# Construction Environmental Management Plan

## 6 Grand Avenue, Rosehill NSW

### Vaughan Constructions Pty Ltd

Prepared by:

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SLR Project No: 640.031417.00001

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|---|---|---|---|---|
| 01 | 01-Oct-2024 | Harry Peter | Sean Wilson | Stephen Shoesmith |
| 02 | 17-Oct-2024 | Harry Peter | Sean Wilson | Sean Wilson |

# Basis of Report

This report has been prepared by SLR Consulting Australia (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Vaughan Constructions 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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# 1.0 Introduction

## 1.1 Overview

This Construction Environmental Management Plan (CEMP) has been prepared by SLR Consulting Australia Pty Ltd (SLR) on behalf of Vaughan Constructions Pty Ltd, the Principal Contractor, for the construction of a multi-level warehouse and distribution centre at 6 Grand Avenue, Rosehill NSW (the site). A detailed description of the development is provided in **Section 2.0**.

Hale Capital Development Management Pty Ltd (the Applicant) proposes to construct and operate this facility in the Parramatta local government area (LGA). Hale Capital is a developer and manager specializing in urban infill developments, with several warehousing and logistics facilities across eastern Australia. This development aims to address the shortfall of industrial floor space for warehousing in Greater Sydney by redeveloping an underutilised site in an existing industrial area. Vaughan Constructions has been appointed as the Principal Contractor for the construction.

The CEMP has been prepared to comply with the conditions of the State Significant Development (SSD) 55522478 (Appendix A) and to ensure that appropriate environmental management practices are followed during the construction phase. These practices are in accordance with the mitigation measures outlined in the specialist technical reports. The Environmental Impact Statement can be accessed on the Department of Planning and Environment (DPE) website.

## 1.2 Context

This CEMP has been prepared to address the specific requirements of SSD 55522478 and in consideration of *Guideline for the Preparation of Environmental Management Plans* (Department of Infrastructure, Planning and Natural Resources, 2004).

This CEMP contains the following key components:

- A description of the construction activities to be undertaken on site, including construction program and timing
- Environmental management framework, including key contacts, roles and responsibilities, and regulatory requirements
- Environmental incidents and non-compliance management strategy
- Complaints management strategy
- Environmental management commitments and responsibilities
- Monitoring, inspections, and reporting requirements
- Contingency Management Plan

The following management plans have been prepared to support this CEMP as required under Condition C3 of SSD 55522478:

- Community Consultation and Complaints Handling Procedure (Appendix C)
- Construction Traffic Management Plan (CTMP) (Appendix D)
- Erosion and Sediment Control Plan (Appendix E)
- Aboriginal Cultural Heritage Management Plan (ACHMP) (Appendix F)

- Flood Emergency Response Plan (FERP) (Appendix G)
- Tree Protection Measures (Appendix H)

## 1.3 Scope

This CEMP has been prepared to satisfy Conditions C1 - C3 of SSD 55522478. The specific requirements of these consent conditions, along with where these requirements have been addressed within this CEMP, are listed in **Table 1**. In addition to this, all conditions of consent relevant to this CEMP are attached at Appendix B, including reference to where they have been addressed.

**Table 1: Scope**

| **SSD 55522478** | **CEMP Section** |
|---|---|
| **Management Plan Requirements** | |
| C1. Management plans required under this consent must be prepared in accordance with relevant guidelines, and include: | |
| a) a condition compliance table for that plan | Refer to sub-plans |
| b) detailed baseline data where required; | |
| c) details of:<br>i. the relevant statutory requirements (including any relevant approval, licence or lease conditions);<br>ii. any relevant limits or performance measures and criteria; and<br>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; | i. Section 3.3<br>ii. Section 3.0<br>ii. Refer to sub-plans |
| d) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria; | Section 3.3 |
| e) a program to monitor and report on the:<br>i. impacts and environmental performance of the development; and<br>ii. effectiveness of the management measures set out pursuant to paragraph (c) above; | Section 5.0 |
| f) 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 6.0 |
| g) a program to investigate and implement ways to improve the environmental performance of the development over time; | Section 5.0 |
| h) a protocol for managing and reporting any:<br>i. incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria);<br>ii. complaint;<br>iii. failure to comply with statutory requirements; and | Section 3.5 |
| i) a protocol for periodic review of the plan. | Section 1.8 |
| **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. | This Plan |

| | |
|---|---|
| C3. As part of the CEMP required under condition C2 of this consent, the Applicant must include the following: | |
| a) Details of the community consultation and complaints handling procedure to be implemented during construction | Appendix C |
| b) Construction Traffic Management Plan (see condition B1); | Appendix D |
| c) Erosion and Sediment Control Plan (see condition B12); | Appendix E |
| d) Aboriginal Cultural Heritage Management Plan (see condition B35); and | Appendix F |
| e) a copy of the development's:<br>i. Construction Flood Emergency Response Plan (see condition B18);<br>ii. Tree protection measures (see condition B42) | i. Appendix G<br>ii. Appendix H |
| C4. The Applicant must:<br>a) not commence construction of the development until the CEMP is approved by the Planning Secretary; and<br>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 |

## 1.4 Objectives

The objectives of this CEMP are to:

- Ensure the construction environmental management requirements for the site are adhered to in line with the mitigation measures.
- Establish the framework for managing and mitigating the potential for adverse environmental impacts as a result of the construction of the site; and
- Assist to establish the site operations in a manner that avoids (where possible) or minimises impact to the surrounding environment and populace.

It is noted that this CEMP does not address workplace health and safety (WHS) requirements.

## 1.5 Preparation

This CEMP has been prepared by SLR and the author qualifications are listed in **Table 2** below:

**Table 2: Author Qualifications**

| Name, Role & Division | Qualifications | Experience |
|---|---|---|
| **Harry Peter**<br>Project Consultant – Environmental Management, Permitting and Compliance | Master of Urban Planning & Environment<br><br>Bachelor of Architecture | Harry is a Project Consultant at SLR within the Environmental Management, Permitting & Compliance team. He has a background as a Town Planner, where he has assisted clients and developers in obtaining planning permit approvals for small to medium-scale developments, primarily in Victoria.<br>Harry has also worked for a residential volume builder as a Client Manager, securing Developer Approvals (DA's) and Building Permits for home buyers. |
| **Sean Wilson**<br>Principal Consultant - Environmental Management, | | Sean has over 27 years of Town Planning experience and has been working at SLR Consulting since April 2022. Sean has worked on various projects Australia wide including large renewable energy projects for wind and Hydrogen within |

| | | |
|---|---|---|
| Permitting and Compliance | | Victoria and Western Australia including project managing and authoring traffic light and desktop assessments for offshore wind farms in the Gippsland region. Sean has also worked on infrastructure projects for APA, Telstra, Northeast Link (NELP) & Client assessing planning, environment and heritage risks, Planning Scheme Amendments, CEMP's and obtaining approvals where required for infrastructure works Australia wide. |
| **Stephen Shoesmith**<br>Principal Consultant - Environmental Management, Permitting and Compliance | Master of Integrated Environmental Management<br><br>Bachelor of Environmental Science | Stephen is a Principal Consultant in the SLR Environmental Assessment & Management team and has demonstrated environmental management, impact assessment and policy experience.<br>Stephen has significant site and corporate experience in environmental management, project management, environmental impact assessment, land restoration, decommissioning and closure planning, risk assessment as well as facilitation and preparation of Management Plans.<br>Stephen has also worked as a regulator within the Department of Planning, Industry and Environment, which included post approval reviews, Policy reforms and Major Project Assessments. |

## 1.6 Implementation

As per the condition C2 stated under the Development Consent (SSD 55522478) from NSW Department of Planning, Housing and Infrastructure, the applicant must prepare a CEMP in accordance with the requirements of condition C1 and to the satisfaction of the Planning Secretary.

In Accordance with SSD 55266460, Condition C4, the Applicant must;

- not commence construction of the development until the CEMP is approved by the Planning Secretary; and
- 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.

Construction will be undertaken in accordance with the most recent, approved version of this CEMP and Sub-Plans.

## 1.7 Consultation

Consultation for this CEMP will be / has been undertaken with the applicable stakeholders as per SSD 55522478. This is summarised in **Table 3**, and a Community and Stakeholder Management Plan is attached at Appendix C.

**Table 3: Consultation**

| SSD-55522478 | Comment |
|---|---|
| **Evidence of Consultation** | |
| A8. Where conditions of this consent require consultation with an identified party, the Applicant must:<br>a) consult with the relevant party prior to submitting the subject document to the Planning Secretary for approval.<br>b) provide details of the consultation undertaken including:<br>i. the outcome of that consultation, matters resolved and unresolved.<br>ii. Details of any disagreement remaining between the party | Evidence of consultation including the outcome, and any required details are included within the relevant sub plans referenced in Appendices of this plan. |

| | |
|---|---|
| consulted and the Applicant and how the Applicant has addressed the matters not resolved. | |
| **Traffic and Access** | |
| 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 in consultation with Council and TfNSW (including Sydney Metro West and Parramatta Light Rail Stage 2 project teams); | A Construction Traffic Management Plan was prepared in consultation with TfNSW and Council and is referenced in Appendix D. |
| **Aboriginal Cultural Heritage Management Plan** | |
| Prior to the commencement of any clearing or construction works for the development, the Applicant must prepare an Aboriginal Cultural Heritage Management Plan for the development. The plan must form part of the CEMP required by condition C2 and must be prepared in consultation with the Registered Aboriginal Parties. | An Aboriginal Cultural Heritage Management Plan was prepared in consultation with the Registered Aboriginal Parties and is referenced in Appendix F. |

## 1.8 Review

This CEMP will be subject to periodic review to ensure its relevance and effectiveness. Reviews will be conducted at regular intervals or in response to significant changes in project activities, regulatory requirements, or environmental conditions. The CEMP will be updated as necessary to reflect any new requirements, modifications, or improvements, ensuring continuous compliance with environmental standards and best practices throughout the project.

# 2.0 Development

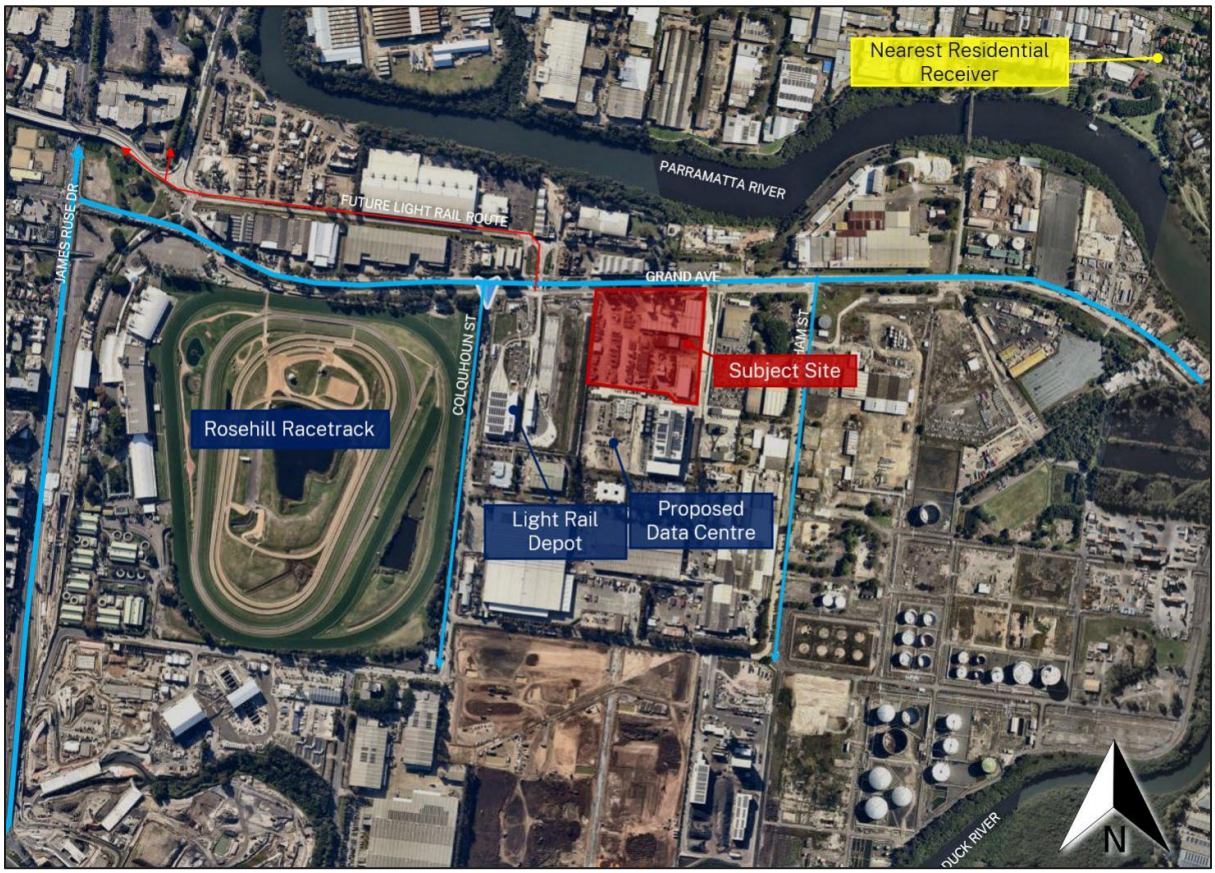
## 2.1 Local Context

The site is located on the Camellia Peninsula in Rosehill (see **Figure 1**), approximately 17 kilometres (km) west of the Sydney Central Business District (CBD) and 2 km east of the Parramatta CBD. The Camellia Peninsula was established as an industrial precinct in the 1950s. The precinct supports a range of industrial uses and is situated between the Parramatta River to the north, Duck River to the east and south and James Ruse Drive along the precinct's western boundary.

Industrial uses are located to the north and east of the site. A Transport for NSW light rail depot is located immediately to the west of the site, with Rosehill Racecourse being located further west. A date centre is located to the south of the site, with a State significant development application currently being assessed by the Department for an extension to this facility (SSD-53338465).

The closest residential receiver is located approximately 800 metres (m) north-east of the site, across the Parramatta River in the suburb of Rydalmere (see **Figure 1**).

**Figure 1: Local Context**




## 2.2 Site Description

The site is 6 Grand Avenue, Rosehill, legally identified as Lot 1 DP 1258587. The site is approximately 4.28 hectares in area and consists of a relatively flat topography. The land is mostly cleared of vegetation with some mature trees along the front boundary of the site at Grand Avenue. The site is currently occupied by several industrial buildings and is used

for the manufacturing, storage and distribution of building products including terracotta roof tiles.

## 2.3 Proposed Development

The proposed development is for a two-storey warehouse and distribution facility with associated offices on a 4.28 Ha parcel of land, which includes:

- Demolition of all existing buildings and structure
- Earthworks (to achieve an FFL of RL 6.80) - Infrastructure comprising civil works and utilities servicing
- Construction of a two-storey warehouse and distribution centre comprising 10 tenancies
- On site parking: 214 car parking spaces, 21 motorcycle spaces and 41 bicycle parking spaces
- Vehicular access and parking including ramp access to level one suitable for heavy articulated vehicles, on-site parking spaces for passenger vehicles including a mezzanine parking level and parking at ground level, and separate ingress/egress points for vehicles to Grand Avenue
- Landscaping including a 20-metre landscaped setback to Grand Avenue

The layout of the proposed development is shown in **Figure 3**. The Access to the development would be made via Grand Avenue.

## 2.4 Construction Hours

Construction hours will be in accordance with Conditions B29 of SSD 55522478. Hours of work must comply with the hours detailed in **Table 4** below.

**Table 4: Hours of Work**

| Activity | Day | Time |
|---|---|---|
| Construction | Monday – Friday<br>Saturday | 7 am to 6 pm<br>8 am to 1 pm |

As per Condition B30, works outside of the hours identified in condition B29 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.

## 2.5 Contact Details

All key contacts relevant to the construction phase are listed in **Table 6**.

## 2.6 Construction Activities

Planned construction activities consist of the following works:

- Site establishment
- Demolition of the existing buildings and Tree removal;
- Site preparation works, including in ground services and foundations;
- Bulk earthworks, import of fill;
- Relocation of four vehicular crossovers to Grand Avenue;
- Construction works associated with the development of the proposed warehouse
- facility
- On-site parking; and
- External pavements, complementary landscaping and offset planting.

## 2.7 Construction Schedule

The construction will be completed over several construction stages as shown in **Table 5** below, however, any such staging does not constitute staged development as defined under Section 4.22 of the EP&A Act.

**Table 5**: **Project Stages**

| Proposed Construction Activities | Date of Works | Estimated Duration |
|---|---|---|
| Stage 1: Site Establishment, Demolition, and Piling Works. | 09/2024 – 01/2025 | 121 days |
| Stage 2: Civil Works, Retaining Walls, Services, Structures and Slabs. | 12/2024 – 11/2025 | 222 days |
| Stage 3: External pavements, Landscaping, Commissioning and Handover. | 10/2025 – 05/2026 | 132 days |
| Total Construction Period | From 09/24 to 05/26 | Up to 19 months |

**Figure 2: Demolition Plan**

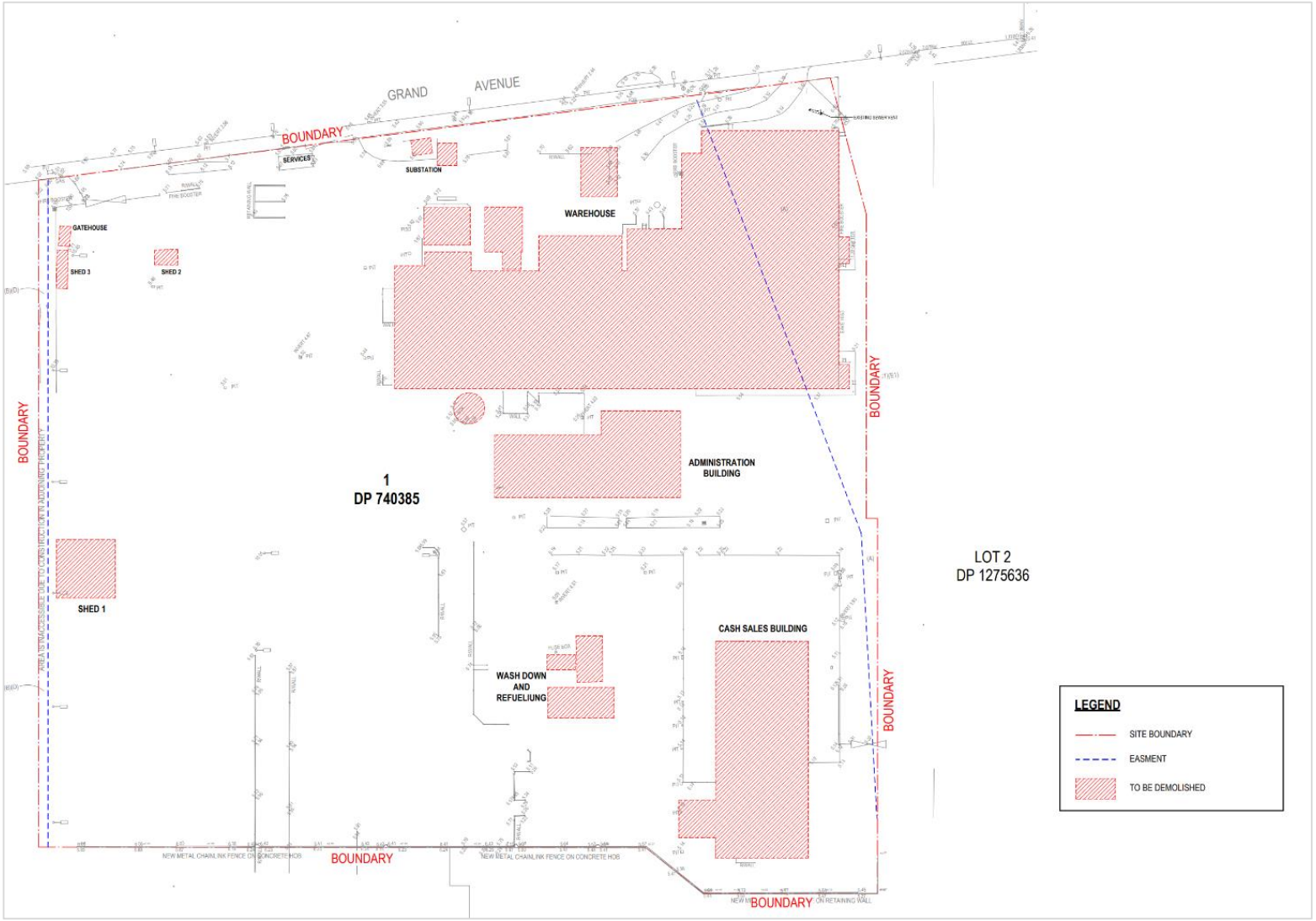


**Figure 3: Ground Floor Plan**



# 3.0 Environmental Management Framework

## 3.1 Organisational Structure

Vaughan Constructions is responsible for environmental monitoring and compliance with SSD 55522478, this CEMP and sub-plans. Consultants, contractors, sub-contractors, and all other personnel associated with construction works are to report to Vaughan Constructions.

## 3.2 Roles and Responsibilities

The key personnel responsible for environmental management during construction of the facility are listed in **Table 6.**

**Table 6: Personnel Responsible**

| Role and Contact Details | Responsibility |
|---|---|
| **Contract Administrator**<br>Lorenzo Lun<br>llun@archile.com.au<br>0416 151 2020<br>Archile Projects | • Overall responsibility for compliance with approval requirements.<br>• Liaise with the Proponent to keep them informed of the project's progress.<br>• Overall Responsibility for compliance with approval requirements. |
| **Project Manager**<br>John Kassa<br>0407 882 286<br>john.kassa@vaughans.com.au<br>Vaughan Constructions | • Environmental reporting responsibility associated with the development.<br>• Ensure the legislative and corporate safety, health and environment management measures and controls are implemented and maintained.<br>• Record, notify, investigate and respond to any environmental incidents and, where necessary, develop and implement corrective actions.<br>• Responsibility for compliance with approval requirements.<br>• Liaise with the Proponent to keep them informed of the project's progress.<br>• Consult and engage with any subcontractors or interfacing contractors regarding the environmental management of the Site.<br>• Lead and manage the community involvement activities, including liaison with property owners and key stakeholders.<br>• Lead the delivery of communication and community engagement strategies and plans.<br>• Facilitate meetings, forums and arranging interviews to address concerns from community.<br>• Provide advice and participate with the project teams to improve and enhance the delivery of communication services to the community.<br>• Build, maintain collaborative and consultative working relationships with internal and external stakeholders.<br>• Be available for contact by local residents, key stakeholders and community representatives to answer queries and provide more information or feedback. |
| **Site Manager**<br>Ali Mourad | • All the responsibilities attributed to the Construction Contractor throughout this CEMP. |

| | |
|---|---|
| 0416 317 404<br>ali.mourad@vaughhans.com.au<br>Vaughan Constructions | • Environmental reporting responsibility associated with the development.<br>• Ensuring that the appropriate management response and handling procedures are instigated and carried through in the event of an incident and/or non-compliance.<br>• Regularly monitor the implementation of the CEMP to ensure implementation is being carried out in accordance with the document and the terms of this consent.<br>• Provide adequate environmental inductions/training to employees and contractors regarding their requirements under this CEMP.<br>• Participate in risk and hazard identification and control.<br>• Participate in incident investigations and management.<br>• Participate in health and safety inspections.<br>• Be the primary daily contact to the public handling of enquiries / complaints management / interface issues.<br>• Maintain the complaints register and make available the complaints register to the Contractors Project Manager on a daily basis.<br>• Be available for contact by local residents and the community at all reasonable times to answer any questions.<br>• Liaise with property owners to co-ordinate access and to deal with specific property related issues arising from the upgrade works. |
| **Site Engineer**<br>Andrew Constantinidis<br>0409 996 387<br>andrew.constantinidis@vaughans.com.au<br>Vaughan Constructions | • Maintain the complaints register and make available the complaints register to the Contractors Project Manager on a daily basis.<br>• Be available for contact by local residents and the community at all reasonable times to answer any questions.<br>• Site support to liaise with property owners to co-ordinate access and to deal with specific property related issues arising from the upgrade works.<br>• Lead the delivery of communication and community engagement strategies and plans.<br>• Facilitate meetings, forums and arranging interviews to address concerns from community.<br>• Provide advice and participate with the project teams to improve and enhance the delivery of communication services to the community.<br>• Build, maintain collaborative and consultative working relationships with internal and external stakeholders.<br>• Be available for contact by local residents, key stakeholders, and community representatives to answer queries and provide more information or feedback. |
| **Project Arborist**<br>Kane Hollstein<br>0432 633 402<br>info@canopyconsulting.com.au<br>Canopy Consulting | • Ensure that all tree protection measures, particularly those related to Tree Protection Zones (TPZs), are properly implemented and maintained throughout the project.<br>• Conduct regular inspections to monitor compliance with tree protection measures, ensuring that all works within the TPZs meet relevant standards, and provide certification of compliance.<br>• Provide expert guidance and recommendations on how to manage trees on the construction site to mitigate potential impacts from the project.<br>• Prepare reports on the condition of trees and compliance with tree protection requirements, offering documentation |

| | |
|---|---|
| | that verifies compliance with environmental management standards. |
| **Certified Professional in Erosion and Sediment Control (CPESC)**<br>+ 61 2 9251 7699<br>mail@costinroe.com.au<br>Costin Roe Consulting | • Conduct monthly audits of the erosion and sediment controls for the duration of earthworks and construction and for a further 12 months following the completion of construction works to ensure the controls remain effective in achieving the construction phase stormwater quality targets in the Technical Guidance.<br>• Ensure installation and operation of the erosion and sediment controls are supervised |
| **Communications and Community Liaison Representative**<br>David Upton<br>0412 719 623<br>david.upton@vaughans.com.au<br>Vaughan Constructions | • Lead and manage the community involvement activities, including liaison with property owners and key stakeholders.<br>• Available as a daily contact to the public handling of enquiries / complaints management / interface issues. |
| **Project Archaeologist**<br>Kieran Murray<br>+61 2 9518 8411<br>office@artefact.net.au<br>Artefact Heritage and Environment | • Develop and implement the plan to manage Aboriginal heritage.<br>• Ensure staff are educated on Aboriginal history and artefact identification.<br>• Oversee the process if Aboriginal objects are discovered, coordinating with relevant authorities.<br>• Engage with Registered Aboriginal Parties (RAPs) for ongoing heritage management and feedback. |
| **Flood Warden**<br>Nelson Zeng<br>+ 61 2 9251 7699<br>mail@costinroe.com.au<br>Costin Roe Consulting | • Provide for training in stormwater management for personnel directly involved with the implementation of FERP, as required.<br>• Identify and allocate Project resources to implement the requirements of FERP.<br>• Oversee the implementation and maintenance of FERP.<br>• Ensure all measures are performing adequately throughout the operation of the centre in perpetuity.<br>• Ensure maintenance and monitoring of the stormwater management measures are undertaken |
| All employees, contractors and subcontractors | • Ensure familiarity, implementation and compliance with this CEMP and appended management plans.<br>• Support the Proponent's commitment to sustainability, environmental management and compliance.<br>• Work in a manner that will not harm the environment or impact on surrounding receptors.<br>• Report all environmental incidents, non-compliances and complaints to the Project Manager without delay.<br>• Immediately notify the Contractor's Project Manager of any hazard or potential hazard that may result in an incident and/or non-compliance, regardless of the nature or scale.<br>• 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.<br>• Report any inappropriate construction practices and/or environmental management practices to the Project Manager without delay. |

## 3.3 Statutory Requirements

### 3.3.1 SSD 55522478

The Development will be constructed in accordance with Condition A2 of SSD 55522478, specifically:

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, RTS and Additional Information;

d) in accordance with the Development Layout in Appendix 1; and

e) in accordance with the management and mitigation measures in Appendix 2.

In accordance with Condition A3 of SSD 55522478, the Planning Secretary may make written directions to Hale Capital (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).

In accordance with Condition A4 of SSD 55522478, 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.

SSD 55522478 imposes several environmental performance and management requirements applicable to the construction. A copy of the Consent for SSD 55522478 is attached in Appendix A and all conditions of consent relevant to this CEMP are attached in Appendix B.

### 3.3.2 Regulatory Framework

The relevant statutory requirements of the site are listed in **Table 7** below. Whilst other statutory documents have been considered in the preparation of this CEMP, only those with specific triggers/requirements that relate to construction of the site have been documented.

**Table 7: Relevant Statutory Requirements**

| Legislation | Requirements | Environmental Aspect |
|---|---|---|
| **Commonwealth** | | |
| Commonwealth Environment Protection and Biodiversity Conservation Act 1999 | Compliance with range of processes to help protect and promote the recovery of threatened species and ecological communities, and preserve significant places from decline. | The Australian environment, including its biodiversity and its natural and culturally significant places. |
| **State Planning Context** | | |

| | | |
|---|---|---|
| Environment Planning and Assessment Act 1979 | Consideration of the impacts to the environment (both natural and built) and the community of proposed development or land-use change The Project must comply with the SSD 55266460 Development Consent. | All |
| Environmental Planning and Assessment Regulation 2021 | Compliance with the environmental planning and assessment system including notification requirements and certificates. | Environmental Management Framework. |
| Biodiversity Conservation Act 2016 | Comply with biodiversity conservation obligations. | Biodiversity |
| National Parks and Wildlife Act 1974 | Conservation of natural and cultural heritage. Protection and recording of Indigenous and non-Indigenous heritage values. | Aboriginal Heritage<br>Earthmoving /excavation works – identifying unexpected finds. |
| Protection of the Environment Operations Act 1997 | Handling, storage and disposal of all waste streams on site.<br>Protection, restoration and enhancement of the quality of the NSW environment<br>Activities where Environment Protection Licence is required. | Construction waste management Discharges or emissions to air, land and water. |
| State Environmental Planning Policy (Resilience and Hazards) 2021 | Remediation of contamination lands and consent requirements. | In the event of any unexpected find of contaminants/ contamination |
| State Environmental Planning Policy (Industry and Employment) 2021 | Compliance with the development and land use policies in relation to industry and employment. | Pollution control, noise management, social impacts and sustainable design and construction practices. |
| State Environmental Planning Policy (Transport and Infrastructure) 2021 | Compliance with Transport and Infrastructure planning provisions and controls. | Transport and Infrastructure. |
| State Environmental Planning Policy (Planning Systems) 2021 | Compliance with the development controls of an SSD and SSD 55266460. | All |
| State Environmental Planning Policy (Biodiversity and Conservation) 2021 | Comply with biodiversity conservation obligations. | Biodiversity |
| **Local Planning Context** | | |
| Parramatta Local Environmental Plan 2011 | Comply with the zoning and land use regulations. | Zoning and land use provisions, heritage conservation, waterway, biodiversity and vegetation |
| Parramatta Development Control Plan 2011 | Comply with building design, site layout, access, landscaping, and environmental considerations. | Sustainable design, stormwater management, vegetation and landscaping, flood risk, waste management, noise and air quality |

### 3.3.3 Other Licences, Permits, Approvals and Consents

**Table 8** summarises the additional licences, permits, approvals and consents required throughout these works. This information has been summarised from SSD 55522478. It is

the Construction Contractor's responsibility to ensure that any license, permit, approvals listed in (but not limited to) **Table 8**, has been obtained in the required timeframe.

A current list of licences, permits, approvals and consents, and their status, including any new additions as the project progresses, will be included in the Construction Contractor's monthly report.

**Table 8: Licences, Permits, Approvals and Consents**

| Licence, permit, Approval or consent | Person Responsible | Timing |
|---|---|---|
| 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. | Contract Administrator, Project Manager | Ongoing |
| A12. Prior to the commencement of construction of the development, the Applicant must:<br>(a) consult with the relevant owner and provider of services or public infrastructure that are likely to be affected<br>by the development or that need to be installed as part of the development, to make suitable arrangements for relevant approvals, access to, diversion, protection and support of the affected services or infrastructure;<br>(b) prepare a dilapidation report identifying the condition of all public infrastructure in the vicinity of the site (including roads, gutters and footpaths); and<br>(c) submit a copy of the dilapidation report to the Planning Secretary and Council. | Contract Administrator, Project Manager | Prior to construction |
| A13. Unless the Applicant and the applicable authority agree otherwise, the Applicant must obtain any relevant approval(s) from the relevant service provider(s) prior to undertaking construction of the corresponding utility works. | Contract Administrator, Project Manager | Prior to construction |
| A20. Prior to the issuing of:<br>(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)<br>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. | Contract Administrator, Project Manager | Prior to issue of Construction Certificate |
| A23. Prior to the issue of a construction certificate for any part of the development, a contribution under section 7.11 of the EP&A Act of $1,140,007.56 (adjusted on a quarterly basis (from the date of this consent), in accordance with the formula provided in Section 2.2 of the City of Parramatta (Outside CBD) Development Contributions Plan 2021 – Amendment No.1 and Australian Bureau of Statistics - Consumer Price Index (All Groups Index) for Sydney), must be paid to Council for traffic and transport infrastructure, recreational facilities (including open space), and to fund the administration of the contributions plan. | Contract Administrator, Project Manager | Prior to issue of Construction Certificate |
| A15. Prior to the issue of a Construction Certificate for any stage of the development, the Applicant (whether or not a constitutional corporation) is to provide evidence, | Contract Administrator, Project Manager | Prior to issue of Construction Certificate |

| | | |
|---|---|---|
| satisfactory to the Certifier, that arrangements have been made for:<br>(a) the installation of fibre-ready facilities to all individual lots and/or premises in the development to enable fibre to be readily connected to any premises that is being or may be constructed on those lots; and<br>(b) the provision of fixed-line telecommunications infrastructure in the fibre-ready facilities to all individual lots and/or premises in the development demonstrated through an agreement with a carrier. | | |
| B18. Prior to the commencement of construction of the development, the Applicant must prepare a Construction Flood Emergency Response Plan (CFERP) and submit it to the Planning Secretary. | Contract Administrator, Project Manager | Prior to construction |
| B36. The Applicant must:<br>(a) not commence construction until the ACHMP is approved by the Planning Secretary; and<br>(b) implement the most recent version of the ACHMP approved by the Planning Secretary for the duration of construction of the development. | Contract Administrator, Project Manager | Prior to construction |
| B53. Prior to commencement of construction of the development, the Applicant must submit to the Planning Secretary, a Site Audit Report and a Site Audit Statement, prepared in accordance with the NSW Contaminated Land Management - Guidelines for the NSW Site Auditor Scheme 2017 | Contract Administrator, Project Manager | Prior to construction |

## 3.4 Training

The Site Manager will ensure that all employees and contractors involved in the project 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).

