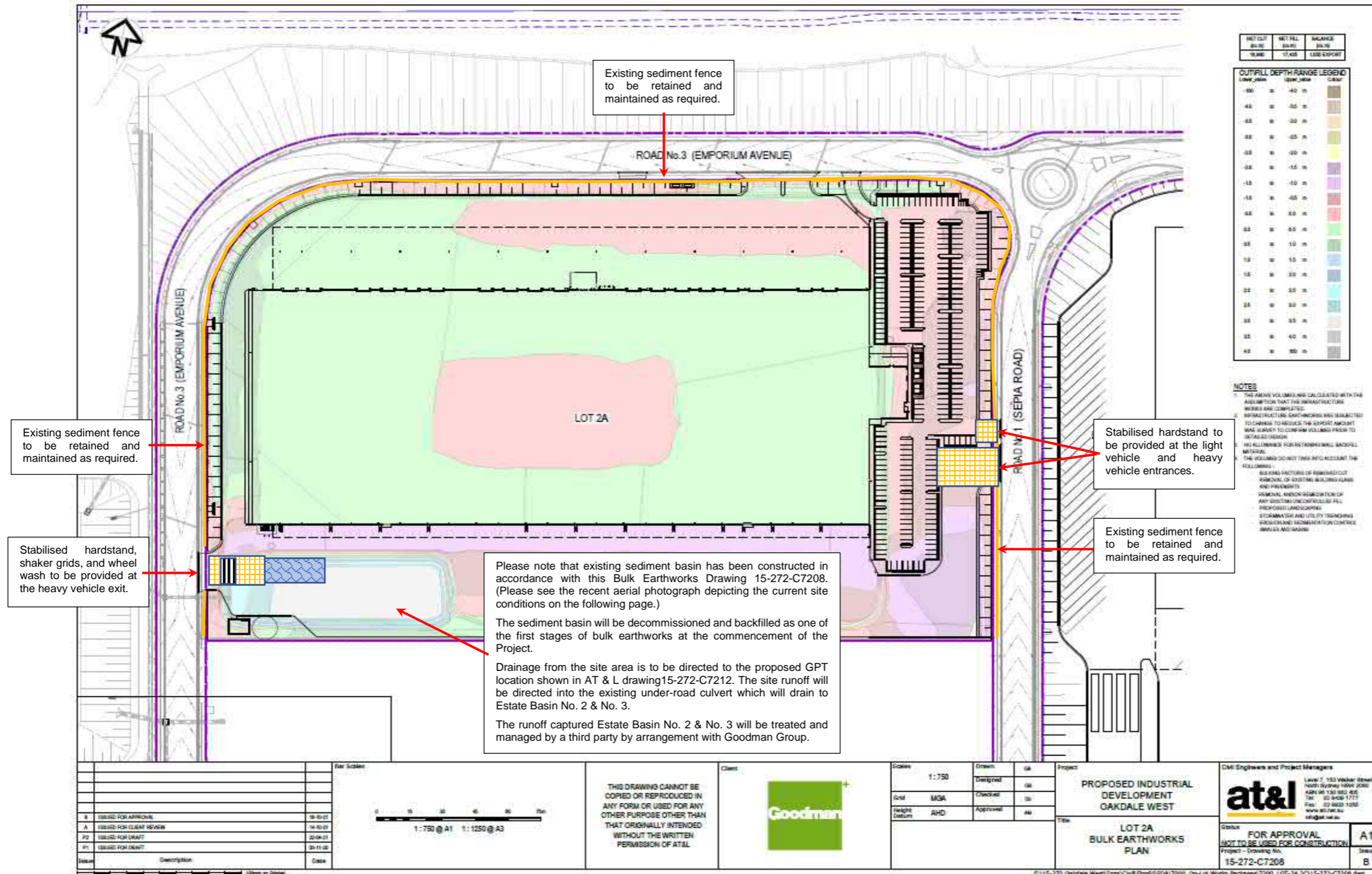
Stabilisation

36. Erosion and sediment controls are to be maintained until the relevant catchments are stabilised, re-vegetated, or sealed adequately to achieve soil surface protection factors as per the 'Blue Book' and SWMP requirements.
37. Completed earthworks areas will be backfilled and compacted in a staged manner as soon as possible. Adjacent disturbed areas will be suitably trimmed and stabilised as required.
38. Stabilisation of areas is to occur progressively in conjunction with the completion of earthworks.
39. Areas subject to heavy compaction and disturbance from vehicle movements and machinery to be scarified to a depth >100mm prior to topsoiling and seeding.

Version	Drawn by	Date	Signed	Reviewed by	Date
01	A. Littlewood	22/11/2021			

Oakdale West Estate– Building 2A - Progressive Erosion & Sediment Control Plan – Site Establishment & Bulk Earthworks

The drawing partially reproduced below is Drawing 15-272-C7208 extracted from AT&L's Bulk Earthworks Plan issued 18/10/2021.



Flow Type	Symbol	Feature	Symbol	Feature	Symbol	Feature	Symbol	Feature	Symbol	Feature	
Off Site Water – Sheet Flows		Piped Drainage		Stabilised Topsoil Berm (geo/jute/seed)		Sediment basin / large sump		Sediment Fence Geotextile Apron		Vegetated filter	
Off Site Water – Concentrated Flow/Drain		Off-site & onsite water cross-over		Geo-lined drain		Filter bag sediment trap		Mulch bund		Stabilised site access / Shaker / Wheelwash	
On Site Water - Concentrated Flow/Drain		'Off site' water exclusion bank		Rock lined drain		Compacted Mulch / Rock & Geotextile / topsoil sediment trap		Coir Log / Straw bale filter		Stabilised Haul Road/Access Track/ Piling pad/Piped crossing	
On Site Water – Sheet Flows		Level Spreader / Diffuser/ Geo spillway		Coarse rock / sandbag check dam		Excavated sediment trap with spill weir		Filter bag or sediment fence inlet filter		Temporary Traffic Barriers	

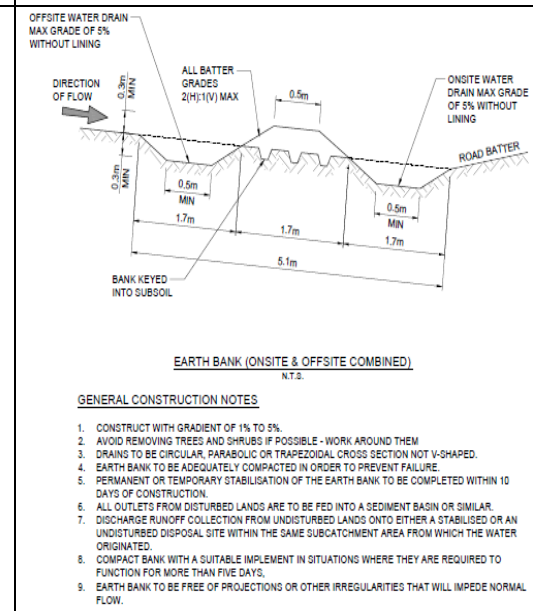
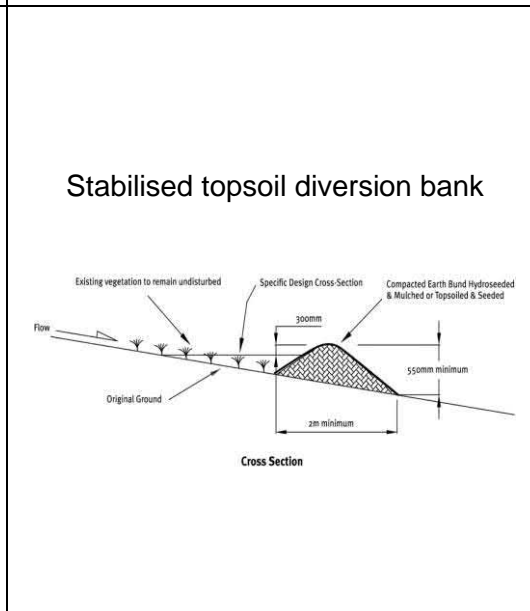
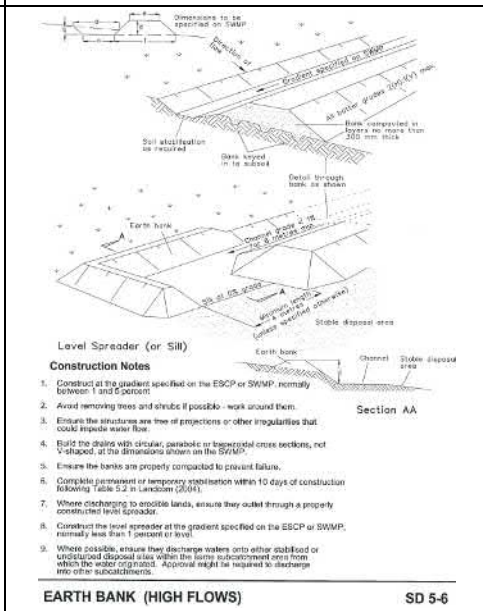
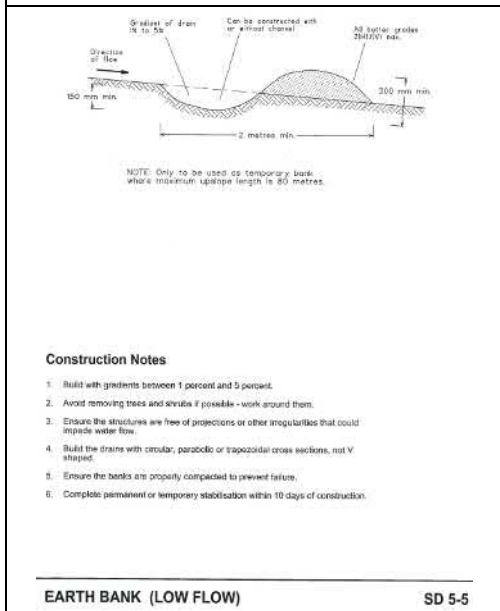
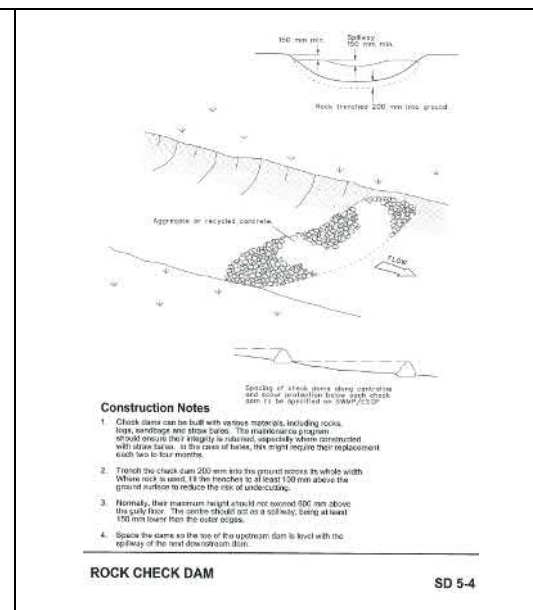
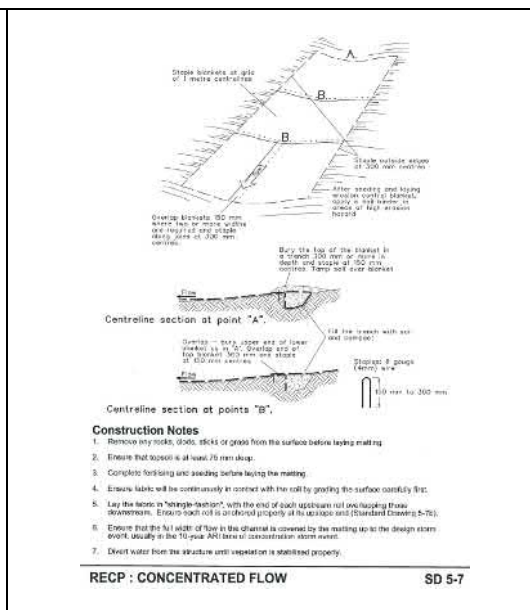
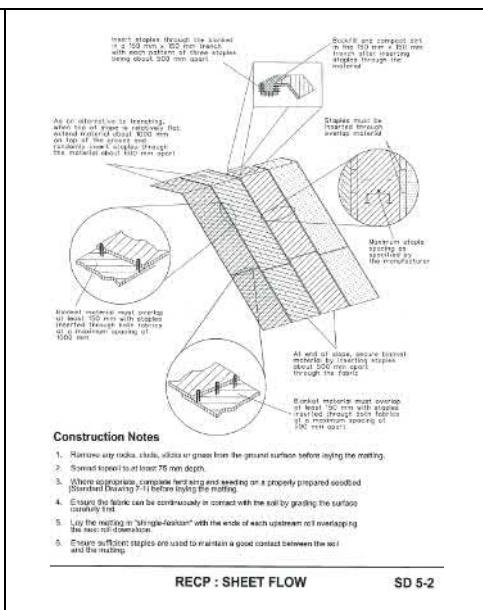
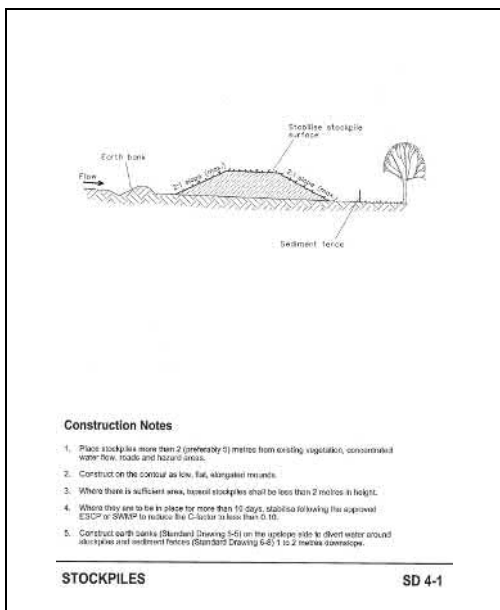
Recent aerial photography depicting depicting the current site conditions and controls, i.e. cut off drains and sediment basin.



Legend											
Off Site Water – Sheet Flows		Piped Drainage		Stabilised Topsoil Berm (geo/jute/seed)		Sediment basin / large sump		Sediment Fence Geotextile Apron		Vegetated filter	
Off Site Water – Concentrated Flow/Drain		Off-site & onsite water cross-over		Geo-lined drain		Filter bag sediment trap		Mulch bund		Stabilised site access / Shaker / Wheelwash	
On Site Water - Concentrated Flow/Drain		'Off site' water exclusion bank		Rock lined drain		Compacted Mulch / Rock & Geotextile / topsoil sediment trap		Coir Log / Straw bale filter		Stabilised Haul Road/Access Track/ Piling pad/Piped crossing	
On Site Water – Sheet Flows		Level Spreader / Diffuser/ Geo spillway		Coarse rock / sandbag check dam		Excavated sediment trap with spill weir		Filter bag or sediment fence inlet filter		Temporary Traffic Barriers	

Appendix G
Standard drawings

Standard Drawings



Standard Drawings

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 established access, construct a ramp in the established access to divert water to the sediment fence.

STABILISED SITE ACCESS SD 6-14

Construction Notes

1. Construct sediment fences as close as possible to being parallel to the contour of the site, but with small ridges as shown in the drawing to limit the catchment area of any one section. The catchment area should be small enough to limit water flow if concentrated at one point to 50 litres per second in the design storm event, usually the 10-year event.
2. Cut a 150-mm deep trench along the upslope line of the fence for the bottom of the fabric to be embedded.
3. Drive 1.5 metre long star pickets into ground at 2.5 metre intervals (max) at the downslope edge of the trench. Ensure any soil pockets are filled with safety caps.
4. Fit self-supporting geotextile to the upslope side of the fence ensuring it goes to the base of the trench. Fit the geotextile with wire ties or as recommended by the manufacturer. Only use geotextile specifically produced for sediment fencing. The use of waste cloth for this purpose is not satisfactory.
5. Join sections of fabric at a support post with a 150-mm overlap.
6. Backfill the trench over the base of the fabric and compact it thoroughly over the geotextile.

SEDIMENT FENCE SD 6-8

Construction Notes

1. Install this type of sediment fence when use of support posts is not desirable or not possible. Such conditions might apply, for example, where approval is granted from the appropriate authorities to place these fences in highly sensitive ecological areas.
2. Use bent length mesh to support the FIB welded mesh facing as shown on the drawing above. Attach the geotextile to the welded mesh facing using UV resistant cable ties.
3. Stabilise the whole structure with stonew or rock anchoring over the trench mesh and the leading edge of the geotextile. The anchoring should be sufficiently large to ensure stability of the structure in the design storm event, usually the 10-year event.

ALTERNATIVE SEDIMENT FENCE SD 6-9

Construction Notes

1. Install the fence to the height specified in the EBCP/BWMP.
2. Cut a channel 200 mm deep along the fence line.
3. Place wire and light resistant, open-weave polymer mesh with 40 percent porosity on the prevailing wind side of fence.
4. Fasten the mesh to all wires using ring fasteners at 100 mm to 150 mm intervals on top wire and 200 mm intervals on other wires.
5. Use one 75-mm to 100-mm diameter treated round timber post every 20 metres.
6. Where star pickets are used, ensure they are fitted with safety caps.

CONTROL OF WIND EROSION SD 6-15

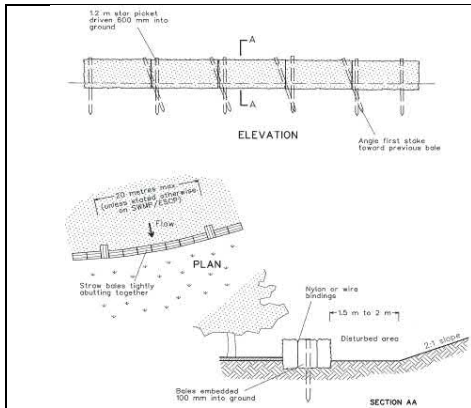
SANDBAG SEDIMENT TRAP FOR KERB INLET N.T.S.

GEOTEXTILE INLET FILTER (SD 6-12) - PERSPECTIVE N.T.S.

SEDIMENT BARRIER (SD 5-4) DETAIL

Coir Log Filter

Standard Drawings

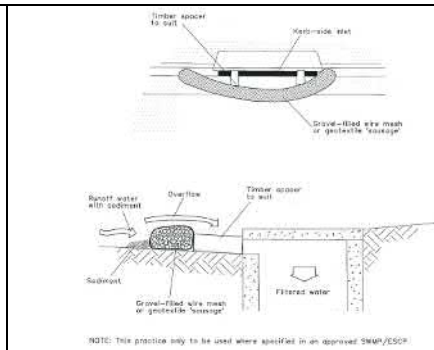


Construction Notes

1. Construct the straw bale filter as close as possible to being parallel to the contours of the site.
2. Place bales lengthwise in a row with ends tightly abutting. Use straw to fill any gaps between bales. Straws are to be placed parallel to ground.
3. Ensure that the maximum height of the filter is one bale.
4. Embed each bale in the ground 75 mm to 100 mm and anchor with two 1.2 metre star pickets or stakes. Angle the first star picket or stake in each bale towards the previously laid bale. Drive them 600 mm into the ground and, if possible, flush with the top of the bales. Where star pickets are used and they protrude above the bales, ensure they are fitted with safety caps.
5. Where a straw bale filter is constructed downslope from a disturbed batter, ensure the bales are placed 1 to 2 metres downslope from the toe.
6. Establish a maintenance program that ensures the integrity of the bales is retained - they could require replacement each two to four months.

STRAW BALE FILTER

SD 6-7

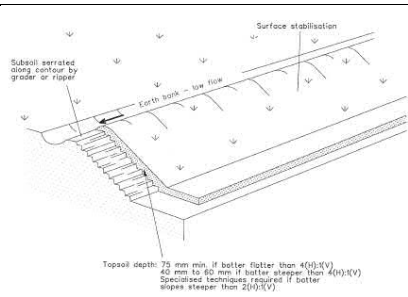


Construction Notes

1. Install filters to kerb, warts only at rig points.
2. Fabricate a sieve made from geotextile or wire mesh longer than the length of the inlet pit and fill it with 25 mm to 50 mm gravel.
3. Form an elliptical cross-section about 150 mm high x 400 mm wide.
4. Place the filter at the opening leaving at least a 100-mm space between it and the kerb inlet. Maintain the opening with a space 100-300.
5. Form it seal with the kerb to prevent sediment bypassing the filter.
6. Sediments filled with gravel can substitute for the mesh or geotextile providing they are placed so that they fit snugly about each other and sediment-laden waters cannot pass between.

MESH AND GRAVEL INLET FILTER

SD 6-11

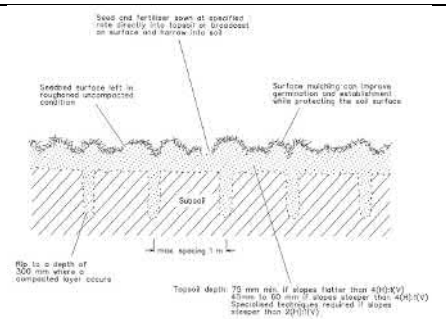


Construction Notes

1. Scarify the ground surface along the line of the contour to a depth of 50 mm to 100 mm to break up any hardsetting surfaces and to provide a good bond between the respread material and subsoil.
2. Add soil ameliorants as required by the ESOP or SWMP.
3. Rip to a depth of 300 mm if compacted layers occur.
4. Where possible, replace topsoil to a depth of 40 to 60 mm on lands where the slope exceeds 4(H):1(V) and to at least 75 mm on lower gradients.

REPLACING TOPSOIL

SD 4-2

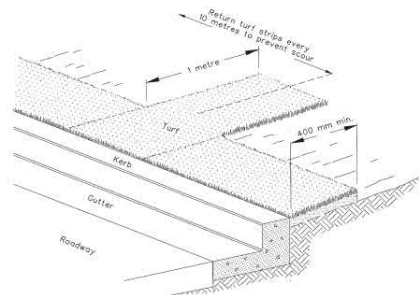


Construction Notes

1. Loosen compacted soil before sowing any seed. If necessary, rip the soil to a depth of 300 mm. Avoid rotary tillage cultivation.
2. Work the ground only as much as necessary to achieve the desired till and prepare a good seedbed.
3. Avoid cultivation in very wet or very dry conditions.
4. Cultivate on or close to the contour where possible, set up and down the slope.

SEEDBED PREPARATION

SD 7-1



Construction Notes

1. Install a 400-mm minimum wide roll of turf on the footpath next to the kerb and at the same level as the top of the kerb.
2. Lay 1.4 metre long turf strips normal to the kerb every 10 metres.
3. Rehabilitate disturbed soil behind the

KERBSIDE TURF STRIP

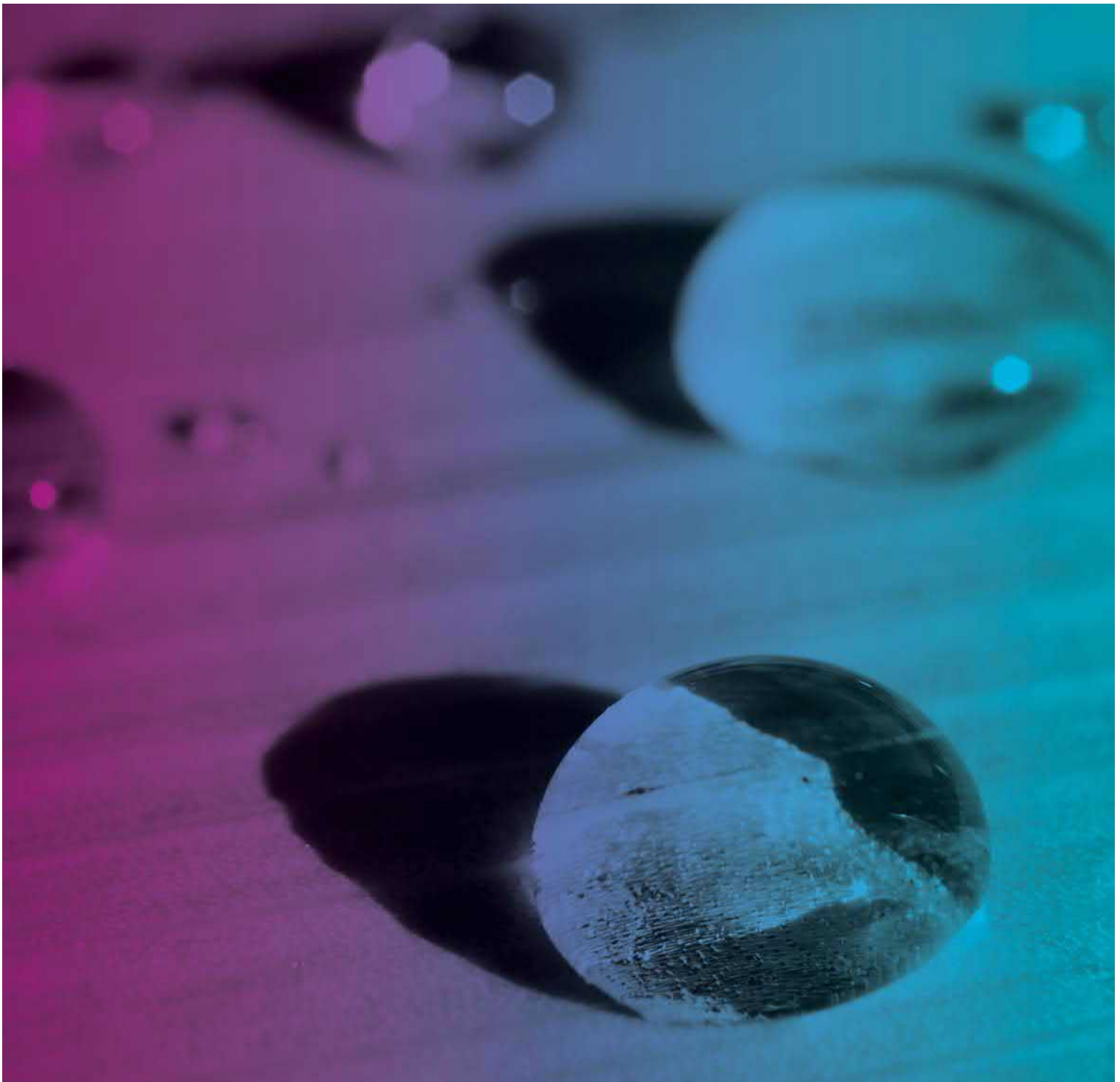
SD 6-13

APPENDIX J

Unexpected Finds Protocol - Contamination

Unexpected Finds Protocol

Oakdale West Estate



Unexpected Finds Protocol

Oakdale West Estate

Client: Goodman Property Services (Aust) Pty Ltd

ABN: 40 088 981 793

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31-Oct-2019

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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: <ol style="list-style-type: none"> 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: <ol style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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 gully 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 m² and the Rubbish Disposal area excavation footprint was approximately 2800 m².
- 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 m² 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 the 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 gully / 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 m² 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 m² 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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- PSM. 2015b. *Oakdale West Precinct, Soil Salinity and Aggressivity Investigation*. November 2015 (ref: PSM1541-124R).
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- WA DOH. 2009. *Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia*. May 2009.
- WorkCover NSW. 2014. *Managing asbestos in or on soil*. March.

Appendix A

Figures



G:\ENV\GIS\Projects\606\0599325\Oakdale West Estate\FIGURES\60599325\FX Targeted Phase II Sample Locations 18.04.2019

KEY

- Site boundary
- Proposed development layout
- Proposed easement
- Test pit location (AECOM, 2012)
- × Surface sample location (AECOM, 2012)
- ▲ Surface water sample location (AECOM, 2019)
- × Sediment sample location (AECOM, 2019)

0 150 300m



G:\ENV\GIS\Projects\606\0599325\Oakdale West Estate\FIGURES\60599325\Fx Targeted Phase II Sample Locations 23 04 2019



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

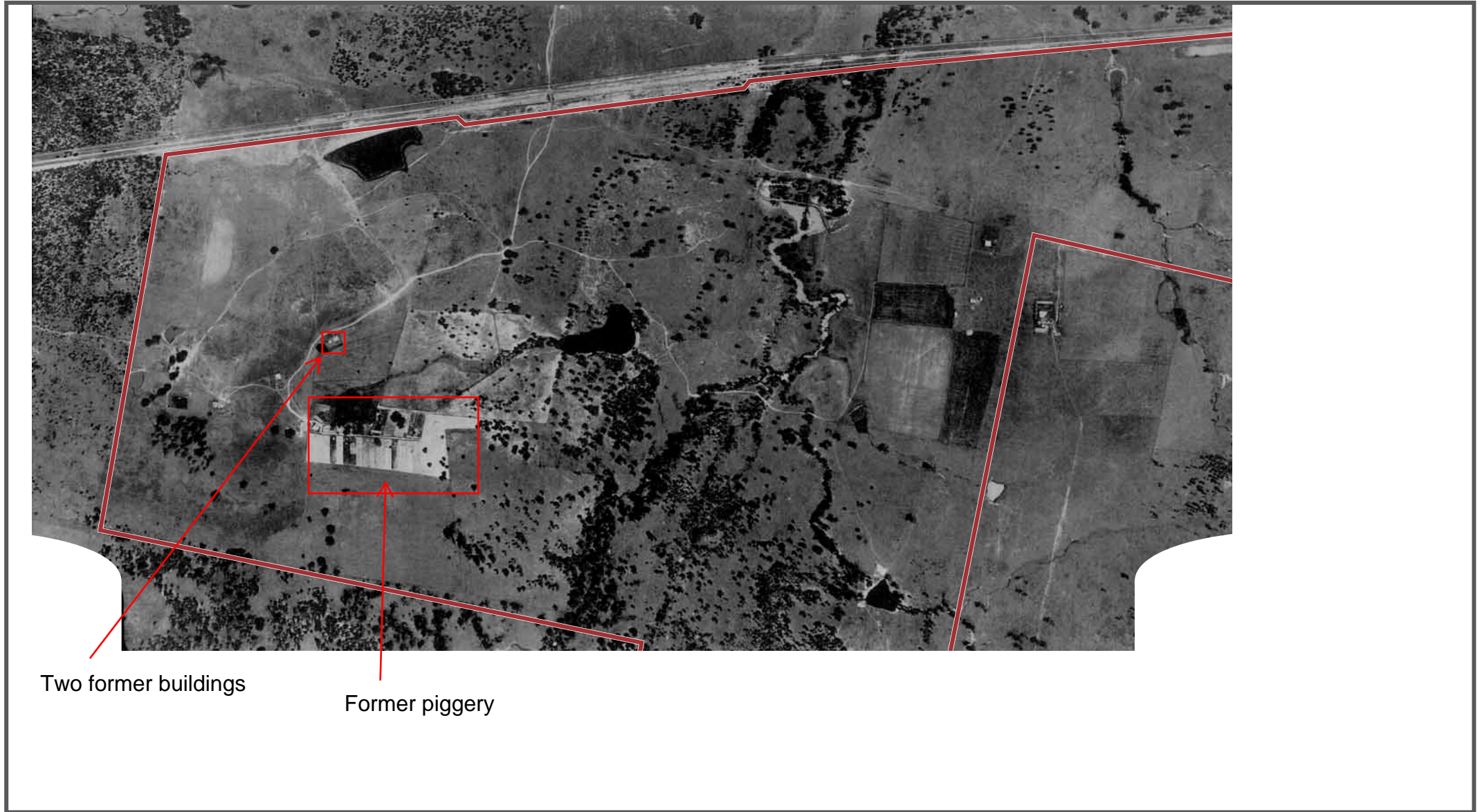


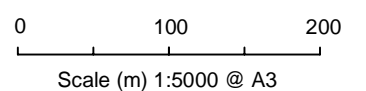
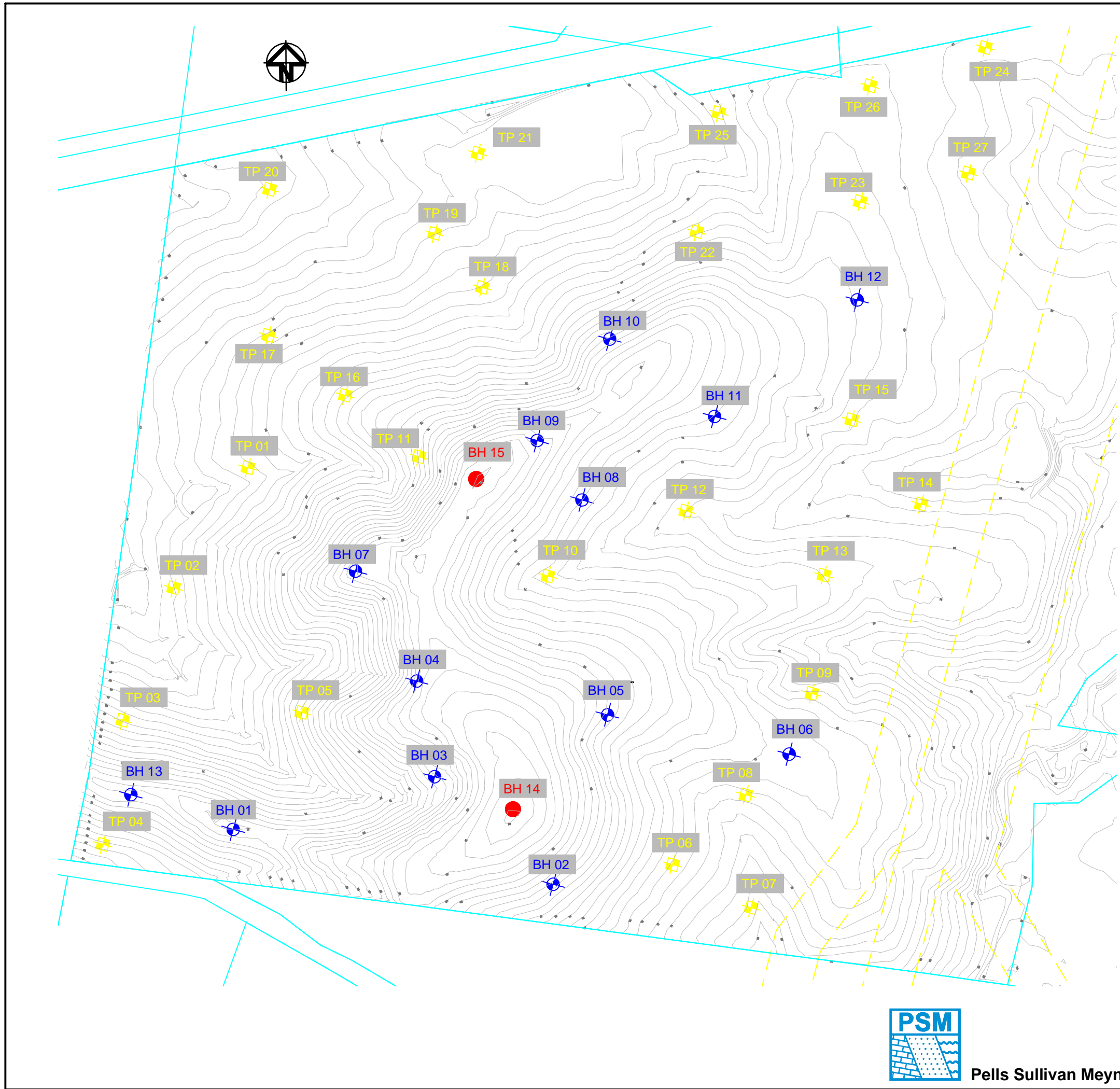
- Approximate site boundary
- - - Approximate areas of enviro-soil application
- Plate number and direction of view

Figure 2 Site Plan (Aerial Photograph - 2005)






Concrete blocks downstream of former rubbish disposal area.