Visitors will be inducted through a Presentation by Vaughan Constructions outlining environmental risks and how they should be managed whilst on site. All employees, contractors (and their sub-contractors) 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. For reference, a Site Induction and Worker Record Form is included in Appendix K, and a Heritage Induction is outlined in Appendix L.

### 3.4.1 Induction Training

The environmental induction training will cover all elements of the CEMP and will include, as a minimum, the information in **Table 9**.

**Table 9: Induction Training**

| Inductions and Environmental Training | Where addressed in CEMP |
|---|---|
| Purpose and objectives of the CEMP. | Section 1.4 |
| Obligation to minimise harm to the environment | Section 1.3 |

| | |
|---|---|
| Hours of Construction | Section 2.4 |
| Requirements of due diligence and duty of care | Section 3.2 |
| Conditions of any environmental licences, permits and consent approvals | Section 3.3.3 |
| 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 | Section 3.4 and 3.5 |
| Reporting, and notification and management requirements for pollution, contamination and other environmental incidents, and for damage and maintenance to environmental controls | Section 3.6 |
| High-risk activities and associated environmental safeguards | Section 4.0 |
| Noise, vibration, and air quality management controls | Section 4.3 and 4.2 |
| Construction Traffic Management | Section 4.5 |
| Sound erosion and sediment control practices, water quality controls and sediment basin management | Section 4.6 |
| Waste minimisation principles | Section 4.1 |
| Stop work protocol in the event of the discovery of Aboriginal or Historic item or object of significance | Section 4.7 |
| Induction requirements as per the Unexpected Finds Procedure – Contamination | Section 3.4 and 3.5 |
| Biodiversity Management | Section 4.9 |

### 3.4.2 Toolbox Talks

Toolbox talks or similar 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

## 3.5 Incident Response and Non-compliance

### 3.5.1 Performance Objective

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

### 3.5.2 Definitions

For the purposes of this CEMP the definitions detailed in **Table 10** will be adopted and applied during construction.

**Table 10: Incident Definitions**

| Term | Definition |
|---|---|
| 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. |

| | |
|---|---|
| Material Harm Incident | a) involves actual or potential harm to the health or safety of human beings or to the environment that is not trivial, or<br>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). |
| Non-Compliance | An occurrence, set of circumstances or development that is a breach of this consent |
| Minor Environmental Event | An incident that is minor where there has been no potential or actual material harm to the environment (see 'material harm' definition above). |

All incidents will be identified and reported by any person to the Site Manager immediately.

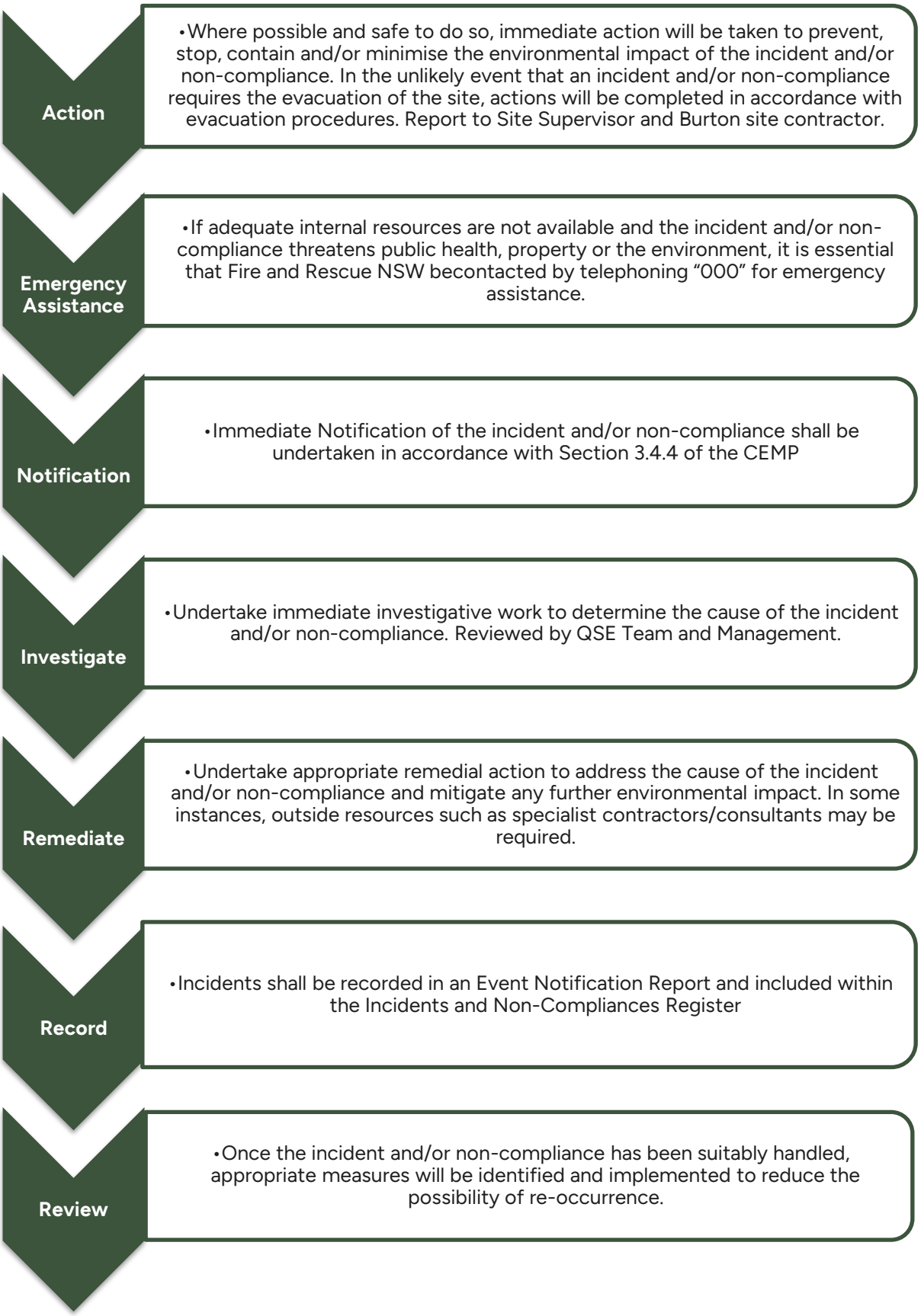
### 3.5.3 Incident Response

In the instance of an incident, Vaughan Construction's Incident and Investigation Report Form must be completed by site personnel and forwarded to Head Office for all environmental incidents and non-compliances to provide the basis for incident analysis directed towards impact prevention. The Incidents and Non-Compliance Handling Process shown in **Figure 4** will be implemented.

### 3.5.4 Incident and Non-Compliance Notifications

The Incident and Non-Compliance notification protocols outlined in **Figure 4** will be implemented. Refer to Appendix 5 within SSD 55522478, for more details regarding Incident Notification and Reporting Requirements.

**Figure 4: Incidents and Non-Compliance Handling Process**



## Table 11: Incident and Non-Compliance Notification

| Notification Requirement | Personnel Responsible | Timeframe | Reference |
|---|---|---|---|
| **Incident Notification** | | | |
| Upon awareness of an incident, the Project Manager shall be notified of and provided with all relevant information pertaining to the potential or actual incident | Any site personnel | Immediately after becoming aware of a potential or actual incident | Best Practice |
| Incident and Investigation Response Form (or Event Notification Report) will be completed and provided to Hale Capital | Project Manager | Within 24 hours | |
| Within three months of:<br>(a) the submission of an incident report under condition C9;<br>(b) the approval of any modification of the conditions of this consent; or<br>(c) the issue of a direction of the Planning Secretary under condition A2(b) which requires a review,<br>the strategies, plans and programs required under this consent must be reviewed and the Planning Secretary must be notified in writing of the outcome of any review. | Project Manager, Contract Administrator | Within three months | Condition C7 of SSD-55522478 |
| 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 3. | Project Manager, Contract Administrator | immediately after an incident | Condition C9 of SSD-55522478 |
| Notify DPE of an incident in writing via the Major Projects Website | Contract Administrator | Within seven days after Hale Capital becomes aware of an incident | Condition 1 of Appendix 3 |

| | | | |
|---|---|---|---|
| Provide the Planning Secretary and any relevant public authorities, a detailed report on the incident | Contract Administrator | Within 30 days of the incident occurring or as otherwise agreed to by the Planning Secretary | Condition 3 of Appendix 3 |
| **Non-Compliance Notification** | | | |
| The Planning Secretary will be notified in writing via the Major Projects website | Contract Administrator | Within seven days after Hale Capital becomes aware of any non-compliance | Condition C10 of SSD-55522478 |

Under the NSW Protection of the Environment Operation Act 1997 (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
- Fire and Rescue NSW

**Table 12** 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
- Details of any required assistance

**Table 12: Regulatory Authority Contact List**

| Regulatory Authority / Stakeholder | Key Contact | Contact Details |
|---|---|---|
| **Department of Planning, Housing, and Infrastructure Environment (DPHI)** | Compliance Unit | 1300 305 695 or 02 9228 6111<br>compliance@planning.nsw.gov.au |
| **Environment Protection Authority (EPA)** | Environment Line | 131 555<br>info@environment.nsw.gov.au |
| | Head office (Sydney) | 02 9995 5000 |
| **Environment and Heritage** | Main switchboard | 1300 361 967<br>info@environment.nsw.gov.au |
| **City of Parramatta** | Main switchboard | 1300 617 058<br>council@cityofparramatta.nsw.gov.au |
| **Water NSW** | Main switchboard | 1300 662 077<br>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<br>After hours: 02 9515 6111 |

| | | | |
|---|---|---|---|
| **SafeWork NSW** | Incident Notification Hotline | 131 050<br>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<br>NSW Fire and Rescue<br>NSW Ambulance Service | 131 444<br>1300 729 579<br>- | In case of emergency – 000 |

A material harm incident notification will identify the development and the application number for it, the way in which it does not comply and the reasons for the material harm incident (if known) and what actions have been, or will be, undertaken to address the material harm incident.

### 3.5.5 Register

Records of all incidents and non-compliances will be maintained in Vaughan Constructions incident register system which includes the Incident and Investigation Report Form (Appendix J). Details of all incidents and complaints will be retained for at least five years after the event to which they relate.

## 3.6 Complaints Response and Handling Procedure

All employees who take receipt of a complaint, either verbal or written, are to take note of the name and contact details of the complainant and the nature of the complaint and immediately notify the Vaughan's Representative (Site Manager or Project Manager), who will then contact Hale Capital's Representative to commence proceedings, shown in **Figure 5**.

### 3.6.1 Complaints Register

In the event that a complaint is received, Vaughan Construction is to be informed of the complaint. Written complaints can be submitted via email to the Project Manager and will be documented in Vaughan's Complaints Register (Appendix I).

**Table 13** below, outlines the contact information for handling complaints.

**Table 13: Contact Information for Handling Complaints**

| Contact Method | Details |
|---|---|
| Point of contact | David Upton |
| Mailing address | 9A Commercial Road Kingsgrove, NSW 2208 |
| Phone number | 0412 719 623 |
| Email | david.upton@vaughans.com.au |
| Website | Vaughans.com.au |

The Complaints Register will be maintained for the duration of construction and are to be maintained for at least five years after the event to which they relate to. The Complaints Register will be updated as complaints and enquiries are received. **Table 14** below outlines the response times for construction complaints and enquires.

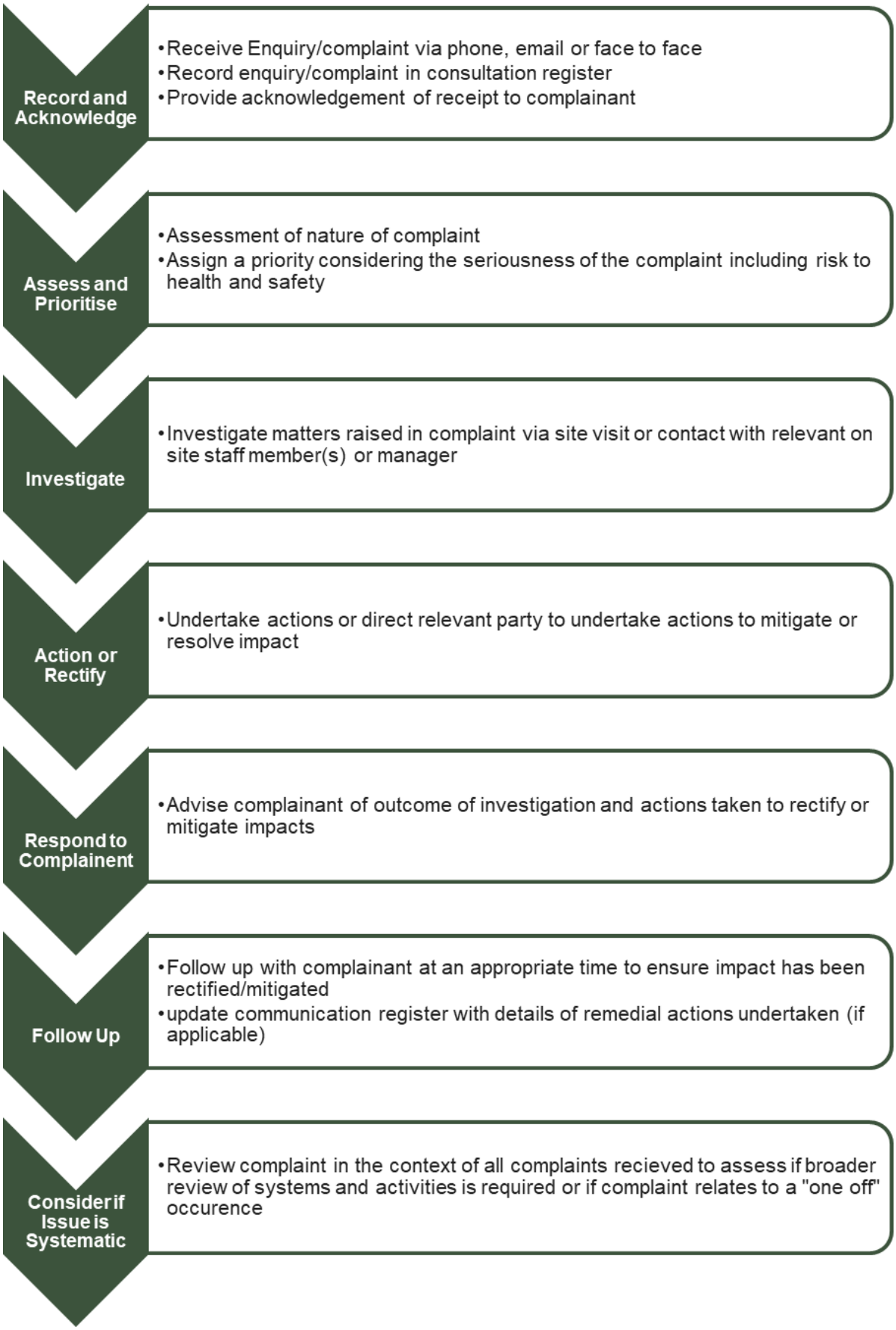
**Table 14: Complaint and Enquiry Response Time**

| Channel | Response time |
|---|---|

| | |
|---|---|
| Email | One business day |
| In-person contact | Same day |
| Site phone line | 1 to 2 hours - during business hours |
| Website contact | Three business days |

**Figure 5** below outlines the enquiry and complaints management process. In circumstances, where a complaint cannot be resolved through the usual process, a complaint may be referred for independent mediation. Vaughan Constructions will facilitate communications with all parties to reach an agreeable outcome.

**Figure 5: Complaints Handling Procedure**



# 4.0 Mitigation Measures

The following sub-sections outline the mitigation measures that will be implemented to minimize and address potential environmental impacts during construction.

## 4.1 General

**Table 15** lists the general environmental controls that will be implemented throughout the life of the development to minimise the potential for adverse impacts on the local environmental and surrounding receptors.

**Table 15: General Environmental Controls**

| Environmental Management Control | Person Responsible | Timing / Frequency | Reference to SSD 55522478 |
|---|---|---|---|
| All reasonable and feasible measures will be implemented to prevent, and if prevention is not reasonable and feasible, minimize any material harm to the environment. | Project Manager | Prior to Construction and Ongoing | Schedule 2, Condition A1 |
| All demolition will be carried out in accordance with Australian Standard AS 2601-2001 to ensure safe and compliant practices. | Site Manager | Ongoing | Schedule 2, Condition A17 |
| All employees, tenants, contractors (and their sub-contractors) will be made aware of, and instructed to comply with, the conditions of this consent relevant to their activities. | Site Manager | Ongoing | Schedule 2, Condition A22 |
| All licences, permits, approvals and consents as required by law will be obtained and maintained as required for the development. | Contract Administrator / Project Manager | As required | Schedule 2, Condition AN1 |
| All plant and equipment used on-site, or to monitor the performance of the development, will be maintained and operated in a proper and efficient manner. | Site Manager | Prior to Construction and Ongoing | Schedule 2, Condition A24 |
| All monitoring records will be maintained to demonstrate compliance with the CEMP, including environmental inspections, monitoring data, and audit reports. | Project Manager | For 5 years after completion date | Best practise |
| The development will comply with section 120 of the POEO Act, which prohibits the pollution of waters, except as expressly provided for in an EPL. | Site Manager | Ongoing | Schedule 2, Condition B14 |
| All signage and fencing will be erected in accordance with the development plans. | Site Manager | Ongoing | Schedule 2, Condition B64 |
| The stormwater management system will be designed and installed in accordance with the final design. | Site Manager | Prior to and during construction | Schedule 2, Conditions B15-B16 |
| Dust generated during all works will be minimized by regular watering and covering of loads. | Site Manager | During construction | Schedule 2, Conditions B25-B26 |

| | | | |
|---|---|---|---|
| All noise generated by construction activities will be managed to achieve the construction noise management levels. | Site Manager | During construction | Schedule 2, Condition B31 |
| Waste materials will be assessed, classified, and managed according to the Waste Classification Guidelines. | Site Manager | During construction | Schedule 2, Conditions B47-B50 |
| Pest, vermin, and priority weeds on the site will be regularly managed and controlled. | Site Manager | During construction | Schedule 2, Condition B51 |
| All reasonable steps will be taken to avoid harm, modification, or other impact to Aboriginal objects. | Cultural Heritage Officer | Prior to and during construction | Schedule 2, Conditions B34-B35 |
| A Green Travel Plan will be prepared and implemented to promote sustainable transport options. | Project Manager | Prior to operation | Schedule 2, Conditions B6-B8 |
| The Long-Term Environmental Management Plan (LTEMP) will be implemented for ongoing site management. | Site Manager | Prior to operation | Schedule 2, Conditions B58-B59 |

## 4.2 Air Quality

**Table 16** lists the management strategies for Air Quality. For more details, refer to Appendix 2 of SSD 55522478 under Air Quality.

**Table 16: Environmental Management Controls for Air Quality**

| Environmental Management Control | Person Responsible | Timing / Frequency | Reference |
|---|---|---|---|
| Record all dust and air quality complaints, identify causes, and take appropriate measures to reduce emissions | Site Manager | As needed upon receipt of complaints | Appendix 2 of SSD 55522478 |
| Make complaints log available to relevant authorities (Council, EPA, etc.) | Project Manager | As required by authorities, ongoing during construction phase | |
| Record exceptional incidents causing dust/air emissions and actions taken to resolve them | Site Manager | As incidents occur | |

## 4.3 Noise and Vibration

**Table 17** lists the management strategies for Noise and Vibration. For more details, refer to Appendix 2 of SSD 55522478 under Noise and Vibration.

**Table 17: Environmental Management Controls for Noise and Vibration**

| Environmental Management Control | Person Responsible | Timing / Frequency | Reference |
|---|---|---|---|
| Consultation with and provision of information to surrounding community | Communications and Community Liaison | Ongoing during | Appendix 2 of SSD 55522478 |

| | | | |
|---|---|---|---|
| | Representative, Site Manager | construction phase | |
| Prominently display contact details on the site boundary fence | Site Manager | | |
| Maximise offset distance between high vibration plant items and nearby buildings | Site Manager | During planning and operation of high vibration equipment | |
| Substitute high vibration equipment with alternative plant and processes | | | |
| Reduce vibration settings when operating vibratory roller near buildings | | During operation of vibratory roller near sensitive buildings | |
| Consultation with affected residences and business owners | Communications and Community Liaison Representative, Site Manager | Ongoing during construction phase | |

## 4.4 Community Consultation and Complaints Handling

**Table 18** lists the management strategies for community communication. For more details, refer to **Section 1.7** within this CEMP for stakeholder consultation and Community and Stakeholder Management Plan referenced at Appendix C.

**Table 18: Environmental Management Controls for Community Communications**

| Environmental Management Control | Person Responsible | Timing / Frequency | Reference |
|---|---|---|---|
| Community complaints will be responded to in accordance with **Section 3.6**. | Site Manager | Ongoing | Section 3.6 |
| Notify surrounding businesses and residents one (1) week before commencement of construction activities. Notices to include:<br>• Details of the proposal, including contact details of management team<br>• Hours and expected period of construction<br>• Details regarding process should businesses or residents have concerns, questions or complaints. | Project Manager | Prior to Construction | Best Practice |
| Provide surrounding businesses and residents regular updates detailing construction activities and progress | Project Manager | Prior to Construction | Best Practice |
| Set up feedback process to manage and respond to stakeholder concerns, questions or complaints. Ensure this is clear and accessible. | Project Manager | Prior to Construction and Ongoing | Best Practice |
| At least 48 hours before the commencement of construction of the development and for the life of the development (or such other time as agreed by the Planning Secretary), the Applicant must:<br>(a) make the following information and documents (as they are obtained or approved) publicly available on its website: | Project Manager | Prior to commencement of construction and ongoing | Condition C13 |

| | | | |
|---|---|---|---|
| (i) the documents referred to in condition A2 of this consent;<br>(ii) all current statutory approvals for the development;<br>(iii) all approved strategies, plans and programs required under the conditions of this consent;<br>(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;<br>(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;<br>(vi) a summary of the current stage and progress of the development;<br>(vii) contact details to enquire about the development or to make a complaint;<br>(viii) a complaints register, updated quarterly;<br>(ix) any other matter required by the Planning Secretary; and<br>(b) keep such information up to date, to the satisfaction of the Planning Secretary. | | | |

## 4.5 Traffic

The environmental management controls in **Table 19** will be implemented to minimise the potential for adverse traffic from construction. Refer to the Construction Traffic Management Plan (SLR, 2024) for more details (Appendix D).

**Table 19: Environmental Controls for Traffic**

| Environmental Management Control | Person Responsible | Timing / Frequency | Reference to CTMP |
|---|---|---|---|
| **Construction traffic**: will use the two construction accesses to enter/exit the site for the works. Construction traffic will remain extremely low to ensure the impacts to motorists within the area are kept to a minimum. | Site Engineer | Weekly | Section 5.5 |
| **Deliveries:** Management of deliveries to ensure construction vehicle movements remain low. | Site Manager | As required | |
| **Managing Dirt**: Use of rumble grids at access points, water trucks, and sweeper trucks to keep public roads free of dirt from the site. | | | |
| **TGS**: Implementation of a Traffic Guidance Scheme (TGS) to manage construction access points and identify hazards. | Project Manager | Reviewed at each stage of construction | |
| Guidance of vehicle operators by a spotter to ensure safe unloading and prompt exit from the site. | Site Manager | As required | Section 1.3 |
| Ensure crane and equipment positioning | | Throughout the | |

| | | | |
|---|---|---|---|
| follows the planned road safety measures | Site Manager | construction phase | Section 1.2 |
| Regularly clean public roads used by trucks to prevent tracking of dirt and mud | | As required | |
| Ensure trucks have their loads covered when entering/leaving the site | | Throughout the construction phase | |
| Develop crane movement plan and establish hoarding/scaffolding locations | Site Engineer, Site Manager | Prior to and during construction | |
| Minimise construction vehicle movements during peak hours | Site Manager | During peak traffic periods in the construction phase | |
| Consultation with surrounding businesses, local schools, and the community to inform them about traffic disruptions | Communications and Community Liaison Representative, Site Manager | Prior to commencement of construction | |

## 4.6 Erosion and Sediment Control

The environmental management controls in **Table 20** will be implemented to manage the potential environmental impacts associated with erosion and sediment control at the site. For more details, refer to the Erosion and Sediment Control Plan (ESCP) included in Appendix E.

It is important to note that these erosion controls will be constructed in stages, with temporary measures installed during the initial phases of the project. The final erosion control measures will be implemented after the site is raised by 1 meter above the existing ground level and bulk earthworks are completed.

**Table 20: Environmental Controls for Erosion and Sediment Control**

| Environmental Management Control | Person Responsible | Timing / Frequency | Reference |
|---|---|---|---|
| The Applicant will install 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. | Site Manager | During construction | Schedule 2, Condition B12 |
| The Applicant must maintain the erosion and sediment control measures installed on-site in accordance with condition B12 for the duration of construction of the development. | | | Schedule 2, Condition B13 |
| **Silt fences**: Erect silt fences and silt fences returns convex to the contour to pond water. | Site Manager / CPESC | Before and during earthworks | ESCP |
| **Hay bale barriers**: Install hay bale barriers and geofabric fences at the toe of the batter before removing vegetation. | | Before removal of vegetation and topsoil | |
| **Earth berms:** Compact and mulch temporary earth berms and silt dam embankments for temporary vegetation cover. | | As soon as berms are formed | |
| **Water diversion:** Divert clear water away from disturbed ground and into the drainage system. | Site Manager | During construction | |

| | | | |
|---|---|---|---|
| **Sediment traps:** Maintain sediment trapping structures and remove trapped material to an approved location. | Site Manager / CPESC | After storms and as needed | |
| **Erosion prevention:** Maintain final erosion prevention measures, including grassing until the end of defects liability period. | | Until the end of the defect's liability period | |
| **Bunds:** Leave a bund at the top of fill areas at the end of each day's work. | Site Manager | At the end of each day's earthworks | |
| **Seeding and hydromulching:** Seed and hydromulch cut and fill slopes within 10 days of formation completion. | Site Manager / CPESC | Within 10 days of completion of formation | |
| **Stockpile covers:** Cover topsoil stockpiles to prevent wind and water erosion. | | After stockpiles are created | |
| **Stockpile protection:** Ensure all stockpile sites are protected from erosion and contamination with a 6m buffer from streams. | | During stockpile management | |
| **Vehicle shake-down:** Implement shake-down methods for vehicle exits to prevent soil movement onto roads. | Site Manager | At all vehicles exit points | |
| **Runoff control:** Ensure runoff from disturbed areas is free of pollutants before dispersal. | Site Manager / CPESC | During and after construction | |

## 4.7 Aboriginal and Non-Aboriginal Cultural Heritage

The environmental management controls in **Table 21** will be implemented to minimise the potential for adverse impacts from construction related to Aboriginal Cultural Heritage. For more details, refer to the Aboriginal Cultural Heritage Management Plan (ACHMP) (Artefact Heritage Services, 2023) included in Appendix F and Non-Aboriginal Environmental Heritage (NAEH) referenced in Appendix N. The Unexpected Finds Protocol (UFP) addressed in Section 7.4 within the ACHMP details the steps to follow if potential heritage artefacts are found.

**Table 21: Environmental Management Controls for Aboriginal Cultural Heritage and Non-Aboriginal Heritage**

| Environmental Management Control | Person Responsible | Timing / Frequency | Reference to ACHMP |
|---|---|---|---|
| **Aboriginal Cultural Heritage** | | | |
| **Unexpected Finds Protocol:** If an Aboriginal item or object is discovered during construction, all work in the immediate vicinity must cease immediately. And should follow the unexpected finds protocols. | Site Manager / Project Archaeologist | During construction | Section 5.2 |
| **Establishment of a Buffer Zone:** A 10-meter-wide buffer area around any suspected Aboriginal item or object must be cordoned off. | Site Manager / Project Archaeologist | Immediately upon discovery of the item or object | Section 5.2 |
| **Contact Heritage NSW:** Heritage NSW must be contacted immediately if any Aboriginal item or object is identified. | Site Manager | Immediately upon discovery of the item or object | Section 5.2 |
| **Recommencement of Work:** Work in the vicinity of the Aboriginal item or object may only recommence in accordance with the | Site Manager / Project Archaeologist | After clearance is obtained from Heritage NSW | Section 5.2 |

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| provisions of Part 6 of the National Parks and Wildlife Act 1974. | | | |
| **Heritage Inductions:** All workers on-site must receive suitable heritage inductions prior to commencing any development on-site, with records to be kept. | Site Manager | Prior to construction | Section 5.1 |
| **Ongoing Consultation with RAPs:** Continue consultation with Registered Aboriginal Parties (RAPs) throughout the project to ensure that cultural heritage considerations are maintained. | Project Manager / Communications and Community Liaison Representative | Throughout the duration of the project | Section 3.1 |
| **Review and Update of Cultural Heritage Management Plan:** The Cultural Heritage Management Plan should be reviewed and updated regularly to incorporate any new findings or changes in the project scope. | Project Manager | Ongoing | Section 5.4 |
| **Documentation and Reporting:** Maintain detailed records of all cultural heritage management activities, including any unexpected finds and actions taken. | Site Manager & Project Manager | Ongoing | Section 5.0 |
| **Non-Aboriginal Heritage** | | | |
| **Heritage Inductions:** Ensure all staff, including contractors, receive training about the historical heritage of the site, including protocols for managing unexpected finds. | Site Manager | Prior to construction | NAEH |
| **Site Survey:** Conduct a heritage survey and mark areas of archaeological significance to avoid accidental damage during construction. | Project Archaeologist | Prior to construction (Once) | |
| **Unexpected Finds Procedure:** If unexpected historical artefacts or remains are uncovered, stop work in the affected area, secure the site, and notify the heritage consultant for assessment. | All Construction Personnel/Site Manager | As needed during construction (Ongoing) | |
| **Heritage Protection Fencing:** Install temporary fencing around sensitive areas identified in the site survey to prevent unauthorized access or accidental damage. | Site Manager | Prior to construction (Once) | |
| **Protection of Adjacent Heritage Item:** Ensure construction activities do not affect the adjacent listed heritage item (Tram alignment, LEP #I6). | Site Manager | Prior to and during construction (Ongoing) | |

## 4.8 Flood Emergency Response Plan

The environmental management controls in **Table 22** will be implemented to minimise the potential for adverse impacts from construction related to floor emergency response. For more details, refer to Flood Emergency Response Plan included in Appendix G.

**Table 22: Environmental Management Controls for Flood Emergency Response Plan**

| Environmental Management Control | Person Responsible | Timing / Frequency | Reference to FERP |
|---|---|---|---|
| **Flood Emergency Kits Preparation:** Prepare and store flood emergency kits containing first aid supplies, torches, batteries, bottled | Flood Warden, Site Manager | Prior to construction | Section 6.5 |

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| water, non-perishable food, and other essentials to support shelter-in-place scenarios. | | | |
| **Flood Warning System and Depth Markers Installation:** Install flood depth gauges or markers along key areas, such as Grand Avenue, to provide visual indicators of flood risks and support early decision-making for evacuation or shelter-in-place. | Site Manager | Prior to and during construction | Section 7.1 |
| **Flood Evacuation Strategy Development:** Develop and update a detailed evacuation strategy in consultation with the State Emergency Service (SES) and City of Paramatta Council, including safe routes, assembly points, and shelter-in-place protocols for various flood scenarios. | Flood Warden, Site Manager | Continuous, updated as needed | Section 7.2 |
| **Flood Preparedness and Awareness Program:** Implement a comprehensive flood awareness program to educate staff, tenants, and contractors on flood risks, evacuation procedures, and their roles during a flood event. Include induction training and annual refreshers. | Site Manager | Induction and annual refreshers | Section 6.3 |
| **Site-Specific Flood Response Plan**: Develop a tailored flood response plan for the construction phase, including specific triggers for evacuation or shelter-in-place, communication protocols, and measures to secure construction materials and equipment. | Flood Warden | Reviewed during construction phase; update as required | Section 7.3 |
| **Regular Review and Improvement of Flood Emergency Plans:** Conduct regular reviews and updates of the FERP to ensure its effectiveness and compliance with current standards and regulations. | Site Manager | Every 3 to 5 years or after major flood events | Section 3.5 |
| **Communication with SES for Flood Warnings**: Establish protocols for communication with the SES to receive timely flood warnings and updates, enabling early evacuation or other emergency measures as necessary. | Flood Warden | Continuous | Section 7.2 |
| **Preparation and Use of Safe Evacuation Routes:** Designate and prepare safe evacuation routes that avoid flood-prone areas and provide access to flood-free locations. These routes should be clearly marked and regularly reviewed. | Site Manager / Flood Warden | Prior to construction; | Section 7.2 |

## 4.9 Tree Protection

**Table 23** lists the environmental management strategies for Tree Protection measures. For further details, please refer to the "Tree Protection Measures" referenced at Appendix H. This section is extracted from Arboriculture Impact Assessment and Tree Protection Management Plan that was prepared for approval process.