NOTE:

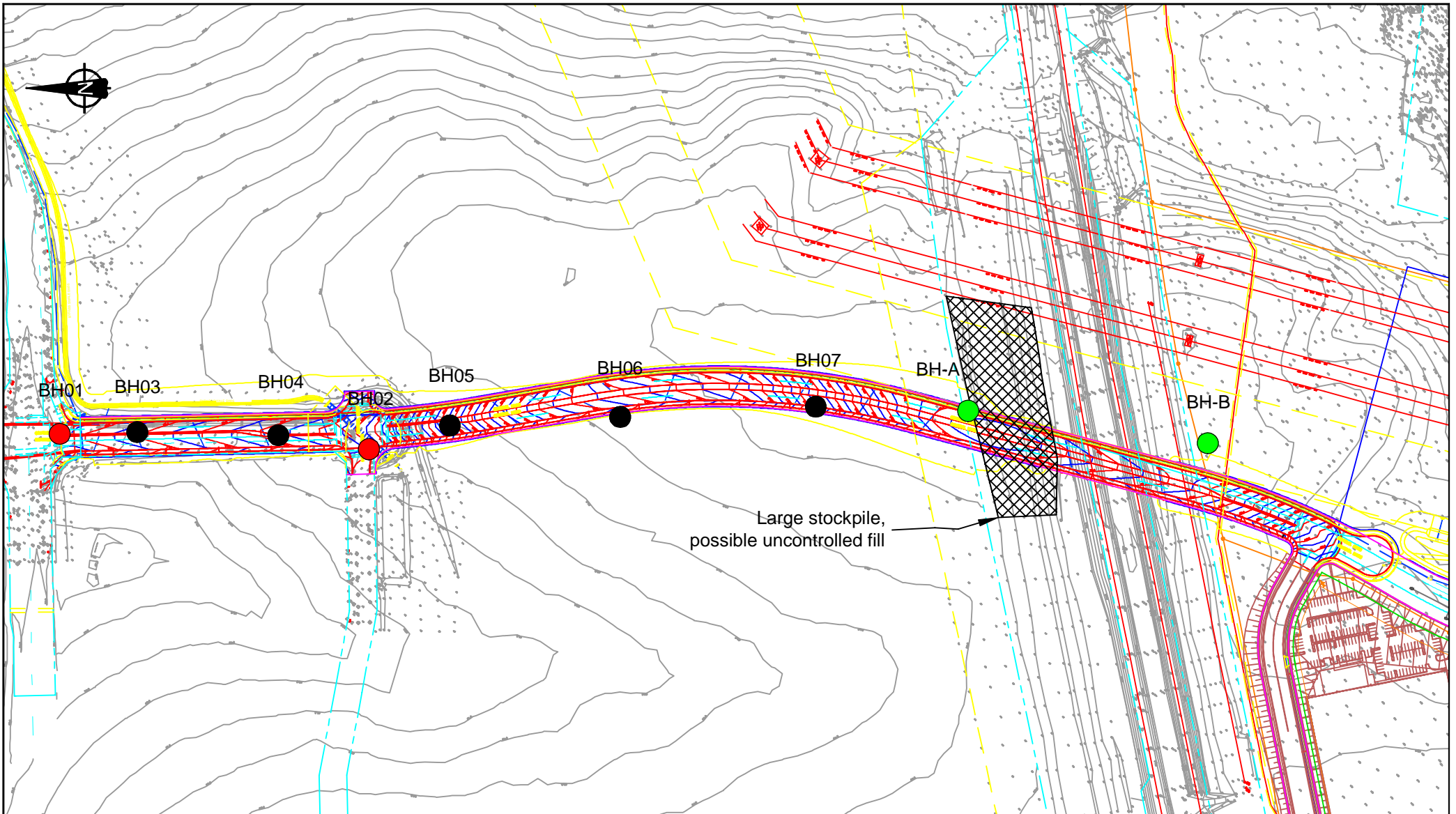
1. PSM geotechnical investigation undertaken between 14 and 20 October 2015.
2. Test locations were surveyed by a hand-held GPS unit with a vertical accuracy of ± 5 m.
3. The base plan was taken from "SKC051 - OPTIMISED MASTER PLAN CUT TO FILL PLAN" dated 14 September 2015

-  **BH 02** - PSM augured borehole locations
-  **TP 02** - PSM augured borehole locations
-  **BH 15** - PSM cored borehole locations

Goodman Pty Ltd Oakdale West Estate Kemps Creek, NSW	
GEOTECHNICAL INVESTIGATION LOCALITY PLAN	
PSM1541-123R	FIGURE 1

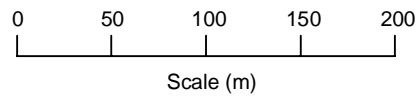


Pells Sullivan Meynink



LEGEND

- PSM existing pavement borehole
- PSM new pavement borehole
- PSM cored corehole

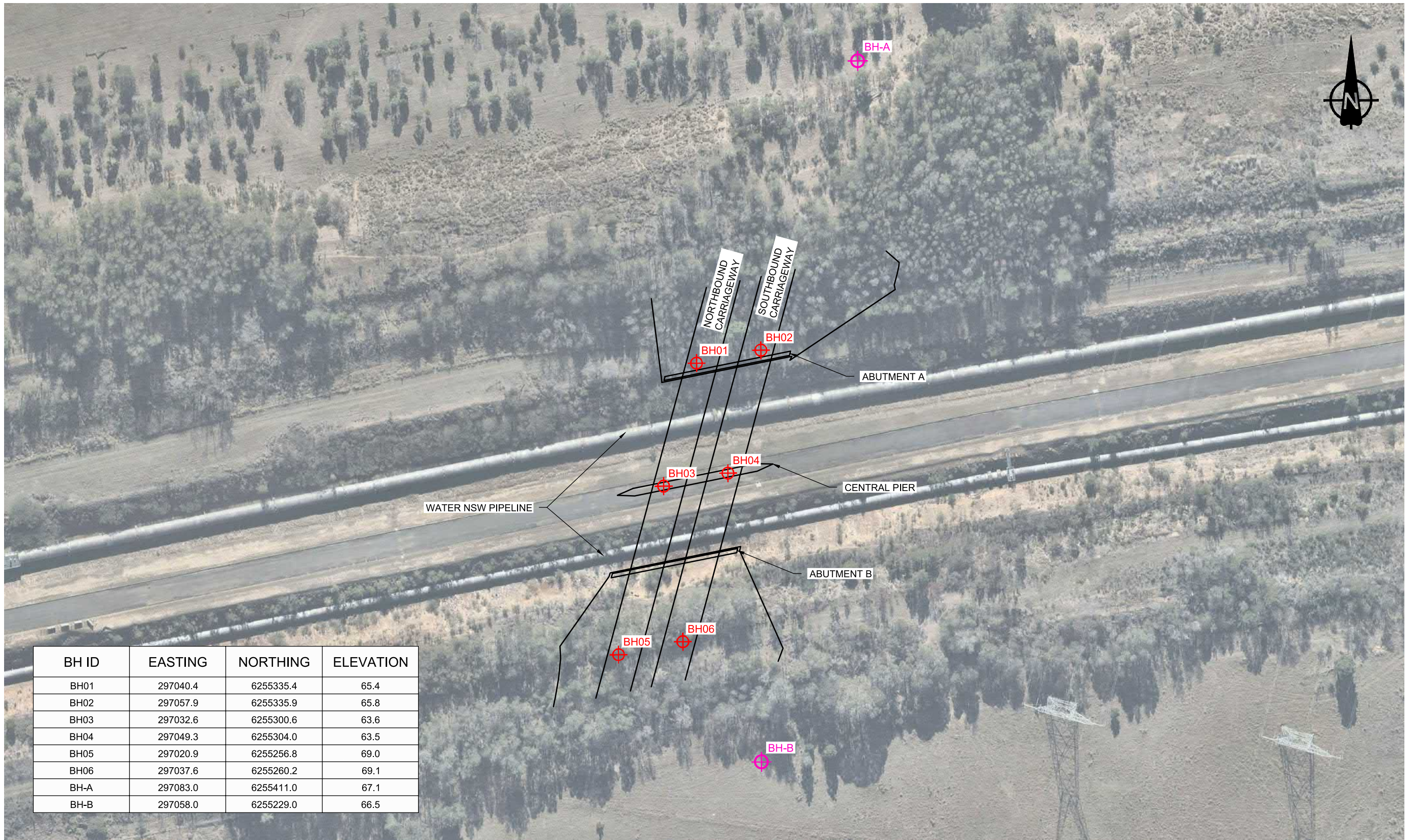


Pells Sullivan Meynink

Goodman Property Services (Aust) Pty Ltd
 Western North South Link Road
 Erskine Park, NSW
LOCALITY PLAN

Figure 1



PSM1541-140R

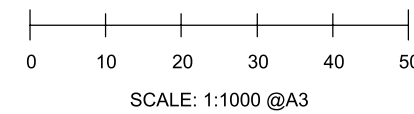


BH ID	EASTING	NORTHING	ELEVATION
BH01	297040.4	6255335.4	65.4
BH02	297057.9	6255335.9	65.8
BH03	297032.6	6255300.6	63.6
BH04	297049.3	6255304.0	63.5
BH05	297020.9	6255256.8	69.0
BH06	297037.6	6255260.2	69.1
BH-A	297083.0	6255411.0	67.1
BH-B	297058.0	6255229.0	66.5

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)

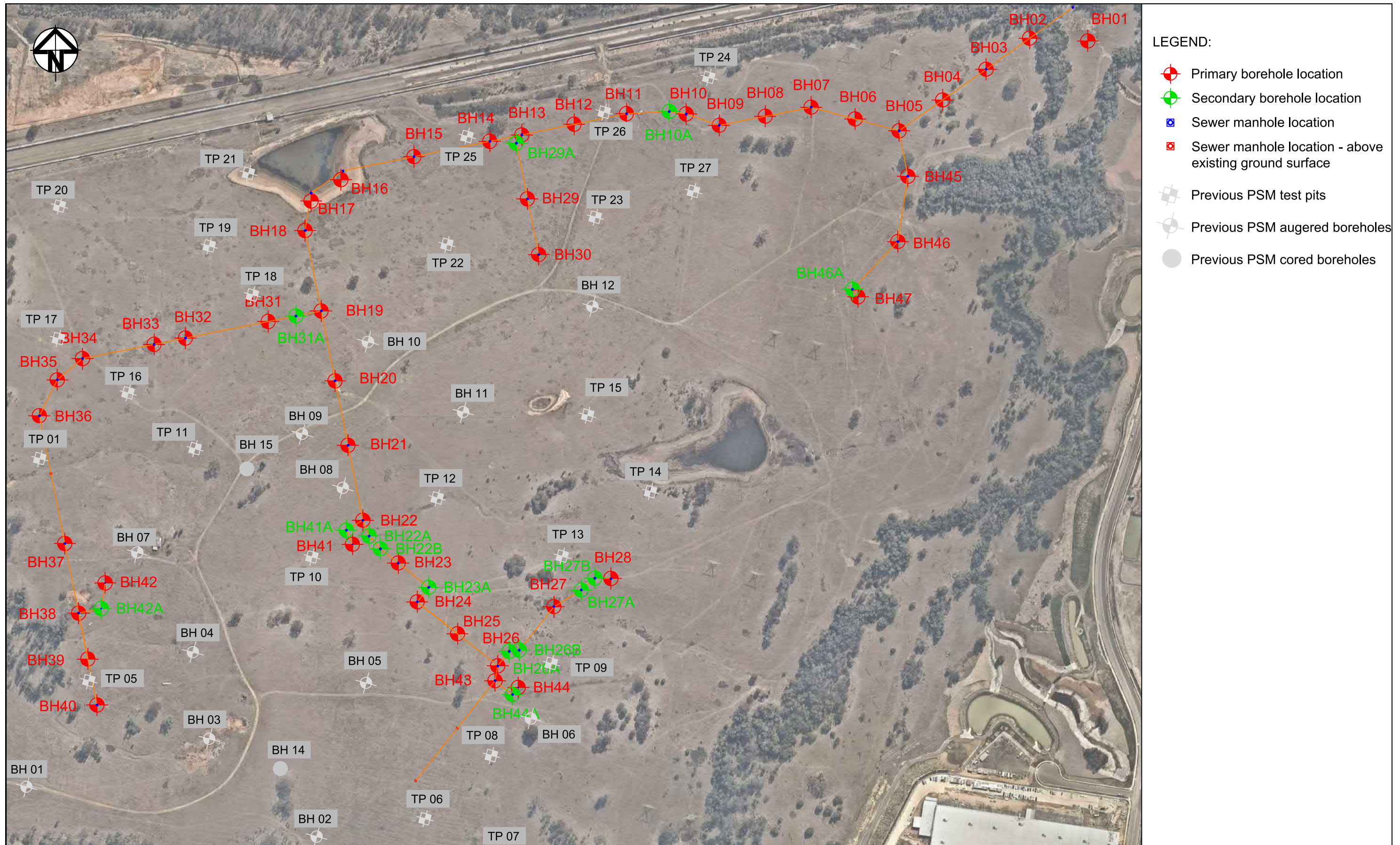


Pells Sullivan Meynink

AT&L
 WESTERN NORTH-SOUTH LINK ROAD
 EASTERN CREEK
 BOREHOLE LOCALITY PLAN

PSM1541-367R

FIGURE 1

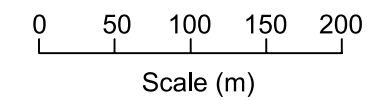


LEGEND:

- Primary borehole location
- Secondary borehole location
- Sewer manhole location
- Sewer manhole location - above existing ground surface
- X Previous PSM test pits
- X 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.



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 m³	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 banded 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).

APPENDIX K

Flora and Fauna Management Plan



Oakdale West Estate Stage 3 SSD 9794683

Building 2A Flora and Fauna Management Plan

Prepared for

Goodman Property Services (Aust.) Pty Ltd

Oakdale West Estate Stage 3 SSD 9794683 Building 2A - Flora and Fauna Management Plan

prepared for

Goodman Property Services (Aust.) Pty Ltd

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Document control

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Revision	Date	Description	Issued to
01	12/11/2021	Draft Flora and Fauna Management Plan (FFMP)	Goodman
02	15/11/2021	Flora and Fauna Management Plan (FFMP)	Goodman
03	13/12/2021	FINAL Flora and Fauna Management Plan (FFMP)	Goodman

Contents

1	Introduction	1
1.1	Context	1
1.2	Consent Conditions	1
1.3	Subject area	4
2	Site Flora and Fauna	6
2.1	Flora	6
2.2	Fauna	6
2.2.1	Eastern grey kangaroo	6
2.2.2	Snakes	6
2.2.3	Aquatic fauna	7
3	Potential Impacts	9
3.1	Potential direct impacts	9
3.1.1	Native vegetation	9
3.1.2	Native fauna	9
3.2	Potential indirect impacts	9
3.2.1	Native vegetation	9
3.2.2	Native fauna	9
4	Mitigation Measures	10
5	Stop Works Procedure	13

Figures

Figure 1-1.	Location of Building 2A	5
Figure 2-1.	Biodiversity values proximal to Building 2A	8
Figure 5-1.	Stop work procedure	13

Tables

Table 1-1.	Consent conditions relevant to this FFMP and biodiversity mitigation measures	1
Table 1-2.	SSD 9794683 consent conditions	3
Table 4-1:	Flora and fauna management and mitigation measures	10

1 Introduction

1.1 Context

Goodman Property Services (Aust) Pty Ltd (Goodman) obtained Development Consent SSD 7348 for the staged development of Oakdale West Industrial Estate (the Estate) comprising a warehousing and a distribution hub in Western Sydney.

An Estate wide Flora and Fauna Management Plan was prepared and approved by the NSW Minister of Environment's Secretary for the 'Concept Proposal' and Stage 1 works. The Estate wide Flora and Fauna Management Plan has been updated as further stages and modifications to the SSD 7348 have been approved. The most recent updated Flora and Fauna Management Plan (v.7, écologique, 11/03/2020) addressed the following Estate wide requirements:

- Vegetation and habitat clearing;
- Protection of retained native vegetation;
- Creation of fauna and snake habitat areas;
- Installation of snake deterrent fencing; and
- Dam decommissioning.

Regardless that the above listed requirements have been completely compliantly, consent conditions for subsequent staging approvals retain the requirement of a Flora and Fauna Management Plan, as a subplan to each Construction Environmental Management Plan (CEMP).

This Flora and Fauna Management Plan (FFMP) has been prepared as a sub-plan to the CEMP that is specific to the construction of Building 2A within Precinct 2 of the Estate. Building 2A forms part of Stage 3 of the Estate's development (SSD 9794683).

1.2 Consent Conditions

1.2.1 SSD 7348

SSD 7348 consent condition D119 requires the preparation of the CEMP, which is to address all relevant consent requirements, including this FFMP (see Condition D88 and other related conditions in Table 1-1).