**Table 23: Environmental Management Controls for Tree Protection**

| Environmental Management Control | Person Responsible | Timing / Frequency | Reference to Tree Protection Measures |
|---|---|---|---|
| **Establish Tree Protection Zones (TPZ):** Install physical barriers (fencing) around the TPZ of retained trees to prevent unauthorized access and damage. | Site Manager, Project Arborist | Prior to construction | Section 7.2 |
| **Monitoring of Tree Health:** Regular inspections of trees within the TPZ to monitor health and assess any potential impacts from construction activities. | Project Arborist | Monthly | Section 6.6 |
| **Soil Compaction Prevention:** Ensure that no heavy machinery or vehicles enter the TPZ to avoid soil compaction around tree roots. | Site Manager, Project Arborist | Throughout construction | Section 7.3 |
| **Root Protection Measures:** Implement root protection strategies, such as mulch application and watering, to safeguard roots during nearby excavation activities. | Project Arborist, Site Manager | Before and during excavation near trees | Section 8.1 |
| **Pruning of Overhanging Branches:** Where necessary, conduct pruning of overhanging branches to prevent damage during construction. | Project Arborist | As required before and during construction | Section 7.8 |
| **Tree Protection Signage:** Install clear signage around the TPZ to indicate that the area is protected, and access is restricted. | Site Manager | Prior to construction | Section 7.4 |
| **Reporting and Documentation:** Keep detailed records of all tree protection measures implemented, including inspections, pruning, and any incidents of damage. | Site Manager | Ongoing | Section 6.6 |

## 4.10 Waste

Table 24 lists the environmental management strategies for Waste. For further details, please refer to Waste Management Plan (WMP) referenced at Appendix O.

**Table 24: Environmental Management Controls for Waste**

| Environmental Management Control | Person Responsible | Timing / Frequency | Reference to WMP |
|---|---|---|---|
| **Waste Segregation**: Separate waste streams on-site into dedicated bins for reclamation or recycling (e.g., metal, plastics, and cardboard). | Site Manager | Throughout construction and ongoing | Section 4.2 |
| **Recycling**: Ensure materials such as timber, metals, and plasterboard are recycled where possible to reduce waste generation. | Site Manager | Throughout construction and ongoing | Section 4.2.2 |
| **Hazardous Waste**: Segregate hazardous waste, including asbestos and lead paint, | Site Manager | During demolition and construction | Section 4.2.3 |

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| and dispose of it through a licensed contractor as per regulatory requirements. | | | |
| **Concrete Waste**: Break up and recycle concrete waste where possible or send it to a recycling facility. | Site Manager, Contract Administrator | As required during construction | Section 4.2.3 |
| **Soil Reuse**: Reuse soil that meets the reuse criteria to establish required site levels or dispose of excess soil to licensed facilities according to EPA guidelines. | Site Manager/CPESC | During excavation and construction | Section 4.2.5 |
| **Waste Avoidance**: Order prefabricated materials where possible to minimize surplus waste and avoid unnecessary packaging materials. | Site Manage | Throughout construction | Section 4.2.5 |

# 5.0 Monitoring and Reporting

Prior to the commencement of construction, Vaughan Constructions will ensure their Project Management Plan includes a detailed Monitoring and Reporting Matrix to clearly document the specific applicable forms, registers or reports that will be used (this might include Supervisor Diary, Weekly Environmental Inspection Checklist, Waste Register, Complaints Register etc). The Project Manager will provide a copy of this matrix to the Contract Administrator.

Vaughan Constructions will ensure the checklists included in the Project Management Plan, including Site Safety & Environmental Inspection Report & Meeting Minutes (Appendix M), address all relevant monitoring and reporting commitments outlined in the CEMP and appended management plans. A summary of the monitoring, reporting, and auditing requirements for construction is shown in **Table 25**.

**Table 25: Monitoring and Reporting Requirements**

| Aspect | Monitoring and Reporting Requirement | Person Responsible | Timing / Frequency | Reference |
|---|---|---|---|---|
| General | **Daily Observations**:<br>• Record daily observations in the Supervisor's Diary or a similar log.<br>• Include plant and equipment prestart checks, covering environmental observations.<br>**Pre-Delivery Checks by Supplier**:<br>• Ensure that the plant/machinery has been thoroughly cleaned and is free of any seed-harbouring material.<br>• Document the pre-delivery check with detailed information about the plant/machinery, including its identification.<br>**On-Site Verification**:<br>• Conduct a verification check upon the plant/machinery's arrival at the site to ensure it is clean and free of seed-harbouring material.<br>• Have this check performed by designated on-site personnel.<br>• Document the verification process, including the date, time, the individual who performed the check, and the results.<br>**Record Keeping**:<br>• Maintain a comprehensive log of all checks, both pre-delivery and on-site.<br>Each log entry should include the plant/machinery identification, the date and time of the check, the individual responsible for the check, and the results of the check. | Site Manager | Daily | Best practice |

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| General | The Environmental Inspection Report will be completed as part of 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. | Site Manager | Weekly | Best practice |
| General | The Construction Contractor will report environmental performance during regular management meetings and/or 'toolbox talks'. Items to be discussed include:<br>• Results of any monitoring activities undertaken.<br>• Any environmental incidents that have occurred during the previous period, including the management / corrective actions taken.<br>• Any complaints that have been received during the previous period, including any management / corrective actions taken. | Site Manager | Weekly | Section 3.4 of CEMP |
| General | The Project Manager will be notified if any inconsistencies are identified between the documents | Site Manager | As required | Section 3.3 of CEMP |
| General | A copy of all environmental records will be maintained, including:<br>• Site environmental inspection reports<br>• Environmental monitoring data<br>• Internal and external audit reports<br>• Reports of environmental incidents, environmental, associated actions taken, and follow-up actions<br>• Minutes of management review meetings<br>• Induction and training records<br>• Register of all complaints and non-compliances. | Contract Administrator / Site Manager | For at least 5 years after completio n | Best practice |
| Traffic Management Compliance | **Monitoring:**<br>Conduct Shift/Daily inspections to ensure the effectiveness of Temporary Traffic Management (TTM) arrangements.<br><br>**Reporting:**<br>Report any non-compliance, incidents, or near misses immediately and document corrective actions. | Site Engineer, Site Manager | Shift basis / Daily basis | Section 6.3 of CTMP |
| Construction Vehicle Movements | **Monitoring:**<br>Monitor vehicle movements to ensure they comply with approved volumes and timing constraints; maintain a vehicle log. | Site Engineer | Weekly | Table 7 of CTMP |

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| | **Reporting:**<br>Report traffic movements weekly to document compliance with approved levels and manage potential impacts on public roads. | | | |
| Traffic Guidance Scheme (TGS) Compliance | **Monitoring:**<br>Review TGS effectiveness post-incident or as changes occur to ensure safe operations and update as necessary.<br><br>**Reporting:**<br>Document reviews of TGS compliance and non-compliance, including any required changes to improve traffic management. | Traffic Manager, Project Manager | Post-incident or as required | |
| Erosion and Sediment Control | **Monitoring:**<br>Regular inspections of erosion and sediment control measures to ensure they are functioning as intended.<br><br>**Reporting:**<br>Report any issues or breaches to the Planning Secretary immediately. Maintain records of inspections and corrective actions taken. | Site Manager | Weekly | Condition B12 and B13 in SSD 55522478 |
| Aboriginal Cultural Heritage | **Monitoring:**<br>Monitoring of site activities to ensure compliance with the Aboriginal Cultural Heritage Management Plan (ACHMP).<br>Inspections to ensure heritage controls (e.g., protection fencing) are properly implemented and maintained.<br><br>**Reporting:**<br>Incident reporting if any Aboriginal objects are found. Maintain consultation records with Registered Aboriginal Parties (RAPs) and report to Heritage NSW as required. | Site Manager, Project Archaeologist | Ongoing | Condition B35 and B36 in SSD 55522478, Appendix F |
| Air Quality | **Monitoring:**<br>Undertake daily on-site and off-site inspections at nearby receptors to monitor dust.<br>Perform daily visual inspections to assess visible dust emissions from construction activities.<br><br>**Reporting:**<br>Report any complaints related to dust and air quality. Maintain a complaints log and report exceptional incidents to relevant authorities. | Site Manager | Daily | Condition B25 to B27 in SSD 55522478 |

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| Noise and Vibration | **Monitoring:**<br>Monitoring of noise levels to ensure compliance with construction noise limits.<br><br>**Reporting:**<br>Report any exceedance of noise limits and take corrective actions. Keep records of noise monitoring results and any actions taken to mitigate noise. | Site Manager | Weekly or as required | Condition B29 to B33 in SSD 55522478 |
| Stormwater Management | **Monitoring:**<br>Monitor the stormwater management system to ensure it is functioning according to the design specifications.<br><br>**Reporting:**<br>Maintain records of stormwater inspections and any maintenance activities. Report any issues or failures in the system to the relevant authorities. | Site Manager | Weekly | Condition B15 to B17 in SSD 55522478 |
| Waste Management | **Monitoring:**<br>Monitoring of waste segregation and disposal practices on-site to ensure compliance with the Waste Management Plan.<br><br>**Reporting:**<br>Record all waste types, volumes, and disposal methods. Report any non-compliance with waste management practices to the relevant authorities. | Site Manager | Weekly | Condition B47 to B50 in SSD 55522478 and Section 4.4 of WMP |
| Pests, Vermin, Weeds | **Monitoring:**<br>Visual inspections to ensure measures are working effectively, and that pests, vermin, or priority weeds are not present in sufficient numbers to pose an environmental hazard or cause loss of amenity.<br><br>**Reporting:**<br>Maintain records of inspections and actions taken. Report any significant findings or failures in pest and weed management to the relevant authorities. | Site Manager | Daily | Condition B51 in SSD 55522478 |
| Flood Management | **Monitoring:**<br>Monitor the effectiveness of flood emergency response measures during construction.<br><br>**Reporting:**<br>Report any flood events and the effectiveness of response measures. Regularly review and update the Flood Emergency Response Plan (FERP). | Site Manager, Flood Warden | During and after any flood event | Condition B18 to B21 in SSD 55522478, Appendix G |

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| Hazardous Materials | **Monitoring:**<br>Monitor storage and handling of hazardous materials to ensure compliance with safety regulations.<br>Health monitoring is required for all current and previous site workers who may have accessed areas identified to have friable asbestos hazards.<br>Monitoring the condition of Asbestos Containing Materials (ACM) is required, and updates must be recorded in the Hazardous Building Materials Register. This ensures that any changes in the condition of ACM are documented and managed accordingly.<br><br>**Reporting:**<br>Report any incidents or spills immediately to the relevant authorities. Maintain records of hazardous materials management and inspections. | Site Manager | Ongoing | Condition B43 to B44 in SSD 55522478 |
| Complaints Handling | **Monitoring:**<br>Monitor complaints received from the community regarding construction activities.<br><br>**Reporting:**<br>Maintain complaints register, detailing the nature of the complaint, actions taken, and resolution. Submit the register to the Planning Secretary upon request. | Site Manager and Project Manager | Ongoing | Condition C5 to C6 in SSD 55522478 |
| Incident and Non-Compliance Notification | **Monitoring:**<br>Monitor for any incidents or non-compliance with the consent conditions.<br><br>**Reporting:**<br>Notify the Planning Secretary immediately of any incidents and within seven days of any non-compliance. Submit detailed reports as required. | Site Manager and Project Manager | As soon as an incident or non-compliance occurs | Condition C9 to C12 in SSD 55522478 and Section 3.5 of CEMP |
| Access to Information | **Monitoring:**<br>Ensure all required documents are publicly accessible on the project's website.<br><br>**Reporting:**<br>Keep all information up to date and ensure compliance with the conditions for access to information. | Site Manager and Project Manager | Ongoing | Condition C13 in SSD 55522478 |

# 6.0 Contingency Management Plan

**Table 26** lists the actions to be implemented if inspections, monitoring and/or reporting indicate that the mitigation measures listed above and the specialist management plans are not effective in managing environmental impacts.

**Table 26: Contingency Plan**

| Key Element | Trigger / Response | Condition Green | Condition Amber | Condition Red |
|---|---|---|---|---|
| **Noise and Vibration** | | | | |
| 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) | Works exceeding the Highly Noise Affected criteria will be managed in accordance with the strategies for high noise generating works determined through community consultation. |
| 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.<br>Undertake all feasible and reasonable mitigation and management measures to ensure vibration levels are below applicable limits.<br>If vibration levels cannot be kept below applicable limits, then a different construction method or equipment must be utilised. |
| Noise Complaints | Trigger | No complaints | Noise complaint, exceeding noise limits | Noise complaint- exceeding noise limits on multiple occasions, multiple complaints |
| | Response | On-going best practice management measures to minimise noise emissions | Complaint will be directed to the responsible person who will determine the source of the noise and take immediate steps to investigate further or mitigate noise as required. | Complaint will be directed to the responsible person who will determine the source of the noise and take immediate steps to investigate further or mitigate noise as required. This may involve moving the noise source further away |

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| | | | | from affected premises, replacing the equipment, installing high performance silencers, or in some cases, engaging a qualified acoustic consultant to provide specialist control advice. |
| Vibration Complaints | Trigger | No complaints | Noise complaint, exceeding vibration limits | Noise complaint, exceeding vibration limits on multiple occasions, multiple complaints |
| | Response | On-going best practice management measures to minimise noise emissions | Complaint will be directed to the responsible person who will determine the source of the noise and take immediate steps to investigate further or mitigate noise as required. | Complaint will be directed to the responsible person who will determine the source of the noise and take immediate steps to investigate further or mitigate noise as required. This may involve moving the noise source further away from affected premises, replacing the equipment, installing high performance silencers, or in some cases, engaging a qualified acoustic consultant to provide specialist control advice. |
| **Air Quality** | | | | |
| Visible dust leaving the site boundary | 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:<br>• Deployment of additional water sprays, water trucks etc | Immediately investigate dust generating activities and cease associated operations. Implement appropriate emission controls prior to recommencing. |
| Intense Meteorological Conditions | Trigger | Normal Meteorological Conditions | Forecast winds greater than 5 m/s and dry conditions. | Forecast winds greater than 10 m/s and dry conditions. |
| | Response | Continue monitoring program as normal. | • Limit the activities that generate dust within 200 m of downwind sensitive activities.<br>• Additional visual inspection of exposed areas and activities. | Stop activities that generate dust up to 200m downwind of the construction activities, until wind eases. |

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| | | | • Assess the need for additional controls such as increased water application rates. | |
| Complaints received regarding dust | Trigger | There are no complaints received during the construction | An air-quality related complaint is received from a nearby resident | Further complaints (more than 2) are received from the same complainant or others after the additional mitigation measures have been implemented |
| | Response | Continue monitoring program as normal. | • Report the complaint to the regulator, in line with complaints handling procedure (See **Section 3.6**).<br>• Review timing of the complaint compared to known site activities to identify if particular site activities (or lack of activity in the case of mitigation measures) are contributing to the complaints.<br>• Review and investigate construction activities and increase dust suppression measures (additional watering, covering stockpiles etc), where appropriate. | • Review monitoring data from the existing monitors to investigate the likelihood of onsite activities contributing.<br>• The investigation should take into account (but not limited to) regional dust/particulate data, prevailing wind data on the day/time of complaints, onsite activities at the time of complaints and offsite activities at the time of complaints.<br>• Conduct real time air quality monitoring at the complaint location (or as near as practicable) including meteorology if required. This monitoring should be conducted in consultation with a suitably qualified air quality professional. |
| **Traffic** | | | | |
| Construction movements | Trigger | Both peak hour and daily construction traffic volumes are in accordance with volume and time constraints. Refer to Section 2.4 for construction hours. Refer CTMP Section 3.6 for anticipated construction traffic generated. | Construction traffic volumes exceed programmed Peak volumes but is within permissible volume constraints. | Construction traffic volumes exceed permissible volume and time constraints |

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| | Response | No response required.<br>Continue monitoring program. | Review and investigate construction activities, and where appropriate, implement additional remediation measures such as:<br>• Review CTMP and update where necessary<br>• Provide additional training | Condition Amber plus:<br>• If it is concluded that construction activities were directly responsible for the exceedance, submit an incident report to government agencies.<br>• Stop all transportation into and out of the site. |
| Queuing | Trigger | No queuing identified. | Queuing identified within site, but not on to public road. | Queuing identified on the public road. |
| | Response | No response required.<br>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's Code of Conduct. | Condition Amber plus:<br>• Review and investigate construction activities.<br>• If it is concluded that construction activities were directly responsible for the exceedance, submit an incident report to government agencies.<br>• Temporary halting of activities and resuming when conditions have improved.<br>• Stop all transportation into and out of the site.<br>• Review CTMP and update where necessary, provide additional training. |
| Traffic Noise | Trigger | Noise levels do not exceed imposed noise constraints, as outlined within the Noise and Vibration Impact Report (<75dBA), nor has there been a traffic noise related complaint | Noise levels in minor excess (<10dBA) of imposed noise limits per the approved CNVMP, or receipt of a single noise complaint. | Noise levels greatly in excess (>10dBA) of imposed noise limits per approved CNVMP, or consistent noise complaints. |
| | Response | No response required. | Undertake all feasible and reasonable mitigation and management measures to minimise noise impacts. | Condition Amber plus, if noise levels cannot be kept below applicable limits, then a different construction method or equipment must be utilised. |

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| Traffic Guidance Scheme | Trigger | No observable issues (TGS implemented according to plan). | Minor inconsistencies with TGS to onsite operations (such as covered signs, missing signs, fallen cones, etc.). | 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. Changes are to be made to the TGS to ensure the safety of all pedestrians and drivers on site are catered for. |
| **Water and Soil** | | | | |
| Soil / dust / mud on public road network | Trigger | No soil / dust / mud tracked onto the public road network. | Evidence of soil / dust / mud at entry but none tracked onto public roads. | Evidence of soil / dust / mud tracked onto the public roads. |
| | Response | Continue ESCP/CEMP implementation. | • Check condition of wheel wash facility to ensure it is functioning correctly.<br>• Supervision of departing vehicles to ensure sediment/mud is not tracked off site. | • Check condition of wheel wash facility to ensure it is functioning correctly.<br>• Stop work and clean soil / dust / mud off road network (e.g. engage street sweeper). |
| 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 ESCP / CEMP implementation. | A suitably trained person to inspect the site. Review of erosions and sediment structures. Remediate as appropriate. | Stop works where needed. 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. |

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| | Response | Continue ESCP / 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. |
| Storm event | Trigger | No forecast storm events. | Storm event is forecasted. | • Extreme storm event imminent/underway.<br>• Review of work activities and Initiate emergency procedures such as ceasing work if required. |
| | Response | Continue ESCP / CEMP implementation. | • Monitor forecast. Continue ESCP / CEMP implementation.<br>• Pre-emptive inspections of water management structures and systems. Confirm water sampling equipment is on standby. | • Continue ESCP / CEMP implementation. Continue inspections of water management structures and systems.<br>• Undertake water sampling as required. Initiate emergency procedures if required. |
| **Flood Risk** | | | | |
| Flood Risk Management | Trigger | Flood levels do not exceed applicable thresholds; flood mitigation measures are intact and functioning as designed. | Flood levels approach warning levels, or minor breaches in flood mitigation controls are detected (e.g., minor overtopping, water ponding). | Flood levels exceed critical thresholds; significant breaches in flood mitigation measures are reported (e.g., major overtopping, inundation of critical areas). |
| | Response | Continue ongoing monitoring and maintenance of flood mitigation measures such as barriers, drains, and pumps. | Increase monitoring frequency. Inspect and reinforce flood barriers, clear drainage paths, activate early warning systems, and inform all site personnel of potential risks. | Initiate immediate site evacuation if safe routes are available; if not, implement shelter-in-place protocols in designated safe areas. Suspend all site activities until conditions are stable. Coordinate with SES for emergency response and updates. |
| Evacuation and Shelter-In-Place Readiness | Trigger | No flood alerts or warnings issued; all evacuation routes and shelter-in-place locations are accessible and prepared. | Flood alert/watch issued by BOM or SES; evacuation routes may be compromised, or minor access issues identified. | Flood warning issued with imminent danger; all evacuation routes are compromised, requiring shelter-in-place measures. |
| | Response | Continue to maintain readiness of evacuation routes and shelter-in-place facilities. Ensure emergency kits are stocked and accessible. | Prepare to implement evacuation procedures. Ensure all personnel are briefed on current conditions and potential evacuation. Review and update the shelter-in-place protocol for possible implementation. | Activate shelter-in-place procedures immediately. Direct all personnel to designated flood-safe areas. Ensure emergency kits are accessible and provide necessary support to personnel during the shelter period. Communicate with emergency services. |

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| Flood Warning and Communication Systems | Trigger | All communication systems operational; no flood warnings active. | Early flood warning or weather watch issued. Communication systems are operational but require frequent updates and checks to ensure readiness. | Communication systems partially or fully fail during critical flood warning stages. Immediate action required to restore or implement alternative communication methods. |
| | Response | Regular checks of communication systems and ensure all personnel are aware of protocols in place for flood warnings. | Test communication systems and ensure back-up options are available (e.g., radios, satellite phones). Provide updated contact lists and emergency numbers to all key personnel. | Initiate emergency repair or switch to alternative communication methods. Ensure constant communication with SES and other authorities to coordinate flood response actions. |
| Emergency Kit and Resource Availability | Trigger | All emergency kits are stocked, accessible, and in good condition. | Emergency kits need replenishment or relocation due to minor site adjustments or potential flood risks. | Emergency kits are inaccessible or inadequate during flood events. |
| | Response | Routine checks of emergency kits to ensure they are complete and accessible. Maintain an updated inventory of all resources. | Replenish and relocate emergency kits as necessary. Inform personnel of changes in emergency kit locations or contents. Conduct drills to familiarize staff with the new locations and contents. | Conduct an immediate inventory check. Deploy additional resources if necessary, and ensure all personnel are aware of new locations and instructions. |
| **Waste** | | | | |
| Waste | Trigger | Inspections identified no waste outside of dedicated bins and stockpiles. | Inspections identified minimal waste outside of dedicated bins and stockpiles. | Inspections identified large quantities of waste outside of dedicated bins and stockpiles. Complaints received regarding waste. |
| | Response | Continue WMP / CEMP implementation. | The waste is cleaned up immediately. | • Waste is cleaned up immediately.<br>• Incident noted for inclusion in Toolbox talk.<br>• Complaints handling process will be implemented. |
| **Heritage** | | | | |
| Heritage | Trigger | No unknown heritage items uncovered. | Potential heritage item uncovered. | Potential heritage item uncovered causing significant delays to project. |
| | Response | Continue CEMP implementation. | Stop work and implement the unexpected finds protocol. | Stop work and implement the unexpected finds protocol. Heritage item to be salvaged and removed from site by a qualified archaeologist. |
| **Hazardous Goods and Contamination** | | | | |

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| Unexpected Contamination | Trigger | No contamination uncovered during earthworks. | Areas of possible contamination uncovered. | Areas of contamination uncovered. |
| | Response | Continue CEMP implementation. | Stop work immediately and the contamination assessed according to the UFP. | Stop work immediately. A validation report is to be prepared following remediation. |
| **Community** | | | | |
| 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 Complaints Register. No further response required. | Acknowledge receipt and record in Complaints Register. Direct enquiry to relevant person for actioning and response within 5 days. | Acknowledge receipt and record in Complaints 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 Complaints Register and advise the proponent media/marketing team.<br>• No further response required. | • Record in Complaints Register and advise the proponent media/marketing team.<br>• No further response required. | • Record in Complaints Register and advise the proponent Project Team for further action and response.<br>• 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.<br>• Identify opportunities for improvement to manage potential future events. | • Contact relevant person for actioning and response within 48 hours. Acknowledge in Complaints Register.<br>• Identify opportunities for improvement to manage potential future events. | • Contact relevant person for actioning and response immediately. Acknowledge in Complaints Register.<br>• 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 and Corporate Liaison Representative (CCLR) in conjunction with The Proponent Project Team to prepare and provide response or assign response task to relevant staff member for comment.<br>Record in Complaints Register. | CCLR in conjunction with the proponent Project Team to prepare and provide response within 48 hours.<br>Record in Complaints Register. | CCLR in conjunction with the proponent Project Team to prepare and provide response within 24 hours.<br>Record in Complaints Register. |

# 7.0 Review

Review of the CEMP will be undertaken regularly by the Contract Administrator and 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.

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.

Revision of the CEMP is to be in accordance with condition C7 and C8 of SDD 55522478. These are reproduced below.

> *C7. Within three months of:*
>
> *a) the submission of an incident report under condition C9;*
>
> *b) the approval of any modification of the conditions of this consent; or*
>
> *c) the issue of a direction of the Planning Secretary under condition A2(b) which requires a review*
>
> *C8. If identified as part of the review process (see condition C7) or considered necessary to improve the environmental performance of the development, 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 C7, or such other timing as agreed by the Planning Secretary'.*

# Appendix A SSD 55522478

## Construction Environmental Management Plan

**6 Grand Avenue, Rosehill NSW**

**Vaughan Constructions Pty Ltd**

SLR Project No: 640.031417.00001

# 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 9 March 2022, 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



Joanna Bakopanos
**A/Director**
**Industry Assessments**

Sydney 25 July 2024 File: EF23/2615

**SCHEDULE 1**

| | |
|---|---|
| **Application Number:** | SSD-55522478 |
| **Applicant:** | Hale Capital Development Management Pty Ltd |
| **Consent Authority:** | Minister for Planning and Public Spaces |
| **Site:** | 6 Grand Avenue, Rosehill<br>Lot 1 DP1258587 |
| **Development:** | Construction and operation of an ambient multi-level warehouse or distribution centre, including:<br>• ancillary offices;<br>• hardstand/car parking areas;<br>• demolition of existing structures, remediation and site preparation;<br>• earthworks;<br>• landscaping; and<br>• signage. |

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DEFINITIONS

| | |
|---|---|
| **Additional Information** | Correspondence by the Applicant in response to the Department's request for information including:<br>• 'Submissions Report' prepared by Mecone dated March 2024<br>• 'Civil Engineering Report Incorporating Water Cycle Management Strategy' prepared by Costin Roe Consulting, dated 21 June 2024 |
| **Applicant** | Hale Capital Development Management 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 *Telecommunications Act 1997* (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 |
| **CFERP** | Construction Flood Emergency Response Plan |
| **Conditions of this consent** | Conditions contained in Schedule 2 of this document |
| **Construction** | The demolition and removal of buildings or works, the carrying out of works for the purpose of the development, including bulk earthworks, and erection of buildings and other infrastructure permitted by this consent. |
| **Council** | City of Parramatta 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, Housing and Infrastructure |
| **Development** | The development described in Schedule 1, the EIS and Response to Submissions and Additional Information, including the works and activities comprising the construction and operation of a warehouse and distribution centre, as modified by the conditions of this consent |
| **Development layout** | The plans at Appendix 1 of this 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 |
| **EIS** | The Environmental Impact Statement titled *Environmental Impact Statement Grand Avenue Multi Level Warehouse and Distribution Centre*, prepared by Mecone dated 1 August 2023, submitted with the application for consent for the development |
| **ENM** | Excavated Natural Material |
| **Environment** | As defined in section 1.4 of the EP&A Act |
| **EPA** | NSW Environment Protection Authority |
| **EP&A Act** | *Environmental Planning and Assessment Act 1979* |
| **EP&A Regulation** | Environmental Planning and Assessment Regulation 2021 |
| **EPL** | Environment Protection Licence under the POEO Act |
| **Evening** | The period from 6 pm to 10 pm |
| **Fibre-ready facility** | As defined in section 372W of the *Telecommunications Act 1997* (Cth) |
| **Heritage** | Encompasses both Aboriginal and historic heritage including sites that predate European settlement, and a shared history since European settlement |
| **Heritage item** | An item as defined under the *Heritage Act 1977,* and assessed as being of local, State and/ or National heritage significance*,* and/or an Aboriginal Object or Aboriginal Place as defined under the *National Parks and Wildlife Act 1974'*, the World Heritage List, or the National Heritage List or Commonwealth Heritage List under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth), or anything identified as a heritage item under the conditions of this consent |
| **Incident** | An occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance<br>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: |
| | 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 |
| **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 |
| **OFERP** | Operational Flood Emergency Response Plan |
| **Operation** | The carrying out of a warehouse or distribution centre use as described in the EIS, RTS and Additional Information. |
| **Principal Certifier** | The certifier appointed as the principal certifier for the building work under section 6.6(1) of the EP&A Act |
| **Planning Secretary** | Secretary of the Department, or delegate |
| **POEO Act** | *Protection of the Environment Operations Act 1997* |
| **Reasonable** | Means applying judgement in arriving at a decision, taking into account: mitigation benefits, costs of mitigation versus benefits provided, community views, and the nature and extent of potential improvements |
| **Registered Aboriginal Parties** | Means the Aboriginal persons identified in accordance with the document entitled "*Aboriginal cultural heritage consultation requirements for proponents 2010*" (DECCW) |
| **Rehabilitation** | The restoration of land disturbed by the development to a good condition, to ensure it is safe, stable and non-polluting |
| **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 *Submissions Report, 6 Grand Avenue, Rosehil*l, prepared by Mecone and dated 21 December 2023 |
| **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 |
| **Site Auditor** | As defined in section 4 of the *Contaminated Land Management Act 1997* |
| **Site Audit Report** | As defined in section 4 of the *Contaminated Land Management Act 1997* |
| **Site Audit Statement** | As defined in section 4 of the *Contaminated Land Management Act 1997* |
| **TfNSW** | Transport for New South Wales |
| **VENM** | Virgin Excavated Natural Material |
| **Waste** | Has the same meaning as the definition of the term in the Dictionary to the POEO Act |
| **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, RTS and Additional Information;

(d) in accordance with the Development Layout in Appendix 1; and

(e) in accordance with the management and mitigation measures in Appendix 2.

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.

### NOTIFICATION OF COMMENCEMENT

A6. 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; and

(b) operation.

A7. 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

A8. Where conditions of this consent require consultation with an identified party, the Applicant must:

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

(b) provide details of the consultation undertaken including:

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

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

### STAGING, COMBINING AND UPDATING STRATEGIES, PLANS OR PROGRAMS

A9. With the approval of the Planning Secretary, the Applicant may:

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

program applies, the relationship of the stage to any future stages and the trigger for updating the strategy, plan or program);

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

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

A10. 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.

A11. 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.

**UTILITIES, SERVICES AND PUBLIC INFRASTRUCTURE**

**General Requirements**

A12. Prior to the commencement of construction of the development, the Applicant must:

(a) consult with the relevant owner and provider of services or public infrastructure that are likely to be affected by the development or that need to be installed as part of the development, to make suitable arrangements for relevant approvals, access to, diversion, protection and support of the affected services or infrastructure;

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

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

A13. Unless the Applicant and the applicable authority agree otherwise, the Applicant must:

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

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

(c) obtain any relevant approval(s) from the relevant service provider(s) prior to undertaking construction of the corresponding utility works.

**Sydney Water**

A14. Prior to 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*.

**Fibre-Ready Facilities**

A15. Prior to the issue of a Construction Certificate for any stage of the development, the Applicant (whether or not a constitutional corporation) is to provide evidence, satisfactory to the Certifier, that arrangements have been made for:

(a) the installation of fibre-ready facilities to all individual lots and/or premises in the development to enable fibre to be readily connected to any premises that is being or may be constructed on those lots; and

(b) the provision of fixed-line telecommunications infrastructure in the fibre-ready facilities to all individual lots and/or premises in the development demonstrated through an agreement with a carrier.

A16. Prior to the issue 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.

**DEMOLITION**

A17. All demolition must be carried out in accordance with *Australian Standard AS 2601-2001 The Demolition of Structures* (Standards Australia, 2001).

**STRUCTURAL ADEQUACY**

A18. 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.*
- *The EP&A (Development Certification and Fire Safety) Regulation 2021 sets out the requirements for the certification of the development.*

**EXTERNAL WALLS AND CLADDING**

A19. The external walls of all buildings including additions to existing buildings must comply with the relevant requirements of the BCA.

A20. Prior to the issue 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.

A21. 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.

**COMPLIANCE**

A22. 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**

A23. Prior to the issue of a construction certificate for any part of the development, a contribution under section 7.11 of the EP&A Act of $1,140,007.56 (adjusted on a quarterly basis (from the date of this consent), in accordance with the formula provided in Section 2.2 of the City of Parramatta (Outside CBD) Development Contributions Plan 2021 – Amendment No.1 and Australian Bureau of Statistics - Consumer Price Index (All Groups Index) for Sydney), must be paid to Council for traffic and transport infrastructure, recreational facilities (including open space), and to fund the administration of the contributions plan.

***Note**: At the date of this consent, the relevant monetary contribution is approximately $1,140,007.56. This contribution has been calculated in accordance with Council's contribution rates for the March 2024 quarter. It relates to the following public amenities and/or services and in the following amounts:*

| Contribution Type | Amount |
|---|---|
| Open space and outdoor recreation | $ 459,004.18 |
| Traffic and transport | $ 647,338.61 |
| Plan administration | $ 33,664.77 |
| **Total** | **$ 1,140,007.56** |

**OPERATION OF PLANT AND EQUIPMENT**

A24. 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.

**WORK AS EXECUTED PLANS**

A25. Prior to the issue 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**

A26. 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.

A27. 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:

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

(b) be prepared in consultation with Council and TfNSW (including Sydney Metro West and Parramatta Light Rail Stage 2 project teams);

(c) detail the measures that are to be implemented to ensure road safety and network efficiency during construction;

(d) consider other projects within or around the development site, including Parramatta Light Rail Stage 2, Sydney West Metro and private development and identify measures to minimise the cumulative impacts on the surrounding road network;

(e) detail measures to minimise potential impacts to general traffic, cyclists, pedestrians, bus services and any light rail within the vicinity of the site from construction vehicles;

(f) detail:

(i) heavy vehicle routes, access and parking arrangements;

(ii) methods for minimising construction vehicle movements during peak periods;

(iii) crane arrangements including location and crane movement plan;

(iv) plan of any hoarding or scaffolding;

(g) include a Driver Code of Conduct to:

(i) minimise the impacts of earthworks and construction on the local and regional road network;

(ii) minimise conflicts with other road users;

(iii) minimise road traffic noise;

(iv) ensure truck drivers use specified routes;

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

(i) detail procedures for consulting with surrounding businesses during construction and notifying residents and the community (including local schools), of any potential disruptions to routes.

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.

#### Roadworks and Access

B3. Prior to the commencement of operation of the development, the Applicant must ensure the vehicle crossings connecting to Grand Avenue and any other works in a public road are completed in accordance with the relevant roads authority's specifications and any approval required under section 138 of the *Roads Act 1993.*

#### Parking

B4. The Applicant must provide car, bicycle and motorcycle parking in accordance with the plan titled Warehouse GF Plan (DA100, rev. 13, dated 4 March 2024) and Warehouse GF Mezz Plan (DA101, rev. 11, dated 4 March 2024).

#### Operating Conditions

B5. The Applicant must ensure:

(a) internal roads, driveways and parking (including grades, turn paths, sight distance requirements, aisle widths, aisle lengths and parking bay dimensions) 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);

(b) 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;

(c) bicycle parking complies with the latest version of *AS 2890.3-2015*;

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

(e) heavy vehicles and bins associated with the development are not parked on local roads or footpaths in the vicinity of the site;

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

(g) all loading and unloading of materials is carried out on-site; and

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

**Green Travel Plan**

B6. Prior to the commencement of operation of any part of the development, the Applicant must prepare a Green Travel Plan. The Green Travel Plan must:

(a) be prepared in consultation with TfNSW;

(b) outline facilities and measures to promote public transport usage, such as car share schemes and employee incentives; and

(c) describe pedestrian and bicycle linkages and end of trip facilities available on-site.

B7. The Applicant must not commence operation until the Green Travel Plan is submitted to the Planning Secretary.

B8. The Applicant must implement the most recent version of the Green Travel Plan submitted to the Planning Secretary for the duration of operation of the development.

**PUBLIC DOMAIN**

**Public Domain Works Design**

B9. Unless otherwise agreed to in writing by Council, prior to the commencement of construction of the public domain works within the Grand Avenue road reserve, the Applicant must prepare detailed design drawings for these works to the satisfaction of Council. Unless otherwise agreed to in writing by Council, these drawings must include:

(a) a new 1.5m wide footpath along the frontage of the site provide as per Council's Standard Drawings and Australian Standards;

(b) detail existing street tree locations, including species type; and

(c) detail the proposed removal of any street trees and location of replacement tree/s.

B10. Unless otherwise agreed to in writing by Council, the Applicant must complete construction of the public domain works (as required by condition B9):

(a) prior to the commencement of operation; and

(b) to the satisfaction of Council.

**SOILS, WATER QUALITY AND HYDROLOGY**

**Imported Soil**

B11. The Applicant must:

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

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

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

**Erosion and Sediment Control**

B12. Prior to the commencement of any construction for the development, the Applicant must install 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.

B13. The Applicant must maintain the erosion and sediment control measures installed on-site in accordance with condition B12 for the duration of construction of the development.

**Discharge Limits**

B14. 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**

B15. Prior to the commencement of construction of the stormwater system, the Applicant must finalise the detailed design of the stormwater management system for the development. The system must:

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

(b) be designed in consultation with Council;

(c) be generally in accordance with the conceptual design in the EIS;

(d) be in accordance with applicable Australian Standards; and

(e) ensure that the system capacity has been designed in accordance with *Australian Rainfall and Runoff* (Engineers Australia, 2016) and *Managing Urban Stormwater: Council Handbook* (EPA, 1997) guidelines.

B16. Prior to the commencement of operation, the Applicant must install the stormwater management system in accordance with the finalised detailed design (as required by condition B15) and ensure the system is operational.

B17. The Applicant must maintain the stormwater management system installed on the site under condition B16 for the duration of the development.

**Flood Management**

B18. Prior to the commencement of construction of the development, the Applicant must prepare a Construction Flood Emergency Response Plan (CFERP) and submit it to 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) address the provisions of the *Floodplain risk management manual* (2023) and *Support for emergency management planning* (2023); and

(c) include details of:

(i) the flood emergency responses for the construction phase of the development;

(ii) predicted flood levels;

(iii) flood warning time, flood notification, signs and depth indicators;

(iv) assembly points and evacuation routes;

(v) shelter in place protocols, including suitable locations of flood free refuge areas;

(vi) evacuation protocols; and

(vii) awareness training for employees and contractors.

B19. The Applicant must:

(a) not commence construction until the CFERP required by condition B18 is submitted to the Planning Secretary; and

(b) implement the most recent version of the CFERP submitted to the Planning Secretary for the duration of the development.

B20. Prior to the commencement of operation of the development, the Applicant must prepare an Operational Flood Emergency Response Plan (OFERP) and submit it to the Planning Secretary. The Plan must:

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

(b) address the provisions of the *Floodplain risk management manual* (2023) and *Support for emergency management planning* (2023);

(c) nominate suitable flood free locations accessible from all tenancies for shelter in place scenarios;

(d) include details of:

(i) the flood emergency responses for the operational phase of the development;

(ii) predicted flood levels, including probable maximum flood;

(iii) shelter in place protocols for all relevant flooding events;

(iv) awareness training for employees and contractors;

(v) protocols for advising site employees and visitors to stay away from the site during flood events;

(vi) flood warning time, flood notification, signs and depth indicators;

(vii) evacuation protocols including assembly points and evacuation routes (where applicable); and

(viii) communication strategies to ensure all potential tenants are aware of flood levels (including probable maximum flood);

(e) detail protocols for periodic review and update to the plan at least once every five years as well as (but not limited to):

(i) when flood warning systems in the area are updated;

(ii) when new flood evacuation routes are made available; and

(iii) following a flood event that triggers the OFERP.

B21. The Applicant must:

(a) not commence operation until the OFERP required by condition B20 is submitted to the Planning Secretary and Council; and

(b) implement the most recent version of the OFERP submitted to the Planning Secretary for the duration of the development.

B22. All floor levels must be no lower than the 1% Annual Exceedance Probability flood plus 500 mm of freeboard.

B23. Any structures below the1% Annual Exceedance Probability plus 500 mm of freeboard must be constructed from flood compatible building components.

B24. Prior to the commencement of operation, the Applicant must submit to the Planning Secretary, verification (including modelling and afflux mapping) that the detailed design of the development does not result in increases in 1% Annual Exceedance Probability flood depth of more than 10mm occur outside of the site boundaries.

**AIR QUALITY**

**Dust Minimisation**

B25. The Applicant must take all reasonable steps to minimise dust generated during all works authorised by this consent.

B26. During construction of the development, the Applicant must ensure that:

(a) exposed surfaces and stockpiles are suppressed by regular watering or other alternative suppression method;

(b) all trucks entering or leaving the site with loads have their loads covered;

(c) trucks associated with the development do not track dirt onto the public road network;

(d) public roads used by these trucks are kept clean; and

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

**Air Quality Discharges**

B27. The Applicant must install and operate equipment in line with best practice to ensure that the development complies with all load limits, air quality criteria/air emission limits and air quality monitoring requirements as specified in the Protection of the Environment Operations (Clean Air) Regulation 2022.

**Odour Management**

B28. The Applicant must ensure the development does not cause or permit the emission of any offensive odour (as defined in the POEO Act).

**NOISE**

**Hours of Work**

B29. The Applicant must comply with the hours detailed in Table 1.

***Table 1*** *Hours of Work*

| Activity | Day | Time |
|---|---|---|
| Construction | Monday – Friday<br>Saturday | 7 am to 6 pm<br>8 am to 1 pm |
| Operation | Monday – Sunday | 24 hours |

B30. Works outside of the hours identified in condition B29 may be undertaken in the following circumstances:

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

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

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

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

**Construction Noise Limits**

B31. 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 2.

**Operational Noise Limits**

B32. The Applicant must ensure that noise generated by operation of the development does not exceed the noise limits in Table 2.

***Table 2*** *Noise Limits (dB(A))*

| Location[a] | Day<br>$L_{Aeq(15\ minute)}$ | Evening<br>$L_{Aeq(15\ minute)}$ | Night<br>$L_{Aeq(15\ minute)}$ |
|---|---|---|---|
| I01 | 66 | 56 | 61 |
| I01 | 51 | 42 | 47 |
| I03 | 68 | 54 | 63 |

**a.** Refer to the plan in Appendix 4 for the location of receivers.

***Note*** *Noise generated by the development is to be measured in accordance with the relevant monitoring performance procedures and exemptions (including certain meteorological conditions) of the NSW Noise Policy for Industry (EPA, 2017) (as may be updated or replaced from time to time).*

**VIBRATION**

**Vibration Criteria**

B33. Vibration caused by construction at any residence or structure outside the site must be limited to:

(a) for structural damage, the latest version of *DIN 4150-3 (2016-12) Vibration in Buildings – Part 3: Effects on Structures* (German Institute for Standardisation, 2016); and

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

**ABORIGINAL HERITAGE**

**Aboriginal Cultural Heritage Management Plan**

B34. All reasonable steps must be taken to avoid harm, modification or other impact to Aboriginal objects except as authorised by this consent.

B35. Prior to the commencement of any clearing or construction works for the development, the Applicant must prepare an Aboriginal Cultural Heritage Management Plan for the development. The plan must form part of the CEMP required by condition C2 and must:

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

(b) be prepared in consultation with the Registered Aboriginal Parties;

(c) be reviewed by Heritage NSW;

(d) include an unexpected finds protocol that specifies if any item or object of Aboriginal heritage significance is identified on site:

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

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

(iii) Heritage NSW must be contacted immediately; and

(iv) 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*.

(e) include requirements to undertake ongoing consultation with the Registered Aboriginal Parties during the implementation of the plan;

(f) include provision for workers on site to receive suitable heritage inductions prior to carrying out any development on site, with records to be kept of these inductions; and

(g) include procedures and requirements for ongoing review and revision of the plan.

B36. The Applicant must:

(a) not commence construction until the ACHMP is approved by the Planning Secretary; and

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

**HISTORIC HERITAGE**

B37. The Applicant must prepare a Heritage Interpretation Plan to acknowledge both the Aboriginal and non-Aboriginal historic heritage of the site. The plan must be prepared by a suitably qualified and experienced expert and address the recommendations within:

(a) the Aboriginal Cultural Heritage Assessment Report prepared by Artefact, dated November 2023; and

(b) the Non-Aboriginal Statement of Heritage Impact prepared by Artefact, dated May 2023.

B38. Prior to the commencement of operation, the Applicant must implement the Heritage Interpretation Plan required by condition B37.

**Unexpected Finds Protocol**

B39. If any non-Aboriginal archaeological relics are uncovered during any works being carried out for the development:

(a) all work in the immediate vicinity of the suspected relic(s) must cease immediately;

(b) Heritage NSW must be contacted immediately; and

(c) the suspected relic(s) must be evaluated, recorded and, if necessary, excavated by a suitably qualified and experienced expert in accordance with the requirements of Heritage NSW.

B40. Work in the immediate vicinity of any suspected non-Aboriginal archaeological relic(s) must not recommence until this has been authorised by Heritage NSW.

**BIODIVERSITY**

**Tree Protection Measures**

B41. All trees identified for retention within the site are to be retained and protected in accordance with the Arboricultural Impact Assessment prepared by Canopy Consulting dated 26 May 2023 and the latest version of Australian Standard 4970:2009 – *Protection of Trees on Development*, for the duration of construction.

B42. The protection measures identified in the Arboricultural Impact Assessment prepared by Canopy Consulting dated 26 May 2023 must be included in the CEMP required by condition C2.

**HAZARDS AND RISK**

**Dangerous Goods**

B43. The quantities of dangerous goods stored and handled at the site must be below the threshold quantities listed in the Department's *Hazardous and Offensive Development Application Guidelines – Applying SEPP 33* at all times.

B44. Dangerous goods must not be stored below the Probable Maximum Flood level.

**Bunding**

B45. The Applicant must store and handle all chemicals, fuels and oils used on-site in accordance with:

(a) all relevant Australian Standards, and

(b) the NSW EPA's Storing and Handling of Liquids: Environmental Protection – Participants Handbook if the chemicals are liquids.

**Emergency Services Information Package**

B46. From the commencement of operation and for the life of the development, an Emergency Services Information Package, developed in accordance with the FRNSW *Fire Safety Guideline – Emergency Services Information Package and Tactical Fire Plans,* must be stored in an emergency information cabinet directly adjacent to the main entry point to the site.

**WASTE MANAGEMENT**

**Statutory Requirements**

B47. 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).

B48. All waste materials removed from the site must only be directed to a waste management facility or premises lawfully permitted to accept the materials.

B49. Waste generated outside the site must not be received at the site for storage, treatment, processing, reprocessing, or disposal.

B50. 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.

**Pests, Vermin and Priority Weed Management**

B51. The Applicant must:

(a) implement suitable measures to manage pests, vermin and declared priority 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 priority weeds are not present on site in sufficient numbers to pose an environmental hazard or cause the loss of amenity in the surrounding area.

***Note:*** *For the purposes of this condition, priority weed has the same definition of the term in the* Biosecurity Act 2015*.*

**REMEDIATION**

**Site Auditor**

B52. Prior to the commencement of any earthworks or remediation works for the development, the Applicant must engage a Site Auditor accredited under the *Contaminated Land Management Act 1997* NSW Site Auditor Scheme.

**Remediation Works**

B53. Prior to commencement of construction of the development, the Applicant must submit to the Planning Secretary, a Site Audit Report and a Site Audit Statement, prepared in accordance with the NSW Contaminated Land Management - Guidelines for the NSW Site Auditor Scheme 2017, which demonstrates:

(a) the appropriateness of the Remedial Action Plan; and

(b) that the site can be made suitable for a specified land use (or uses) if the site is remediated/managed in accordance with the implementation of the Remedial Action Plan and/or a Long-term Environmental Management Plan.

B54. The Applicant must remediate the site in accordance with the design specifications and requirements detailed in the Remedial Action Plan and relevant guidelines produced or approved under the *Contaminated Land Management Act 1997.*

B55. If during remediation works any amendments are required to the Remedial Action Plan, they must be reviewed and approved by the Site Auditor in the form of an Interim Audit Advice.

B56. The Applicant must ensure the remediation works for the development are undertaken by a suitably qualified and experienced contractor(s).

B57. Within six months of the completion of the remediation works and prior to the commencement of operation, or as otherwise agreed with the Planning Secretary, the Applicant must obtain a Site Audit Report and a Site Audit Statement from the Site Auditor and submit these to the Planning Secretary. These documents must be prepared in accordance with the relevant guidelines under the *Contaminated Land Management Act 1997* and confirm:

(a) the remedial works approved under this consent have been completed in accordance with the remediation objectives listed in the RAP; and

(b) the site is suitable for its intended industrial and commercial uses, subject to the implementation of a Long Term Environmental Management Plan (see condition B58).

**Long Term Environmental Management Plan**

B58. The Applicant must prepare a Long Term Environmental Management Plan (LTEMP) for the development in accordance with the preliminary LTEMP (prepared by JBS&G dated 31 May 2023) and have it approved by a Site Auditor accredited under the *Contaminated Land Management Act 1997*.

B59. Prior to the commencement of operation of the development, the Applicant must:

(a) implement the approved LTEMP for the life of the development; and

(b) provide evidence to the Planning Secretary the LTEMP is listed on the relevant planning certificate for the land, issued under section 10.7 of the EP&A Act, for the development.

**Unexpected Finds**

B60. Prior to the commencement of construction, the Applicant must prepare an unexpected contamination finds procedure to ensure that potentially contaminated material is appropriately managed. The procedure must form part of the of the CEMP in accordance with condition C2 and must ensure any material identified as contaminated is disposed of in accordance with the POEO Act and its associated regulations.

**VISUAL AMENITY**

**Landscaping**

B61. Prior to the commencement of operation of the development, the Applicant must prepare a Landscape Management Plan to manage the landscaping works on-site, which is consistent with the Landscape Masterplan prepared by Geoscapes, dated 12 March 2024 (Rev. H). The plan must:

(a) detail locally native species to be planted on-site;

(b) describe the monitoring and maintenance measures to manage existing and planted vegetation;

(c) include mechanisms to replace any trees that do not survive; and

(d) be consistent with the Applicant's Management and Mitigation Measures at Appendix 2.

B62. The Applicant must:

(a) not commence operation until the Landscape Management Plan is approved by the Planning Secretary;

(b) implement the most recent version of the Landscape Management Plan approved by the Planning Secretary; and

(c) maintain the landscaping and vegetation on the site in accordance with the approved Landscape Management Plan required by condition B61 for the life of the development.

**Lighting**

B63. 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**

B64. All signage and fencing must be erected in accordance with the development plans included in the RTS and Additional Information.

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

## 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) a condition compliance table for that plan;

(b) detailed baseline data, where required;

(c) 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;

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

(e) 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;

(f) 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;

(g) a program to investigate and implement ways to improve the environmental performance of the development over time;

(h) a protocol for managing and reporting any:

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

(ii) complaint;

(iii) failure to comply with statutory requirements; and

(i) 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) details of the community consultation and complaints handling procedure to be implemented during construction;

(b) Construction Traffic Management Plan (see condition B1);

(c) Erosion and Sediment Control Plan (see condition B12);

(d) Aboriginal Cultural Heritage Management Plan (see condition B35); and

(e) a copy of the development's:

(i) Construction Flood Emergency Response Plan (see condition B18); and

(ii) Tree protection measures (see condition B42).

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.

### OPERATIONAL COMPLAINTS HANDLING PROTOCOL

C5. Prior to the commencement of operation, the Applicant must prepare an Operational Complaints Handling Protocol (OCHP) for the development. The OCHP must:

(a) detail how complaints would be received by the Applicant;

(b) detail how the contact details for receiving complaints would be communicated to surrounding businesses and/or residential receivers; and

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

(d) be submitted to the Planning Secretary upon request.

***Note:*** *Methods for receiving complaints could include, but are not limited to, email, a toll-free telephone number and/or a postal address. Methods for communicating contact details could include, but are not limited to, on-site signage and/or an advertisement published in a local paper.*

C6. The Applicant must:

(a) not commence operation until the OCHP under condition C5 is submitted to the Planning Secretary; and

(b) implement the most recent version of the OCHP submitted to the Planning Secretary for the duration of the development.

**REVISION OF STRATEGIES, PLANS AND PROGRAMS**

C7. Within three months of:

(a) the submission of an incident report under condition C9;

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

(c) 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 outcome of any review.

C8. If identified as part of the review process (see condition C7), or considered necessary to improve the environmental performance of the development, 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 C7, 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**

C9. 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 3.

**Non-Compliance Notification**

C10. 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.

C11. 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.

C12. A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.

**ACCESS TO INFORMATION**

C13. At least 48 hours before the commencement of construction of the development and for the life of the development (or such other time as agreed by the Planning Secretary), including rehabilitation and remediation, 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 (excluding the Emergency Services Information Package as described under condition B46);

(iv) a summary of the current stage and progress of the development;

(v) contact details to enquire about the development or to make a complaint;

(vi) a complaints register, updated quarterly;

(vii) 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

| Drawing Name | Drawing Number | Revision | Date |
|---|---|---|---|
| **Architectural Drawings by SBA Architects** | | | |
| Demolition Plan | DA051 | 3 | 04/03/2024 |
| Warehouse GF Plan | DA100 | 13 | 04/03/2024 |
| Warehouse GF Mezz Plan | DA101 | 11 | 04/03/2024 |
| Warehouse L1 Floor Plan | DA102 | 11 | 04/03/2024 |
| Warehouse L1 Mezz Floor Plan | DA103 | 11 | 04/03/2024 |
| Warehouse Roof Plan | DA104 | 9 | 04/03/2024 |
| Tenancy 01 & 02 | DA200 | 8 | 04/03/2024 |
| Tenancy 03 & 04 | DA201 | 8 | 04/03/2024 |
| Tenancy 05 & 06 | DA202 | 8 | 04/03/2024 |
| Tenancy 07 & 08 | DA203 | 8 | 04/03/2024 |
| Tenancy 09 & 10 | DA204 | 8 | 04/03/2024 |
| Elevations | DA300 | 10 | 04/03/2024 |
| Breezeway Elevations | DA30 | 8 | 04/03/2024 |
| Sections | DA310 | 9 | 04/03/2024 |
| Signage Details | DA400 | 5 | 04/03/2024 |
| **Civil Plans by Costin Roe** | | | |
| Erosion and Sediment Control Plan | SSDA20 | B | 09/06/2023 |
| Erosion and Sediment Control Details | SSDA25 | A | 02/05/2023 |
| Bulk Earthworks Plan | SSDA30 | B | 09/06/2023 |
| Cut/Fill Plan | SSDA31 | B | 09/06/2023 |
| Bulk Earthworks Sections – Sheet 1 | SSDA35 | B | 09/06/2023 |
| Bulk Earthworks Sections – Sheet 2 | SSDA36 | B | 09/06/2023 |
| Stormwater Drainage Plan – Ground Floor | SSDA40 | D | 20/06/2023 |

| | | | |
|---|---|---|---|
| Stormwater Drainage Plan – Mezzanine Floor | SSDA41 | B | 09/06/2023 |
| Stormwater Drainage Plan – Level 1 | SSDA42 | B | 09/06/2023 |
| Stormwater Drainage Plan – Roof | SSDA43 | B | 09/06/2023 |
| Stormwater Drainage Details – Sheet 1 | SSDA45 | A | 02/05/2023 |
| Stormwater Drainage Details – Sheet 2 | SSDA46 | A | 09/06/2023 |
| Stormwater Drainage Details – Sheet 3 | SSDA47 | A | 09/06/2023 |
| Finished Levels Plan – Ground Floor | SSDA50 | C | 20/06/2023 |
| Finished Levels Plan – Mezzanine Floor | SSDA51 | B | 09/06/2023 |
| Finished Levels Plan – Level 1 | SSDA52 | B | 09/06/2023 |
| Typical Sections - Sheet 1 | SSDA55 | B | 20/06/2023 |
| Typical Sections - Sheet 2 | SSDA56 | B | 21/06/2023 |

**APPENDIX 2 APPLICANT'S MANAGEMENT AND MITIGATION MEASURES**

| ENVIRONMENTAL IMPACT | MITIGATION MEASURES |
|---|---|
| The development generally | Construct, operate and maintain the development generally in accordance with the 'Project Description' |
| Built Form and Urban Design | The built form and urban design has considered the various consultant inputs to inform the final layout and design of the development. No specific mitigation measures are recommended or required. |
| Visual Impact | • A mix of large and medium evergreen indigenous native canopy tree planting will be planted adjacent to Grand Avenue.<br>• Screening of the development through retention of a number of existing mature trees.<br>• Maximising canopy cover to mitigate the urban heat island effect supplemented by shrub and groundcover understory planting |
| Traffic, Transport and Accessibility | Table 22 of the Preliminary Construction Management Plan (CTMP) identifies the mitigation measures applicable to the proposed development. |
| Tress and Landscaping | • The following sections of the Arboricultural Impact Assessment and Tree Protection Management Plan:<br>o Section 6 (Recommendations),<br>o Section 7 (Arboricultural Method Statement – Pre Construction and Demolition),<br>o Section 8 (Arboricultural Method Statement – Construction Stage),<br>o Section 9 (Arboricultural Method Statement – Post-construction), and<br>o Appendix C (Tree Protection Management Plan) of the arborist report<br>• Implementation of the Landscape Plan. |
| Ecologically Sustainable Development | Implementation of the ESD measures in accordance with the ESD report prepared by Sustainable Development Consultants. |
| Biodiversity | No mitigation measures are identified as there are no impacts on biodiversity as per the BDAR Waiver submitted. |
| Air Quality | <u>Construction</u><br>The mitigation measures recommended in the AQIA are considered based on best management practices, rather than the measures being a requirement as a result of the proposed works. As noted above, the development is unlikely to result in any adverse impacts as a result of demolition and construction, however the following mitigation measures are recommended:<br>*Communications*<br>• Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.<br>• Display the name and contact details of the Responsible Person accountable for air quality and dust issues on the site boundary.<br>• Display the head or regional office contact information.<br>• Develop and implement a Dust Management Plan (DMP) that considers, as a minimum, the measures identified herein.<br>*Site Management*<br>• Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.<br>• Make the complaints log available to relevant authorities (Council, EPA, etc). |

| | |
|---|---|
| | • Record exceptional incidents that cause dust and/or air emissions, on or off site, and the actions taken to resolve the situation in the logbook.<br><br>*Monitoring*<br>Undertake daily on-site and off-site inspections at nearby receptors to monitor dust. Record inspection results and make available to relevant authorities. This should include regular dust soiling checks of surfaces such as street furniture, cars, and windows. Continuous real-time dust monitoring is not necessary for this project.<br><br>• Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.<br><br>*Preparing and Maintaining the Site*<br><br>• Plan site layout so that dust generating activities are located as far away as possible from receptors.<br><br>• Avoid site runoff of water or mud.<br><br>*Construction Vehicles and Sustainable Travel*<br><br>• Ensure all vehicles switch off engines when stationary – no idling vehicles.<br><br>• Impose and signpost a maximum-speed-limit of 25 km/h on surfaced and 15 km/h on unsurfaced haul roads and work areas (if long haul routes are required, these speeds may be increased with suitable additional control measures provided).<br><br>*Measures for General Construction Activities*<br><br>• Ensure an adequate water supply on the site for effective dust/PM suppression/mitigation, using non-potable water where possible and appropriate.<br><br>• Ensure equipment is 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.<br><br>*Measures Specific to Haulage*<br><br>• Use water-assisted dust sweeper(s) on the access and local roads, as necessary<br><br>• Avoid dry sweeping of large areas.<br><br>• Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.<br>• Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.<br><br>• Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).<br><br>• Access gates to be located at least 10m from receptors<br><br>where possible. Operational<br><br>Although the AQIA does not identify any requirement for mitigation measures, the report does suggest the following measures as best practice:<br><br>• Limit unnecessary idling of truck engines on-site.<br>Ensure truck maintenance is up to date. |

| | |
|---|---|
| Noise and Vibration | <u>Operational Noise Mitigation</u><br>• Turning off all engines when not required.<br>• Where possible, schedule heavy vehicle movements to day and/or evening periods.<br>• Minimise use of reversing alarms or alternatively installing "squawkers".<br>• Training of staff and employers should include noise awareness component, community consultation and response to complaints.<br>Keeping roller shutter doors closed when not in use. |
| | <u>Construction Noise Mitigation</u><br>• a Construction Noise and Vibration Management Plan (CNVMP) should be prepared and implemented prior to the commencement of works.<br>• Consultation with and the provision of information to the surrounding community is regarded as a major factor in controlling the negative reaction to the inevitable impacts associated with construction works. Contact details should be prominently displayed on the site boundary fence.<br>• In the event of complains being received regarding excessive noise and vibration impacts, measures should be put in place to investigate any complaints, the cause of the compliant identified, and changes to work practices implemented by the contractor. |
| | <u>Vibration</u><br>• Maximising the offset distance between high vibration plant items and nearby buildings.<br>• Substitution by alternative equipment, plant, and processes.<br>• Reduction vibration settings levels when operating the vibratory roller nearby buildings.<br>Consultation with affected residences and business owners. |
| Ground and Water Conditions | There are no specific mitigation measures with regard to ground and water conditions, with each of these addressed under separate items in the SEARs, EIS and consultant inputs. The development is suitable from a ground and water conditions perspective subject to compliance and implementation of the requirements and recommendations of the following:<br>• Civil Engineering Plans, prepared by Costin Roe Consulting<br>• Civil Engineering Report incorporating Water Cycle Management Strategy, prepared by Costin Roe Consulting,<br>• Geotechnical Investigation, prepared by Pells Sullivan Meynink (PSM)<br>• Remedial Action Plan, prepared by JBS&G<br>• Long Term Environmental Management Plan, prepared by JBS&G<br>• Acid Sulfate Soils Management Plan, prepared by JBS&G |
| Water Management | Implementation of the requirements outlined in the Engineering Report incorporating Water Cycle Management Strategy prepared by Costin Roe will satisfy the relevant requirements related to stormwater management for the site and proposed development. |
| Flooding Risk | Implementation of the requirements outlined in the Engineering Report incorporating Water Cycle Management Strategy prepared by Costin Roe will satisfy the relevant requirements related to flooding for the site and proposed development. |
| Hazards and Risks | With regard to the existing structures on the site and the hazardous materials identified in the HBMS, the following management and mitigation measures are recommended:<br>• Uncontained and accessible friable asbestos hazardous materials should be subject to the following asbestos management actions: |

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| | ○ Access to the ceiling cavity and chemical/cleaner's storeroom of the Administration building and areas open to the tile dryer within the Warehouse be restricted until further notice, or until the appropriate asbestos remediation works are completed.<br>○ Remediation of the identified friable asbestos dust,<br>○ Notification of the presence of loose and uncontained friable asbestos hazards to SafeWork NSW,<br>○ Health monitoring for all current and previous site workers who may have accessed the areas identified to have friable asbestos hazards,<br>○ The ceiling cavity and chemical/cleaner's storeroom to the Administration building and the Warehouse areas that are open to the tile dryer cannot be re-occupied until a clearance certificate is obtained<br>• A comprehensive hazardous materials management plan be prepared for the site<br>• These non-friable asbestos hazards must be appropriately managed for the ongoing operation of the site in accordance with the relevant requirements. If the identified asbestos hazards are proposed to remain in their current state at the site, the following recommendations are made:<br>○ All identified and suspected ACM are to be recorded on a site Hazardous Building Materials Register in accordance with Clause 425 of the Work Health and Safety Regulation (2017) with a register kept on-site and managed and updated under the responsibility of the site controller/owner (prepared as part of these HBMS works and included as Appendix A);<br>○ Appropriate warning labels shall be applied to occurrences of non-friable asbestos materials, including those where make safe works may inhibit their future identification in accordance with SWNSW2022b; and<br>○ The Hazardous Materials Register (Appendix A) must be updated following any changes to the condition of ACM identified within the register.<br>• All workers who enter the Cash Sales Building wear a P2 mask and follow good hygiene practices. During demolition of this structure, it is recommended that all workers wear a P2 masks and ensure that dust suppression techniques are utilised.<br>• Lead based paints identified in the Hazardous Materials Register (Appendix A) should be managed in accordance with the relevant Australian Standards and the hazardous material management plan. Prior to demolition works, identified lead-based paints should be removed under controlled conditions by an experienced contractor.<br>• Care should be taken during demolition to not generate fibres from the synthetic mineral fibres on the site.<br>• Old fluorescent light fittings and all transformer oils should be removed and disposed of as Scheduled Waste or re-inspected/sampled once safe access can be provided to confirm the presence or absence of PCBs.<br>• Areas inaccessible during the current HBMS should be inspected by a suitably qualified competent person prior to any demolition works commencing.<br>• Preparation of an unexpected finds protocol prior to demolition works commencing. |

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| | With regard to works associated with the hazards analysis, the following mitigation measures are recommended:<br>o A 'Dial before you dig' asset search is to be undertaken to confirm the exact location of Jemena's high pressure gas pipeline in Grand Avenue. A protocol should be developed requiring any works within 3 metres of the pipeline to not commence until Jemena are consulted and on site during the course of works. |
| Contamination and Remediation | The mitigation measure for contamination and remediation is for the implementation of works to be carried out as outlined in this RAP and that the following documentation be developed and implemented to ensure the risks and impacts during remediation works are controlled in an appropriate manner:<br>• An ASSMP has been developed to manage identified PASS/ASS during construction/excavation activities,<br>• A construction environmental management plan (CEMP) and asbestos management plan (AMP), to document the monitoring and management measures required to control the environmental impacts of the works and ensure the validation protocols are being addressed; and<br>• An LTEMP for long-term site management of in situ asbestos.<br>Upon completion of the remediation works, the Validation Report is required to be prepared to verify remedial works were completed in accordance with the RAP. |
| Waste Management | *Avoidance and Reduction of Waste*<br>The demolition, excavation and construction contractor will be required to avoid waste generation, and endeavour to reuse materials where possible, thereby minimising waste generation.<br>Opportunities to avoid wastes generated by construction include:<br>• Develop a procurement policy which considers waste avoidance measures such as:<br>o Order site specific or prefabricated items where practicable to minimise surplus material;<br>o Consider packaging material provided by suppliers during purchasing and reduce this<br>o requirement where possible, or consider returnable packaging;<br>• Material selection to consider recycled items;<br>• Refine waste stream estimates to ensure adequate on-site storage and segregation; and<br>• Refine estimated volumes of materials for construction.<br>*Reuse and Recycling*<br>For waste materials onsite, measures to separate waste streams will be implemented. This includes segregating wastes into appropriate dedicated bins or areas for reclamation on site or transportation to a designated recycling facility.<br>Procedures to manage the reuse and recycling of waste materials during construction include:<br>• Incorporation of waste management into development staging to promote reuse of materials across the site;<br>• Ensure areas for waste segregation are easily accessible and clearly defined;<br>• Ensure contractors are familiar with onsite waste storage areas for appropriate waste segregation;<br>• Determine suitability of materials generated during demolition for use in construction; and |

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| | • Consider opportunities for materials reuse in areas in proximity to the site or local construction activities where practicable.<br><br>*Treatment and Disposal*<br><br>Project wastes may require treatment to stabilise them for appropriate disposal to reduce the risk of harm to human health or the environment. These materials are not suitable for reuse or recycling and must be segregated and disposed of via a suitably qualified contractor.<br><br>Measures to manage the treatment and disposal of waste materials during construction include:<br><br>• Ensure wastes which cannot be reused or recycled and require disposal are clearly segregated from those which have the potential to be reused.<br><br>• Provide segregated bins for subcontractors to dispose of construction waste (i.e., metal, plastics and cardboard).<br><br>• Contractors and staff to be inducted into site waste management practices.<br><br>• Hazardous materials including asbestos (if identified) to be disposed of in accordance with the handling and disposal requirements of SafeWork NSW and NSW EPA.<br>• General wastes to be disposed of in accordance with NSW EPA/local council requirements.<br><br>• Toilet facilities must be regularly serviced and emptied by a licensed contractor.<br><br>*Waste Stream Management Options*<br><br>Each waste stream will be separated and stored appropriately to ensure each type of waste is handled in the most appropriate and efficient way. The numbers and size of waste storage bins, containers, stockpile areas and loading zones on site will be determined by the demolition/excavation and construction contractor.<br><br>*Other Considerations*<br>To ensure waste is not unintentionally tracked off-site, the vehicles or trailers used to transport waste or excavated spoil from the site will be covered before leaving the subject site, to prevent spillage or escape of dust, waste or spoil from the vehicle or trailer. Any mud, splatter, dust and other material that is likely to be released from the wheels, underside or body of vehicles, or plant leaving the site will also be removed through a shaker bay or wash down area prior to leaving the subject site. |
| Aboriginal Cultural Heritage | • Aboriginal community consultation should be undertaken as part of the ACHAR to fulfil the requirements of the industry specific SEARs. Aboriginal community consultation should be undertaken in accordance with the Aboriginal cultural heritage guidelines.<br><br>• An ACHAR has been undertaken to fulfil the requirements of the industry specific SEARs, which includes Aboriginal community consultation.<br><br>• Any changes made to the project should be assessed by an archaeologist in consultation with the RAPs. Any changes that may impact on Aboriginal sites not assessed as part of the project may warrant further investigation and result in changes to the recommended management and mitigation measures.<br><br>• If changes are made to the proposal that may result in impacts to areas not assessed by the ACHAR, further assessment would be required.<br><br>• An unexpected finds procedure and heritage induction should be prepared and provided to all workers as part of site inductions.<br>• If any such objects, or potential objects, are uncovered in the course of activity, all work in the vicinity should cease immediately. A qualified |

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| | archaeologist must be contacted to assess the find and Heritage NSW and Deerubbin LALC must be notified.<br>• If human remains, or suspected human remains, are found in the course of the activity, all work in the vicinity should cease, the site should be secured, and the NSW Police and Heritage NSW must be notified. |
| Environmental Heritage | • Changes to the design, scope of works or investigation area will require further heritage assessment.<br>• The design of the new warehouse development should be informed by the Design in Context: Guidelines for Infill Development in the Historic Environment (2005) prepared by the NSW Heritage Office and the Royal Australian Institute of Architects.<br>• The proposal should be guided and informed by the heritage legislation, statutory listings and heritage reports/documentation, including the Parramatta LEP 2023 and the Parramatta DCP 2011.<br>• A detailed archival recording of the warehouse, including scale drawings in plan, section and elevation along with full photographic recording is required prior to the demolition or backfill of the structure. This report should be prepared in accordance with relevant guidelines issued by the NSW Heritage Division.<br>• The location of the warehouse is to be surveyed and recorded on plans of the study area for future reference.<br>• A heritage interpretation strategy would be developed in a publicly accessible or visible area of the site. An interpretation strategy would be a particularly positive outcome for the warehouse, as the proposed works would remove access to the structure.<br>• A copy of this report should be provided to City of Parramatta Council for their reference.<br>• An unexpected finds policy should be developed for all ground disturbing works. The unexpected finds policy would include the following steps:<br>  • A heritage induction would be provided for excavation and construction workers to inform them of the kinds of remains that would require the presence of an archaeologist.<br>  • Should a suspected archaeological remain be identified during works, work should stop in that area.<br>  • A site visit by an archaeologist should be organised to assess and investigate suspected archaeological relics.<br>  • Any archaeological remains should be recorded.<br>  • Should significant remains be identified, further archaeological investigation, notification or approvals may be required. |
| Social Impact | Implementation of the mitigation measures identified in Tables 27 and 28 of the EIS as summarised from Tables 23 and 24 in the Socio-Economic Impact Assessment prepared by HillPDA in Attachment 20. |
| Infrastructure Requirements and Utilities | No specific mitigation measures are required or recommended as part of the Service Infrastructure Assessment, however the following are noted:<br>• Sydney Water's Section 73 application process is an asset creation process that would outline any system amplifications for water or wastewater, if required, at detailed design stage.<br>• Provision of a new padmount substation(s) within the proposed development with high voltage feeder connection to existing Endeavour Energy assets in Grand Avenue will be required to occur as per Endeavour Energy's normal asset creation path. The new substation(s) will be installed during the development process for the new building. |

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| | • Relevant applications and approvals with City of Parramatta Council are required for stormwater connections within the public road.<br>Consultation with each of the relevant authorities will be required as part of the detailed design phase of the development to obtain the relevant approvals (if required) and ensure the obligations and statutory requirements are met. |
| Bushfire Risk | No mitigation measures are identified as the site is not identified as bushfire prone land. |

## APPENDIX 3 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 C9 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

details of any communication with other stakeholders regarding the incident.