Table 1-1. Consent conditions relevant to this FFMP and biodiversity mitigation measures

Condition	Mitigation and management measures	Reference/Details
D88	<p>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:</p> <ul style="list-style-type: none"> (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 	<p>Purpose of this FFMP Refer also:</p> <ul style="list-style-type: none"> • Oakdale West FFMP v7 (écologique, 11/03/2020)

Condition	Mitigation and management measures	Reference/Details
	<p>the north-western corner and the Riparian Corridor adjacent to Ropes Creek in accordance with the Vegetation Management Plan (VMP) prepared under Condition D91;</p> <p>(d) Detail the specific erosion and sediment controls to protect the retained vegetation.</p>	
D89	<p>The Applicant must:</p> <p>(a) Not commence bulk earthworks until the FFMP required by Condition D88 is approved by the Planning Secretary; and</p> <p>(b) Implement the most recent version of the FFMP approved by the Planning Secretary for the duration of bulk earthworks and construction.</p>	<p>The Oakdale West FFMP v7 (écologique, 11/03/2020) was approved by the Planning Secretary and has been implemented compliantly.</p>
D90. Offsets for Stage 1	<p>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 up to 4.41 hectares of native vegetation on the Site.</p>	<p>An administrative condition that is not relevant to this FFMP.</p>
D91. Vegetation Management Plan	<p>Within 12 months of the date of this development consent, or as otherwise agreed with the Planning Secretary, the Applicant must prepare and implement a Vegetation Management Plan (VMP) for the restoration and rehabilitation of 4.2 ha of Riparian Corridor adjacent to Ropes Creek to meet the objectives of the <i>Water Management Act 2000</i>.</p>	<p>Not relevant to this FFMP Addressed in the Oakdale West VMP (écologique, 02/10/2019), which was amended under SSD 7348 MOD 6 and is currently being implemented.</p>
D93. Offsets for the WNSLR	<p>Within 12 months of the date of this development consent, or as otherwise agreed with the Planning Secretary, the Applicant must:</p> <p>(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</p> <p>(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).</p>	<p>Not relevant to this FFMP. Addressed in the WNSLR OSL Vegetation Management Plan prepared for SSD 7348 MOD 5 (écologique, 01/07/2020) and is currently being implemented.</p>
D94	<p>The Applicant shall monitor and maintain the planting for a period of six months to ensure a minimum 85% survival rate of the planting.</p>	<p>As above</p>

Condition	Mitigation and management measures	Reference/Details
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.	As above
D96. Snake Management Measures	<p>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.</p> <p>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.</p>	Refer Section 2.2.2 and Table 4-1 (Item no. FF5) of this FFMP.
D115. Pests, Vermin and Noxious Weed Management	<p>The Applicant must:</p> <ul style="list-style-type: none"> (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. <p>Note: For the purposes of this condition, noxious weeds are those species subject to an order declared under the <i>Biosecurity Act 2015</i> (NSW).</p>	Refer Section 4 and Table 4-1 (Item no. FF4 and FF5) of this FFMP.

1.2.2 SSD 9794683

SSD 9794683 consent conditions relevant to this FFMP include the following:

Table 1-2. SSD 9794683 consent conditions

Condition	Mitigation and management measures	Reference/Details
Schedule 2 (Administrative Conditions)	<p>OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT</p> <p>A1. 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</p>	Refer Section 4 and Table 4-1

Condition	Mitigation and management measures	Reference/Details
	operation of the development, and any rehabilitation required under this consent.	
Part C Environmental Management, Reporting and Auditing	ENVIRONMENTAL MANAGEMENT C2. The Applicant must prepare a Construction Environmental Management Plan (CEMP) for the development in accordance with the requirements of condition C1 and to the satisfaction of the Planning Secretary.	Purpose of this FFMP

1.3 Subject area

Within the context of the Estate, Building 2A is located at the northern end of Precinct 2 and is bounded by Emporium Avenue to the north and west, Sepia Road to the east and Lot 2B to the south.

Substantial cut and fill earthworks have been undertaken across the wider Estate area in compliance with the wider Estate's FFMP v7 (écologique, 2020).

Retained native vegetation within the Estate is located outside of the Estate's developable precinct areas. The majority of retained native vegetation is protected in Biodiversity Management Areas (BMAs) with additional patches of native vegetation located in easements that will not be developed (see Figure 1-1).

Retained native vegetation and fauna habitat proximal to Building 2A is located in the north-western BMA (immediately adjacent to Emporium Avenue) to the west of the site.

Potential fauna habitat is also provided by the bioretention basin, which is also located immediately adjacent to Emporium Avenue, to the west of the site (see Figure 1-1 and Figure 2-1).

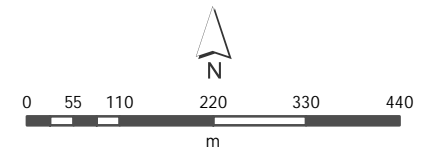
No native vegetation or fauna habitat features have been retained within the Lot 2A (the subject area).



Oakdale West
Estate Stage 3
SSD 9794683

Fig. 1-1. Site Context
Bldg. 2A FFMP

- Legend
- Oakdale West boundary
 - Precincts
 - LOT 2A
 - BMA_areas
 - Native vegetation retained



Coordinate System: MGA Zone 56 (GDA 2020) | Image sources: Nearmap 17 November 2021

2 Site Flora and Fauna

2.1 Flora

Relevant to the subject site, proximal remnant native vegetation is shown in Figure 2-1 and occurs within the north-western BMA. Native plant community types (PCTs) occurring within the BMA are listed as Critically Endangered Ecological Communities (CEECs) under both the NSW *Biodiversity Conservation Act 2016* (BC Act) and the Australian *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and include:

- PCT 849 Grey Box - Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin
- PCT 850 Grey Box - Forest Red Gum grassy woodland on shale of the southern Cumberland Plain, Sydney Basin

2.2 Fauna

The former agricultural land use of the estate and surrounding environs has enabled a range of native fauna to coexist with previous land use practices. The most commonly observed terrestrial fauna species within the estate are *Macropus giganteus* (the eastern grey kangaroo), a range of reptile species (mainly snakes with lizards less conspicuous) and a range of bird species (including large raptor species).

Aquatic fauna common to the estate prior to the removal of four farm dams included *Chelodina longicollis* (the eastern long-necked turtle) and both *Anguilla australis* and *Anguilla reinhardtii* (short and long finned eels respectively).

2.2.1 Eastern grey kangaroo

The installation of non-rural fencing and replacement of open pasture with hard stand has resulted in the removal of habitat for a resident population of the eastern grey kangaroo (kangaroo).

The provision of the Estate's various BMAs along with peripheral and internal easement areas continue to provide habitat for the kangaroo albeit substantially reduced in comparison to the pre-development environment. Development has also considerably altered their accustomed movement patterns. It is likely to take some time before the resident kangaroo population adapt their movement patterns to the changed environment.

While kangaroos are more commonly seen around the periphery of the estate's developed areas, they may still be observed nearer developed and road areas, particularly at dusk at dawn.

2.2.2 Snakes

The most commonly observed snakes across Oakdale West are *Pseudechis porphyriacus* (Red-bellied black snake) and *Pseudonaja textilis* (Eastern brown snake).

A tiger snake (*Notechis scutatus*) was reportedly seen on a stockpile during construction but was not accurately identified and potential a banded form of the eastern brown snake.

In response to concerns from the adjacent Emmaus Catholic College a range of snake deterrent measures were implemented to minimise movement of snakes from the estate into the school and the retirement village (located adjacent the estate's western boundary). These included the installation of the following:

- Fencing along the western boundary designed for snake deterrence;
- Rock piles (snake refuge habitat) located within the western BMA area; and
- Placement of large woody debris (additional snake refuge habitat) located within the western BMA area.
- Additional large woody debris has been installed in the main eastern BMA area.

Building 2A is relatively distanced from the Emmaus Catholic College, which is located adjacent to the Estate's western boundary and further isolated by way of Emporium Avenue.

Regardless, buildings within all Precincts are required to install controls to minimise populations of vermin, such as *Rattus rattus* (the black rat) and *Mus musculus* (house mouse), which are common snake prey (refer Section 4).

2.2.3 Aquatic fauna

Four farm dams were decommissioned during the earthworks for the Estate's development. Native aquatic fauna were rescued and relocated to various pre-determined locations within Ropes Creek to the east of the estate.

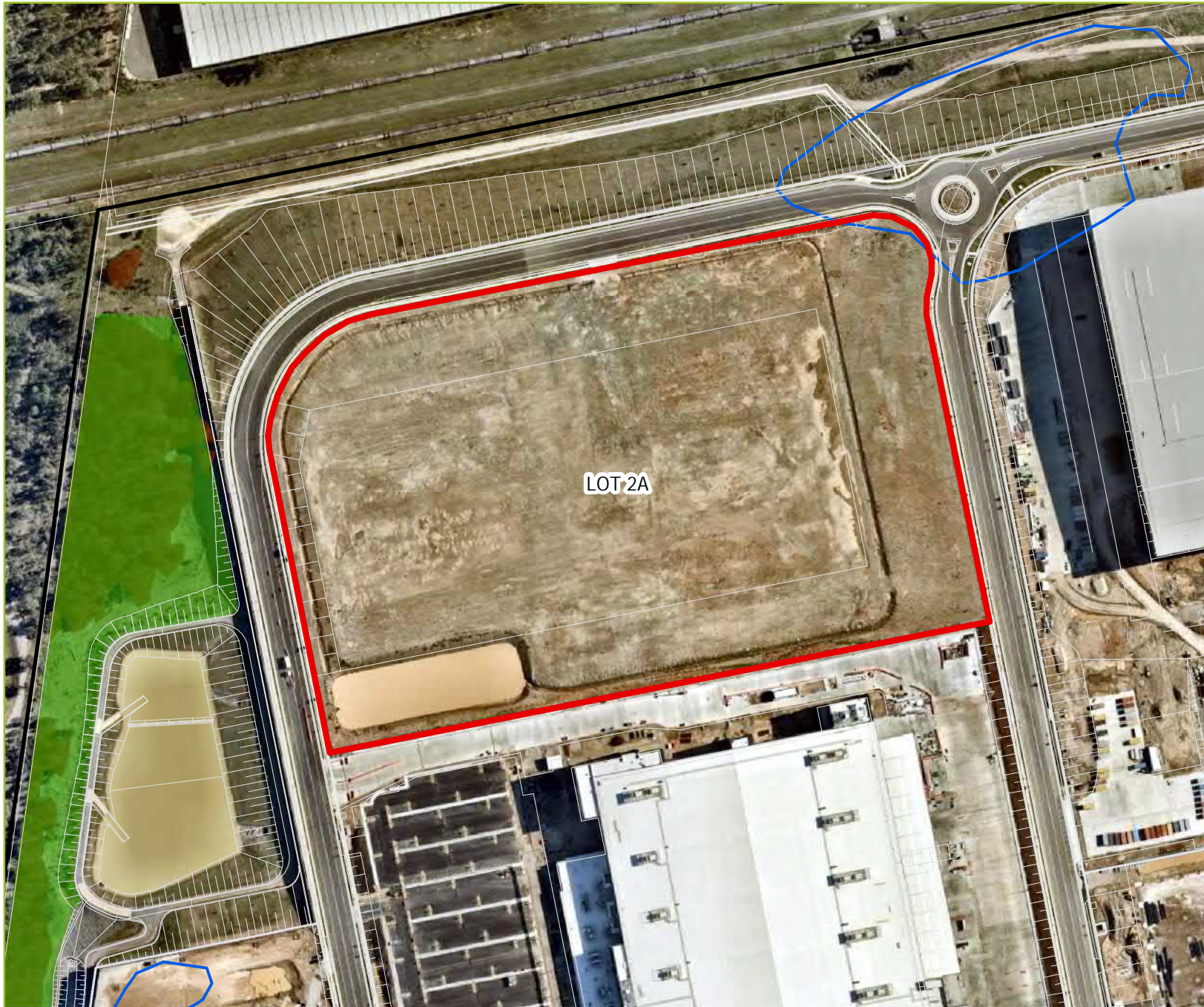
The majority of relocated fauna comprised long-finned eels, with smaller numbers of short-finned eels and long-necked turtles.

Both eel species are highly territorial and migratory and may attempt to return to the locations of the decommissioned dams.

Turtles are also capable of overland dispersal and may attempt to return to the location where dams were decommissioned. This is more realistic as one turtle has already been captured and relocated from the under construction development area.

Until the construction detention basin located within Lot 2A is decommissioned and estate wide detention basins are retro-fitted to become bioretention basins, there is a potential for migratory aquatic fauna to be encountered within all areas of the Estate.






Figure 2-1 shows the location of a former farm dam relative to Lot 2A.



Oakdale West Stage 3
SSD 9794683

Fig. 2-1.
Biodiversity values
Bldg. 2A FFMP

Legend

-  Oakdale West boundary
-  LOT 2A
-  Biodiversity Mgm Area
-  Native vegetation retained
-  Former dam location

3 Potential Impacts

3.1 Potential direct impacts

3.1.1 Native vegetation

No native vegetation has been retained within Lot 2A.

3.1.2 Native fauna

Potential direct impacts on native fauna include:

- Vehicle / mobile plant strike resulting in injury or death of terrestrial fauna; and
- Injury or death of fauna that inadvertently become stranded in allotments.

3.2 Potential indirect impacts

Indirect impacts occur when activities relating to the construction or operation of a development affect native vegetation, fauna and fauna habitat beyond the subject site.

3.2.1 Native vegetation

Potential indirect impacts on native vegetation include:

- Accidental spills or failure of stormwater management controls and resultant pollution of areas of remnant vegetation;
- Rubbish / litter from the site entering adjacent vegetation, through either accidental drift or deliberate dumping; and
- Introduction of biosecurity risks (such as priority weeds, pathogens or other disease).

3.2.2 Native fauna

Potential indirect impacts on native fauna include:

- Accidental spills or failure of stormwater management controls and resultant pollution of downstream aquatic habitat; and
- Introduction of biosecurity risks (such as feral pests, pathogens or other disease);

4 Mitigation Measures

While Precinct 2 and the wider estate area have been substantially modified, the potential to impact on retained native vegetation and/or encounter wildlife must still be considered in accordance with the overarching SSD 7348 - Administrative Conditions that require:

- An obligation to minimise harm to the environment; and
- Compliance with biodiversity management and mitigation measures.

Table 4-1 details mitigation measures that will need to be implemented to ensure consent compliance.

Table 4-1: Flora and fauna management and mitigation measures

ID	Measure/Requirement	Responsibility	Timing / Frequency
[PROTECTION OF NATIVE VEGETATION]			
FF1	<ul style="list-style-type: none"> • All contractors are to be made aware during site induction of the environmental sensitivity of all retained native vegetation, which are critically endangered ecological communities under both State and Federal legislation. • Site induction is to clearly describe the following: <ul style="list-style-type: none"> ○ Legal duty of care to ensure that no deliberate or inadvertent clearing or damage resulting from the activities being undertaken; and ○ The penalties that apply under both State and Federal legislation for any deliberate or inadvertent clearing or damage resulting from the activities being undertaken; and ○ The stop work procedure required should any damage occur to native vegetation (refer Section 5). 	Management / Contractors	Pre-construction
[WILDLIFE PROTECTION]			
FF2	<ul style="list-style-type: none"> • All contractors are to be made aware through the site induction process of both: <ul style="list-style-type: none"> ○ The potential to encounter wildlife; and ○ The protocols that must be implemented in the event wildlife is encountered. • Vehicle and mobile plant operators shall remain vigilant when entering and exiting the works area, particularly at dusk and dawn; 	Management / Contractors	Ongoing throughout construction

ID	Measure/Requirement	Responsibility	Timing / Frequency
FF2	<ul style="list-style-type: none"> Should kangaroos be observed transiting across the entrance/exit to the works area, vehicle/mobile plant is to stop until animals have moved to a safe distance to ensure vehicle/mobile plant strike is prevented; and All on site personnel including contractors are to report any injured or near miss incidents with wildlife. 	Management / Contractors	Ongoing throughout construction
FF3	<ul style="list-style-type: none"> Should unexpected fauna be encountered within the works site, the stop works procedure provided in Section 5 must be followed. 	Management / Contractors	Ongoing throughout construction
[EROSION & SEDIMENT CONTROL]			
FF4	<ul style="list-style-type: none"> Offsite discharge shall be managed in strict accordance with Erosion & Sediment Control Plans prepared for Lot 2A; A spill kit should be provided in an easily accessible location in the event that fuel or other contaminant spills occur. The contractor must continually monitor works within this area to ensure that erosion and sediment controls are functioning optimally and compliance with site induction requirements are being adhered to. 	Management / Contractors	Throughout construction
[WEED, PEST SPECIES AND PATHOGEN MANAGEMENT]			
FF5	<p>The following hygiene procedures are to be implemented to avoid the introduction and/or spread of soil borne pathogens and weeds:</p> <ul style="list-style-type: none"> Minimise work during wet/rainy periods; Vehicles, plant and machinery are to be clean and free of soil on arrival to the works 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. 	Management / Contractors / Employees	Ongoing throughout construction

ID	Measure/Requirement	Responsibility	Timing / Frequency
FF6	Future tenants are to install rodent (electronic or sonar) repellents to minimise prey for snakes	Management / Future tenants	Post construction, operation
[WASTE MANAGEMENT]			
FF7	Waste management shall ensure the following: <ul style="list-style-type: none"> • 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; • Lids on skips or bins are to be kept closed at all times; and • Employ adequate environmental management controls to prevent off-site migration of waste materials and contamination from the waste. 	Management / Contractors / Future tenants	Ongoing throughout construction and operation

5 Stop Works Procedure

All personnel working on the Project will need to be inducted on the potential to encounter wildlife within the wider estate area as well as their works area. The stop work procedure in the event any fauna unexpectedly occurs is shown in the following flow diagram.