## APPENDIX 4 LOCATION OF NOISE RECEIVERS

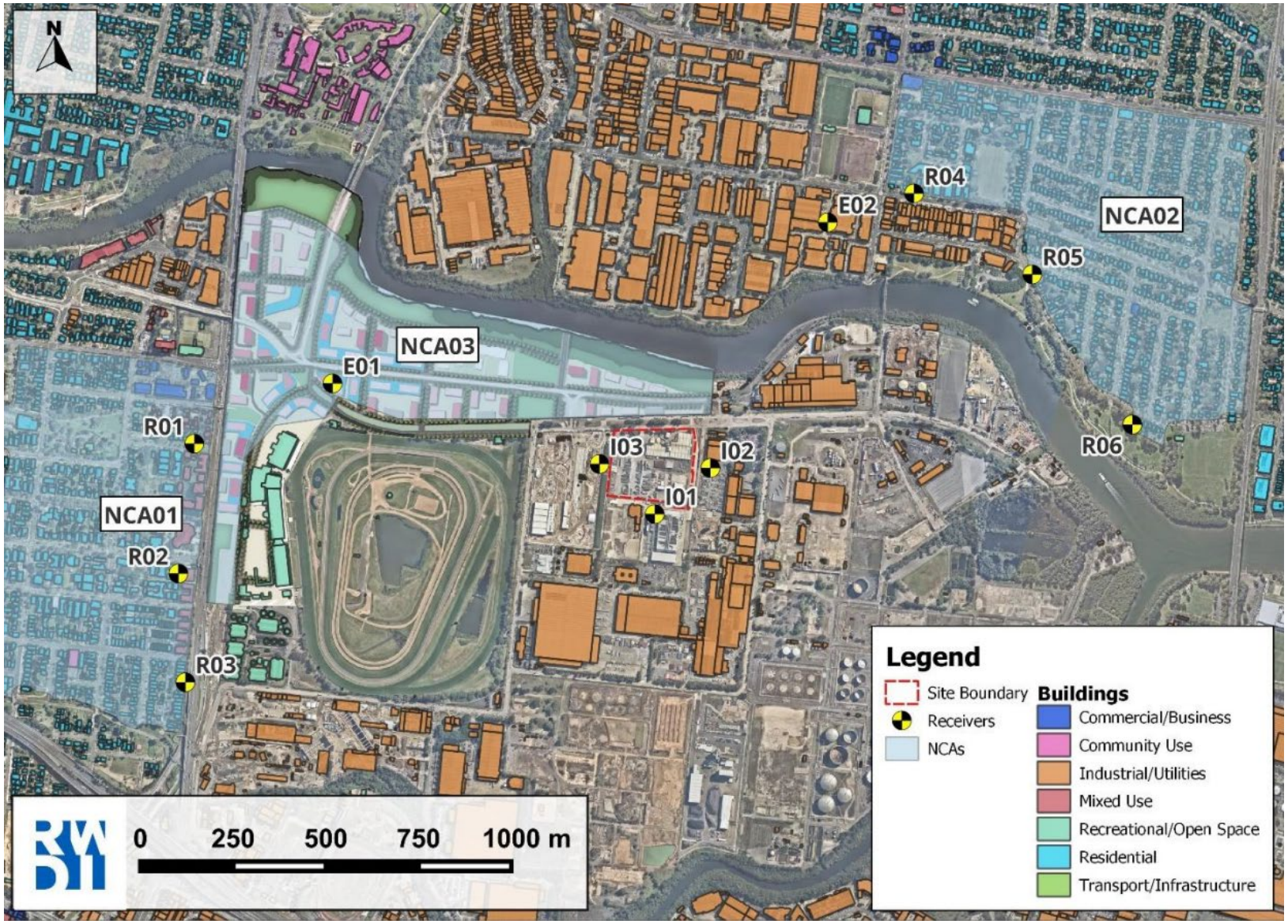



**Figure 1 Location of Receivers**

# Appendix B Relevant Conditions of Consent

## Construction Environmental Management Plan

**6 Grand Avenue, Rosehill NSW**

**Vaughan Constructions Pty Ltd**

SLR Project No: 640.031417.00001

# Relevant Consent Conditions

## 6 Grand Avenue, Rosehill NSW

### Vaughan Constructions Pty Ltd

Prepared by:

**SLR Consulting Australia**

SLR Project No: 640.031417.00001

17 October 2024

Revision: 01

## Revision Record

| Revision | Date | Prepared By | Checked By | Authorised By |
|---|---|---|---|---|
| 01 | 01-Sep-2024 | Harry Peter | Sean Wilson | Stephen Shoesmith |
| 02 | 17 October 2024 | Harry Peter | Sean Wilson | Sean Wilson |

# Basis of Report

This report has been prepared by SLR Consulting Australia (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Vaughan Constructions 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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# Tables in Text

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# Introduction

This Relevant Consent Conditions has been prepared by SLR Consulting Australia Pty Ltd (SLR) on behalf of Vaughan Constructions Pty Ltd (Vaughan), the Principal Contractor, for the construction of a multi-level warehouse and distribution centre at 6 Grand Avenue, Rosehill NSW, formally described as Lot 1 DP1258587.

# Relevant Consent Conditions

The Relevant Consent Conditions are specific conditions within the Development Consent (referred to as SSD 55522478) imposed by the NSW Department of Planning, Housing and Infrastructure. These conditions are set out in **Table 1** below and are included and addressed in the Construction Environmental Management Plan (CEMP) prepared by SLR.

### Table 1: Relevant Consent Conditions

| Conditions | Where addressed in CEMP |
|---|---|
| **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. | Section 4 and 5 |
| **Terms of Consent** | |
| A2. The development may only be carried out:<br>(a) in compliance with the conditions of this consent;<br>(b) in accordance with all written directions of the Planning Secretary;<br>(c) in accordance with the EIS, RTS and Additional Information;<br>(d) in accordance with the Development Layout in Appendix 1; and<br>(e) in accordance with the management and mitigation measures in Appendix 2. | Section 3.3 |
| **Notification of Commencement** | |
| A6. 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:<br>(a) construction; | Noted |
| **Evidence of Consultation** | |
| A8. Where conditions of this consent require consultation with an identified party, the Applicant must:<br>(a) consult with the relevant party prior to submitting the subject document to the Planning Secretary for approval; and<br>(b) provide details of the consultation undertaken including:<br>(i) the outcome of that consultation, matters resolved and unresolved; and<br>(ii) details of any disagreement remaining between the party consulted and the Applicant and how the Applicant has addressed the matters not resolved. | Section 1.7 |
| **Staging, Combining and Updating Strategies, Plans or Programs** | |
| A9. With the approval of the Planning Secretary, the Applicant may:<br>(a) prepare and submit any strategy, plan or program required by this consent on a staged basis (if a clear description is provided as to the specific stage and scope of the development to which the strategy, plan or program applies, the relationship of the stage to any future stages and the trigger for updating the strategy,<br>plan or program); | Refer to sub management plans in the Appendix |

| Conditions | Where addressed in CEMP |
|---|---|
| (b) combine any strategy, plan or program required by this consent (if a clear relationship is demonstrated between the strategies, plans or programs that are proposed to be combined); and<br>(c) update any strategy, plan or program required by this consent (to ensure the strategies, plans and programs required under this consent are updated on a regular basis and incorporate additional measures or amendments to improve the environmental performance of the development). | |
| **Utilities, Services and Public Infrastructure** | |
| A12. Prior to the commencement of construction of the development, the Applicant must:<br>(a) consult with the relevant owner and provider of services or public infrastructure that are likely to be affected by the development or that need to be installed as part of the development, to make suitable arrangements for relevant approvals, access to, diversion, protection and support of the affected services or infrastructure;<br>(b) prepare a dilapidation report identifying the condition of all public infrastructure in the vicinity of the site (including roads, gutters and footpaths); and<br>(c) submit a copy of the dilapidation report to the Planning Secretary and Council. | Noted |
| A13. Unless the Applicant and the applicable authority agree otherwise, the Applicant must:<br>(a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by carrying out the development; and<br>(b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the development; and<br>(c) obtain any relevant approval(s) from the relevant service provider(s) prior to undertaking construction of the corresponding utility works. | Noted |
| **Demolition** | |
| A17. All demolition must be carried out in accordance with Australian Standard AS 2601-2001 The Demolition of Structures (Standards Australia, 2001). | Noted |
| **Compliance** | |
| A22. 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. | Section 3.2 |
| **Operation Of Plant and Equipment** | |
| A24. All plant and equipment used on site, or to monitor the performance of the development, must be:<br>(a) maintained in a proper and efficient condition; | Section 4.3 |
| **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:<br>(a) be prepared by a suitably qualified and experienced person(s);<br>(b) be prepared in consultation with Council and TfNSW (including Sydney Metro West and Parramatta Light Rail Stage 2 project teams);<br>(c) detail the measures that are to be implemented to ensure road safety and network efficiency during construction;<br>(d) consider other projects within or around the development site, including Parramatta Light Rail Stage 2, Sydney West Metro and private development and identify measures to minimise the cumulative impacts on the surrounding road network; | Section 4.5 |

| Conditions | Where addressed in CEMP |
|---|---|
| (e) detail measures to minimise potential impacts to general traffic, cyclists, pedestrians, bus services and any light rail within the vicinity of the site from construction vehicles;<br>(f) detail:<br>(i) heavy vehicle routes, access and parking arrangements;<br>(ii) methods for minimising construction vehicle movements during peak periods;<br>(iii) crane arrangements including location and crane movement plan;<br>(iv) plan of any hoarding or scaffolding;<br>(g) include a Driver Code of Conduct to:<br>(i) minimise the impacts of earthworks and construction on the local and regional road network;<br>(ii) minimise conflicts with other road users;<br>(iii) minimise road traffic noise;<br>(iv) ensure truck drivers use specified routes;<br>(h) include a program to monitor the effectiveness of these measures; and<br>(i) detail procedures for consulting with surrounding businesses during construction and notifying residents and<br>the community (including local schools), of any potential disruptions to routes. | |
| B2. The Applicant must:<br>(a) not commence construction until the Construction Traffic Management Plan required by condition B1 is approved by the Planning Secretary; and<br>(b) implement the most recent version of the Construction Traffic Management Plan approved by the Planning Secretary for the duration of construction. | Noted |
| **Public Domain Works Design** | |
| B9. Unless otherwise agreed to in writing by Council, prior to the commencement of construction of the public domain works within the Grand Avenue Road reserve, the Applicant must prepare detailed design drawings for these works to the satisfaction of Council. Unless otherwise agreed to in writing by Council, these drawings must include:<br>(a) a new 1.5m wide footpath along the frontage of the site provide as per Council's Standard Drawings and Australian Standards;<br>(b) detail existing street tree locations, including species type; and<br>(c) detail the proposed removal of any street trees and location of replacement tree/s. | Noted |
| **Imported Soil** | |
| B11. The Applicant must:<br>(a) ensure that only VENM, ENM, or other material approved in writing by EPA is brought onto the site;<br>(b) keep accurate records of the volume and type of fill to be used;<br>(c) make these records available to the Planning Secretary upon request. | Noted |
| **Erosion and Sediment Control** | |
| B12. Prior to the commencement of any construction for the development, the Applicant must install 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 |
| B13. The Applicant must maintain the erosion and sediment control measures installed on-site in accordance with condition B12 for the duration of construction of the development. | |
| B17. The Applicant must maintain the stormwater management system installed on the site under condition B16 for the duration of the development. | |
| **Stormwater Management System** | |

| Conditions | Where addressed in CEMP |
|---|---|
| B15. Prior to the commencement of construction of the stormwater system, the Applicant must finalise the detailed design of the stormwater management system for the development. The system must:<br>(a) be designed by a suitably qualified and experienced person(s);<br>(b) be designed in consultation with Council;<br>(c) be generally in accordance with the conceptual design in the EIS;<br>(d) be in accordance with applicable Australian Standards; and<br>(e) ensure that the system capacity has been designed in accordance with Australian Rainfall and Runoff (Engineers Australia, 2016) and Managing Urban Stormwater: Council Handbook (EPA, 1997) guidelines. | Section 4.6 |
| **Flood Management** | |
| B18. Prior to the commencement of construction of the development, the Applicant must prepare a Construction Flood Emergency Response Plan (CFERP) and submit it to the Planning Secretary. The Plan must form part of the CEMP required by condition C2 and must:<br>(a) be prepared by a suitably qualified and experienced person(s);<br>(b) address the provisions of the Floodplain risk management manual (2023) and Support for emergency management planning (2023); and<br>(c) include details of:<br>(i) the flood emergency responses for the construction phase of the development;<br>(ii) predicted flood levels;<br>(iii) flood warning time, flood notification, signs and depth indicators;<br>(iv) assembly points and evacuation routes;<br>(v) shelter in place protocols, including suitable locations of flood free refuge areas;<br>(vi) evacuation protocols; and<br>(vii) awareness training for employees and contractors. | Section 4.8 |
| B19. The Applicant must:<br>(a) not commence construction until the CFERP required by condition B18 is submitted to the Planning Secretary; and<br>(b) implement the most recent version of the CFERP submitted to the Planning Secretary for the duration of the development. | |
| **Dust Minimisation** | |
| B25. The Applicant must take all reasonable steps to minimise dust generated during all works authorised by this consent. | Section 4.2 |
| B26. During construction of the development, the Applicant must ensure that:<br>(a) exposed surfaces and stockpiles are suppressed by regular watering or other alternative suppression method;<br>(b) all trucks entering or leaving the site with loads have their loads covered;<br>(c) trucks associated with the development do not track dirt onto the public road network;<br>(d) public roads used by these trucks are kept clean; and<br>(e) land stabilisation works are carried out progressively on site to minimise exposed surfaces. | |
| B28. The Applicant must ensure the development does not cause or permit the emission of any offensive odour (as defined in the POEO Act). | |
| **Hours of Work** | |
| B29. The Applicant must comply with the hours detailed below: | Section 2.4 |

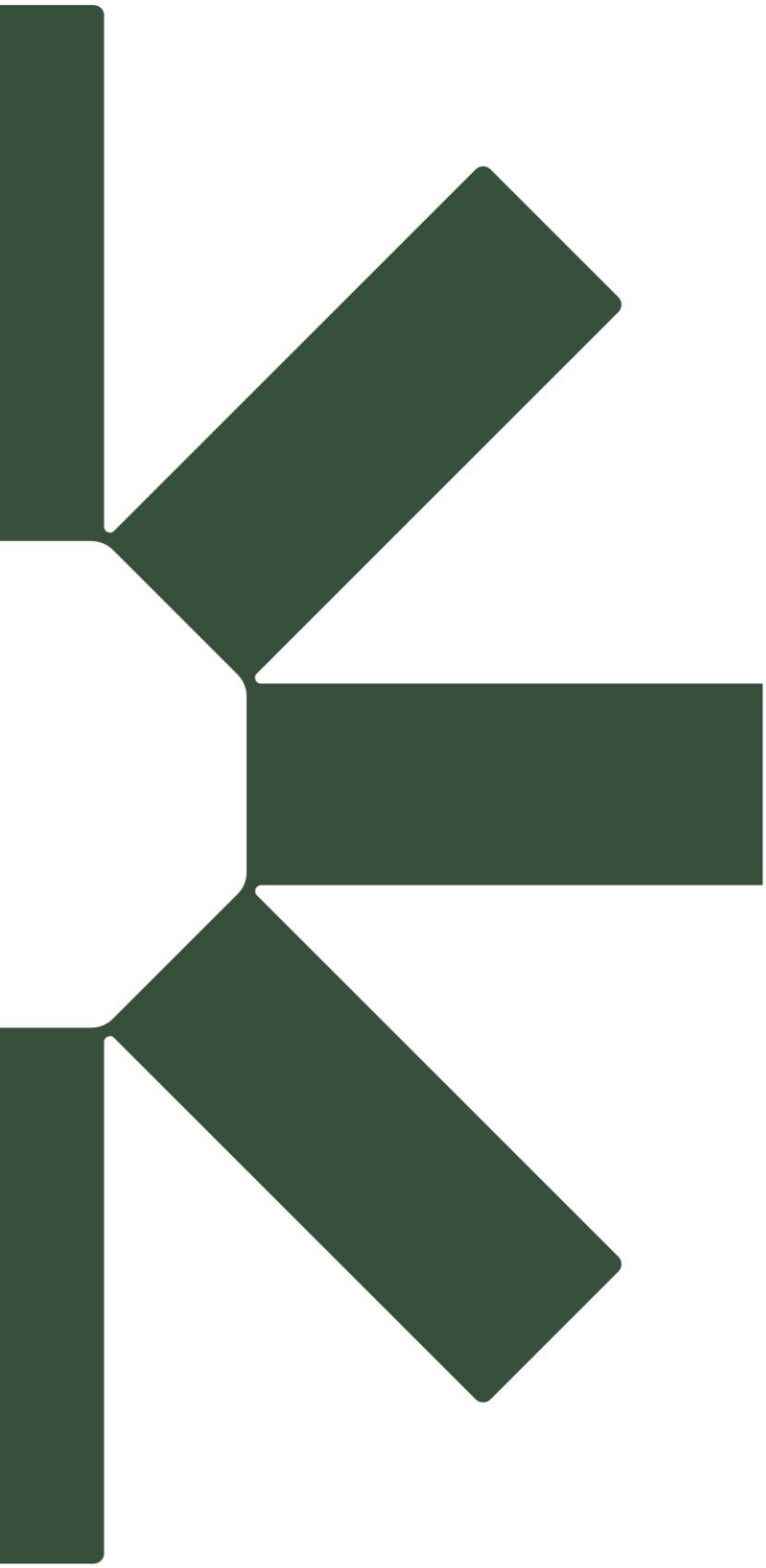
| Conditions | Where addressed in CEMP |
|---|---|
| <table><tr><th>Activity</th><th>Day</th><th>Time</th></tr><tr><td>Construction</td><td>Monday – Friday<br>Saturday</td><td>7 am to 6 pm<br>8 am to 1 pm</td></tr></table> | |
| B30. Works outside of the hours identified in condition B29 may be undertaken in the following circumstances:<br>(a) works that are inaudible at the nearest sensitive receivers;<br>(b) works agreed to in writing by the Planning Secretary;<br>(c) for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or<br>(d) where it is required in an emergency to avoid the loss of lives, property or to prevent environmental harm. | |
| **Vibration Criteria** | |
| B33. Vibration caused by construction at any residence or structure outside the site must be limited to:<br>(a) for structural damage, the latest version of DIN 4150-3 (2016-12) Vibration in Buildings – Part 3: Effects on Structures (German Institute for Standardisation, 2016); and<br>(b) for human exposure, the acceptable vibration values set out in the Environmental Noise Management Assessing Vibration: a technical guideline (DEC 2006) (as may be updated or replaced from time to time). | Section 4.3 |
| **Aboriginal Cultural Heritage Management Plan** | |
| B34. All reasonable steps must be taken to avoid harm, modification or other impact to Aboriginal objects except as authorised by this consent. | Section 4.7 |
| B35. Prior to the commencement of any clearing or construction works for the development, the Applicant must prepare an Aboriginal Cultural Heritage Management Plan for the development. The plan must form part of the CEMP required by condition C2 and must:<br>(a) be prepared by a suitably qualified and experienced expert(s);<br>(b) be prepared in consultation with the Registered Aboriginal Parties;<br>(c) be reviewed by Heritage NSW;<br>(d) include an unexpected finds protocol that specifies if any item or object of Aboriginal heritage significance is identified on site:<br>(i) all work in the immediate vicinity of the suspected Aboriginal item or object must cease immediately;<br>(ii) a 10 m wide buffer area around the suspected item or object must be cordoned off;<br>(iii) Heritage NSW must be contacted immediately; and<br>(iv) 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.<br>(e) include requirements to undertake ongoing consultation with the Registered Aboriginal Parties during the implementation of the plan;<br>(f) include provision for workers on site to receive suitable heritage inductions prior to carrying out any development on site, with records to be kept of these inductions; and<br>(g) include procedures and requirements for ongoing review and revision of the plan. | |
| B36. The Applicant must:<br>(a) not commence construction until the ACHMP is approved by the Planning Secretary; and<br>(b) implement the most recent version of the ACHMP approved by the Planning Secretary for the duration of construction of the development. | |
| **Unexpected Finds Protocol** | |

| Conditions | Where addressed in CEMP |
|---|---|
| B39. If any non-Aboriginal archaeological relics are uncovered during any works being carried out for the development:<br>(a) all work in the immediate vicinity of the suspected relic(s) must cease immediately;<br>(b) Heritage NSW must be contacted immediately; and<br>(c) the suspected relic(s) must be evaluated, recorded and, if necessary, excavated by a suitably qualified and experienced expert in accordance with the requirements of Heritage NSW. | Section 4.7 |
| B40. Work in the immediate vicinity of any suspected non-Aboriginal archaeological relic(s) must not recommence until this has been authorised by Heritage NSW. | |
| **Tree Protection Measures** | |
| B41. All trees identified for retention within the site are to be retained and protected in accordance with the Arboricultural Impact Assessment prepared by Canopy Consulting dated 26 May 2023 and the latest version of Australian Standard 4970:2009 – Protection of Trees on Development, for the duration of construction. | Section 4.9 |
| B42. The protection measures identified in the Arboricultural Impact Assessment prepared by Canopy Consulting dated 26 May 2023 must be included in the CEMP required by condition C2. | |
| **Dangerous Goods** | |
| B43. The quantities of dangerous goods stored and handled at the site must be below the threshold quantities listed in the Department's Hazardous and Offensive Development Application Guidelines – Applying SEPP 33 at all times. | Section 4.8 |
| B44. Dangerous goods must not be stored below the Probable Maximum Flood level. | |
| **Bunding** | |
| B45. The Applicant must store and handle all chemicals, fuels and oils used on-site in accordance with:<br>(a) all relevant Australian Standards, and<br>(b) the NSW EPA's Storing and Handling of Liquids: Environmental Protection – Participants Handbook if the chemicals are liquids. | Section 4.1 |
| **Waste Management** | |
| B47. 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). | Section 4.10 |
| B48. All waste materials removed from the site must only be directed to a waste management facility or premises lawfully permitted to accept the materials. | |
| B49. Waste generated outside the site must not be received at the site for storage, treatment, processing, reprocessing, or disposal. | |
| B50. 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. | |
| **Pests, Vermin and Priority Weed Management** | |
| B51. The Applicant must:<br>(a) implement suitable measures to manage pests, vermin and declared priority weeds on the site; and<br>(b) inspect the site on a regular basis to ensure that these measures are working effectively, and that pests, vermin or priority weeds are not present on site in sufficient numbers to pose an environmental hazard or cause the loss of amenity in the surrounding area. | Section 4.1 |
| **Remediation Works** | |

| Conditions | Where addressed in CEMP |
|---|---|
| B53. Prior to commencement of construction of the development, the Applicant must submit to the Planning Secretary, a Site Audit Report and a Site Audit Statement, prepared in accordance with the NSW Contaminated Land Management - Guidelines for the NSW Site Auditor Scheme 2017, which demonstrates:<br>(a) the appropriateness of the Remedial Action Plan; and<br>(b) that the site can be made suitable for a specified land use (or uses) if the site is remediated/managed in accordance with the implementation of the Remedial Action Plan and/or a Long-term Environmental Management Plan. | Noted |
| **Unexpected Finds** | |
| B60. Prior to the commencement of construction, the Applicant must prepare an unexpected contamination finds procedure to ensure that potentially contaminated material is appropriately managed. The procedure must form part of the of the CEMP in accordance with condition C2 and must ensure any material identified as contaminated is disposed of in accordance with the POEO Act and its associated regulations. | Refer Appendix P Section 9.1 |
| **Management Plan Requirements** | |
| C1. Management plans required under this consent must be prepared in accordance with relevant guidelines, and include:<br>(a) a condition compliance table for that plan;<br>(b) detailed baseline data, where required;<br>(c) details of:<br>(i) the relevant statutory requirements (including any relevant approval, licence or lease conditions);<br>(ii) any relevant limits or performance measures and criteria; and<br>(iii) the specific performance indicators that are proposed to be used to judge the performance of, or<br>guide the implementation of, the development or any management measures;<br>(d) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;<br>(e) a program to monitor and report on the:<br>(i) impacts and environmental performance of the development; and<br>(ii) effectiveness of the management measures set out pursuant to paragraph (c) above;<br>(f) 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;<br>(g) a program to investigate and implement ways to improve the environmental performance of the development over time;<br>(h) a protocol for managing and reporting any:<br>(i) incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria);<br>(ii) complaint;<br>(iii) failure to comply with statutory requirements; and<br>(i) a protocol for periodic review of the plan. | Refer CEMP |
| **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. | Refer CEMP |
| C3. As part of the CEMP required under condition C2 of this consent, the Applicant must include the following:<br>(a) details of the community consultation and complaints handling procedure to be implemented during construction; | Noted |

| Conditions | Where addressed in CEMP |
|---|---|
| (b) Construction Traffic Management Plan (see condition B1);<br>(c) Erosion and Sediment Control Plan (see condition B12);<br>(d) Aboriginal Cultural Heritage Management Plan (see condition B35); and<br>(e) a copy of the development's:<br>(i) Construction Flood Emergency Response Plan (see condition B18); and<br>(ii) Tree protection measures (see condition B42). | |
| C4. The Applicant must:<br>(a) not commence construction of the development until the CEMP is approved by the Planning Secretary; and<br>(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 |
| **Incident Notification, Reporting and Response** | |
| C9. 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 3. | Section 3.5.3 |
| **Non-Compliance Notification** | |
| C10. 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. | Section 3.5.4 |
| C11. 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. | |
| C12. A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance. | |
| **Access to Information** | |
| C13. At least 48 hours before the commencement of construction of the development and for the life of the development (or such other time as agreed by the Planning Secretary), including rehabilitation and remediation, the Applicant must:<br>(a) make the following information and documents (as they are obtained or approved) publicly available on its website:<br>(i) the documents referred to in condition A2 of this consent;<br>(ii) all current statutory approvals for the development;<br>(iii) all approved strategies, plans and programs required under the conditions of this consent (excluding the Emergency Services Information Package as described under condition B46);<br>(iv) a summary of the current stage and progress of the development;<br>(v) contact details to enquire about the development or to make a complaint;<br>(vi) a complaints register, updated quarterly;<br>(vii) any other matter required by the Planning Secretary; and<br>(b) keep such information up to date, to the satisfaction of the Planning Secretary. | Section 7 |
| **APPENDIX 3 - 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 | Section 3.5 |

| Conditions | Where addressed in CEMP |
|---|---|
| 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 C9 or, having given such notification, subsequently forms the view that an incident has not occurred. | |
| 2. Written notification of an incident must:<br>(a) identify the development and application number;<br>(b) provide details of the incident (date, time, location, a brief description of what occurred and why it is<br>classified as an incident);<br>(c) identify how the incident was detected;<br>(d) identify when the applicant became aware of the incident;<br>(e) identify any actual or potential non-compliance with conditions of consent;<br>(f) describe what immediate steps were taken in relation to the incident;<br>(g) identify further action(s) that will be taken in relation to the incident; and<br>(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. | Noted |
| 4. The Incident Report must include:<br>(a) a summary of the incident;<br>(b) outcomes of an incident investigation, including identification of the cause of the incident;<br>(c) details of the corrective and preventative actions that have been, or will be, implemented to address the incident and prevent recurrence; and<br>details of any communication with other stakeholders regarding the incident. | |



Making Sustainability Happen

# Appendix C Community and Stakeholder Management Plan

## Construction Environmental Management Plan

**6 Grand Avenue, Rosehill NSW**

**Vaughan Constructions Pty Ltd**

SLR Project No: 640.031417.00001

# COMMUNITY AND STAKEHOLDER MANAGEMENT PLAN

FOR

**HALE CAPITAL**
**ROSEHILL**

**Project No. 24.432.**

AT

6 GRAND AVE,

ROSEHILL NSW 2142

AUGUST 2024

(Revision 0)

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**PROJECT PARTICULARS**

### 1.1 Builders Details

| | |
|---|---|
| Company Name: | Vaughan Constructions |
| Company Business Address: | 880 Lorimer Street, Port Melbourne. Vic. 3207. |
| Company Contact Number | (03) 9347 2611. |
| Directors Name: | Luke Stambolis |
| Company Operational Details: | Industrial Construction |
| ABN: | 26 609 671 445 |

| **Stage** | **Name:** | **Phone:** | **Email** |
|---|---|---|---|
| Construction Manager: | Andrew Constantinidis | 0409 996 387 | andrew.constantinidis@vaughans.com.au |
| Project Director: | David Upton | 0412 719 623 | david.upton@vaughans.com.au |
| Senior Project Manager: | John Kassa | 0407 882 286 | john.kassa@vaughans.com.au |
| Senior Contract Administrator | Carl Pizzolato | 0418 256 167 | allan.jarimba@vaughans.com.au |
| Senior Site Manager: | Ali Mourad | 0416 317 404 | ali.mourad@vaughans.com.au |
| OHS Representative: | TBA | | |

### 1.2 Project / Site Details

| | |
|---|---|
| Site Address: | 6 Grand Ave, Rosehill, 2142 |
| Project Description: | Double storey ramp up warehouses and 10 office tenancies |
| Project Duration: | 441 working days |

### 1.3 Community and Stakeholders

- Hale Capital
- Tenants to neighboring properties
- Tenant to properties adjacent
- Rosehill Gardens Racecourse
- General public and road users of Grand Ave
- City of Parramatta
- Department of Planning, Housing & Infrastructure (DPHI)
- Optus, Telstra, NBN, Sydney Water, Ausgrid, Jemena (gas)

- Fire and Rescue NSW, NSW Department of Planning and Environment.

- Aboriginal Stakeholder Groups and Heritage NSW

## 2.0 INTRODUCTION

Vaughan Constructions have been appointed by Hale Capital as the Principal Contractor to build a new multi-level industrial facility including, two levels of warehouses, on grade hardstand, 10 office tenancies. Each tenancy has its own office space allocated to its tenant with modern bathroom facilities, prayer room, outdoor seating area and lift access.

This document is the Community and Stakeholder Management Plan (CSMP) for the construction project. It has been developed in consultation with the project team then reviewed and authorised by the Project Director for the project.

This CSMP has been prepared to address the project specific requirements identified in

- legislation, EPA & council documents
- design documents
- project risk assessment & design risk assessment

A copy of this CSMP shall be readily available on site to be viewed by all Vaughan Construction employees, subcontractors, their workers and other stakeholders associated with the project.