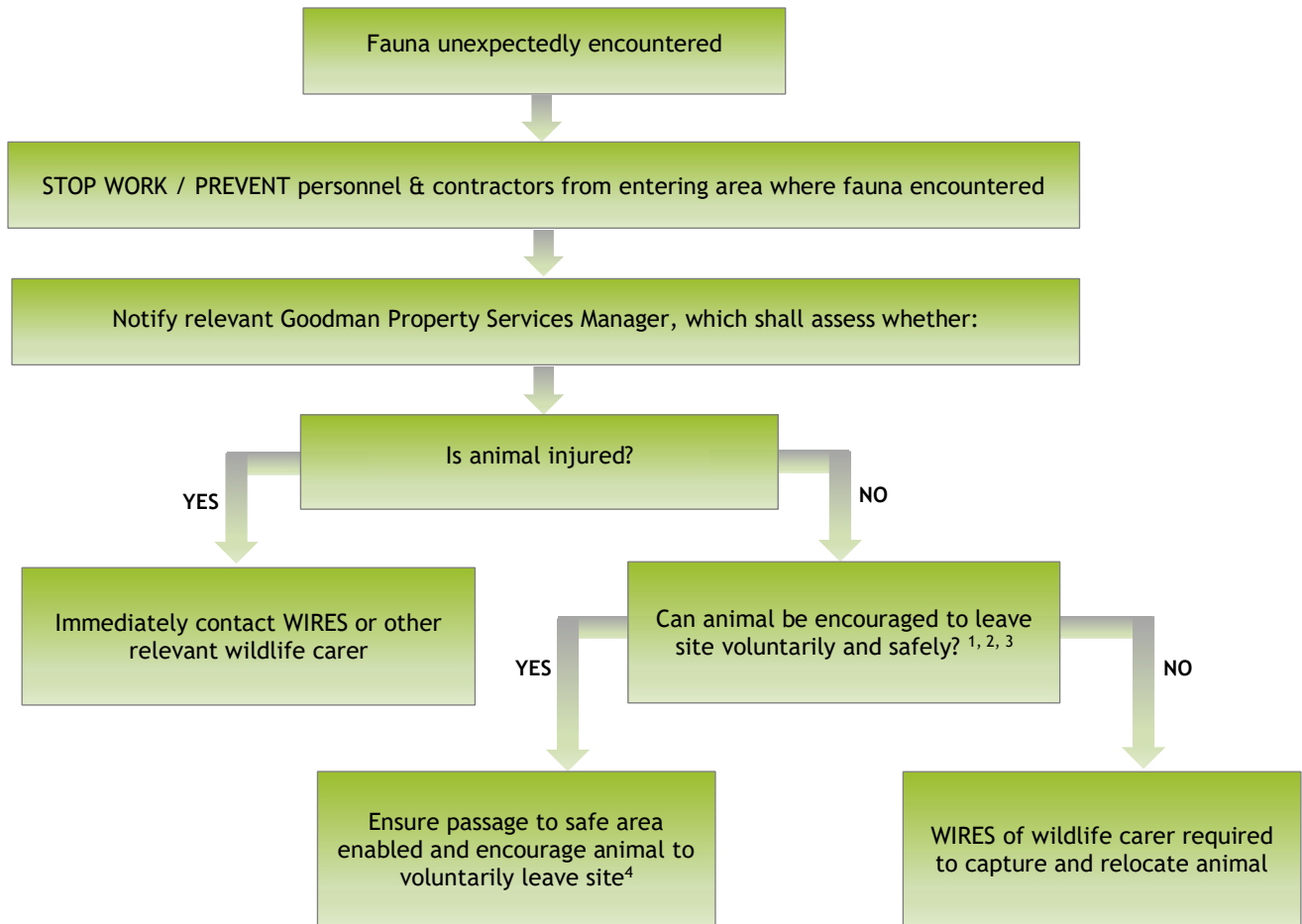


Figure 5-1. Stop work procedure

FOOTNOTES

¹ Snakes are to be left alone and not disturbed. A specialist reptile handler should be engaged for capture and relocation (WIRES to be contacted for advice).

² Nocturnal species (e.g., any small marsupials such as possums) should be left alone until wildlife carer is able to capture and relocate animal at dusk.

³ Nocturnal and injured animals shall be protected from disturbance (through temporary flagging tape or signage and communication to all personnel that the area is a temporary no-go zone). If animal is stranded in direct sunlight some form of shading is to be erected to protect the animal until wildlife carer arrives at the site. In the event that attempts to provide protection or shading is too distressing for animal, the animal should be left alone and monitored from a safe distance until wildlife carer arrives at the site.

⁴ Should safe passage be obstructed by fencing or other immovable impedance, Footnote 3 should be implemented.



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APPENDIX L

Community Communication Strategy

OAKDALE WEST ESTATE - BUILDING 2A

Prepared for:

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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

Reference	Date	Prepared	Checked	Authorised
630.30203.00000-R01-v1.0	17 December 2021	Kate McKinnon	Dan Thompson	Dan Thompson

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	19
2.1	Community Overview	19
2.1.1	Erskine Park	19
2.1.2	Kemps Creek.....	19
2.2	Key Stakeholders.....	19
2.2.1	Properties receiving adjustments or architectural treatment and mitigating works	20
3	KEY ISSUES AFFECTING STAKEHOLDERS.....	21
3.1	Previous Consultation.....	21
3.2	Potential Issues and Strategies	21
4	COMMUNICATIONS AND COMMUNITY LIAISON REPRESENTATIVE	25
5	COMMUNITY AND STAKEHOLDER ENGAGEMENT	26
5.1	Objectives	26
5.2	Approach.....	26
5.3	Communication, Management and Mitigation Tools.....	26
5.3.1	Project Website	31
5.3.2	WNSLR Works Liaison and Notification Requirements.....	31
5.3.3	Communication with Sensitive Receivers' Procedure	33
5.4	Complaints Procedure	33
5.4.1	Protocol for Receiving and Recording Enquiries and Complaints.....	35
5.4.2	Protocol for Responding to and Resolving Enquiries and Complaints.....	36
5.4.3	Unreasonable Complainant Conduct.....	36
5.4.4	Contingency Management Plan	36
6	MONITORING, REPORTING AND EVALUATION.....	39
6.1	Monitoring	39
6.2	Reporting	40
6.3	Evaluation	40
7	REFERENCES	41

CONTENTS

DOCUMENT REFERENCES

TABLES

Table 1	Relevant Conditions of Consent SSD 7348	6
Table 2	Relevant Conditions of Consent SSD 9794683	10
Table 3	Relevant RMS Specifications	10
Table 4	Previous Approved Development and Modifications	15
Table 5	Key Stakeholders	20
Table 6	Issue Identification and Mitigation	22
Table 7	Communication Management and Mitigation Tools	27
Table 8	Notification Requirements for Goodman prior to Construction Activities	32
Table 9	Notification Requirements for works	32
Table 10	Sensitive Receiver Procedure	33
Table 11	Enquires and Complaints Facilities	35
Table 12	Contingency Management Plan	37
Table 13	Summary of Monitoring Data	39

FIGURES

Figure 1	Site Layout Inclusive of the WNSLR	18
Figure 2	Complaints Handling Procedure	34

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 also been updated to accommodate Modifications 1-7 to SSD7348 and State Significant Development Application (SSD-9794683) for the construction of Building 2A.

This CCS has been prepared in accordance with Condition C19 and supporting conditions within the Development Consent for SSD 7348, 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 and modifications to SSD7348, along with changes in stakeholder situation that impacts on stakeholder interests, with these articulated through the feedback mechanisms.

SSD 7348 (as modified) contains the following conditions of relevance to this CCS used to benchmark the contents:

- C19 & C20 – Community Communication Strategy
- D37 – Landscaping
- D43A – Signage and Fencing
- 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 1**, including cross reference to the relevant section of this CCS.

Table 1 Relevant Conditions of Consent SSD 7348

Condition Number	Condition Detail	Report Reference
C19 – Community Communication Strategy	<p>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:</p> <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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. 	<p>This CCS Document</p> <ul style="list-style-type: none"> a) Section 4 b) Section 5 c) Sections 5 & 6 d) Section 2.2 e) Section 5.4
C20 – Community Communication Strategy	<p>The Applicant must:</p> <ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> a) Section 1.2 b) Sections 5 & 6
D37 – Landscaping	<p>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.</p>	<p>Section 2.2.1 Appendix A</p>
D43A – Signage and Fencing	<p>Prior to construction of any signage for Stage 1, the Applicant must consult with Council on the final signage strategy.</p>	<p>Section 5</p>

Condition Number	Condition Detail	Report Reference
D71 – Hours of Work	<p>Works outside of the hours identified in Condition D70 may be undertaken in the following circumstances:</p> <ul style="list-style-type: none"> (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	<p>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.</p>	Sections 5 & 6
D118 – Management Plan Requirements	<p>Management plans required under this consent must be prepared in accordance with relevant guidelines, and include:</p> <ul style="list-style-type: none"> a) details of: <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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. <p>Note: The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.</p>	<ul style="list-style-type: none"> a) Refer to Project CEMPs (SLR, 2019a, SLR 2019b & SLR, 2020) 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
<p>D127 - Environmental Representative</p>	<p>For the duration of construction of Stage 1, or as agreed with the Planning Secretary, the approved ER must:</p> <ul style="list-style-type: none"> (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: <ul style="list-style-type: none"> (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. 	<p>Section 6.2</p>
<p>D128 - Environmental Representative</p>	<p>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:</p> <ul style="list-style-type: none"> (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). 	<p>Section 6.2</p>

Condition Number	Condition Detail	Report Reference
D133 Revision of Strategies, Plans and Programs	<p>Within three months of:</p> <ul style="list-style-type: none"> (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; <p>or</p> <ul style="list-style-type: none"> (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	<p>At least 48 hours before the commencement of construction until the completion of all works under this consent, the Applicant must:</p> <ul style="list-style-type: none"> a) make the following information and documents (as they are obtained or approved) publicly available on its website: <ul style="list-style-type: none"> 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

SSD 9794683 contains the following condition of relevance to this CCS, as identified within **Table 2** below, along with a cross reference to the relevant section of this CCS.

Table 2 Relevant Conditions of Consent SSD 9794683

Condition Number	Condition Detail	Report Reference
B39 – Community Engagement	The Applicant must consult with the community regularly throughout the development, including consultation with the nearby sensitive receivers identified in Figure 9, relevant regulatory authorities, Registered Aboriginal Parties and other interested stakeholders. Community engagement shall be undertaken in accordance with the Community Communication Strategy for the OWE.	Sections 5 & 6

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 3** below.

Table 3 Relevant RMS Specifications

Specification Number	Relevant Specification Detail	Report Reference
3.3 - Resources, Responsibilities and Authority	<p>Communications and Community Liaison Representative</p> <p>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.</p> <p>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.</p> <p>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:</p> <ul style="list-style-type: none"> 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. <p>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.</p> <p>The CCLR is to facilitate meetings, forums and arranging interviews to address concerns from community.</p>	Section 4

Specification Number	Relevant Specification Detail	Report Reference
	<p>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.</p> <p>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.</p> <p>The CCLR must be available for contact by local residents, key stakeholders and community representatives to answer queries and provide more information or feedback.</p>	
3.7 - Communications	<p>Describe in the CEMP the processes for external and internal communication in relation to the environmental aspects of the work under the Contract.</p> <p>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.</p>	<p>Refer to Project CEMPs (SLR, 2019a, SLR 2019b & SLR, 2020)</p> <p>Section 5.3</p>
3.7.1 - Liaison with EPA and/ or other Government Agencies	<p>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.</p> <p>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.</p>	Section 4
3.7.2 - Community Liaison and/or Notification 3.7.2.1 New or Changed Construction Activities	<p>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.</p> <p>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.</p> <p>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.</p>	Section 5.3.2

Specification Number	Relevant Specification Detail	Report Reference
3.7.2.2 - Extended Working Hours – No Environmental Protection Licence	<p>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.</p> <p>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.</p> <p>Refer to Practice Note vii of RMS publication “Environmental Noise Management Manual” when preparing the letter and notifying the affected residents.</p>	Section 5.3.2
3.7.3 - Complaints and Enquiries Management	<p>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:</p> <ol style="list-style-type: none"> 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. <p>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.</p> <p>Keep a register of all complaints or enquiries, which must include the following details:</p> <ol style="list-style-type: none"> (a) date and time of complaint or enquiry; 	Section 5.4

Specification Number	Relevant Specification Detail	Report Reference																										
	<p>(b) method by which the complaint or enquiry was made (telephone, letter, meeting, etc);</p> <p>(c) name, address, contact telephone number of complainant (if no such details were provided, a note to that effect);</p> <p>(d) nature of complaint or enquiry;</p> <p>(e) action taken in response including follow up contact with the complainant.;</p> <p>(f) any monitoring to confirm that the complaint or enquiry has been satisfactorily resolved;</p> <p>(g) if no action was taken, the reasons why no action was taken by you.</p>																											
<p>3.7.4 - Notification to communities and stakeholders</p>	<p>Notify Goodman in advance of the following construction activities:</p> <table border="1" data-bbox="411 730 1197 1668"> <thead> <tr> <th data-bbox="418 739 794 779">Activity</th> <th data-bbox="801 739 1190 779">Notification required</th> </tr> </thead> <tbody> <tr> <td data-bbox="418 788 794 855">Work at night (any time between 6pm and 7am)</td> <td data-bbox="801 788 1190 855">2 weeks where possible, a minimum of 1 week</td> </tr> <tr> <td data-bbox="418 864 794 931">Work on weekends (including public holidays)</td> <td data-bbox="801 864 1190 931">2 weeks where possible, a minimum of 1 week</td> </tr> <tr> <td data-bbox="418 940 794 1041">Major changes to configuration of road traffic</td> <td data-bbox="801 940 1190 1041">At least 4 weeks</td> </tr> <tr> <td data-bbox="418 1050 794 1128">Impacts on pedestrians and/or bicyclists</td> <td data-bbox="801 1050 1190 1128">At least 4 weeks</td> </tr> <tr> <td data-bbox="418 1137 794 1261">Commencement, rescheduling or completion of key construction activities</td> <td data-bbox="801 1137 1190 1261">At least 4 weeks for commencement and completion, 24 hours' notice for rescheduling</td> </tr> <tr> <td data-bbox="418 1270 794 1370">Commencement or rescheduling of property adjustment work</td> <td data-bbox="801 1270 1190 1370">At least 2 weeks (4 weeks for businesses)</td> </tr> <tr> <td data-bbox="418 1379 794 1458">Alteration to property access arrangements</td> <td data-bbox="801 1379 1190 1458">At least 4 weeks</td> </tr> <tr> <td data-bbox="418 1467 794 1590">Other activities not identified above which may impact on the community stakeholders</td> <td data-bbox="801 1467 1190 1590">At least 24 hours</td> </tr> <tr> <td data-bbox="418 1599 794 1666">Any form of community protest on site</td> <td data-bbox="801 1599 1190 1666">Immediately</td> </tr> </tbody> </table> <p>In your communications with the community, you must comply with the requirements of the Privacy and Personal Information Protection Act 1998 (NSW).</p> <p>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:</p> <table border="1" data-bbox="411 1899 1197 1977"> <thead> <tr> <th data-bbox="418 1908 689 1937">Notification Type</th> <th data-bbox="695 1908 916 1966">Submission to Goodman</th> <th data-bbox="922 1908 1190 1937">Distribution</th> </tr> </thead> <tbody> <tr> <td data-bbox="418 1953 689 1977"></td> <td data-bbox="695 1953 916 1977"></td> <td data-bbox="922 1953 1190 1977"></td> </tr> </tbody> </table>	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 (4 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	Notification Type	Submission to Goodman	Distribution				<p>Sections 5.3.2</p>
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Specification Number	Relevant Specification Detail			Report Reference
	Out of Hours Works / Night Works (refer to clause 3.7.2.3)	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 (refer to clause 3.7.2.1)	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 (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 for the construction and fit out of Building 2A.

Building 2A comprises the following:

- Construction and fit out of a single 44,000 sqm warehouse building with loading bays and dual office facilities;
- Truck delivery access, two car parking areas with dedicated entrances; and one heavy vehicle entrance; and
- site landscaping, signage and Lighting.

A CEMP has been prepared to address the project referencing this CCS.

1.4 Project Description

SSD 7348 was approved on 13 September 2019, granting approval for the Stage 1 Development and Concept Approval for the Oakdale West Industrial Estate at Kemps Creek. The development, as approved under SSD 7348 and approved modifications are included in **Table 4** below. Note this CCS has been updated to include Penrith City Council DA20/0843 (approved 15 April 2021) this is now included in also.

Table 4 Previous Approved Development and Modifications

Application Number	Development Description
SSD 7348	<p>A Concept Proposal including:</p> <ul style="list-style-type: none"> • 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 <p>A Stage 1 Development including:</p> <ul style="list-style-type: none"> • 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

Application Number	Development Description
	including but not limited to swales, haul road (construction access), landscaping and basins; and <ul style="list-style-type: none"> works including construction of traffic signals at Lenore Drive/Grady Crescent/WNSLR intersection.
SSD 7348 MOD 1	Minor amendments to pad levels, stormwater changes and refinement of the infrastructure design of OWE has resulted in the need for minor amendments to the approved masterplan layout and necessitates minor modifications to SSD 7348.
SSD 7348 MOD 2	Modifications to the Oakdale West Estate approved concept plan and Stage 1 development, including master plan layout, increase in gross floor area and expansion of Building 1A (Warehouse building 1A including high-bay (39m) and low-bay (28m) components), changes to internal roads, civil design and building pad levels.
SSD 7348 MOD 3	Amendments to the Concept Proposal: <ul style="list-style-type: none"> the OWE layout and staging precinct boundaries reconfigure estate road layout basic design and infrastructure (including building height, basins, noise wall, pad levels and GLA) civil strategy and servicing strategy development standards applicable to the site including a height increase for Building 2B from 15 m to 28m and applicable noise limits for the development. Amendment to the Stage 1 Development: <ul style="list-style-type: none"> construction of estate road 03, roundabout, retaining wall, noise wall, basins and infrastructure subdivision of estate roads extension to noise wall change to pad levels, bulk earthworks and landscaping and construction hours.
SSD 7348 MOD 4	Inclusion of an additional lot (Lot 9 DP 1157476) in the subject site and carrying out works in the additional lot to facilitate development of the WNSLR
SSD 7348 MOD 5	Concept Approval <ul style="list-style-type: none"> Update Condition B10 to reflect the 17m building setback to the Southern Link Road Update Masterplan Landscape Plan reference to reflect the widened road reserve for the Southern Link Road. Stage 1 Approval <ul style="list-style-type: none"> Update Architectural, Civil, and Landscaping plans to reflect the proposed design changes on Lot 1. Change incorrect figure reference in Condition D75A from Figure 7 to Figure 6. Change in correct figure reference in Condition D75C from Figure 7B to Figure 7 and update this condition D75 C to reflect the revised noise barrier completion date. Update Condition D93 to reflect revised location for biodiversity planting
SSD 7348 MOD 6	Amendments to the approved Concept Plan and Stage 1 development including changes in Precincts 2A, 2C, 2D, 2E layouts, increase in building height control for Precinct 2A, and inclusion of construction Estate Road 8 as part of Stage 1 development.
SSD 7348 MOD 7	Changes to Precincts 3 and 4 including earthworks, retaining walls, building layouts in Precinct 4 and estate road 7.

Application Number	Development Description
SSD 7348 MOD 8	Amendments to architectural plans for Stage 1 Buildings 1A, 1B and 1C.
SSD 9794683	Construction, fit-out and use of three warehouses (four tenancies) in the remaining undeveloped area within Precinct 2 of the OWE. The proposed development is consistent with the concept masterplan (as modified by MOD 7) and comprises warehouses and associated car and truck parking, office facilities and loading bays along with landscaping, signage and lighting.

The site works associated with SSD 7348 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.

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

SBA ARCHITECTS Oakdale West Estate - MOD 7 Kemp's Creek, NSW Estate Masterplan 1:3000 @ A1 1:6000 @ A3 OAK MP 02 (C) 02 June 2021 Job No 21118

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 Primary School and College, 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 5** below.

Table 5 Key Stakeholders

Stakeholder Agency/Authority	Interests/Issues
Directly affected stakeholders	<p>Adjacent and directly affected properties, businesses and schools including:</p> <ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Penrith City Council
State Government Departments and Offices	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> TransGrid Endeavour Energy WaterNSW Sydney Water Jemena NBN Telstra
Other Interested Parties	<ul style="list-style-type: none"> Registered Aboriginal Parties

Contact details for the key stakeholders listed in **Table 5** above are included in **Appendix B & C**.

2.2.1 Properties receiving adjustments or architectural treatment and mitigating works

Temporary acoustic fencing treatments to assist in acoustic attenuation has been provided to dwellings located on Aldington Road and along the internal road boundaries within the Emmaus Village.

Double glazing has been installed previously within a dwelling located at 20 Aldington Road, Kemps Creek.

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 6** 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 6 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.	<p>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.</p> <p>Up to date information on current and proposed works will be accessible to stakeholders and the wider public on the project web page.</p> <p>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.</p> <p>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.</p>
Stormwater, Sediment Control, Erosion, Water Quality	<p>High rainfall events could result in localised flooding.</p> <p>Construction could result in impacts to local water quality, associated with sediment laden runoff.</p>	<p>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.</p> <p>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.</p>
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.	<p>Sensitive receivers will be notified prior to actions likely to cause traffic disruption in accordance with Section 5.4.2 of this strategy.</p> <p>The CEMP and supporting Construction Traffic Management Plan and Fill Importation Plan identify specific mechanisms to manage and mitigate these impacts.</p>

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.	Where topsoil is being disturbed, 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	<p>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.</p> <p>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.</p>	<p>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.</p> <p>Contact details including the hotline details will be provided on site, the project web page and in all information issued.</p>
Emergency Event	<p>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.</p>	<p>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.</p>

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
- Kiera Plumridge – Senior Consultant – SLR
kplumridge@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 7** 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 7 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 monthly, 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.
Agency Meetings	Meetings with agencies to discuss matters relevant to their agency	CCLR and/or Goodman Representative	Relevant Agency	As required.	Meetings will be held as required to address matters relevant to specific agencies including the satisfaction of conditions of consent. These shall be undertaken either directly by Goodman or facilitated by the CCLR at Goodman's discretion.
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.

Tool/ Technique	Description	Person Responsible	Audience	Frequency/timing	Specifications
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.
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

Tool/ Technique	Description	Person Responsible	Audience	Frequency/timing	Specifications
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.
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 **Table 8** and **Table 9** below:

Table 8 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 9 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 College, Trinity Primary School and Emmaus Retirement Village.

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 10** below:

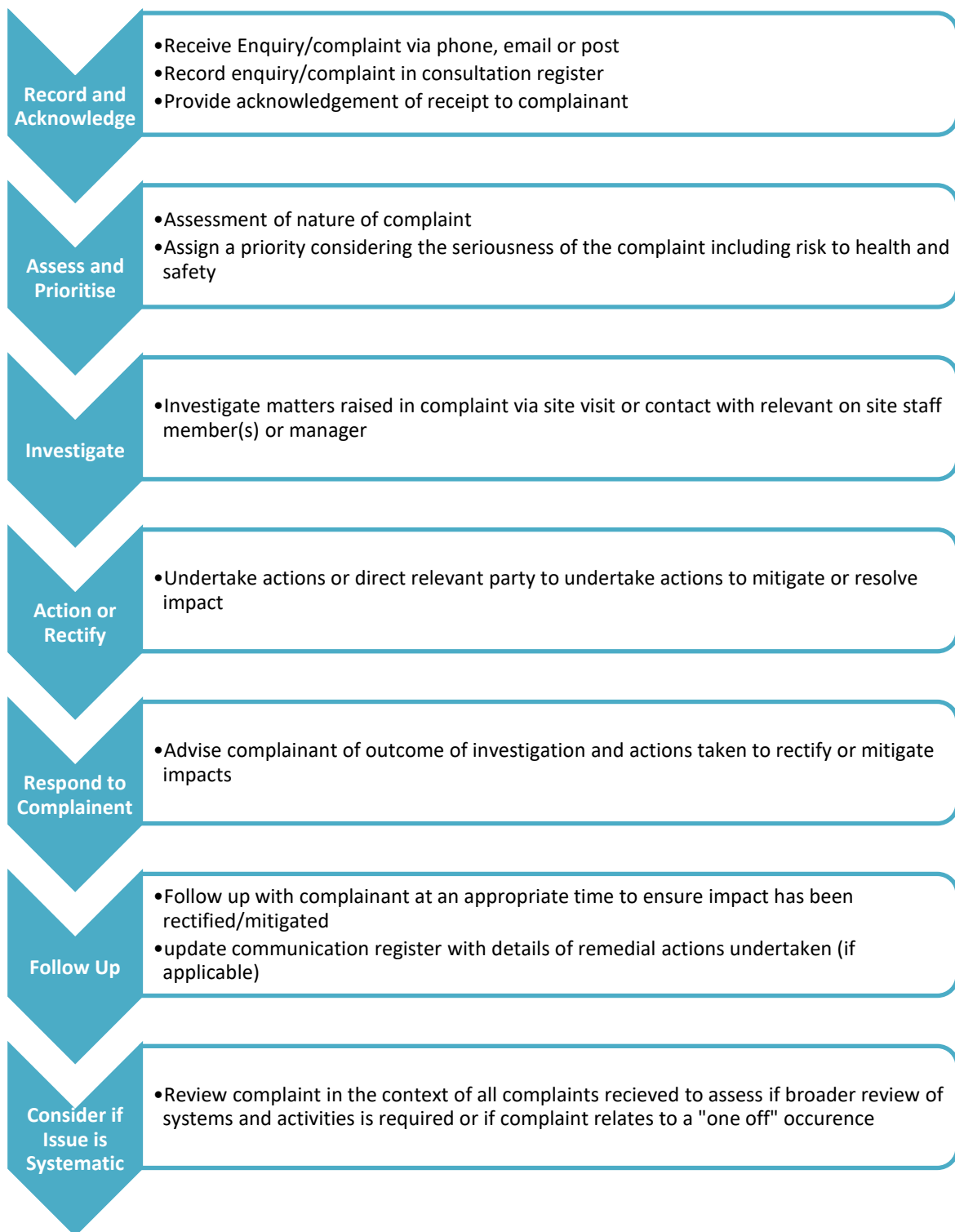
Table 10 Sensitive Receiver Procedure

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 11**.

Table 11 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 12** below:

Table 12 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 13** below.

Table 13 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 SSD7348 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

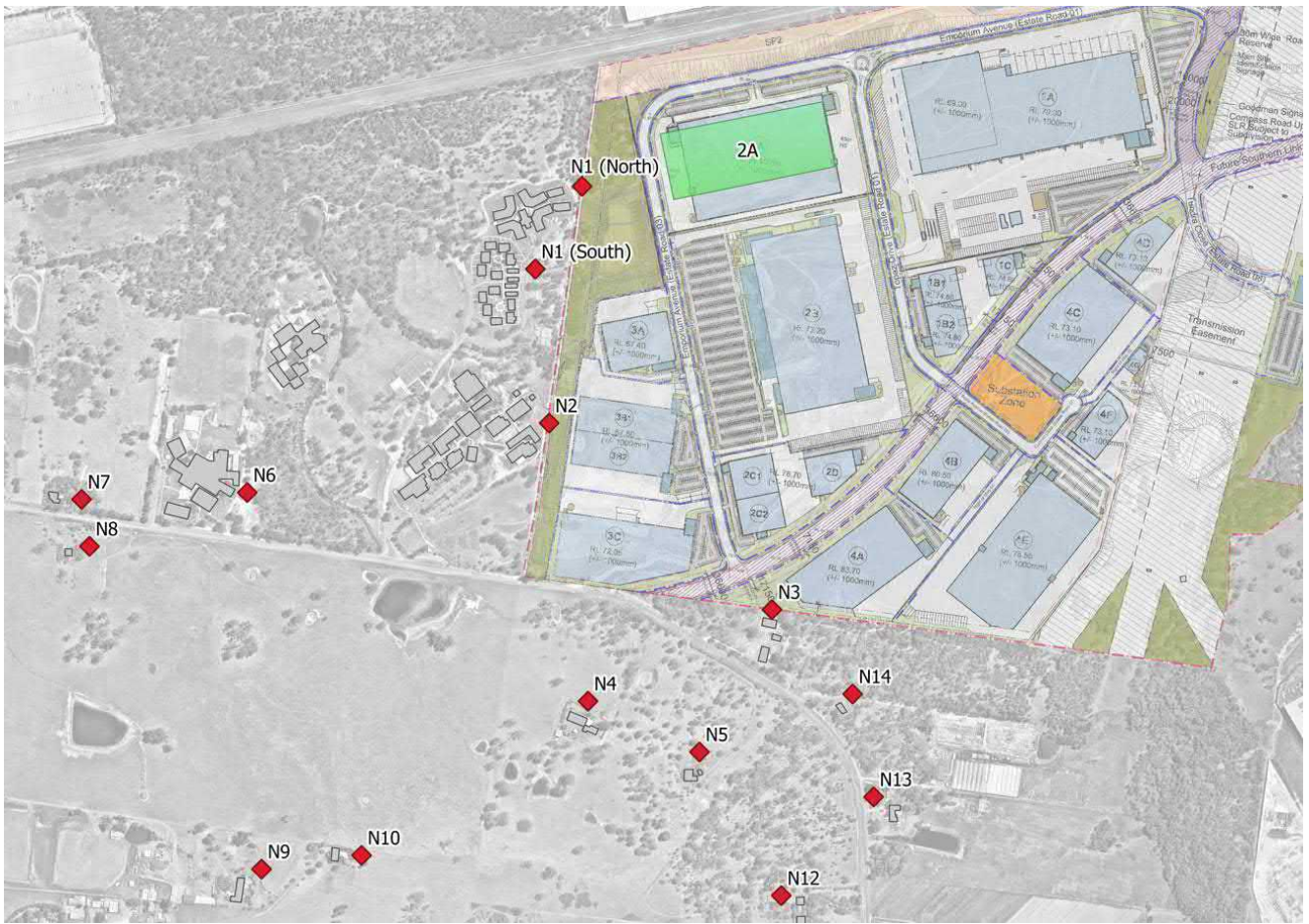
Where performance criteria are not being satisfied, review of this strategy and its implementation will be undertaken by the Community Consultation Team and changes to the strategy may be made to rectify the short fall. Where systematic issues are identified associated with construction activities, the 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*
- SLR Consulting Australia (2020) *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



APPENDIX B

Key Stakeholder Contact Details

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APPENDIX C

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APPENDIX D

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APPENDIX M

Waste Management Plan

OAKDALE WEST ESTATE

Building 2A Waste Management Plan

Prepared for:

Goodman Property Services (Aust) Pty Limited
1-11 Hayes St
Rosebery NSW 2018

SLR Ref: 630.30081.00300-R11
Version No: -v5.0
November 2021



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 (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
630.30081.00300-R11-v5.0	29 November 2021	Celine El-Khoury	Andrew Quinn	Andrew Quinn
630.30081.00300-R11-v4.0	14 October 2021	Celine El-Khoury	Andrew Quinn	Andrew Quinn
630.30081-R11-v4.0	14 October 2021	Celine El-Khoury	Andrew Quinn	Andrew Quinn
630.30081-R11-v3.0	26 November 2020	Celine El-Khoury	Andrew Quinn	Andrew Quinn
630.30081-R11-v2.0	16 November 2020	Celine El-Khoury	Andrew Quinn	Andrew Quinn
630.30081-R11-v1.0	3 November 2020	Celine El-Khoury	Andrew Quinn	Andrew Quinn

CONTENTS

1	INTRODUCTION	6
1.1	Overview	6
1.2	Objectives	6
2	PROJECT DESCRIPTION	6
2.1	Overview of Proposed Development.....	6
2.2	Overview of Proposed Construction Work.....	7
2.3	Overview of Proposed Operations.....	7
3	BETTER PRACTICE WASTE MANAGEMENT AND RECYCLING.....	8
3.1	Waste Management Hierarchy.....	8
3.2	Benefits of Adopting Better Practice	8
4	WASTE LEGISLATION AND GUIDANCE	9
5	SITE PREPARATION AND CONSTRUCTION WASTE AND RECYCLING MANAGEMENT.....	11
5.1	Targets for Resource Recovery	11
5.2	Waste Streams and Classifications	11
5.3	Site Preparation Waste Types and Quantities.....	14
5.4	Construction Waste Types and Quantities	14
5.5	Waste Avoidance	15
5.6	Reuse, Recycling and Disposal	16
5.7	Waste Storage and Servicing	17
5.7.1	Waste Segregation and Storage	17
5.7.2	Waste Storage Areas	18
5.7.3	Waste Servicing and Record Keeping	18
5.8	Site Inductions	19
5.9	Signage.....	19
5.10	Monitoring and Reporting	20
5.11	Roles and Responsibilities.....	20
6	OPERATIONAL WASTE MANAGEMENT	22
6.1	Targets for Resource Recovery	22
6.2	Waste Streams and Classifications	22
6.3	Estimated Quantities of Operational Waste.....	24
6.3.1	Additional Types of Operational Waste.....	24

CONTENTS

6.4	Waste Storage Area Size	25
6.4.1	Bulky and Hazardous Waste Management.....	25
6.5	Waste Storage Room Location	26
6.6	Waste Storage Area Features	27
6.7	Waste Servicing.....	27
6.8	Waste Avoidance, Reuse and Recycling Measures.....	29
6.8.1	Waste Avoidance.....	29
6.8.2	Re-use.....	29
6.8.3	Recycling.....	30
6.9	Communication Strategies.....	30
6.10	Signage.....	30
6.11	Monitoring and Reporting	31
6.12	Roles and Responsibilities.....	32

DOCUMENT REFERENCES

TABLES

Table 1	SSD-9794683 and SSD-7348 MOD 6 Conditions for Waste Management.....	6
Table 2	Legislation and guidance	9
Table 3	Potential waste types and their management methods.....	12
Table 4	Waste generation rates for the construction of the Project.....	15
Table 5	Estimated types and quantities of construction waste.....	15
Table 6	Suggested roles and responsibilities for site preparation and construction waste management.....	21
Table 7	Potential waste types, classifications and management methods for operational waste	22
Table 8	Waste generation rates applied to the operations of the Project.....	24
Table 9	Estimated quantities of operational general waste and recycling.....	24
Table 10	Dimensions and approximate footprint of bins	25
Table 11	Recommended number of bins and storage area for weekly operations	25
Table 12	Total recommended storage area for operations of the Project.....	26
Table 13	Operational waste management responsibility allocation	32

FIGURES

Figure 1	The Project Site Plan	7
Figure 2	Waste management hierarchy.....	8
Figure 3	Examples of NSW EPA labels for waste skips and bins	20
Figure 4	Waste enclosure.....	26
Figure 5	Collection vehicle travel paths	29

CONTENTS

Figure 6 Example of bin labels for operational waste..... 31

APPENDICES

- Appendix A Architectural Drawings
- Appendix B 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 a development application (DA) to the Department of Planning, Industry and the Environment (DPIE) for Lot 2A of the Oakdale West Industrial Estate (the Project).

Changes to the design require a modification to the project approval and a revised waste management plan. 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.

The relevant requirements of the SEARs issued for SSD-9794683 and SSD-7348 MOD 7 are addressed in this report as shown in Table 1.

Table 1 SSD-9794683 and SSD-7348 MOD 7 Conditions for Waste Management

SSD-9794683 and SSD-7348 MOD 7 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

1.2 Objectives

The principal objective of this WMP is to identify all potential waste 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.

2 Project Description

2.1 Overview of Proposed Development

The Client is developing the Oakdale West Industrial Estate site (Oakdale West) 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 Project site Lot 2A is located in Precinct 2. A site plan of the Project is shown in Figure 1.