## 3.0 OBJECTIVE

The object of this Community and Stakeholder Management Plan (CMP) is to ensure that the community and stakeholders relevant to the project are considered during the construction activities, planning of the works and compliance with all relevant laws, codes of practice and Australian Standards. Consultation will be undertaken with relevant stakeholders (neighbouring property owners & council) as to what if any impact the construction works have on the day-to-day amenity of their properties.

## 4.0 PERMIT APPROVALS

A Development Approval has been received from Department of Planning, Housing and Infrastructure (DPHI) for the development and use of the site. A Construction Certificate will be obtained prior to construction works commencing. A road opening permit will be obtained for any works that involve breaking the surface of any part of the street or footpath outside of the construction site boundary.

## 5.0 COMMUNICATION STRATEEGY

A successful communications and stakeholder relations strategy has four main elements to it. Affected stakeholders need to be advised:

1. **What** is happening as part of the works to Hale Rosehill;

2. **When** is it happening, including specific advice as to progress of the works;

3. **Where** are the works being undertaken; and

4. **How** are the works being undertaken and how they will be affected.

Communication is also two-way and therefore the strategy includes a feedback mechanism where client, customer or community complaints can be addressed and corrective action taken.

The aim being “NO SURPRISES”.

Each of these four points is addressed as follows:

### 5.1 Before Commencement

With demolition scheduled to commence in October, several actions need to be taken:

| No. | Description | By | When |
|---|---|---|---|
| 5.1.1 | Coordination meeting with Superintendent to review matters such as:<br>- work methodology | Project Director | ASAP |
| 5.1.2 | Advice to Council as to commencement of works | Project Director | 1 wk prior |
| 5.1.3 | Erection of signage & any additional temporary fencing in preparation for the construction works. | Site Manager | 1 wk prior |

### 5.2 During Construction

Actions to be taken during construction.

| No. | Description | By | When |
|---|---|---|---|
| 5.2.3 | Client coordination meetings<br>- Superintendent | Project Director / Hale | Weekly |
| 5.2.4 | Contractor inductions / employee “tool box” and coordination meetings to reinforce the CLP | Project Director / Site manager | Fortnightly |
| 5.2.5 | Erection and maintenance of work site and directional signage | Site Manager | As required |
| 5.2.6 | Community Liaison & Meetings | Project Director / Hale | As required |

### 5.3 Customer and Community Feedback

With each form of communication, whether it be site signage or letter box drops, a phone number will be provided to facilitate customer and community feedback including complaints.

All complaints are immediately referred to the Communications and Community Liaison Representative (CCLR), Stephen Shoesmith of SLR Consulting for action. Significant complaints affecting the local community will be referred to the Superintendent. A register of all complaints or feedback is to be maintained and tabled with each monthly PCG report. Refer Appendix One - Complaints / Corrective Action Register.

## 6.0 PROJECT SPECIFIC REQUIREMENTS

### 6.1 Location and Site Description

| | |
|---|---|
| Site address: | Hale Capital Rosehill<br>6 Grand Ave, Rosehill, 2142 |
| Local Government Area: | City of Paramatta |

### 6.2 Project Scope

The Hale Capital, Rosehill project will be completed in one stage. This will include the demolition of the existing warehouse buildings, including hazardous materials removal, construction of building pads in preparation for the proposed development which consists of two buildings. Both have multiple tenancies across 2 levels, Building A with two tenancies per level and Building B with three tenancies per level, creating a total of 10 tenancies overall. Each warehouse has its own ancillary office space, and the buildings are separated by a shared hardstand & suspended carpark which are both undercover.

### 6.3 Progression & Duration of Construction Works

The construction works given in the project overview are scheduled to be completed within approximately 441 working days. Construction is scheduled for commencement in October 2024 and completion by the mid May 2026.

The site and construction works are located within an industrial zoned area. The existing site is currently the CSR manufacturing plant so the area has always been impacted by noise. Irrespective of this we will keep up communication for activities that may impact neighboring properties.

Whilst working in an operational environment, safety of the public and the construction workers is paramount to Vaughan Constructions. Fencing will be erected to all site boundaries. If construction workers are required to work outside the fenced area, outside the site boundaries, works will be arranged and in coordination with neighboring owners. Works outside the site will need to be approved with applicable safety precautions to complete the works and to separate the construction workers from neighboring businesses and workers.

Footpath pedestrian access along the front of Grand Ave directly into site compound/ amenities will be always maintained. Vehicular traffic will be managed in accordance with the Construction Traffic Management Plan.

### 6.4 Construction Hours

Construction activities associated with offensive noise works, including the delivery of materials to and from the site, are to be within approved hours of 7.00am to 6.00pm from Monday to Friday, 8.00am to 1.00pm Saturday, No work on Sunday and public holidays. All out of hour works shall be in accordance with the approved Development Approval and issued permits**.**

### 6.5 Signage

Signage is to be displayed to the public and maintained in a prominent location for the duration of the work that is visible to the public from outside the construction area that advises people:

- Vaughan Constructions is the Principal Contractor for the construction project and an after-hours contact phone number
- the name, address and telephone number of the Principal Certifying Authority for the work
- minimum PPE requirements for all people entering the site
- the requirement that unauthorised entry to the work site is prohibited;
- the requirement that visitors must report directly to the site office upon entry to the site and present themselves to the Site Manager;

Signage will also be displayed as required to warn members of the public of specific construction related hazards. Traffic management signage will be displayed as per the requirements of any approved traffic control plans.

The temporary construction fencing along Grand Ave, will include 'Hale Capital and Vaughan Construction logos.

### 6.6 Traffic & Parking

Traffic and Parking can be cause for disruption and complaints from community and stakeholders. Existing vehicle access points off Grand Ave will be used for site access, for the entire construction duration. The existing cross overs are located on the northern boundary. Traffic Controllers will be used when required throughout the construction period.

Parking will be along Grand Ave where available. As mentioned above, all construction related works, including deliveries, loading and concrete pumping will be located inside the site boundary allowing pedestrian access to travel along the footpath with no disturbance. Traffic management plans have been prepared for the 3 different construction stages, including demolition, excavation, and construction. Truck frequency will differ throughout the construction stages and may be a maximum of 15 minute cycles.

A stabilised vehicle access point / road that incorporates a rumble / shaker grid will be constructed and maintained at the commencement of the earthworks. Vehicle washing will be located near the rumble grids if and when required to assist in the prevention of excessive dirt on the roads and mitigate complaints by the public.

**Note:** Street sweeping will be used to clean roads exterior roads on an as needed basis to ensure the road is kept clean and complaints are not received from stakeholders.

### 6.7 Noise

Noise controls are in place to minimise disruption to the community. Construction activities that create offensive noise such as the use of electric and pneumatic tools, including the delivery of materials to and from the site, are to be within approved site hours (refer to section 6.4). There is to be no 'warming up' of plant and machinery outside of the construction site or outside the approved construction hours. All equipment (excavators, backhoes, cranes, trucks, etc.) are to have adequate noise prevention safeguards such as exhaust mufflers, acoustic enclosures for any diesel generators and/or air compressors. Please refer to the Construction Noise & Vibration Management Plan.

### 6.8 Vibration Controls

Works will be undertaken to minimise the generation of vibrations imparted on the neighbouring buildings and structures. Where vibrations may be generated, alternative methods will first be considered, and possible control measures developed and implemented. Work will be suspended on notification of a noise or vibration incident.

### 6.9 Air & Dust Management

To minimise disruption to the community air and dust controls will be in place for the duration of the construction program. Access roads are to be established and maintained through to construction areas. Water will be used as required to suppress dust during dry and windy periods.

Any soil stockpiles left unattended are to be kept moist to limit dust generation.

Civil areas will be compacted as soon as practicable after disturbance to minimise dust release. Loads on trucks are to be covered prior to leaving site.

Exhaust fumes will be minimised by turning off combustion engine equipment when it is not in use. Domestic type waste from amenities area to be placed in plastic bags that are sealed at the end of each day prior to placement in site rubbish skip.

No waste material is to be burnt on site during construction works.

### 6.10 Stormwater & Sediment Control

Protection of the stormwater system and discharge into the public drain will be required by way of sediment control measures. The erosion & sediment control measures will remain in place (where applicable) for the duration of civil and construction works and adjusted as per the approved staging plans.

Weather conditions will be monitored with sediment devices inspected before and after storms for structural damage or clogging. Trapped material is to be removed to a safe approved location.

- Soil / civil areas will be compacted to stabilise them as soon as practicable after disturbance. Geotextile sediment fences are to be installed to low areas of the site boundary where water has the potential to leave the site and enter the stormwater system.
- External surface water to be diverted around site where practicable.
- Protection of any new or existing internal & external site stormwater pits will be required by way of sediment traps, etc
- Where practicable, excavated soil is to be loaded directly into trucks to be

immediately reused.

- Soil stockpiles to have a maximum 2:1 height top width ratio
- Soil stockpiles shall not be located within 10 metres of any drainage lines or easements, natural water courses, roadways or footpaths.
- Soil stockpiles to have water diversion measures (excavated temporary swale drain) in place on the upslope of them (where required)
- Soil stockpiles to have containment barriers placed around the bottom of them (where required)

### 6.11 Habitats (protected flora / fauna)

Trees identified on the Development Application as requiring protection are to be temporarily barricaded / fenced with "tree protection zone" signage displayed that meets the requirements of Australian Standard AS4970: Protection of Trees on Development Sites. Any construction work required inside a tree protection zone will be supervised by the project arborist.

The tree protection barricades and signage are to remain in place until works are completed

No construction vehicles, equipment and / or building materials are to be placed / stored within the tree protection zone, even for a short period of time.

Any pruning that is required to be done to the canopy of any tree to be retained is to be done by a qualified arborist to Australian Standard – Pruning of Amenity Trees AS4373-1996. Any pruning of the root system of any tree to be retained is to be done by hand by a qualified arborist.

Permitted vegetation requiring removal in the construction works area will be removed during civil works. There will be no excavation works to the protected tree zones.

Landscaping will be completed as per the landscaping and planting development plan

Fencing will be installed around the site boundary to keep native animals out of the construction area. Food waste will be sealed rubbish bins / bags to discourage native animals from being attracted to them as a food source.

All disturbed surfaces outside the site boundary are to be made good at the end of each day during the project period

A dilapidation inspection shall be carried out prior to Vaughan Constructions taking possession of site or any works carried out under the contract and a report produced from that inspection that will form part of the contract documents.

### 6.12 Heritage and Archaeology

Please refer to the Unexpected Finds Procedure.

## 7.0 CSMP AVAILABILITY AND LOCATION

A copy of this Community and Stakeholder Management Plan (CSMP) shall be readily available on site to be viewed by all Vaughan Construction employees, subcontractors, their workers and other stakeholders associated with the project. Workers will be informed during the site-specific induction as to the location of this CMP and the Vaughan Constructions, National Health & Safety Policy and Management System on site.

This CSMP will be reviewed and amended where legislation, EPA Guidelines or where project works change such that the information contained in the plan is no longer

accurate or valid.

The parties affected by any alterations to this document shall be notified through either tool box talks on site or through electronic transmission of the amended document.

## 8.0 COUNCIL INFRASTRUCTURE

Throughout the construction works council infrastructure will be maintained and kept clean and tidy. Road sweepers will be used as a need be provision, and any damage to kerbs or roads will be made good upon any council permits required. New crossovers will be provided as part of the construction works including any kerb and channel adjustments as required.

*Vaughan Constructions will acquire all the necessary temporary vehicle cross-over permit and seek approval by Canterbury Bankstown city councils asset protection team prior to install.*

## 9.0 APPENDICES

### 9.1 Complaints and Corrective Action Register (Buildpass)

# Appendix D Construction Traffic Management Plan

## Construction Environmental Management Plan

**6 Grand Avenue, Rosehill NSW**

**Vaughan Constructions Pty Ltd**

SLR Project No: 640.031417.00001

# Construction Traffic Management Plan

## 6 Grand Ave, Rosehill, NSW, 2142
## State Significant Development SSD-55522478

### Vaughan Constructions Pty Ltd

9A Commercial Road
Kingsgrove, NSW 2208

Prepared by:

**SLR Consulting Australia Pty Ltd**

Level 16, 175 Eagle Street, Brisbane QLD 4000, Australia

SLR Project No.: 630.031417.00001

6 November 2024

Revision: v1.2

## Revision Record

| Revision | Date | Prepared By | Checked By | Authorised By |
|---|---|---|---|---|
| v0.1 | 6 September 2024 | A. Moxon | B. Rheinberger | |
| v0.2 | 11 September 2024 | A. Moxon | B. Rheinberger | B. Rheinberger |
| v1.0 | 16 September 2024 | A. Moxon | B. Rheinberger | B. Rheinberger |
| v1.1 | 27 September 2024 | A. Moxon | B. Rheinberger | B. Rheinberger |
| v1.2 | 6 November 2024 | A. Moxon | B. Rheinberger | B. Rheinberger |

# 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 Vaughan Constructions 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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**Appendix A Curriculum Vitae – Brendyn Rheinberger**
**Appendix B Site Plans**
**Appendix C Drivers Code of Conduct**
**Appendix D Traffic Guidance Scheme**
**Appendix E Risk Assessment**
**Appendix F Correspondence with Parramatta Light Rail Stage 2 Project Team**
**Appendix G Correspondence with Sydney Metro West Project Team**
**Appendix H Endorsement Conditions from Transport for New South Wales**
**Appendix I City of Parramatta Concurrence and Consultation**

# 1.0 Introduction

## 1.1 Context

SLR Consulting Australia Pty Ltd (**SLR**) has been engaged by Vaughan Constructions Pty Ltd (**VC**) to prepare a Construction Traffic Management Plan (**CTMP**) for the construction of a multi-level warehouse facility located at 6 Grand Avenue, Rosehill, NSW.

This CTMP is required to satisfy Conditions B1 and B2 of the Development Consent issued by NSW Government's Department of Planning, Housing and Infrastructure (**DPHI**). It is understood that DPHI requires the preparation of a CTMP prior to the commencement of construction works to be in compliance with the general development controls.

This CTMP has been prepared under the supervision of Brendyn Rheinberger, who is a suitably qualified and experienced person. Brendyn holds the following accreditation:

- Engineers Australia, Chartered Professional Engineer (**CPEng**).
- SafeWork NSW Traffic Control Work, Prepare A Work Zone Traffic Management Plan, Number: TCT1044529.
- Queensland Department of Transport and Main Roads, Traffic Management Design (**TMD**), Number: OP 951.

Brendyn's CV is provided at **Appendix A** for further details.

## 1.2 Conditions of Consent

The CTMP has been prepared to satisfy the requirements of the Development Consent in relation to application number SSD-55522478 and to manage the potential impacts of the traffic demands associated with the construction phase of the Development on the surrounding road network. The specific requirements of the Consolidated Consent relevant to this CTMP are produced in **Table 1** along with a response as to how each requirement has been addressed herein.

**Table 1 Consolidated Consent: CTMP Requirements**

| Item No. | Condition Requirement | CTMP Section |
|---|---|---|
| A8 | Where conditions of this consent require consultation with an identified party, the Applicant must: | - |
| (a) | consult with the relevant party prior to submitting the subject document to the Planning Secretary for approval; and | Section 1.3 |
| (b) | provide details of the consultation undertaken including:<br>(i) the outcome of that consultation, matters resolved and unresolved; and<br>(ii) details of any disagreement remaining between the party consulted and the Applicant and how the Applicant has addressed the matters not resolved. | Section 1.3 |
| 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); | Section 1.1 |

| Item No. | Condition Requirement | CTMP Section |
|---|---|---|
| (b) | be prepared in consultation with Council and TfNSW (including Sydney Metro West and Parramatta Light Rail Stage 2 project teams); | Section 1.3 |
| (c) | detail the measures that are to be implemented to ensure road safety and network efficiency during construction; | Section 5,<br>Section 6.4 |
| (d) | consider other projects within or around the development site, including Parramatta Light Rail Stage 2, Sydney West Metro and private development and identify measures to minimise the cumulative impacts on the surrounding road network; | Section 1.3, Appendix F and G. |
| (e) | detail measures to minimise potential impacts to general traffic, cyclists, pedestrians, bus services and any light rail within the vicinity of the site from construction vehicles; | Section 3.4 |
| (f) | detail:<br>(i) heavy vehicle routes, access and parking arrangements<br>(ii) methods for minimising construction vehicle movements during peak periods;<br>(iii) crane arrangements including location and crane movement plan;<br>(iv) plan of any hoarding or scaffolding; | Section 3.4, 3.5 and Appendix B |
| (g) | include a Driver Code of Conduct to:<br>(i). minimise the impacts of earthworks and construction on the local and regional road network;<br>(ii). minimise conflicts with other road users;<br>(iii). minimise road traffic noise;<br>(iv). ensure truck drivers use specified routes; | Section 5.1 and Appendix C |
| (h) | include a program to monitor the effectiveness of these measures; and | Section 6.0 |
| (i) | detail procedures for consulting with surrounding businesses during construction and notifying residents and the community (including local schools), of any potential disruptions to routes. | Section 6.5 |
| 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 | Noted and reiterated within Section 6.1 |
| (b) | implement the most recent version of the Construction Traffic Management Plan approved by the Planning Secretary for the duration of construction. | Noted and reiterated within Section 6.1 |
| B26 | During construction of the development, the Applicant must ensure that: | |
| (b) | all trucks entering or leaving the site with loads have their loads covered; | Section 5 |
| (c) | trucks associated with the development do not track dirt onto the public road network | Section 5 |
| (d) | public roads used by these trucks are kept clean | Section 5 |
| C1 | Management plans required under this consent must be prepared in accordance with relevant guidelines, and include: | Section 6 |
| (b) | detailed baseline data, where required; | Section 1.3 and 3.6 |

| Item No. | Condition Requirement | CTMP Section |
|---|---|---|
| (c) | details of:<br>(i) the relevant statutory requirements (including any relevant approval, licence or lease conditions);<br>(ii) any relevant limits or performance measures and criteria; and<br>(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; | Sections 1.2 and 5.4 |
| (d) | a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria; | Sections 4, 5 and 6 |
| (e) | a program to monitor and report on the:<br>(i) impacts and environmental performance of the development; and<br>(ii) effectiveness of the management measures set out pursuant to paragraph (c) above; | Section 6 |
| (f) | 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 6.4 |
| (g) | a program to investigate and implement ways to improve the environmental performance of the development over time; | Section 6 |
| (h) | a protocol for managing and reporting any:<br>(i). incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria);<br>(ii). complaint;<br>(iii). failure to comply with statutory requirements; | Sections 6.3.1 and 6.5 |
| (i) | a protocol for periodic review of the plan | Section 6.2 |

## 1.3 Reference Documents and Stakeholder Consultation

Reference is made to the following documents which have been previously prepared in relation to the development as part of the State Significant Development Application:

- *Transport Management and Accessibility Plan,* dated 29 November 2023 prepared by Ason Group.

The above traffic and construction-related report is referred to herein where necessary.

Further to the above, this CTMP has been prepared to meet the requirements outlined in Appendix A and Appendix E, Section E.2 of the Transport for NSW (**TfNSW**) *Traffic Control at Work Sites Technical Manual* (Issue No. 6.1, Feb 2022).

In regard to authority consultation, a previous version of this document, being the SLR CTMP Version 1.0, was issued to the Parramatta Light Rail Stage 2 and Sydney Metro West project teams for review, with evidence of this consultation provided at **Appendix F** and **G**.

Previously, version 1.0 was also issued to TfNSW and City of Parramatta Council (CPC or Council) representatives, as the key stakeholders, for their review and comment as part of the development of this CTMP. The comments received have been included in this revised version of this CTMP. Where a comment required an amendment to this CTMP, this has been actioned and incorporated. Where an amendment to a condition has been sought, this correspondence is documented and is provided at **Appendix I**.

Subsequently, version 1.1 was issued to DPHI for approval by the Planning Secretary. In response to DPHI review comments, this version (Version 1.2) has been prepared and contains updated evidence of consultation with City of Parramatta Council. Refer to **Appendix I** for this evidence.

**Table 2** has been updated following receipt of TfNSW endorsement conditions via email on 16 September 2024 as shown in **Appendix H**.

**Table 2 TfNSW Endorsement Conditions**

| No. | Condition |
|---|---|
| 1 | Any Traffic guidance Schemes (TGS) prepared are to comply with AS1742.3 and Transport for NSW's "Traffic Control at Worksites" manual and be signed by a person with TfNSW certification to prepare a TGS. |
| 2 | Proponent must apply and obtain approval from the Transport Management Centre for a Road Occupancy Licence (ROL) for any required lane closures and/or Speed Zone Authorisations as part of the ROL that may impact the state road network or is within 100m of traffic signals. |
| 3 | Access to be maintained for residents, businesses, public transport services and emergency vehicles at all times. |
| 4 | Under no circumstances are vehicles to drive directly onto the Light Rail corridor nor park and/or lay up on any part of the corridor. |
| 5 | No marshalling or queueing of construction vehicles is to occur on public roads. Arriving vehicles that are not able to sue parking bay/work zone must continue to a holding point until space becomes available. |
| 6 | When heavy vehicles are entering or leaving the site a spotter is to be provided to manage any conflicts between pedestrians and heavy vehicles. |
| 7 | No infrastructure, including bins, tanks or traffic control equipment should be left on the road at any time, inclusive of any approved Work Zone. All non-vehicular items must be contained with the work area and not on the carriageway. |
| 8 | Any traffic control devices, including signage and line marking, should be installed by the proponent and must conform with Australian Standards 1742. |
| 9 | Transport for New South Wales reserve the right to alter the CTMP Conditions at any time to maintain safe and efficient traffic, Light Rail and pedestrian movements in this area. |

# 2.0 Development Overview

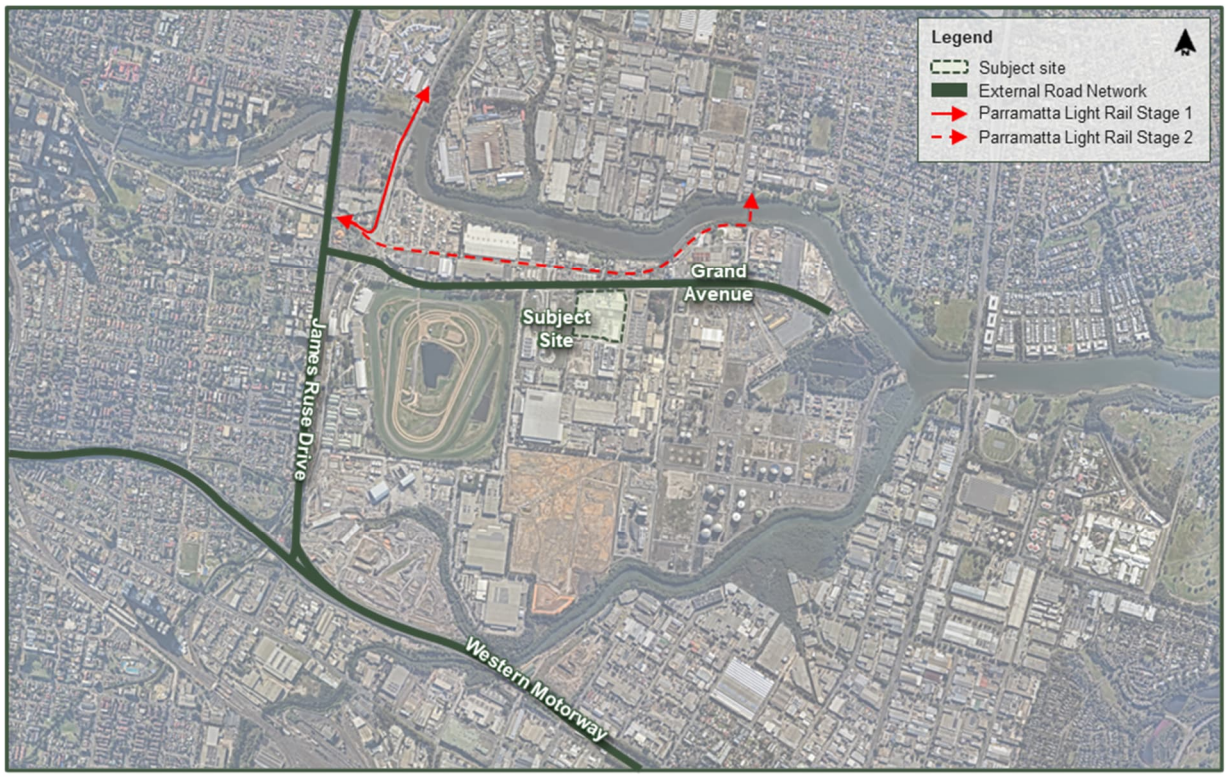
## 2.1 Site Location

The site is 6 Grand Avenue, Rosehill, formally identified as DP 1258587. It is located approximately 2.5km east of Parramatta Central Business District (**CBD**) and approximately 17km west of the Sydney CBD. The project is located within the City of Parramatta Local Government Area (**LGA**), within the Camellia-Rosehill Precinct. The site is strategically located in proximity to key transport corridors including Parramatta Light Rail Stage 1 and the future Stage 2.

The Grand Avenue site is approximately 4.28 hectares in area, relatively flat and is currently cleared of most vegetation with some mature trees along the front boundary at Grand Avenue. The site is currently occupied by several industrial buildings and is used for the manufacturing, storage and distribution of building products such as roof tiles.

The site is shown in the context of the surrounding area on **Figure 1**.

**Figure 1 Site Location**




## 2.2 Surrounding Road Network

Details of the key roads surrounding the subject site are provided in **Table 3**.

**Table 3 Key Roads**

| Road Name | Classification | Description | Posted Speed |
|---|---|---|---|
| James Ruse Drive | State Road | Three lanes in each direction with a north-south orientation. Localised widening provided at key intersections to facilitate turning lanes. | 70km/h |

| Road Name | Classification | Description | Posted Speed |
|---|---|---|---|
| Hassall Street | Regional Road | Two lanes in each direction with an east-west orientation. Intersects with James Ruse Drive. | 60km/h |
| Grand Avenue | Local Road | 8m one-way in each direction, separated by 15m verge median. On-street parking provided. | 60km/h |
| Colquhoun Street | Local Road | One lane in each direction plus on-street parking. Travels in a north-south orientation and links with Grand Avenue at the northern end, west of the site. | 50km/h |
| Durham Street | Local Road | One lane in each direction plus on-street parking. Travels in a north-south orientation and links with Grand Avenue at the northern end, east of the site | 50km/h |

## 2.3 Approved Development

The Project comprises an SSD-approved (SSD-55522478) two-storey warehouse and distribution centre comprising 40,566m$^2$ warehouse area in which 10 tenancies and ancillary office spaces will be provided. There is 6,307m$^2$ of landscaping proposed, alongside bicycle, motorcycle and car parking provisions. The overall site plan for the approval is provided at **Appendix B**. At a high level, the broader estate comprises the following:

- Total Site Area: 42,388m$^2$;
- Warehouse buildings: 36,877m$^2$;
- Total Office & amenities Area: 3,721m$^2$;
- Two Pedestrian access paths from Grand Avenue;
- Relocation of the existing four vehicular crossovers to Grand Avenue;
- On site parking: 214 car parking spaces, 21 motorcycle spaces and 41 bicycle parking spaces.

The approved estate layout and external access arrangements are indicatively illustrated in **Figure 2**.

## Figure 2 Approved Estate Layout and External Access Arrangements



# 3.0 Construction Phase Overview

## 3.1 Construction Activities and Staging

Planned construction activities consist of the following works:

- Site establishment
- Demolition of the existing buildings and Tree removal;
- Site preparation works, including in ground services and foundations;
- Bulk earthworks, import of fill;
- Relocation of four vehicular crossovers to Grand Avenue;
- Construction works associated with the development of the proposed warehouse facility
- On-site parking; and
- External pavements, complementary landscaping and offset planting.

**Table 4** details the proposed construction programme as it currently stands at the time of writing. This may slightly change due to approval timeframes or inclement weather conditions.

**Table 4 Planned Construction Programme**

| Construction Activity | Estimated Duration | Date for Works |
|---|---|---|
| Stage 1: Site Establishment, Demolition, and Piling Works. | 121 Days | 09/2024 – 01/2025 |
| Stage 2: Civil Works, Retaining Walls, Services, Structures and Slabs. | 222 Days | 12/2024 – 11/2025 |
| Stage 3: External pavements, Landscaping, Commissioning and Handover. | 132 Days | 10/2025 – 05/2026 |
| **Total Construction Period** | **Up to 19 months** | **From 09/24 to 05/26** |

## 3.2 Construction Hours

All construction works will be undertaken within the following hours:

- Monday to Friday: 7AM to 6PM;
- Saturday: 8AM to 1PM.

It is acknowledged that no work will be undertaken on Sundays and public holidays. Works outside of these hours 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.

Construction hours are also described within Section 2.4 of the Construction Environmental Management Plan (**CEMP**).

## 3.3 Site Contact Details

The nominated contact person during the construction activities is as follows:

- Ali Mourad, Senior Site Manager:
  - Mobile No.: 0416 317 404
  - Email: ali.mourad@vaughhans.com.au

The key contacts for the site during construction are provided within Section 2.5 of the CEMP.

## 3.4 Site Access

### 3.4.1 Construction Access Arrangements

Access is proposed to be provided to all construction vehicles via two existing crossover locations on Grand Avenue. Both crossovers will be used for entry and exit.

**Figure 3 Construction Access Arrangements**




### 3.4.2 Construction Vehicle Routes

The routes to be utilised by all construction vehicles travelling to and from site are represented below in **Figure 4.**

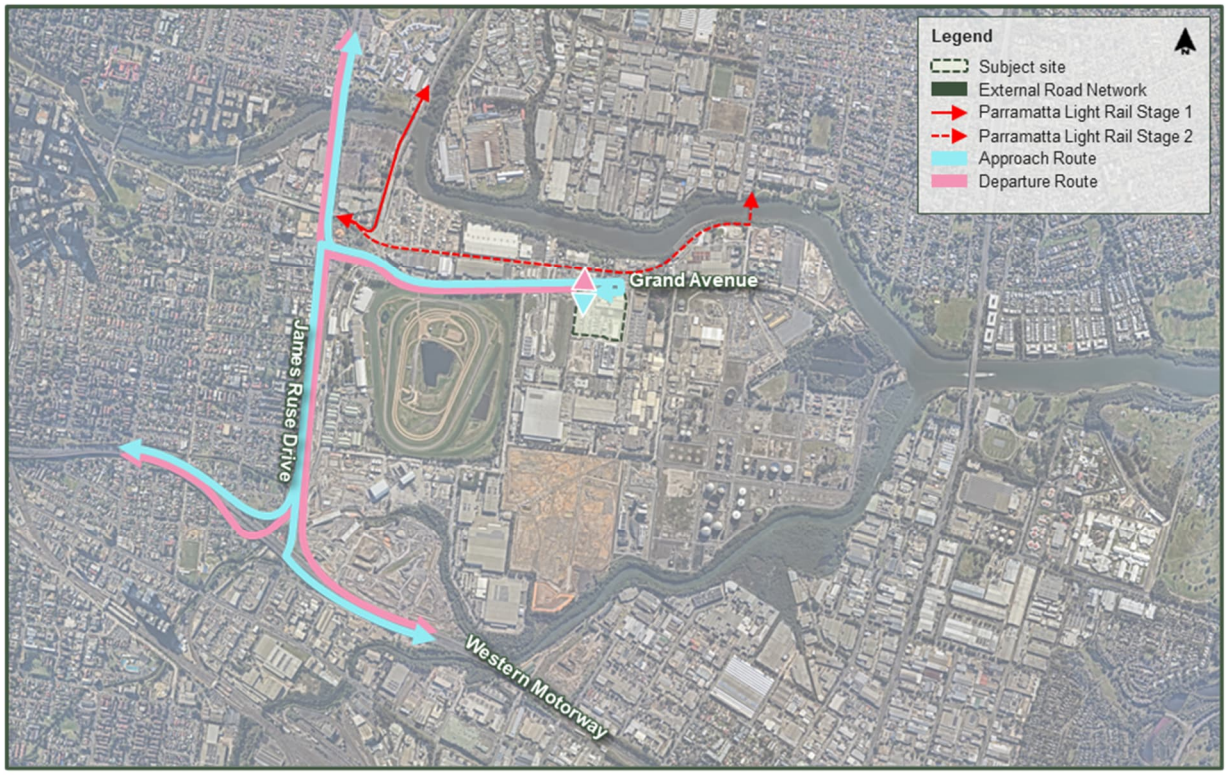
Truck movements to and from the site on the surrounding road network will be restricted to designated truck routes and will be confined to the main road network through the area. The designated routes are as follows:

- Approach routes:
  - Western Motorway, James Ruse Drive, Grand Avenue;
- Departure routes:

- Grand Avenue, James Ruse Drive, Western Motorway;

Refer to **Figure 4** for construction vehicle access arrangements for the site.

**Figure 4 Construction Vehicle Routes**




## 3.5 Internal Circulation Roads, Car Parking and Loading / Unloading Areas

During construction, the following areas will be designated within the site boundary. The location will vary depending on the build sequence and phase of works:

- An area for laydown shall be provided to facilitate loading/unloading of heavy vehicles;
- An area for material stockpiling/storage shall be provided within the site.
- All crane mobile locations from within the site will vary but will be contained within the site boundary;
- There are no plans for hoarding or scaffolding along the street frontage. Scaffolding will be required; however, it will be contained internally within the site and will be associated with constructing the warehouse building.

An on-site turning area will be provided within the future car park area so that movements to/from the site are undertaken in a forward direction at all times.

Parking on Grand Avenue will be required at specific times during construction involving high risk activities. This is required to mitigate any safety risks associated with lifting steel, precast panels, and other high-risk activities within the site. In these cases, Council have requested that a Works Zone (WZ) is to be approved and installed by Council prior to any on-street parking occurring. All costs will be borne by the applicant. Parking on the remaining surrounding streets will be strictly prohibited for construction vehicles at all times.

## 3.6 Construction Phase Traffic Demands

The following construction movement volumes have been provided by VC as described in **Table 5**.