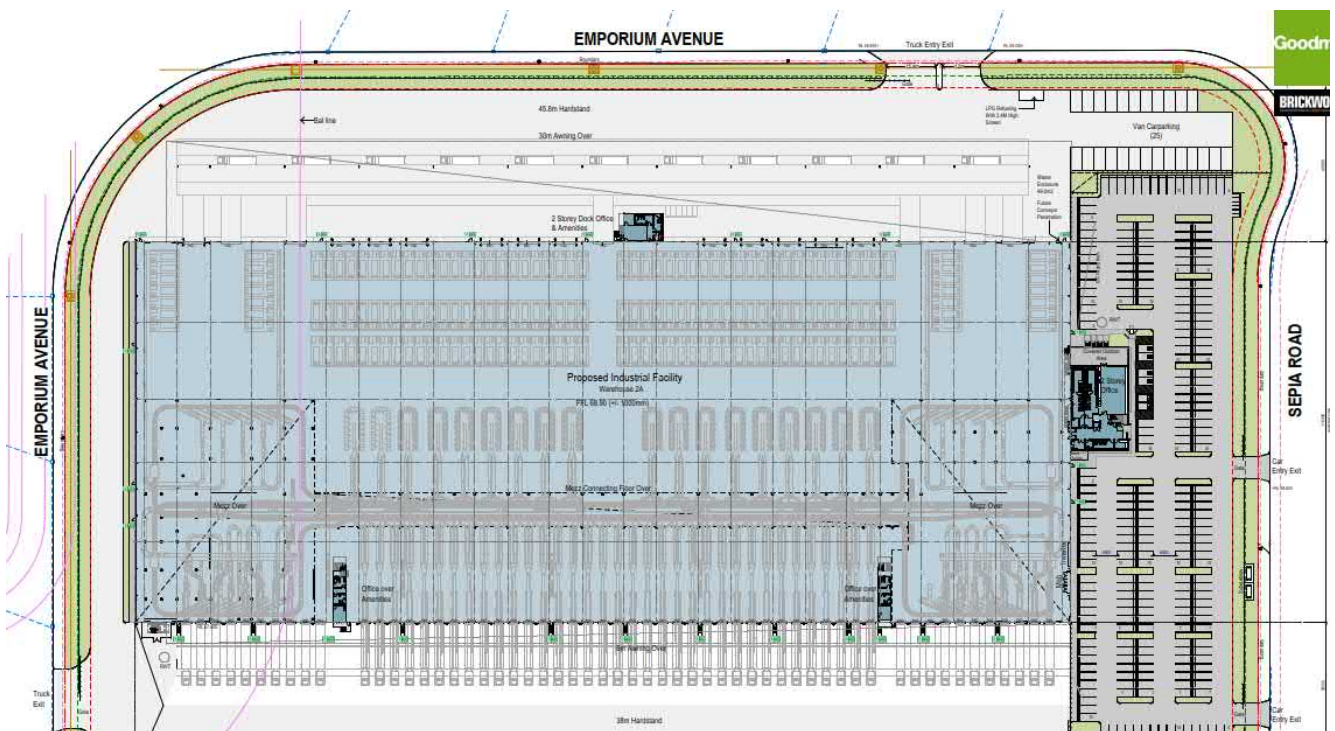


Figure 1 The Project Site Plan

2.2 Overview of Proposed Construction Work

The proposed work for Building 2A is expected to include site preparation and construction activities.

The anticipated construction works for the Project includes the construction of the below:

- One warehouse building
- One two-level main office
- One two-level dock office
- Two other two-level offices
- Truck and car parking areas and associated site hardstands, and
- Minor landscaping areas, a sprinkler tank and a pump room.

2.3 Overview of Proposed Operations

The building will be used as a distribution centre and will be operated 24-hours per day, seven days per week.

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 2, 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 2 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 2 below should be referred to during the site preparation, construction and operational phases of the Project.

Table 2 Legislation and guidance

Legislation and Guidance	Objectives
Council legislation and guidelines	
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 <i>Waste Avoidance and Resource Recovery Act 2001</i> . 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 DPIE (2021) Waste and Sustainable Materials Strategy 2041	<p>The NSW Strategy 2041 outlines the actions the NSW Government will take over the next six years, the first phase of the strategy, to deliver on its long-term objectives.</p> <p>Some of the key reforms include, phasing out problematic single-use plastic items, financial incentives for manufacturers and producers to design out problematic plastics, having government agencies prefer recycled content, mandating the separation of food and garden organics for households and selected businesses and incentivising biogas generation from waste materials. Targets include, reduce total waste generated by 10% per person by 2030, have an 80% average recovery rate from all waste streams by 2030, significantly increase use of recycled content by governments and industry, phase out problematic and unnecessary plastics by 2025, halve the amount of organic waste sent to landfill by 2030, reduce litter by 60% by 2030 and plastics litter by 30% by 2025 and triple the plastics recycling rate by 2030.</p>
NSW EPA Resource Recovery Orders and Resource Recovery Exemptions	<p>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 waste that may be recovered for beneficial re-use. These waste typically include those from demolition and construction works, as well as operational waste such as food waste.</p> <ul style="list-style-type: none"> • 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	<p>The NSW EPA <i>Waste Classification Guidelines</i> 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 <i>POEO Act 1997</i> and its associated regulations.</p>
<i>Protection of the Environment Operations Act (POEO) 1997 and Amendment Act 2011</i>	<p>The <i>POEO Act 1997</i> and <i>POEO Amendment Act 2011</i> 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 waste generated during the demolition, construction and operational phases of a development, as well as the system for licencing waste transport and disposal.</p>
The Work Health and Safety Regulation 2011	<p>The Work Health and Safety Regulation 2011 provide detailed actions and guidance associated with the topics discussed in <i>The Work Health and Safety Act 2011</i>. 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.</p>
<i>Waste Avoidance and Resource Recovery Act 2001</i>	<p>The <i>Waste Avoidance and Resource Recovery Act 2001</i> aims to promote waste avoidance and resource recovery and repeals the <i>Waste Minimisation and Management Act 1995</i>. Specific objectives of the <i>Waste Avoidance and Resource Recovery Act 2001</i> include:</p> <ul style="list-style-type: none"> • 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. <p>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.</p>

5 Site Preparation and Construction Waste and Recycling Management

5.1 Targets for Resource Recovery

Targets for new development are expected to contribute to state-specific targets. The NSW Waste and Sustainable Materials Strategy 2041 (DPIE, 2021) sets a target of 80% average recovery rate from all waste streams by 2030. Analysis by DPIE (2021) indicates that construction and demolition waste recovery rates in 2018-19 were 77%.

The construction and excavation procedures should also endeavour to reach the target stated in the Penrith DCP of 76% reduction the volume of demolition, construction and fit out waste, including excavation, going to landfill.

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 site preparation and construction 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 waste,
- Construction waste,
- Plant maintenance waste
- Packaging waste, 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 3.

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 waste is available from the NSW EPA website⁴.

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 3 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 <i>Treated:</i> reused for formwork, bridging, blocking, propping or second-hand supplier <i>Untreated:</i> 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.

Waste Types	NSW EPA Waste Classification	Proposed Management Method
Fluorescent light fittings and bulbs	Hazardous waste	Off-site recycling or disposal; contact <i>FluoroCycle</i> 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.
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 <i>Business Recycling</i> 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

The Client has advised that bulk earthworks, including for services, and estate road infrastructure, has been completed at Oakdale West. As part of this DA, minor change to civil design will be undertaken to accommodate the Project. SLR understands that cut and fill quantities for the Project have been undertaken by AT&L.

Section 5.3.1 of the DCP, recommends that measures are taken to minimise site disturbance and limit unnecessary excavation. The DCP also 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.

All excavated spoil should be classified by an appropriately experienced environmental consultant and separated into contaminated materials, if any, uncontaminated fill, ENM or VENM.

5.4 Construction Waste Types and Quantities

The Construction Site Manager will need to specify the types and quantities of waste produced during construction and on this basis, the numbers and capacity of skip bins can be determined.

The Penrith DCP does not provide waste generation rates for construction activities. 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 an 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 m² of construction.

⁹Available online from <http://returnandearn.org.au/>

The waste generation rates are shown in **Table 4**.

Table 4 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	0	8.1

The waste generation rates for 'Factory' are applied to calculate the waste quantities from the construction of the warehouse. The 'Office' waste generation rates are applied to calculate the waste quantities from the offices. 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 and light duty surfaces. The areas are based on the architectural drawings attached in Appendix A.

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. The construction waste quantities anticipated from Lot 2A are provided below in Table 5.

Table 5 Estimated types and quantities of construction waste

Lot 2A component	Area (m ²)	Waste types and quantities (m ³)						
		Timber	Concrete	Bricks	Gyprock	Sand and Soil	Metal	Other
Warehouse	34,262	86	720	565	154	1,645	206	171
Offices	1,237	63	233	105	106	109	34	62
Hardstand area	32,115	-	9,827	-	-	4,592	-	2,601
Total	67,614	149	10,779	670	261	6,346	240	2,834

A waste management plan form provided by Council is attached in Appendix B. The form is also available on Council's website¹⁰. 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 the Penrith 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.

¹⁰ https://www.penrithcity.nsw.gov.au/images/documents/forms/Waste_Management_Plan_Application_Form.pdf

- 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:
 - 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 3** 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 the Penrith 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 the Penrith 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.

5.8 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 online¹¹ and should be used where applicable. A selection of signs prepared by NSW EPA is provided in Figure 3.

¹¹ NSW EPA approved waste materials signage <https://www.epa.nsw.gov.au/your-environment/recycling-and-reuse/business-government-recycling/standard-recycling-signs>



Figure 3 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 the Penrith 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 6.

Table 6 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

Targets for new development are expected to contribute to state specific targets. The NSW Waste and Sustainable Materials Strategy 2041 (DPIE 2021) sets a target of 80% average recovery rate from all waste streams by 2030. 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 7.

Table 7 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
Food waste	General solid (putrescible) waste	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

Waste Types	NSW EPA Classification	Proposed Management Method
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
General garbage, including non-recyclable plastics	General solid (putrescible and non-putrescible) waste	Disposal at landfill
Maintenance		
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 ¹² or Lamp Recyclers ¹³ 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 licenced 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

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.

¹² <https://www.fluorocycle.org.au/>

¹³ <https://www.lamprecyclers.com.au/>

6.3 Estimated Quantities of Operational Waste

SLR has adopted the 'Offices' and 'Warehouse' waste generation rates from Penrith The Penrith 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 8.

Table 8 Waste generation rates applied to the operations of the Project

Type of Premises	General Waste Generation (L/100 m ² /day)	Recycling Generation (L/100 m ² /day)
Warehouse	10	10
Offices	10	10

Using the waste generation rates in Table 8 above, the approximate weekly waste quantities for the Project have been calculated. The 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
- A week comprising seven days of operation

The estimated quantities of operational waste generated by the Project are shown in Table 9.

Table 9 Estimated quantities of operational general waste and recycling

Lot 2A	Area (m ²)	(L/day)		(L/week)	
		General Waste	Recycling	General Waste	Recycling
Warehouse	34,262	3,426	3,426	23,983	23,983
Dock office	195	20	20	136.5	136.5
Amenities South offices	105	11	11	73	73
Main Office	1,050	105	105	735	735
Total	35,612	3,561	3,561	24,928	24,928

6.3.1 Additional Types of Operational Waste

Based the Project's proposed operational activities, 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 as required as bulky waste.

The Penrith DCP requires food scraps to be placed in food waste bins and regularly collected. However, unless this is a food processing and storage facility, food quantities are unlikely to make separate collection of food viable and disposal to landfill is more likely.

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.

The Project is anticipated to produce minimal quantities of garden organics. This waste will be taken by a landscaping contractor who will dispose of it at a facility lawfully able to accept it.

6.4 Waste Storage Area Size

The waste storage area for the Project must be large enough to adequately store all quantities of operational waste and recycling between collections. All waste storage room calculations have considered the bin dimensions listed in the Penrith DCP, as outlined in Table 10.

Table 10 Dimensions and approximate footprint of bins

Bin Capacity	Height (mm)	Depth (mm)	Width (mm)	Footprint (m ²)
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 200% of the total minimum bin footprint. This can also act as a contingency in the event of spikes in waste generation. Additionally, in accordance with the Penrith 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 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 6.4.1.

The estimated number of bins required for weekly storage of operational waste and recycling generated by the Project are in Table 11 and are based on:

- The estimated quantities of operational waste and recycling as shown in Table 9, and
- Bin dimensions from the Penrith DCP as shown in Table 10.

Table 11 Recommended number of bins and storage area for weekly operations

Location	Bin Capacity		Number of Bins		Total Number of Bins	Collections per Week		Recommended Storage Area (m ²)
	Garbage	Recycling	Garbage	Recycling		Garbage	Recycling	
Lot 2A	3 m ³	3 m ³	3	3	6	3	3	37.6

6.4.1 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.

The DCP does not provide storage area dimensions for bulky waste. In the absence of this, SLR recommends space for one hook bin be allowed which can be brought to site occasionally for the disposal of bulky waste. The dimensions of a bin like this are approximately 6 m x 2 m, so it has a footprint of about 12 m².

Therefore, in addition to the recommended waste storage area noted in Table 11, the total waste storage area recommended for the Project is shown in Table 12.

Table 12 Total recommended storage area for operations of the Project

Location	Recommended Storage Area (m ²)		
	Waste and Recycling	Bulky waste	Total Storage Area
Lot 2A	37.6	12	49.6

This additional space can also act as a contingency in the event of spikes in waste generation and allow for additional bins.

The waste storage area for the Project is shown on the drawing in Figure 1 and in Appendix A and is labelled as 'Waste Enclosure'.

This is also shown in detail in Figure 4 below with the enclosure dimensions.



Figure 4 Waste enclosure

The diagram shows that the Waste Enclosure will have an area of about 49.6 m², which will be adequate to store the proposed number and types of bins. The Waste Enclosure dimensions are also adequate to store a hook bin up to about 6 m in length

SLR recommends that waste audits be undertaken approximately one month into the operational phase of the Project 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.

6.5 Waste Storage Room Location

The design for the waste storage areas of the Project is to take into consideration better practice waste management and recommendations from the Penrith DCP. The waste storage area should be located so that it:

- Is away from primary street frontages
- Is near any on-site loading bays
- Is convenient, safe, functional and directly accessible to users in each tenancy and servicing collection staff, but inaccessible to the public
- Avoids pedestrian or vehicular traffic hazards likely to be caused by waste collection and storage,

- Has 1.8 m zone of unobstructed clearance between the waste storage area and the entrance.

The location of the Waste Enclosure largely complies with these requirements.

6.6 Waste Storage Area Features

In accordance with better practice waste management and the Penrith DCP, the Project's waste storage areas should have the following features:

- Blend in with 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 BCA
- 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 BCA
- Adequate lighting and natural or mechanical ventilation in accordance with the BCA
- 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, preferably with landscape buffer planting, 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

SLR anticipates that waste collections will be undertaken through a private contractor.

In accordance with the Penrith 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 (see Figure 5)
- Drawings must show the site's entry point, vehicle's route of travel and manoeuvring (see Figure 5)

- 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 660 L and 1,100 L bins. Additionally, a 0.5 m side clearance is required on either side of the vehicle for driver movements and accessibility
660 L and 1,100 L bins are not proposed for this development
- Unobstructed access, adequate driveways and ramps of sufficient strength to support waste collection
- Access for the collection vehicles must be separate from the entry and exit driveway of any car parking areas to and from public areas (see Figure 5)
- An acoustic assessment is to accompany the DA and account for waste collection location and times, and
- 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. the Penrith DCP consists of dimensions for waste collection vehicles.

Figure 5 below shows the expected collection vehicle travel paths. Entry paths to the Waste Enclosure are shown in red and exit paths from the Waste Enclosure are shown in blue.

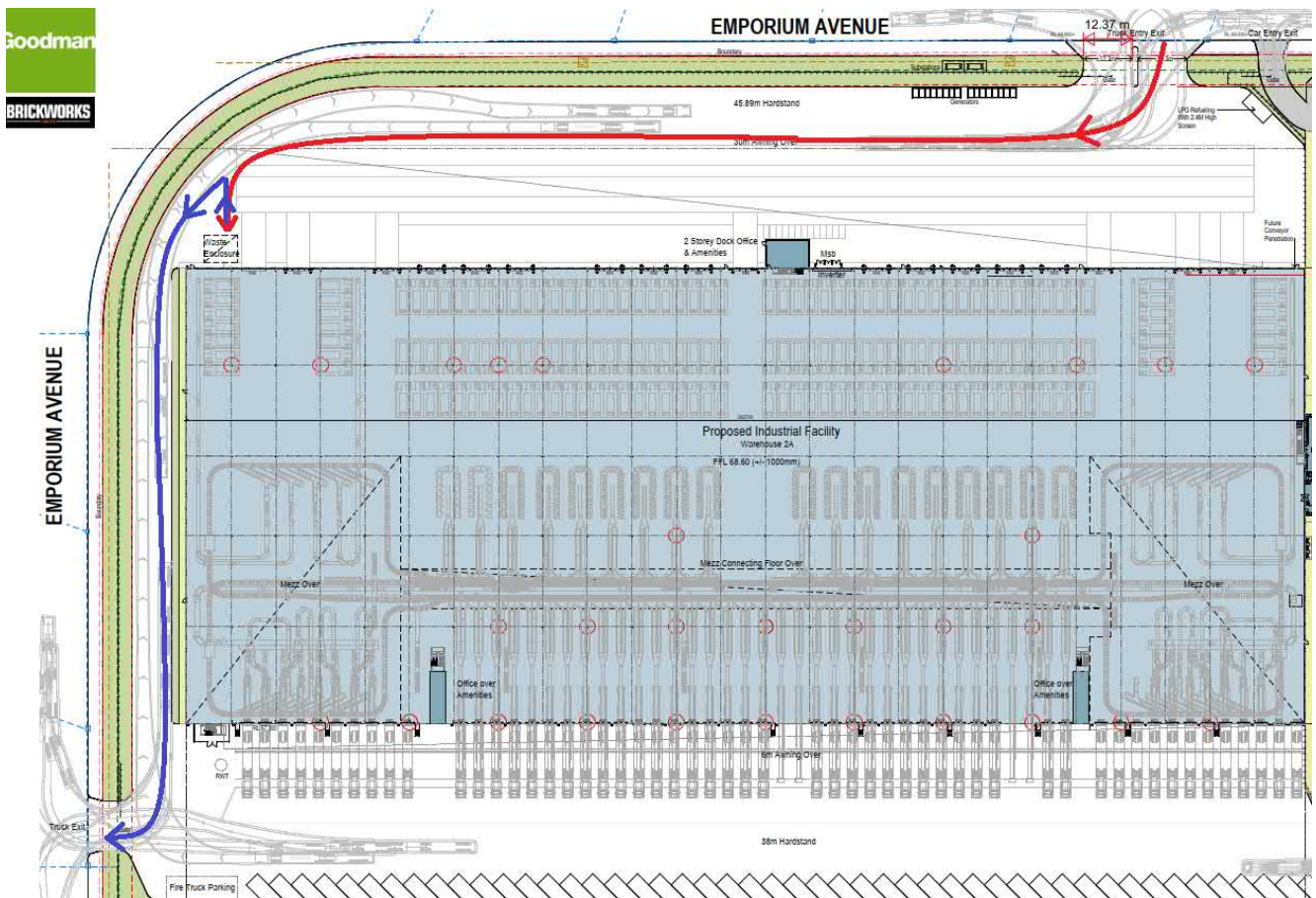


Figure 5 Collection vehicle travel paths

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-waste
- 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.

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 6
- 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 EPA¹⁴. 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 6 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.

¹⁴ NSW EPA waste signage and label designs <http://www.epa.nsw.gov.au/wastetools/signs-posters-symbols.htm>

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.

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 13.

Table 13 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.

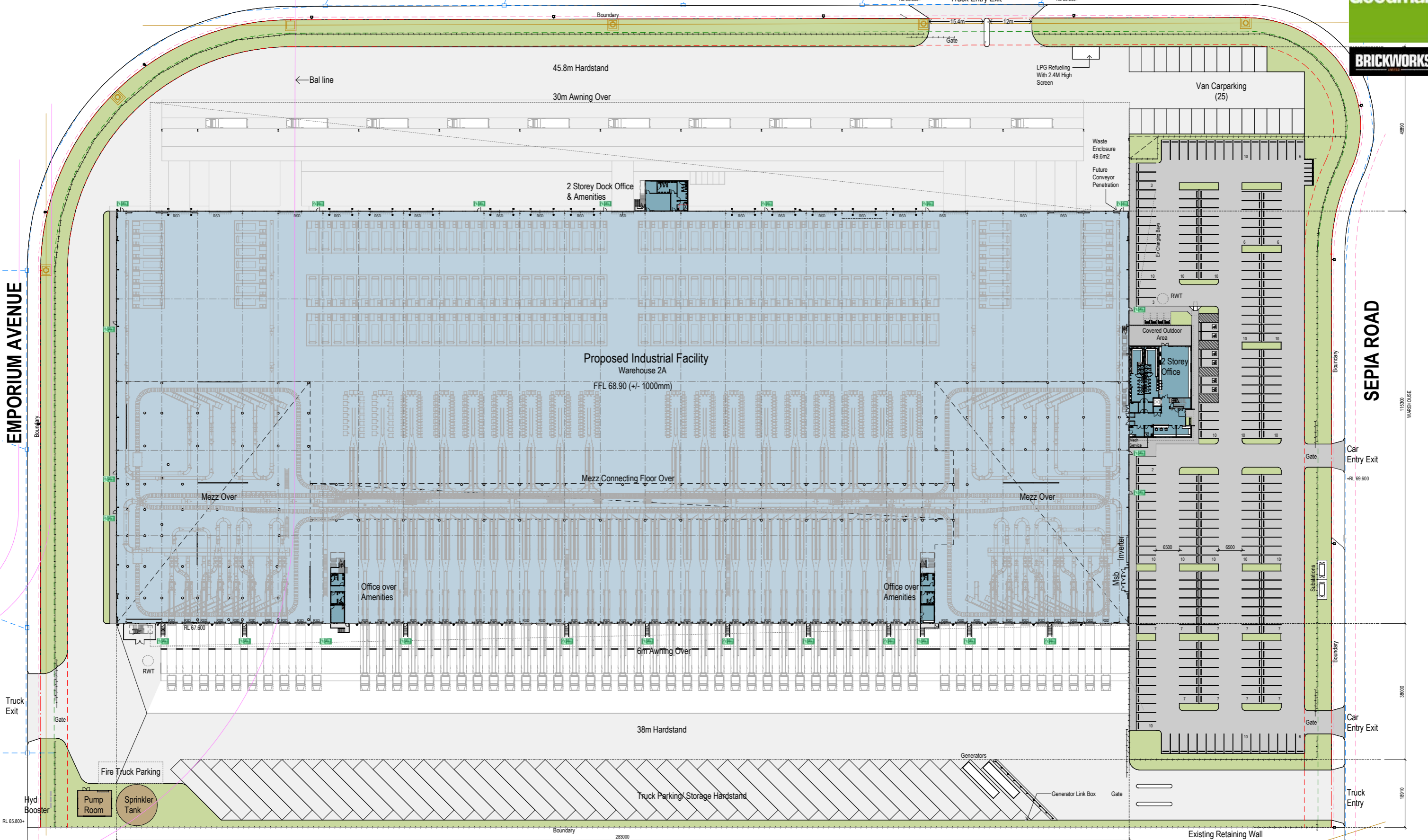
APPENDIX A

Architectural Drawings

EMPORIUM AVENUE

EMPORIUM AVENUE

SEPIA ROAD



LEGEND		SERVICES LEGEND	
	SITE BOUNDARY		SEWER
	LOT BOUNDARY		STORMWATER
	BUILDING 7.5M SETBACK		ELECTRICAL
	LANDSCAPE 3.75M SETBACK		
	2.1m PALISADE FENCING		
	RETAINING WALL		

DEVELOPMENT AREA SCHEDULE			
SITE AREA	80,582 sqm	HARDSTAND AREA	32,115 sqm
WAREHOUSE (excl. mezz)	34,262 sqm	MEZZANINES (Inside warehouse)	8,403 sqm
OFFICE (2 Levels)	1,050 sqm	TOTAL GFA	44,015 sqm
DOCK OFFICE (North - 2 Levels)	195 sqm	TOTAL GLA	35,612 sqm
AMENITIES SOUTH 1st floor only.	105 sqm	SITE COVER (exc. awning)	44 %
<small>Ground Floor excluded as it is already part of the warehouse area)</small>		FLOOR SPACE RATIO	0.54 : 1
		CARPARKING	255
		<small>(inclusive of 6 disabled spaces and 13 EV charging spaces)</small>	
		MOTORCYCLES	6



APPENDIX B

Council Waste Management Plan Form

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

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 N

Unexpected Finds Protocol – Archeological



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
	(a) All work in the immediate vicinity of the suspected Aboriginal item or object must cease immediately;	
D106. If any item or object of Aboriginal heritage significance is identified on Site:	(b) A 10 m wide buffer area around the suspected item or object must be cordoned off; and	Refer to Unexpected Finds Protocol
	(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 <i>Guide to Investigating, assessing and reporting on Aboriginal cultural heritage in NSW: Part 6 National Parks and Wildlife Act 1974</i>

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 O

Consultation

Lachlan O'Reilly

From: Justine Clarke <Justine.Clarke@waternsw.com.au>
Sent: Wednesday, 8 December 2021 1:16 PM
To: Lachlan O'Reilly
Cc: Stephanie Partridge; Rob Moody; Luke Ridley; Claudia Wheatley; Kym Dracopoulos; Alasdair Cameron
Subject: WaterNSW response - Oakdale West Estate - Building 2A | CEMP Consultation and updated estate staging plan

Dear Lachlan

Thank you for providing WaterNSW with the opportunity to comment on the Oakdale West Building 2A CEMP and the updated staging plan for SSD-7348.

WaterNSW acknowledge receipt of these documents.

WaterNSW has no specific comment to make on this CEMP, as it is not expected to impact on the Warragamba Pipelines corridor, if the controls within are adequately applied. This includes the conditions of consent within SSD-7348. WaterNSW believe that this project CEMP more closely aligns with Lot 1A, however the controls contained appear suitable.

It is requested though, that if site water is discharged into a drainage line on the western site boundary, that runs through the Warragamba Pipelines Corridor, that we are notified when it is planned to occur. This also includes any planned discharges from the sediment basins. This is so we may notify relevant operational staff of the water flows.

I trust this information enables you to meet your consultation requirements.

Regards Justine

Justine Clarke
Catchment and Asset Protection Adviser

Please note: I am currently working from home. I can be reached via email or 0457 535 955



Level 14, 169 Macquarie Street

PO Box 398

Parramatta NSW 2150

M: 0457 535 955

justine.clarke@waternsw.com.au

www.waternsw.com.au

From: Lachlan O'Reilly <Lachlan.OReilly@goodman.com>
Sent: Sunday, 28 November 2021 7:46 PM
To: Alison Kniha <Alison.Kniha@waternsw.com.au>; Justine Clarke <Justine.Clarke@waternsw.com.au>

Cc: Stephanie Partridge <Stephanie.Partridge@goodman.com>; Rob Moody <Rob.Moody@goodman.com>; Luke Ridley <Luke.Ridley@goodman.com>; Claudia Wheatley <Claudia.Wheatley@goodman.com>; Kym Dracopoulos <Kym.Dracopoulos@goodman.com>; Alasdair Cameron <Alasdair.Cameron@goodman.com>
Subject: ARK: RE: Oakdale West Estate - Building 2A | CEMP Consultation

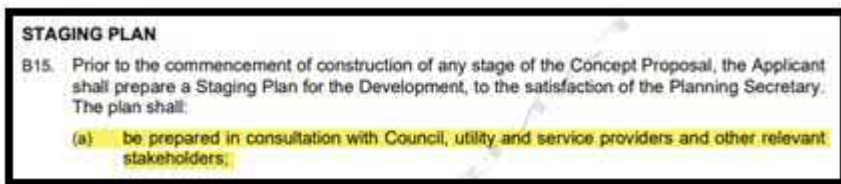
This Message Is From an External Sender

This message came from outside your organization.
Be careful opening emails, attachments and links from unknown senders.

Hi Justine and Alison,

Further to my previous email, please see attached the latest staging plan for the Oakdale West Industrial Estate providing minor updates on the status and forecast timing of upcoming developments.

In accordance with condition B15 of SSD 7348, it is a requirement that we consult with the relevant stakeholders prior to the DPIE approval as seen below:



On this basis, may I please request if you could review and provide any feedback prior to issue to DPIE. A 'no comment' response would satisfy the consultation requirements if you have no feedback.

Please let me know if you have any questions, otherwise we appreciate your assistance in advance.

Regards,



+Lachlan O'Reilly
Project Administrator
Direct: +61 2 9230 7284
Mobile: +61 481 254 556
Lachlan.OReilly@goodman.com
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The Hayesbery
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Goodman Limited ABN 69 000 123 071
Goodman Funds Management Limited ABN 48 067 796 641 AFSL Number 223621
This email is confidential. If you are not the intended recipient, please notify us immediately and be aware that any disclosure, copying, distribution or use of the contents of this information is prohibited. Please take notice that the company does not take commitment through e-mail, if not confirmed by fax or letter duly signed by a member of the board of directors.

From: Lachlan O'Reilly
Sent: Friday, 26 November 2021 9:58 AM

To: Alison.Kniha@waterNSW.com.au; justine.clarke@waterNSW.com.au

Cc: Stephanie Partridge <Stephanie.Partridge@goodman.com>; Rob Moody <Rob.Moody@goodman.com>; Luke Ridley <Luke.Ridley@goodman.com>; Claudia Wheatley <Claudia.Wheatley@goodman.com>; Kym Dracopoulos <Kym.Dracopoulos@goodman.com>; Alasdair Cameron <Alasdair.Cameron@goodman.com>

Subject: Oakdale West Estate - Building 2A | CEMP Consultation

Importance: High

Dear Justine and Alison,

As you're aware, Goodman are currently constructing the Oakdale West Estate. We're hoping to shortly commence construction of our Lot 2A warehouse (see indicated in red in Fig.1) within the Estate.



Figure 1 - Oakdale West, including Lot 2A

Whilst the Consent for the development (SSD 9794683) is under assessment by Department, we wish to commence the Post approval documentation consultation process in the interim to maintain progress with the proposed development timelines.

On this basis, we have drafted the SSD Construction Environmental Management Plan, inclusive of the relevant sub-plans in accordance with Consent No. 22191322 (Oakdale West Building 4E, as we foresee the conditions will be similar given both projects are considered State Significant Development within the Oakdale West Estate).

Condition C18 of the overarching consent for Oakdale West Estate (SSD 7348) requires us to consult with WaterNSW on the Construction Environmental Management Plan (CEMP), which considers how construction measures will be managed during the development.

It is a requirement of the condition that we demonstrate consultation with you before we can lodge this report with the Department for approval. We are unable to start construction until the Department approves this report:

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 TNSW, 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.

We'd therefore be grateful if you're able to please review the overarching CEMP contained within the below link and provide us any comments you may have. A 'no comment' response would satisfy the consultation requirements if you have no feedback.

<https://spaces.hightail.com/receive/58gASPqzS7>

We note that construction traffic will be via Compass Drive (Previously known as WNSLR), and not Bakers Lane.

Furthermore, we note the contents of this CEMP is aligned with the recently approved CEMP for Building 4E.

Please let me know if you have any questions, otherwise we appreciate your assistance in advance.

It would be grateful if you could come back to us by 01 December 2021 to remain on programme.

Regards,



Our reference: ECM Ref: 9748485
Contact: Kathryn Saunders
Telephone: (02) 4732 8567

3 December 2021

Goodman Group
Attn: Lachlan O'Reilly
Project Administrator
Email: Lachlan.OReilly@goodman.com

Dear Mr O'Reilly,

Response to Oakdale West Estate - Building 2A CEMP Consultation SSD-9794683 at 2 Aldington Road, Kemps Creek

I refer to your recent request to provide comments in relation to the above application and subsequent CEMP. Thank you for providing Council with the opportunity to comment.

Finalisation of the CEMP will need to be the satisfaction of the consent authority. Notwithstanding this, Council raises no objections and noted the following:

- Construction access to the site will be via Compass Drive. The public road system has capacity to cater for construction traffic generated by the development. All stormwater management facilities have been provided as part of the parent subdivision. A temporary sediment basin has been constructed on the lot to manage run off from the site during the construction phase. No engineering objections are raised.

Should you wish to discuss any aspect of Council's comments further, please do not hesitate to contact me directly on (02) 4732 8567.

Yours sincerely

Kathryn Saunders
Principal Planner

Lachlan O'Reilly

From: Clinton Jurd <Clinton.Jurd@endeavourenergy.com.au>
Sent: Monday, 29 November 2021 4:35 PM
To: Lachlan O'Reilly
Cc: Cornelis Duba; Hassan Gul; Jason Lu; Brett O'connor; Stephen O'halloran
Subject: RE: Oakdale West Estate - Building 2A | CEMP Consultation

Hi All,

Thanks Lachlan for providing the draft CEMP for review and comment.

Endeavour Energy (EE) have no specific comments regarding the draft CEMP consultation.

This assumes construction will not impact the EE distribution feeder easement that traverses adjacent the western Oakdale West boundary to the west of the subject area and also that electricity distribution reticulation to the site has been considered via EE Customer Network Solutions through an ASP (accredited service provider).

Thanks again,

Clinton

Clinton Jurd
Network Environmental Assessment Manager
M: 0434 734 626
PO Box 811 Seven Hills 1730
www.endeavourenergy.com.au

From: Lachlan O'Reilly <Lachlan.OReilly@goodman.com>
Sent: Friday, 26 November 2021 9:55 AM
To: Clinton Jurd <Clinton.Jurd@endeavourenergy.com.au>
Cc: Stephanie Partridge <Stephanie.Partridge@goodman.com>; Rob Moody <Rob.Moody@goodman.com>; Luke Ridley <Luke.Ridley@goodman.com>; Claudia Wheatley <Claudia.Wheatley@goodman.com>; Kym Dracopoulos <Kym.Dracopoulos@goodman.com>; Alasdair Cameron <Alasdair.Cameron@goodman.com>
Subject: Oakdale West Estate - Building 2A | CEMP Consultation
Importance: High

Dear Clinton,

As you're aware, Goodman are currently constructing the Oakdale West Estate. We're hoping to shortly commence construction of our Lot 2A warehouse (see indicated in red in Fig.1) within the Estate.



Figure 1 - Oakdale West, including Lot 2A

Whilst the Consent for the development (SSD 9794683) is under assessment by Department, we wish to commence the Post approval documentation consultation process in the interim to maintain progress with the proposed development timelines.

On this basis, we have drafted the SSD Construction Environmental Management Plan, inclusive of the relevant sub-plans in accordance with Consent No. 22191322 (Oakdale West Building 4E, as we foresee the conditions will be similar given both projects are considered State Significant Development within the Oakdale West Estate).

Condition C18 of the overarching consent for Oakdale West Estate (SSD 7348) requires us to consult with Endeavour Energy on the Construction Environmental Management Plan (CEMP), which considers how construction measures will be managed during the development.

It is a requirement of the condition that we demonstrate consultation with you before we can lodge this report with the Department for approval. We are unable to start construction until the Department approves this report:

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Please let me know if you have any questions, otherwise we appreciate your assistance in advance.

It would be grateful if you could come back to us by 01 December 2021 to remain on programme.

Regards,

The logo for Goodman, featuring the word "Goodman" in white text on a green square background.

+ Lachlan O'Reilly
Project Administrator
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Mobile: +61 481 254 556
Lachlan.OReilly@goodman.com
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