**Table 5 Construction Vehicle Movement Volumes**

| Description | General Construction |
|---|---|
| Worker Numbers | 40 - 120 |
| Peak Daily Heavy Vehicle Movements<br>Peak Daily Light Vehicle Movements | 122 (61 in/61 out)<br>240 (120 in/120 out) |
| Peak Hour Heavy Vehicle Movements<br>Peak Hour Light Vehicle Movements | 40 (20 in/20 out)<br>120 (120 in or 120 out) |
| Largest Vehicle Size (daytime hours) | 19m AV and 20m truck and dog |
| Largest Vehicle Size (nighttime and outside of peak periods) | Up to 25m B-double |

**Table 5** describes the maximum number of light vehicles to be generated by construction activities as 120 vehicles during construction. This would equate to a peak daily volume of 240 vpd or 120 vph during the peak hour period due to shift work. It should be noted that light vehicles would include construction worker utes predominantly, and these movements would typically occur outside of traditional peak hour periods.

Heavy vehicles consisting of no larger than 19m AVs and 20m truck and dogs would reach a maximum of 122 movements per day. Therefore, the anticipated maximum number of construction vehicles generated is:

- Peak Daily Heavy Vehicle Movements = 122;
- Peak Daily Light Vehicle Movements = 240;
- **Maximum Daily Construction Vehicle Movements = 362 movements per day;**
- Peak Hour Heavy Vehicle Movements = 40;
- Peak Hour Light Vehicle Movements = 120;
- **Maximum Peak Hour Construction Vehicle Movements = 162 movements per peak hour.**

The AM and PM peak hour periods relating to this assessment are for time periods as follows:

- AM Peak Hour = 7am to 8am.
- PM Peak Hour = 5pm to 6pm.

# 4.0 Safety Assessment

## 4.1 Site Access

The construction activities associated with this project do not propose amending the existing road condition arrangements on Grand Avenue.

Construction vehicle access to the site will be via two access points, as detailed in **Section 3.4** and depicted in **Figure 3**. At times, site access locations may be required to move temporarily to facilitate public domain works which are to be delivered by others. The safety of vehicle and pedestrian movements will be managed at both access points by implementing site-specific traffic guidance schemes (TGSs). This is further discussed in **Section 5.0**.

## 4.2 Emergency Vehicles

Emergency vehicle access to and from the site will be available at all times while the site is occupied by construction workers. There will be no disruption to emergency vehicles on any roads.

## 4.3 Closest Hospital / Medical Centre

There are several Medical Centres located in proximity to the site. Perhaps the most accessible is the Newington Medical Centre at 15/6 Avenue of Europe, Newington. The closest Public Hospital is the Westmead Hospital, located at the corner of Hawkesbury Road and Darcy Road, Westmead. It is approximately 10 km from the subject site.

# 5.0 Construction Phase Traffic Management Measures

## 5.1 Drivers Code of Conduct

A Drivers Code of Conduct was prepared by VC. This has been reproduced at **Appendix C** and is suitable to be applied for the Proposed Site.

## 5.2 Traffic Guidance Scheme

A TGS will be required to manage construction site accesses located along Grand Avenue. Refer to **Appendix D** which contains a generic TGS for implementation associated with the management of construction site access from TCAWS 6.1. This CTMP requires a site-specific TGS, based on the generic TGS D.4.7, be prepared by a suitably qualified Traffic Control Work Training licence holder. Following the implementation of this TGS, monthly inspections of the temporary traffic management (**TTM**) on-site shall be conducted as per **Section 6.3** herein.

## 5.3 Site Management

The following procedures are to be observed by all vehicle drivers accessing the subject site:

- The construction site has a drug and alcohol policy which includes random testing;
- Drivers are to obey all site signage and the directions of site personnel;
- Vehicles are to use designated circulation roads within the site where possible;
- All heavy vehicles are to park and load/unload within the site using designated parking and loading areas where possible. Vehicles are not to park or load/unload within the public road reserve; and
- All drivers are required to operate vehicles in a safe and courteous manner, within and external to the subject site.

## 5.4 Heavy Vehicle Management

### 5.4.1 General Requirements

All heavy vehicle drivers accessing the subject site must abide by the following:

- Undertake a site induction carried out by authorised site personnel or suitably qualified person under the direction of the site manager;
- All drivers must hold a valid driver's licence which is appropriate for the class of vehicle under their operation;
- All drivers are to ensure their load is legal, covered and secure before entering or exiting the site;
- All drivers must comply with Chain of Responsibility legislation;
- Vehicles entering the subject site are to be registered, roadworthy, and of sound mechanical condition. Site management may request to inspect any vehicle or request maintenance records for any vehicle and reserves the right to prohibit any vehicle from entering the subject site should there be any indication that the vehicle is not roadworthy or safe to operate;
- Any accidents, incidents, complaints, hazards, spillages or near misses must be reported immediately to the site manager. This includes incidents on the external road network.

### 5.4.2 Noise Management

To limit heavy vehicle noise associated with construction activities, drivers are to abide by the following requirements:

- Heavy vehicles using Grand Avenue should limit the use of engine or compression braking systems where possible;
- Posted speed limits on the external road network are to be observed, and vehicle speeds are to be restricted to 20km/h within the site;
- Vehicles are to be turned off when not in use.

### 5.4.3 Dust Management

To minimise the potential for dust production within the subject site, drivers are to abide by the following requirements:

- Vehicle speeds are to be restricted to 20km/h within the subject site;
- Vehicles are to use designated circulation roads within the site where possible;
- Drivers are to report excessive dust production from internal circulation roads to the site manager;

Water trucks will be used to wet down internal circulation roads during dry conditions and when excessive dust production is reported to the site manager on an as required basis.

## 5.5 Mitigation Measures

The impacts of construction traffic and the mitigating measures to be implemented are outlined in **Table 6.**

**Table 6 Mitigation Measures – Responsibility and Timing**

| Mitigation Measures | Responsibility | Timing |
|---|---|---|
| **Construction Traffic on Grand Avenue:** Construction traffic will use the two construction accesses to enter/exit the site for the works. Construction traffic will remain extremely low to ensure the impacts to motorists within the area are kept to a minimum. | Site Engineer | Weekly. |
| **Management of deliveries**: The site manager will manage deliveries to ensure that construction vehicle movements will remain low. | Site Manager | As required. |
| **Managing dirt on the public road network:** The use of rumble grids positioned at the site's access points to Grand Avenue, as well as the use of water trucks and sweeper trucks for Grand Avenue, shall ensure the existing network is free of dirt from the site. | Site Manager | As required. |
| **Safety during construction**: Safety to motorists and the public throughout the area will be maintained during construction through the preparation and execution of a Traffic Guidance Scheme (TGS). One TGS will be implemented, to manage the accesses throughout construction, and identifies all reasonably foreseeable hazards, assesses the hazards, and manages the hazards as best possible by either eliminating or minimising the | Project Manager | Reviewed at each stage of construction. |

| Mitigation Measures | Responsibility | Timing |
|---|---|---|
| risks. The TGS shall be monitored and updated accordingly throughout the project. | | |
| **Reporting:** Reporting and monitoring of movements during peak periods are to be undertaken to ensure that drivers are adhering to restricted times, and to ensure that the approved traffic generation and subsequent impacts on the road network are in line with those approved. | Site Engineer | Weekly. |
| **Induction to Drivers Code of Conduct:** Vehicle operators accessing the construction site shall be inducted onto the Drivers Code of Conduct (**Appendix C**) on an as required basis, prior to entering the site. The Contractor is to maintain a register of inducted operators with evidence of induction by way of operator signatures being captured. | Site Manager/Project Manager | As required |

## 5.6 Risk Assessment

A risk assessment is intended to identify hazards and risks associated with the construction activities. The purpose is to determine the controls required for the protection of road workers and road users. A Risk Assessment associated with the construction works of this site has been completed and is attached at **Appendix E**.

# 6.0 CTMP Monitoring / Review & Improvement Process

## 6.1 Implementation

In accordance with Part B, Condition B2 of the Development Consent:

- Construction should not commence until this CTMP has been approved by the Planning Secretary; and
- The most recent version of this CTMP approved by the Planning Secretary should be implemented for the duration of construction.

## 6.2 Monitoring and Review

This CTMP shall be subject to a monthly review and will be updated accordingly. Regular reviews will be undertaken by the on-site coordinator during implementation and execution of this CTMP. Monitoring of this CTMP shall also be picked up in the Environmental checklists, with any incidents being reported within the weekly site meeting. The monitoring shall be undertaken in accordance with Condition C1.

All and any reviews undertaken should be documented, however key considerations regarding the review of the CTMP shall be:

- To ensure the implementation of the CTMP and TGS's are consistent with the intent of this report, and that the most recent version of the CTMP and TGS (as approved by the Planning Secretary) is being implemented.
- Tracking deliveries against the volumes outlined within this report. Deliveries will be tracked against approved volumes and a vehicle log will be maintained - including vehicle registration and time of entry - for the purpose of assessing the effectiveness of these monitoring programs.
- It is expected the Contractor will undertake a truck and car count/review to ensure volumes are within Condition Green of **Table 9** and will be undertaken once a month. In addition, the Contractor is required to retain a log of all vehicles accessing the Site on a daily basis.
- To identify any shortfalls and develop an updated action plan to address issues that may arise during construction (parking and access issues).
- To ensure TGS's are updated (if necessary) by "Prepare a Work Zone Traffic Management Plan" cardholders to ensure they remain consistent with the set-up on-site.
- Regular checks to ensure all loads are entering and leaving the site covered as outlined within this CTMP.

As such, **Table 7** provides triggers to monitor and review this CTMP.

**Table 7 CTMP Monitoring and Review - Triggers**

| Type of Review | Frequency | Considerations |
|---|---|---|
| **Scheduled** | The scheduled CTMP review must be undertaken monthly or as specified otherwise. | The scheduled CTMP review must consider the following:<br>• CTMP and TGS are approved;<br>• Identify required variations to the TGS and ensure that they are updated, recorded, and approved;<br>• Review any departures or variations of the CTMP and/or TGS to ensure they have been documented and approved;<br>• Speed control effectiveness;<br>• Construction vehicle entry/egress suitability, with no queuing on the public road network at any time;<br>• Construction vehicle daily/peak hour movements are compliant with approved volumes, with monthly reviews of the contractor's daily logbook of vehicles required;<br>• Periodic checks to ensure that heavy vehicles are using the correct access route;<br>• Periodic checks of noise-generating items to ensure they are less than the prescribed noise limits. |
| **Change Generated Review** | The change-generated review must be undertaken when implementing new traffic stages, switches, or other construction-based activities. | The change-generated CTMP review must consider the following:<br>• The work site is operating safely;<br>• Delineation is effective with appropriate signage installed for changed conditions;<br>• Safe passage is provided for all road users;<br>• Road Safety Audits are arranged or confirmed as required;<br>• Accountability for approval and inspection is well understood and documented. |
| **Non-Compliance, Post Incident or Near Miss Review** | The non-compliance, post-incident or near miss review must be undertaken following an incident or near miss. | Any non-compliance must be reported immediately to the supervisor. A non-compliance is anything other than 'Condition Green' as outlined in **Table 9**.<br>All workplace incidents must be reported immediately to the supervisor, who will determine the responsibility for investigating the incident. The incident and investigation must also be recorded in an incident reporting system as applicable.<br>The post-incident or near miss CTMP review must consider:<br>• Causal factors;<br>• Contributory factors or changes required; and<br>• Identified changes to TGS are completed, approved, recorded, and communicated. For any incidents or near misses (where required), a safety alert must also be prepared and distributed by the Site Manager to share learnings with other work sites (as applicable). |

This monitoring 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. The roadway (including footpath) must be kept in a serviceable condition for the duration of construction. At the direction of Council, remedial treatments such as patching shall be undertaken at no cost to Council.

## 6.3 Work Site Inspections, Recording and Reporting

Recording and reporting of the monitoring programs shall be done in accordance with Section E.3 (Weekly TTM inspection checklist), E.4 (Shift/Daily TTM inspection checklist) and E.5 (Post completion inspection checklist) of the TfNSW *Traffic Control at Work Sites* Technical Manual Issue No. 6.1 (**TCAWS 6.1**). As such, the structure, schedule, and frequency of these activities have been considered and identified.

To inspect, review and audit the temporary traffic management (**TTM**) arrangements implemented on-site, the actions presented in **Table 8** are to be undertaken by suitably qualified personnel in accordance with TCAWS 6.1 requirements during all phases of construction.

**Table 8 Review of Activities – Example Template**

| Activity | | | Frequency or Details |
|---|---|---|---|
| **Shift Inspections** | □ YES | □ NO | |
| **Regular Inspections** | □ YES | □ NO | |
| **TMP Review** | □ YES | □ NO | |
| **Road Safety Audit** | □ YES | □ NO | |
| **Other** | □ YES | □ NO | |
| **Comments** | | | |

Given the duration of construction (19 months) and that no regular works have been proposed external to the site, monthly TTM inspections are considered to be sufficient.

### 6.3.1 Incident Management

For the purposes of this CTMP, an 'incident' is 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. Furthermore, a 'non-compliance' is an occurrence, set of circumstances or development that is a breach of the consent.

All incidents related to traffic, including those of the Principal Contractor, subcontractors, and/or visitors that occur during construction works will be managed in conjunction with the requirements outlined in VC's Incident and Non-compliance Response and Handling Procedure (outlined within the CEMP).

Whilst it is noted that key Contractors will be implementing their own environmental management system procedures and processes, VC will be responsible for ensuring that these systems and processes satisfy the requirements of the CEMP, including the incident management components.

VC's Project Manager must be notified immediately of any environmental incident or near miss related to traffic. Such incidents may include, but not limited to:

- Vehicle crash or injury resulting from construction traffic related to the project;
- Queuing onto Grand Avenue, in breach of the requirements set out under this CTMP;
- Spill of any dangerous goods or hazardous substance to ground or water;
- Substantiated complaints received from members of the community or regulatory authorities relating to traffic management;
- Land-based off-site sediment loss to the environment, including sediment tracking onto the roadway.

VC's Project Manager will be responsible for all notifiable environmental incidents in line with the regulatory notification requirements (outlined within the CEMP).

All environmental incidents will be reported immediately to DPHI in writing via the Planning Portal after VC and Hale Capital (**Hale**) become aware of the incident, as per Condition C9 of the conditions. Any notification to DPHI must identify the development, including the application number, and set out the location and nature of the incident.

In the event of a notifiable non-compliance incident arising, the Principal Contractor will notify Hale Project Manager immediately, who is then required to notify DPHI in writing (via the Planning Portal) within 7 days, as per Condition C10 of the conditions. In accordance with Condition C11, any notification to DPHI must:

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

The CEMP also outlines procedures for incident and non-compliance response and handling within Section 3.5.

## 6.4 Contingency Plan

A contingency plan shall be established by the Contractor and is to be included in the overarching CEMP in accordance with Condition C1(f). Notwithstanding, **Table 9** outlines an indicative plan to be undertaken by the Contractor in the event that the monitoring program identifies the management plan as not effective in managing the construction impacts.

A Compliance Report must be submitted to the Department reviewing the environmental performance of the development to:

- identify any trends in the monitoring data over the life of the development;
- identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and
- describe what measures will be implemented over the next year to improve the environmental performance of the development.

**Table 9 Contingency Plan**

| Risk | | Condition Green | Condition Amber | Condition Red |
|---|---|---|---|---|
| **Construction Movements** | Trigger | Both peak hour and daily Construction traffic volumes are in accordance with volume and time constraints as outlined within Section 3.2 and Section 3.6 (240 LV & 122 HV movements per day / 120 LV & 40 HV movements in peak hour periods). | Construction traffic volumes exceeds programmed peak hour volumes but is within permissible daily volume constraints (240 LV & 122 HV movements per day / 120 LV & 40 HV movements in peak hour periods). | Construction traffic volumes exceeds permissible volume and time constraints (240 LV & 122 HV movements per day / 120 LV & 40 HV movements in peak hour periods). |
| | Response | No response required. | Review and investigate construction activities, and where appropriate, implement additional remediation measures such as:<br>• Review CTMP and update where necessary;<br>• Provide additional training. | As per Condition Amber, plus:<br>• If it is concluded that construction activities were directly responsible for the exceedance, submit an incident report to government agencies.<br>• Stop all transportation into and out of the site. |
| **Queuing** | Trigger | No queuing identified. | Queuing identified within site, but not on to public road. | 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. | As per Condition, plus:<br>• Review and investigate construction activities.<br>• If it is concluded that construction activities were directly responsible for the exceedance, submit an incident report to government agencies.<br>• Temporary halting of activities and resuming when conditions have improved.<br>• Stop all transportation into and out of the site.<br>• Review CTMP and update where |

| Risk | | Condition Green | Condition Amber | Condition Red |
|---|---|---|---|---|
| | | | | necessary, provide additional training. |
| **Noise** | Trigger | Noise levels do not exceed imposed noise limits, as outlined within the approved CNVMP nor has there been a traffic noise related complaint. | Noise levels in minor excess (<10dBA) of imposed noise limits per the approved CNVMP, or receipt of a single noise complaint. | Noise levels greatly in excess (>10dBA) of imposed noise limits per approved CNVMP, or consistent noise complaints. |
| | 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 (TGS implemented according to plan). | Minor inconsistencies with TGS to onsite operations (such as covered signs, missing signs, fallen cones, etc.). | 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 undertake 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 onto the road. | Large quantities of dust in the air and tracking onto the road. |
| | Response | No response required. | Review and investigate construction activities and respective control measures, where appropriate.<br>Implement additional remedial measures, such as:<br>• Deployment of additional water sprays.<br>• Relocation or modification of dust-generating sources.<br>• Check condition of vibrating grids to ensure they are | As per Condition Amber, plus:<br>• If it is concluded that construction activities were directly responsible for the exceedance, submit an incident report to government agencies.<br>• Implement relevant responses and undertake immediate review to avoid such occurrences in future. |

| Risk | | Condition Green | Condition Amber | Condition Red |
|---|---|---|---|---|
| | | | functioning correctly. Temporary halting of activities and resuming when conditions have improved. | |

## 6.5 Communications Strategy

A communications strategy shall be established by the Contractor and is included in the overarching CEMP Section 1.7 (refer to the community consultation strategy prepared separately).

A Communications and Community Liaison Representative (**CCLR**) has been nominated as Stephen Shoesmith of SLR Consulting and shall be responsible for ensuring that the appropriate management response and handling procedures are instigated and carried through in the event of an environmental complaint.

All employees who are made aware of a complaint, either verbal or written, are to immediately notify the Contractor's Project Manager, who will then contact the CCLR. Upon becoming aware of a complaint, the protocol outlined in **Table 10** will be followed.

**Table 10 Response Strategy**

| Ref | Protocol | Action |
|---|---|---|
| 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 CCLR.<br>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 or 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 CCLR will prioritise all complaints by severity for the risk to health and safety and will attempt to provide an immediate response via phone or email. |
| 3 | Investigate | An on-site 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. |
| 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.<br>The CCLR 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 CCLR will oversee the rectification of the issue and respond to the complainant once the issue has been resolved. |

| Ref | Protocol | Action |
|---|---|---|
| | | 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.<br>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 to minimise the potential for similar complaints in the future. On this basis, every complaint received is to be recorded in the Community Correspondence Register. A copy of the completed form will be maintained for at least five years |
| 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. |

In addition to the above, the CCLR is to notify the community liaison representative when traffic is expected to exceed the parameters set within “Condition Green” of **Table 9**. Notwithstanding, **Table 11** outlines an indicative communication strategy to ensure that adequate communication with key stakeholders has been met.

**Table 11 Communications Strategy**

| Risk | Impact | Comms Channel |
|---|---|---|
| Wider Traffic Disruption | Wider community and stakeholders informed through local and wider advertising and notification | Stakeholder Meetings |
| Construction related traffic | Ensure construction crews use traffic routes identified in the Traffic Management Plan,<br>and<br>Ensure residents in area are notified in advance to any traffic changes that may affect them | Stakeholder email blast. |

Furthermore, ongoing communication will be undertaken so that all stakeholders are kept up to date of works and potential impacts.

# Appendix A Curriculum Vitae – Brendyn Rheinberger

Brendyn is a highly dedicated and driven Traffic and Transport Engineer who thrives on working in a complex, challenging and problem-solving environment. Brendyn has extensive professional experience with over 15 years working in traffic and transport engineering, civil engineering, and project management roles in both public and private contexts throughout Queensland and NSW.

Skilled in integrated transport planning, traffic analysis, construction traffic management, traffic signal design, road network operations, road safety, car park design and project management. Brendyn has a proven ability to develop and foster strong relationships with organisations and authorities, through communication, honesty, and integrity.

## Education and Qualifications

- Master of Engineering (Engineering Management), Griffith University (2015)
- Bachelor of Engineering (Civil), Griffith University (2012)
- Chartered Professional Engineer of Australia (CPEng)
- Professional Engineer of Queensland (RPEQ)
- Professional Engineer of Victoria (RPEV)
- Traffic Management Design (TMD) accredited, Department of Transport and Main Roads
- Prepare Traffic Management Plans and Traffic Guidance Schemes (TCT1044529), NSW Government
- Road Safety Auditor (RSA), Department of Transport and Main Roads

## Project Experience

**Springwood to Browns Plains Passenger Transport Corridor Study, TMR (2020)****
Brendyn and his team were commissioned by the Department of Transport and Main Roads to investigate public transport demands and infrastructure requirements between Springwood and Browns Plains to support future growth and improved multi-modal transport outcomes.

Brendyn was involved in the review of the existing bus network, setting strategic objectives and developed the options analysis framework for assessing proposed corridors.

**Lae Drive, Runaway Bay Corridor Master Plan, CoGC (2020)****
Brendyn and his team were engaged by City of Gold Cost (CoGC) to provide a multi-modal corridor master plan for the Lae Drive corridor in Runaway Bay. The corridor includes numerous signalised and unsignalised intersections and roundabouts which were assessed, and intersection upgrades proposed as part of the project. The solutions for the corridor included individual intersection upgrades as well as corridor connections to suit the demographics and user profile of the corridor. The team prepared three briefing notes, a technical summary report and a graphically designed corridor master plan for public issue.

Brendyn oversaw the investigations into both the active and public transport networks for the corridor and provided guidance on intersection analysis using SIDRA intersection performance software.

Brendyn led workshops internally with the project team to determine individual mode-based solutions and derive the most suitable options using a SWOT analysis methodology.

**Mackay Waterfront PDA Transport Model Analysis, MRC (2020)****
Brendyn and his team were engaged by Mackay Regional Council (MRC) to undertake an options analysis on the Sydney Street/River Street intersection located near the Pioneer River in the Mackay CBD. MRC and the Department of Transport and Main Roads identified

an issue with connectivity for the Blue Water Trail, an active transport shared path that travels along the Pioneer River coastline predominantly used for recreation. The existing intersection configuration of Sydney Street/River Street forced pedestrians and cyclists travelling along the trail to cross in two stages resulting in significant delays. The project investigated various options to modify the intersection and surrounding Blue Water Trail alignment to improve connectivity for pedestrians and cyclists. The project resulted in providing MRC with three preferred options suited to three differing timeframes for implementation, as well as enabling each option to be built upon one another as a progression of sorts towards an end vision for the Waterfront PDA.

Brendyn managed the project's budgetary and time requirements and was the key contact representing his project team. He oversaw the options development, intersection analysis and provided guidance on concept designs.

**Brisbane Metro Program Management, TransLink (2019-2021)****
Brendyn undertook a role in representing Queensland Government for the Brisbane Metro project. He was responsible for coordinating design reviews of all design packages under Brisbane Move's scope. He was also responsible for briefing TransLink's executive team on upcoming bus service disruptions as a result of planned construction activities. Brendyn was a liaison for TransLink within several working groups and interfaced with BCC, the Project Verifiers and Brisbane Move representatives.

**Kellyville Station Bus Interchange Concept Design, Sydney Metro (2019)****
Brendyn was the project manager for the concept design of the bus interchange at Kellyville station. This involved developing several options for buses to circulate through the station precinct including providing provisions for bus stop and bus priority infrastructure. Brendyn was in constant communication with Roads and Maritime, Transport for NSW and The Hills Shire Council in regard to road operational impacts, bus route service planning, bus lane enforcement and parking and signage changes. The work Brendyn performed was pivotal to all stakeholders coming to agreement and deciding on a preferred option to be added to the Station Precinct Design Plan.

**Sydenham Temporary Bussing Optioneering, Sydney Metro (2019)****
Due to the proposed changes to the surrounding road network of Sydenham station as part of Metro upgrade works, new rail replacement bus routes and stop locations were required as a result of impacts to the existing Sydney Trains bus specifications during rail possessions. Brendyn developed eight different options for bus routes and stop locations and assessed each against a common set of criteria as part of a multi-criteria analysis. Through this process Brendyn was able to determine a preferred option and presented the findings of this optioneering assessment numerous times to Roads and Maritime, Sydney Coordination Office, Transport for NSW, Sydney Trains and Inner West Council. Brendyn ascertained in-principle support and approvals from the relevant stakeholders which was instrumental in implementing the preferred option.

**Kellyville Park N Ride Demand Investigation, Sydney Metro (2019)****
Brendyn provided support to the investigation of the Park n Ride facility at Kellyville. This multi-storey car park consists of 1350 spaces and it was Brendyn's responsibility to assist with providing comparative findings of the forecasted demands versus the observed demands of the facility during peak traffic periods. These findings informed the traffic analysis that Brendyn managed for the precinct streets of Kellyville station and the surrounding key intersections. By understanding the demand profile of traffic volumes entering and exiting the Park n Ride facility, Brendyn was able to accurately stress test the local road network to determine its current design life before requiring capacity upgrades.

**Sydenham To Bankstown Integrated Transport Planning, Sydney Metro (2019)****
Across the ten future southwest Metro stations, Brendyn's role was to oversee the identification of potential improvement opportunities to pedestrian and cyclist facilities, bus

stops and kiss n ride spaces surrounding the station precincts. Improvements included undertaking pedestrian capacity assessments, surrounding land use investigations, identifying pedestrian desire lines, a walking and cycling strategy, traffic modelling, concept designs and bus stop operational assessments of which Brendyn facilitated. Brendyn organised workshops to further develop concept designs and presented the recommended improvements to relevant stakeholders for in-principle agreement prior to the submission of a technical report for final approval. The improvement opportunities were selected to align with Transport for NSW's Movement and Place Framework.

**Bankstown Line Temporary Transport Plan, Sydney Metro (2019)****
This project involved the development of a temporary transport plan designed to be implemented during the possession of the existing Bankstown heavy rail line to facilitate conversion works. Across a three week period, rail replacement bus services are planned to be in operation to transport rail customers inconvenienced by the Bankstown line rail possession. As Traffic Manager, Brendyn was responsible for assessing the road network planned to be utilised by rail replacement buses. The main objective of Brendyn's role was to ensure reliability and to improve bus travel time through a congested road network. Through traffic modelling, Brendyn was able to effectively identify locations suitable for temporary changes to on-street parking, traffic signal phasing modifications and locations for pedestrian management, all to support the temporary bus services. Finally, the list of recommended modifications and the justification behind each was presented as part of a handover by Brendyn to members of the Sydney Coordination Office and Transport Management Centre, who were tasked with operating the TTP.

**Traffic Engineer, Sydney Light Rail Project, Acciona Infrastructure (2016-2018)****
This project involved the construction of a light rail network travelling through the Sydney CBD and extending through Surry Hills, Randwick, Kensington and Kingsford suburbs. The project addressed the capacity issues on the south eastern suburbs bus network by providing a high frequency 'turn up and go' service connecting the inner west suburbs with the south eastern suburbs through 12km of light rail network. As a Traffic Engineer on this high profile project, Brendyn's primary role was to prepare site-specific traffic management plans to facilitate construction of various utility and civil components throughout the Randwick, Kensington and Kingsford sections. In designing each TMP, Brendyn had a strong focus on pedestrian and cyclist safety as these facilities were designed in a temporary configuration in the vicinity of construction vehicle movements and activities. Overseeing all aspects of TMP development and obtaining approvals from state and local authorities was Brendyn's ultimate objective and was vital for construction activities to proceed.

**Safer Roads Sooner Program, TMR (2016)****
As part of the south coast region for Transport and Main Roads, Brendyn oversaw the determination of potential road improvement projects where deficiencies in safety were evident due to historical accident data and trends being identified. Brendyn was responsible for undertaking cost benefit analysis for each potential project to develop a short list for submission to the Land Transport Safety team within TMR. For each of the short listed road improvement projects, Brendyn prepared a business case which highlighted the justification and benefits the projects would provide to the state controlled road network. These business cases were submitted to the Land Transport Safety team to determine funding allocations for the south coast region under the Safer Roads Sooner program.

**M1 Motorway Exit 54 Interchange Upgrade, Traffic Signal Operational Support, TMR (2015-2016)****
As part of the Network Optimisation team within Transport and Main Roads, Brendyn provided traffic signal design and operational support to the contractor during each stage of construction of the Exit 54 interchange upgrade. This involved developing traffic signal plans that dictated the cycle times and phasing for the varying traffic demands throughout each day. Brendyn monitored the live traffic utilising a combination of permanent and temporary

CCTV cameras during the critical AM and PM peak periods to ensure queuing did not exceed the capacity of the on and off-ramps to the M1 motorway. Brendyn attended meetings with the contractor regularly and provided advice on construction staging in regard to traffic signal operations.

**Metricon Stadium Venue Transport Planning, TMR (2020)****
Brendyn provided support to the Gold Coast Suns AFL club in regard to the operation of traffic signals as part of the Metricon Stadium transport planning for AFL game days. Liaising with the Gold Coast Suns, Queensland Police, QLD Ambulance, QLD Fire and Emergency, City of Gold Coast and the Traffic Management Centre, Brendyn was able to develop game day specific traffic signal plans for Nerang Broadbeach Road that catered for the needs of each stakeholder. This included the coordination of the corridor to support the major direction of traffic flow, extending pedestrian crossing times at key locations which would be supported by on-site traffic controllers, and providing bus priority signal phasing to assist with transporting spectators to and from games.

## Memberships and Associations

- Member of Institution of Engineers Australia (MIEAust)
- Member of Australian Institute of Traffic Planning and Management (AITPM)

# Appendix B Site Plans

Hale




1 WAREHOUSE - GROUND FLOOR 1 : 500

## GENERAL LEGEND:

B1 - BOLLARD TYPE 1
COL-C - CONCRETE COLUMN
COL-S - STEEL COLUMN
RSD - ROLLER SHUTTER DOOR
FCC - FIRE CONTROL CENTRE
FNC-1 - PALISADE
FNC-2 - CHAIN WIRE
DP - DOWNPIPES
RW - RETAINING WALL
GEF - GROUND EXHAUST FAN
SAF - SUPPLY AIR FAN
SEF - SMOKE EXHAUST FAN
SD/FD - SMOKE / FIRE DAMPER
TYP - (TYPICAL)
SG1 - SLIDING GATE
SG2 - SWING GATE
SG3 - SWING GATE - PEDESTRIAN

SITE BOUNDARY
LOT BOUNDARY
EASEMENT
TO BE DEMOLISHED

S# SIGNAGE - REFER TO SIGNAGE DETAILS

FIRE SERVICES
LANDSCAPE AREA
WASTE AREA

**ISSUE FOR DA**

| ISSUE | DESCRIPTION | DATE |
|---|---|---|
| 13 | SSDA REV 2.1 | 04.03.2024 |
| 12 | CIVIL COORDINATION | 26.02.2024 |
| 11 | LANDSCAPE AMENDMENT | 16.02.2024 |
| 10 | SSDA COMMENTS REV | 06.12.2023 |
| 9 | ISSUE FOR DA | 13.06.2023 |
| 8 | ISSUE FOR DA | 02.06.2023 |
| 7 | ISSUE FOR COORDINATION | 25.05.2023 |
| 6 | ISSUE FOR COORDINATION | 08.05.2023 |


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CLIENT: HALE CAPITAL DEVELOPMENT MANAGEMENT

# GRAND AVENUE MULTI-LEVEL WAREHOUSE, ROSEHILL

6 GRAND AVENUE, ROSEHILL NSW 2142

NORTH

TITLE: WAREHOUSE GF PLAN

DATE: 04.03.2024 SCALE: As indicated @ A1 JOB NO: 22277 DWG NO: DA100 REVISION: 13


8/03/2024 8:49:27 AM C:\Users\MarkOne\One Drive - SBA Architects\Documents\22277 - HALE - ROSEHILL_002_DA - FACADE OPTION 3_mark5.RTC.rvt

# Appendix C Drivers Code of Conduct

# Drivers Code of Conduct

Safe Driving Policy for DP 1258587 located at 6 Grand Avenue, Rosehill, NSW.

## FOR ALL DRIVERS OF PLANT, TRUCKS & VEHICLES THAT ACCESS THIS PROJECT SITE.

Drivers Code of Conduct (Conditions of entry):

- All drivers MUST call their delivery contact prior to entering site and be supervised by their contact person at all times while on site.
- Your delivery contact will direct you where to park and organise the unloading of your vehicle.
- All drivers are to adhere to all signposted directions.
- Vehicle movements within the site are restricted to 10km/h.
- Vehicles shall follow the designated traffic route at all times.
- Drivers (of deliveries) are not to move their vehicles around site with ‘unrestrained loads’. This means, any and all items must be adequately chained or tied down to the vehicle, prior to the vehicle’s movement on or around the site.
- All loads being removed from site shall be secured and/ or covered appropriately.
- Appropriate measures will be put in place to ensure that vehicles leaving the site do not deposit dirt or mud on surrounding roadways. Drivers are responsible for notifying the Site Supervisor if excessive dirt or dust can be seen surrounding the site.
- Vehicles shall not queue onto Grand Avenue from the site access.
- Vehicles shall enter and exit the site in a safe and orderly manner.
- Drivers must maintain a safe ‘buffer’ distance from any person/ or plant being operated by a person whilst moving on/ around the site.

# Sign Off Register

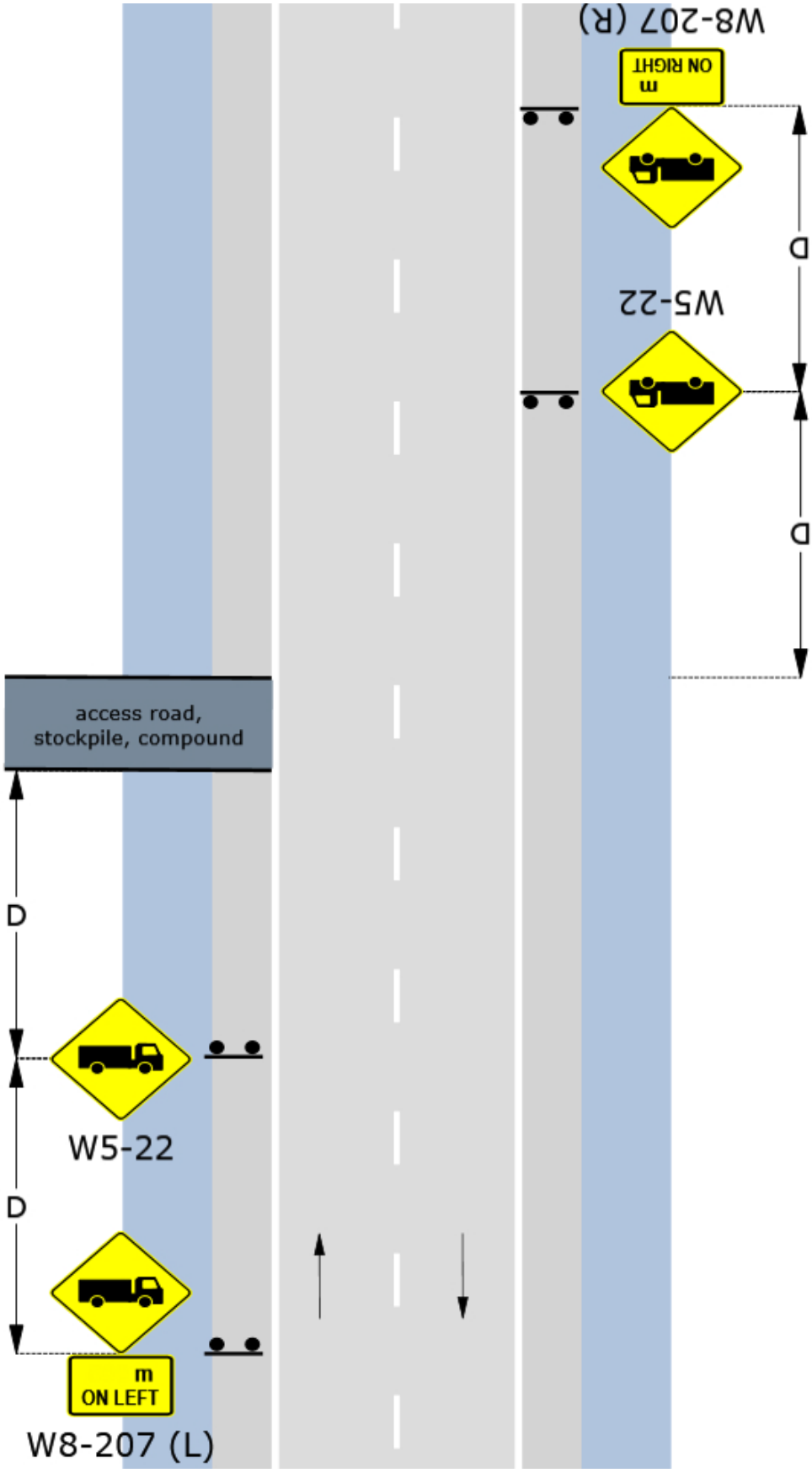
By signing the table below you are confirming that you have read, understood, and agree to the Drivers Code of Conduct for the 6 Grand Avenue, Rosehill Site.

| Name | Signature | Date |
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If you have any questions, please contact the Vaughan Construction Site Supervisor.

# Appendix D Traffic Guidance Scheme

## D.4.7 Static: Access to depot, stockpile, quarry, gravel pit etc. all roads (formerly TCP 195)






© State of NSW through Transport for NSW 2022

# Appendix E Risk Assessment

SLR Consulting Australia
Level 16, 175 Eagle Street, Brisbane QLD 4000, Australia

# 6 Grand Avenue CTMP

## 6 Grand Avenue, Rosehill

## RISK ASSESSMENT AND COMMUNICATION TOOL

| | |
|---|---|
| Project Number | 640.031417.00001 |
| Project Name | 6 Grand Avenue, CTMP |
| Site Location | 6 Grand Avenue, Rosehill, NSW |
| Date of Assessment | 06 September 2024 |
| Revision | Issue 1 |

| Name | Company | Title |
|---|---|---|
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| Document Control | | | |
|---|---|---|---|
| Date Issued | Revision | Issued By | Checked By |
| 06 September 2024 | Draft | A.Moxon | B. Rheinberger |

| Risk Evaluation Matrix | | Consequences | | | | | |
|---|---|---|---|---|---|---|---|
| Risk Ratings: Very high = VH; High = H; Medium = M; Low = L | | Insignificant | Minor | Moderate | Major | Severe | Catastrophic |
| | | C6 | C5 | C4 | C3 | C2 | C1 |
| Almost certain | L1 | M | H | H | VH | VH | VH |
| Very likely | L2 | M | M | H | H | VH | VH |
| Likely | L3 | L | M | M | H | H | VH |
| Unlikely | L4 | L | L | M | M | H | H |
| Very unlikely | L5 | L | L | L | M | M | H |
| Almost unprecedented | L6 | L | L | L | L | M | M |

| Consequence Rating | Description |
|---|---|
| Insignificant | • Illness, first aid or injury not requiring medical treatment.<br>• No lost time. |
| Minor | • Minor injury or illness requiring medical treatment.<br>• No lost time post medical treatment. |
| Moderate | Minor injuries or illnesses resulting in lost time. |
| Major | 1 to 10 serious injuries or illnesses* resulting in lost time or potential permanent impairment. |
| Severe | Single fatality and/or 11 to 20 serious injuries or illnesses* resulting in lost time or potential permanent impairment. |
| Catastrophic | Multiple fatalities and/or more than 20 serious injuries or illnesses* resulting in lost time or potential permanent impairment. |

* Serious injury or illness is defined by the WHS Act section 36

| Likelihood Rating | Description |
|---|---|
| Almost certain | • Expected to occur multiple times (10 or more times) during any given year.<br>• Expected to occur at least 1 in every 4 times the event or action occurs (more than 25% chance of occurrence).<br>• This risk is known to occur frequently. |
| Very likely | • Expected to occur occasionally (1 to 10 times) during any given year.<br>• Expected to occur between 1 in 4 and 1 in 10 times the event or action occurs (10 to 25% chance of occurrence).<br>• This risk is known to occur often. |
| Likely | • Expected to occur once during any given year.<br>• Expected to occur between 1 in 10 and 1 in 100 times the event or action.<br>• occurs (1 to 10% chance of occurrence).<br>• This risk is known to have occurred on occasions. |
| Unlikely | • Expected to occur once every 1 to10 years.<br>• Expected to occur between 1 in 100 and 1 in 1,000 times the event or action occurs (0.1 to 1.0% chance of occurrence).<br>• This risk could occur but not often. |
| Very unlikely | • Expected to occur once every 10 to100 years.<br>• Expected to occur between 1 in 1,000 and 1 in 10,000 times the event or action occurs (0.01 to 0.1% chance of occurrence).<br>• It is unusual that this risk occurs, but it has happened. |
| Almost unprecedented | • Not expected to occur in the next 100 years (less than once every 100 years).<br>• Expected to occur less than 1 in 10,000 times (if ever) the event or action occurs (less than 0.01% chance of occurrence).<br>• Any risk can occur, but it is very improbable that this risk will occur within a large number of events. |

# RISK ASSESSMENT AND COMMUNICATION TOOL

| 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 | Unauthorised access to the site. | Site entry controls fail to prevent unauthorised access. | Entire site. | Nil. | 3 | 3 | High | Exclusion barriers will be provided as part of the main works. The design provides a defined separation between construction and work areas. | Design solution. | Main Contractor | 5 | 4 | Low |
| 2 | Interaction between pedestrians and vehicles. | Uncontrolled vehicle and pedestrian conflict points. | Entire site, car park and access road. | Nil. | 2 | 3 | High | Dedicated footpaths, pedestrian crossings and additional signage shall be provided to separate vehicles and pedestrians if required. | Design solution. | Main Contractor | 4 | 4 | Medium |
| 3 | Potential vehicle conflict points. | Vehicles can crash with each other while manoeuvring through the site. | Entire site, car park and access road. | Nil. | 4 | 3 | Medium | Roadways are capable of two-way flow. Nevertheless, Traffic Controllers shall limit movements within disrupted areas to limit any safety issues. Low speeds throughout the site also reduce the potential for crashes. | Design Solution. | Main Contractor | 4 | 5 | Low |
| 4 | Fatigue. | Injury caused by fatigue. | Entire site. | Nil. | 2 | 3 | High | Toolbox meetings and regular breaks (in line with WHS practices) to minimise fatigue. | Design Solution. | Main Contractor | 2 | 5 | Medium |
| 5 | Fall risks. | Injury due to falls (in general). | Entire site and car park area. | Nil. | 1 | 4 | High | Ensuring level changes across the site to be minimised as best possible, with additional black & yellow hazard tape/marking being installed where appropriate. Installation of handrails where level changes/ramp grades are significant. | Design Solution. | Main Contractor | 2 | 5 | Medium |
| 6 | Misdirected access into neighbouring site. | Vehicle in unsafe locations. | Entire site. | Nil. | 4 | 4 | Medium | 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 | 4 | 5 | Low |
| 7 | Conflicting traffic management. | Coordinating Traffic Controllers could create misleading and wrong advice. | Entire site. | Nil. | 2 | 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 | 2 | 5 | Medium |

# Appendix F Correspondence with Parramatta Light Rail Stage 2 Project Team

**From:** ParramattaLightRail
**Sent on:** Tuesday, 10 September 2024 1:05:08 PM
**To:** Alexandra Moxon
**CC:** ParramattaLightRail
**Subject:** RE: 6 Grane Avenue, Rosehill NSW | SSD-55522478

You don't often get email from parramattalightrail@transport.nsw.gov.au. Learn why this is important

Hi Alex

As mentioned on the phone, there should not be any impacts from PLR Stage 2 for the following reasons:

1. Delivery of PLR2 will be staged starting with a new bridge between Melrose Park and Wentworth Point (the Enabling Works package). While major construction of the Enabling Works is due to commence in 2025, work on the rest of the alignment (the Main Works) is still subject to a detailed procurement process. An indicative construction program for Stage A (Enabling Works) and Stage B (Main Works) was provided in Figure 2.1. of 'Appendix A: Updated project description' of the PLR2 Amendment Report - https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSI-10035%2120231004T022036.745%20GMT

2. Please also note that the approved alignment for PLR2 runs through the existing Sandown Line rail corridor and not directly along Grand Avenue. The approved PLR2 alignment is also shown in Appendix A available via the above link.

I hope this helps.

Thanks
Nick

---

OFFICIAL

**From:** Alexandra Moxon <Alexandra.Moxon@slrconsulting.com>
**Sent:** Tuesday, September 10, 2024 10:29 AM
**To:** ParramattaLightRail <ParramattaLightRail@transport.nsw.gov.au>
**Subject:** 6 Grane Avenue, Rosehill NSW | SSD-55522478

You don't often get email from alexandra.moxon@slrconsulting.com. Learn why this is important
**CAUTION**: This email is sent from an external source. Do not click any links or open attachments unless you recognise the sender and know the content is safe.

Dear Parramatta Light Rail Team,

My name is Alex Moxon, and I work for SLR Consulting who has been commissioned by Vaughan Constructions to prepare a Construction Traffic Management Plan (CTMP) for the construction of a Multi-level Warehouse Facility located at 6 Grand Avenue, NSW.

We understand the Parramatta Light Rail Stage 2 works may coincide with the construction phasing and access works at 6 Grand Avenue.
Do you have a contact for the Construction Project Team on Stage 2 with whom I can take this forward to discuss in further detail their works and ours.

Thanks in advance.

Thanks
Alex

**Alexandra Moxon** ***(she/her/hers)***
Senior Project Consultant -- Transport Advisory

**D** +61 7 3858 4839 **O** +61 7 3858 4800
**M** +61 426 744 942 **E** Alexandra.Moxon@slrconsulting.com

SLR Consulting Australia Pty Ltd
Level 16, 175 Eagle Street, Brisbane, QLD, Australia 4000




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# Appendix G Correspondence with Sydney Metro West Project Team

## Brendyn Rheinberger

From: Brendyn Rheinberger
Sent: Friday, 27 September 2024 11:24 AM
To: Sandra La Rocca
Cc: Alexandra Moxon
Subject: RE: 6 Grand Avenue, Rosehill NSW | SSD-55522478 [Filed 27 Sep 2024 11:23]

Categories: Filed by Mail Manager

Hi Sandra,

Sorry to bother you again regarding this one, but guessing you've yet to hear anything from GLC regarding their review of the SLR CTMP for 6 Grand Ave Warehouse development?

Thanks
Brendyn

---

From: Sandra La Rocca <Sandra.Larocca@transport.nsw.gov.au>
Sent: Thursday, 26 September 2024 10:47 AM
To: Alexandra Moxon <Alexandra.Moxon@slrconsulting.com>
Cc: Brendyn Rheinberger <brheinberger@slrconsulting.com>
Subject: RE: 6 Grand Avenue, Rosehill NSW | SSD-55522478

Hi Alexandra

I will chase them up and get a response for you asap.

Thanks
Sandra

---

OFFICIAL

From: Alexandra Moxon <Alexandra.Moxon@slrconsulting.com>
Sent: Thursday, September 26, 2024 10:42 AM
To: Sandra La Rocca <Sandra.Larocca@transport.nsw.gov.au>
Cc: Brendyn Rheinberger <brheinberger@slrconsulting.com>
Subject: FW: 6 Grand Avenue, Rosehill NSW | SSD-55522478

You don't often get email from alexandra.moxon@slrconsulting.com. Learn why this is important

CAUTION: This email is sent from an external source. Do not click any links or open attachments unless you recognise the sender and know the content is safe.

Hi Sandra,

I just wanted to check in if GLC have reviewed the CTMP and have any comments/queries.
I'll be on leave for the next week but I've cc'd my colleague Brendyn in, if you could include him in all future correspondence that would be great.

Thanks

Alex

**Alexandra Moxon** ***(she/her/hers)***
Senior Project Consultant - Transport Advisory

**D** +61 7 3858 4839 **O** +61 7 3858 4800
**M** +61 426 744 942 **E** Alexandra.Moxon@slrconsulting.com

SLR Consulting Australia Pty Ltd
Level 16, 175 Eagle Street, Brisbane, QLD, Australia 4000




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those of the author and do not necessarily represent the views of SLR. This e-mail may be subject to a claim of legal privilege.

If you have received this e-mail in error, please notify the author and delete this message immediately.

OFFICIAL

From: Alexandra Moxon <Alexandra.Moxon@slrconsulting.com>
Sent: Monday, 23 September 2024 9:36 AM
To: Sandra La Rocca <Sandra.Larocca@transport.nsw.gov.au>
Subject: RE: 6 Grand Avenue, Rosehill NSW | SSD-55522478 [Filed 23 Sep 2024 09:40]

Hi Sandra,

Thank you for getting back to me, I have attached the CTMP here for GLC to review.

Kind regards
Alex

From: Sandra La Rocca <Sandra.Larocca@transport.nsw.gov.au>
Sent: Monday, 23 September 2024 9:05 AM
To: Alexandra Moxon <Alexandra.Moxon@slrconsulting.com>
Subject: RE: 6 Grand Avenue, Rosehill NSW | SSD-55522478
Importance: High

> You don't often get email from sandra.larocca@transport.nsw.gov.au. Learn why this is important

Hi Alexandra

Thank you for you email and apologies for the delay in getting back to you. Could you please send through the full CTMP for our contractors GLC to review.

There are a number of works going on in this location until mid-late next year. Please see our current works notification for the area covering October and November.

If you can get the CTMP over to me asap that would be great.

Kind regards
Sandra

Sandra La Rocca
Communications Manager
Sydney Metro West

P: 1800 612 173
E: sandra.larocca@transport.nsw.gov.au
Level 43, 680 George Street, SYDNEY 2000
PO Box K659, HAYMARKET, NSW 1240
sydneymetro.info



I acknowledge the Aboriginal people of the country on which I work, their traditions, culture and a shared history and identity. I also pay my respects to Elders past and present and recognise the continued connection to country.

---

OFFICIAL

OFFICIAL

From: Alexandra Moxon <Alexandra.Moxon@slrconsulting.com>
Sent: Tuesday, September 10, 2024 11:51 AM
To: Alicia Hatton <Alicia.Hatton@transport.nsw.gov.au>; Denise Thornton <Denise.Thornton@transport.nsw.gov.au>
Cc: Brendyn Rheinberger <brheinberger@slrconsulting.com>; Daniel Dalrymple-Hay <Daniel.Dalrymple-Hay@vaughans.com.au>; John Kassaa <John.Kassaa@vaughans.com.au>; Allan Jarimba <Allan.Jarimba@vaughans.com.au>
Subject: 6 Grand Avenue, Rosehill NSW | SSD-55522478

Some people who received this message don't often get email from alexandra.moxon@slrconsulting.com. Learn why this is important

CAUTION: This email is sent from an external source. Do not click any links or open attachments unless you recognise the sender and know the content is safe.

Dear Alicia/Denise,

My name is Alex Moxon, and I work for SLR Consulting who has been commissioned by Vaughan Constructions to prepare a Construction Traffic Management Plan (CTMP) for the operation of a Multi-level Warehouse Facility located at 6 Grand Avenue, NSW.

The Project comprises a two-storey warehouse and distribution centre with landscaping and parking provisions. The programme for construction is due to start at the end of September 2024 and run until May 2026 (total 19months).

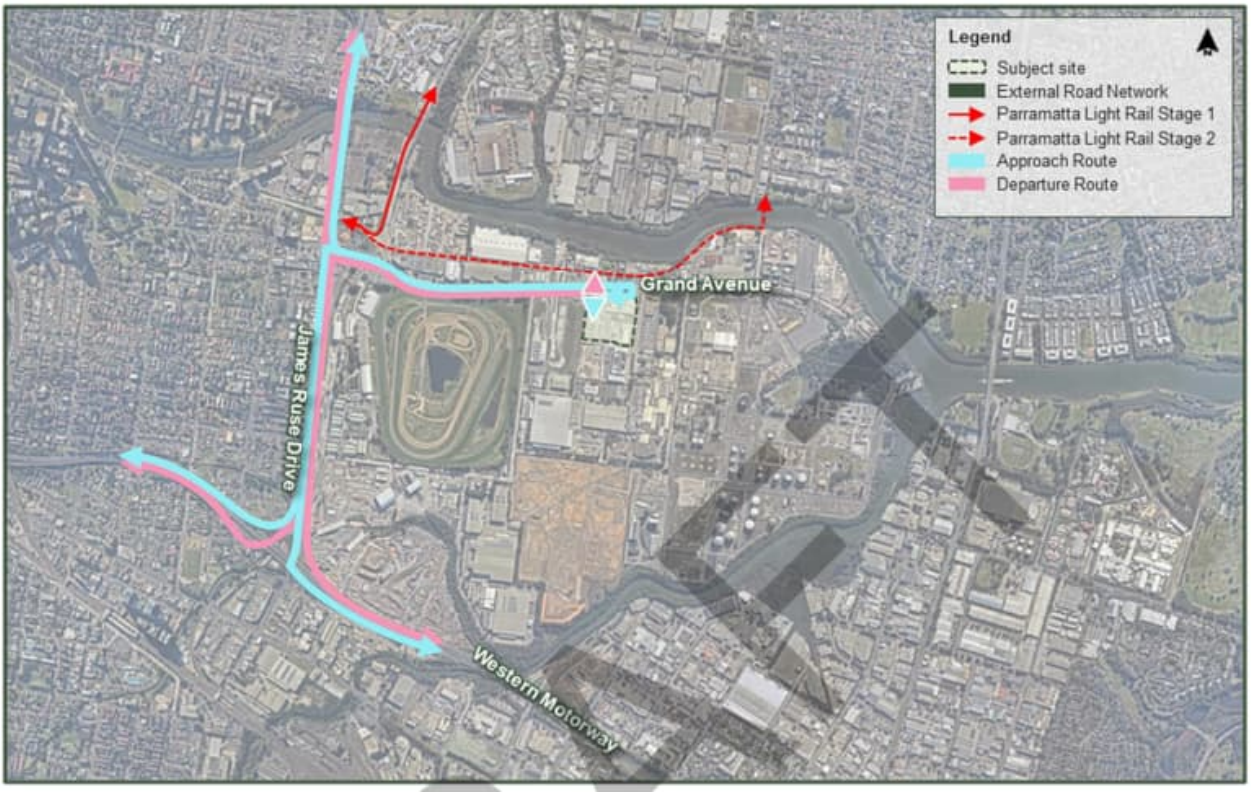
The construction access points will be through two existing crossovers on Grand Avenue, as demonstrated below:




In terms of Construction Traffic Volumes, we have documented them in the table below:

| Description | General Construction |
|---|---|
| **Worker Numbers** | 40 - 120 |
| **Peak Daily Heavy Vehicle Movements**<br>**Peak Daily Light Vehicle Movements** | 122 (61 in/61 out)<br>240 (120 in/120 out) |
| **Peak Hour Heavy Vehicle Movements**<br>**Peak Hour Light Vehicle Movements** | 40 (20 in/20 out)<br>120 (120 in or 120 out) |
| **Largest Vehicle Size** | 19m AV and 20m truck and dog |

The routes the construction vehicles will take are also shown below:




Could you please confirm if there are any planned or ongoing works by Sydney Metro in the area that we should be aware of? We aim to coordinate our construction activities with any works in your schedule to avoid potential conflicts and ensure a smooth project timeline. Your assistance in sharing any relevant details would be greatly appreciated.

Please don't hesitate to contact me should you have any questions.

Thanks
Alex

**Alexandra Moxon** ***(she/her/hers)***
Senior Project Consultant - Transport Advisory

**D** +61 7 3858 4839 **O** +61 7 3858 4800
**M** +61 426 744 942 **E** Alexandra.Moxon@slrconsulting.com

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# Appendix H Endorsement Conditions from Transport for New South Wales

## Brendyn Rheinberger

| | |
|---|---|
| From: | Development Applications <Developments.CJP@transport.nsw.gov.au> |
| Sent: | Thursday, 19 September 2024 9:47 AM |
| To: | Brendyn Rheinberger |
| Cc: | john.kassaa@vaughans.com.au; Daniel Dalrymple-Hay; Harry Peter; Sean Wilson; Alexandra Moxon |
| Subject: | RE: 6 Grand Avenue, Rosehill NSW \| SSD-55522478 \| CTMP Submission |

Brendyn,

In recognition of the low pedestrian volumes in this area, this amendment will be accepted.

Operational Change| Customer Journey Planning | Greater Sydney
25 Garden Street Eveleigh NSW 2015
**Transport for NSW**




OFFICIAL

From: Brendyn Rheinberger <brheinberger@slrconsulting.com>
Sent: Thursday, September 19, 2024 9:29 AM
To: Development Applications <Developments.CJP@transport.nsw.gov.au>
Cc: john.kassaa@vaughans.com.au; Daniel Dalrymple-Hay <daniel.dalrymple-hay@vaughans.com.au>; Harry Peter <hpeter@slrconsulting.com>; Sean Wilson <spwilson@slrconsulting.com>; Alexandra Moxon <alexandra.moxon@slrconsulting.com>
Subject: RE: 6 Grand Avenue, Rosehill NSW | SSD-55522478 | CTMP Submission

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CAUTION: This email is sent from an external source. Do not click any links or open attachments unless you recognise the sender and know the content is safe.

Dear TfNSW,

In response to the endorsed conditions regarding SSD-55522478, I am writing to seek an amendment to the following condition:
"*When heavy vehicles are entering or leaving the site a traffic controller is to be provided to manage any conflicts between pedestrians and heavy vehicles*".

Our proposed amendment to this condition is as follows:
*When heavy vehicles are entering or leaving the site ~~a traffic controller~~ a spotter is to be provided to manage any conflicts between pedestrians and heavy vehicles.*

**Justification for amendment:**
To achieve compliance with the condition as it currently stands would require a traffic controller to be present on-site at all times. There is a significant cost associated with this. A spotter, whilst not having the legal ability

to stop traffic on a public road, can still manage the pedestrian-vehicle conflicts at the gate access points through effective communication. The spotter can be a member of the Principal Contractor's employ and can be positioned in proximity to the site access at all times. When heavy vehicles are not entering/exiting the site, they can carry out other tasks to assist in effectively managing the construction site in accordance with the approved CTMP and broader CEMP. This is a cost-effective alternative to providing a traffic controller and one that avoids unnecessary expense.

We seek TfNSW's endorsement of this condition amendment request.

Thanks
Brendyn

**Brendyn Rheinberger** ***(he/him/his)***
Principal Consultant - Transport Advisory

**O** +61 7 3858 4800
**M** +61 404 744 118
**E** brheinberger@slrconsulting.com

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OFFICIAL

From: Development Applications <Developments.CJP@transport.nsw.gov.au>
Sent: Monday, 16 September 2024 1:13 PM
To: Brendyn Rheinberger <brheinberger@slrconsulting.com>; Development Applications <Developments.CJP@transport.nsw.gov.au>
Cc: john.kassaa@vaughans.com.au; Daniel Dalrymple-Hay <daniel.dalrymple-hay@vaughans.com.au>; Harry Peter <hpeter@slrconsulting.com>; Sean Wilson <spwilson@slrconsulting.com>; Alexandra Moxon <alexandra.moxon@slrconsulting.com>
Subject: RE: 6 Grand Avenue, Rosehill NSW | SSD-55522478 | CTMP Submission

Transport for NSW (TfNSW), Greater Sydney Division has reviewed the CTMP titled, *6 Grand Ave, Rosehill - SSD-55522478 - SLR Project No.: 630.031417.00001* and endorse the proposed temporary construction arrangements, subject to the following conditions:

- Any Traffic Guidance Schemes (TGS) prepared are to comply with AS1742.3 and Transport for NSW's "Traffic Control at Worksites" manual and be signed by a person with TfNSW certification to prepare a TGS.

- Proponent must apply and obtain approval from the Transport Management Centre for a Road Occupancy Licence (ROL) for any required lane closures and/or Speed Zone Authorisations as part of the ROL that may impact the state road network or is within 100m of traffic signals.
- Access to be maintained for residents, businesses, public transport services and emergency vehicles at all times.
- Under no circumstances are vehicles to drive directly onto the Light Rail corridor nor park and/or lay up on any part of the corridor.
- No marshalling or queuing of construction vehicles is to occur on public roads. Arriving vehicles that are not able to use parking bay/work zone must continue to a holding point until space becomes available.
- When heavy vehicles are entering or leaving the site a traffic controller is to be provided to manage any conflicts between pedestrians and heavy vehicles.
- No infrastructure, including bins, tanks or traffic control equipment should be left on the road at any time, inclusive of any approved Work Zone. All non-vehicular items must be contained with the work area and not on the carriageway.
- Any traffic control devices, including signage and line marking, should be installed by the proponent and must conform with Australian Standards 1742.
- Transport for New South Wales reserve the right to alter the CTMP Conditions at any time to maintain safe and efficient traffic, Light Rail and pedestrian movements in this area.

Endorsement of the CTMP is not an approval to the type of traffic management or delineation devices used, nor is it an approval to any traffic guidance schemes depicted within the CTMP. It is assumed that the proponent has used type approved devices and has developed its traffic guidance schemes in accordance with the relevant Australian Standards and Guidelines.

The proponent is to ensure local residents, businesses and other stakeholders in the affected area as well as emergency service organisations are notified of the changes associated with the CTMP, prior to its implementation.

Please ensure this CTMP is shared and adhered to by all contractors. If the CTMP changes, please forward a copy to Developments.CJP@transport.nsw.gov.au or further review and endorsement.

Operational Change| Customer Journey Planning | Greater Sydney
25 Garden Street Eveleigh NSW 2015
**Transport for NSW**

---

OFFICIAL

From: Brendyn Rheinberger <brheinberger@slrconsulting.com>
Sent: Wednesday, September 11, 2024 4:26 PM
To: Development Applications <Developments.CJP@transport.nsw.gov.au>
Cc: john.kassaa@vaughans.com.au; Daniel Dalrymple-Hay <daniel.dalrymple-hay@vaughans.com.au>; Harry Peter <hpeter@slrconsulting.com>; Sean Wilson <spwilson@slrconsulting.com>; Alexandra Moxon <alexandra.moxon@slrconsulting.com>
Subject: 6 Grand Avenue, Rosehill NSW | SSD-55522478 | CTMP Submission

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CAUTION: This email is sent from an external source. Do not click any links or open attachments unless you recognise the sender and know the content is safe.

Dear TfNSW,

My name is Brendyn Rheinberger, and I work for SLR Consulting who has been commissioned by Vaughan Constructions to prepare a Construction Traffic Management Plan (CTMP) for managing the construction impacts for a multi-level warehouse development, located at 6 Grand Avenue, Rosehill NSW 2142.

Please see the attached CTMP required under the Development Consent for SSD-55522478.

In accordance with Condition B1 and B2 of the Consent, the CTMP is required to be prepared in consultation with TfNSW and is required to be finalised and approved by the Planning Secretary prior to the commencement of construction. We therefore seek TfNSW's comments on the CTMP which will ultimately be incorporated into the Construction Environmental Management Plan (CEMP) required under the consent.

Please don't hesitate to contact me should you have any questions.

Thanks
Brendyn

**Brendyn Rheinberger** ***(he/him/his)***
Principal Consultant - Transport Advisory

**O** +61 7 3858 4800
**M** +61 404 744 118
**E** brheinberger@slrconsulting.com

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## Alexandra Moxon

**From:** Development Applications <Developments.CJP@transport.nsw.gov.au>
**Sent:** Monday, 16 September 2024 1:13 PM
**To:** Brendyn Rheinberger; Development Applications
**Cc:** john.kassaa@vaughans.com.au; Daniel Dalrymple-Hay; Harry Peter; Sean Wilson; Alexandra Moxon
**Subject:** RE: 6 Grand Avenue, Rosehill NSW | SSD-55522478 | CTMP Submission
**Attachments:** 640.031417-R01-v0.2 CTMP 20240911.pdf

Transport for NSW (TfNSW), Greater Sydney Division has reviewed the CTMP titled, ***6 Grand Ave, Rosehill - SSD-55522478 - SLR Project No.: 630.031417.00001*** and **endorse** the proposed temporary construction arrangements, subject to the following conditions:

- Any Traffic Guidance Schemes (TGS) prepared are to comply with AS1742.3 and Transport for NSW's "Traffic Control at Worksites" manual and be signed by a person with TfNSW certification to prepare a TGS.
- Proponent must apply and obtain approval from the Transport Management Centre for a Road Occupancy Licence (ROL) for any required lane closures and/or Speed Zone Authorisations as part of the ROL that may impact the state road network or is within 100m of traffic signals.
- Access to be maintained for residents, businesses, public transport services and emergency vehicles at all times.
- Under no circumstances are vehicles to drive directly onto the Light Rail corridor nor park and/or lay up on any part of the corridor.
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- When heavy vehicles are entering or leaving the site a traffic controller is to be provided to manage any conflicts between pedestrians and heavy vehicles.
- No infrastructure, including bins, tanks or traffic control equipment should be left on the road at any time, inclusive of any approved Work Zone. All non-vehicular items must be contained with the work area and not on the carriageway.
- Any traffic control devices, including signage and line marking, should be installed by the proponent and must conform with Australian Standards 1742.
- Transport for New South Wales reserve the right to alter the CTMP Conditions at any time to maintain safe and efficient traffic, Light Rail and pedestrian movements in this area.

Endorsement of the CTMP is not an approval to the type of traffic management or delineation devices used, nor is it an approval to any traffic guidance schemes depicted within the CTMP. It is assumed that the proponent has used type approved devices and has developed its traffic guidance schemes in accordance with the relevant Australian Standards and Guidelines.

The proponent is to ensure local residents, businesses and other stakeholders in the affected area as well as emergency service organisations are notified of the changes associated with the CTMP, prior to its implementation.

Please ensure this CTMP is shared and adhered to by all contractors. If the CTMP changes, please forward a copy to Developments.CJP@transport.nsw.gov.au or further review and endorsement.

Operational Change| Customer Journey Planning | Greater Sydney
25 Garden Street Eveleigh NSW 2015

OFFICIAL

**From:** Brendyn Rheinberger <brheinberger@slrconsulting.com>
**Sent:** Wednesday, September 11, 2024 4:26 PM
**To:** Development Applications <Developments.CJP@transport.nsw.gov.au>
**Cc:** john.kassaa@vaughans.com.au; Daniel Dalrymple-Hay <daniel.dalrymple-hay@vaughans.com.au>; Harry Peter <hpeter@slrconsulting.com>; Sean Wilson <spwilson@slrconsulting.com>; Alexandra Moxon <alexandra.moxon@slrconsulting.com>
**Subject:** 6 Grand Avenue, Rosehill NSW | SSD-55522478 | CTMP Submission

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**CAUTION**: This email is sent from an external source. Do not click any links or open attachments unless you recognise the sender and know the content is safe.

Dear TfNSW,

My name is Brendyn Rheinberger, and I work for SLR Consulting who has been commissioned by Vaughan Constructions to prepare a Construction Traffic Management Plan (CTMP) for managing the construction impacts for a multi-level warehouse development, located at 6 Grand Avenue, Rosehill NSW 2142.

Please see the attached CTMP required under the Development Consent for SSD-55522478.

In accordance with Condition B1 and B2 of the Consent, the CTMP is required to be prepared in consultation with TfNSW and is required to be finalised and approved by the Planning Secretary prior to the commencement of construction. We therefore seek TfNSW's comments on the CTMP which will ultimately be incorporated into the Construction Environmental Management Plan (CEMP) required under the consent.

Please don't hesitate to contact me should you have any questions.

Thanks
Brendyn

**Brendyn Rheinberger** ***(he/him/his)***
Principal Consultant - Transport Advisory

**O** +61 7 3858 4800
**M** +61 404 744 118
**E** brheinberger@slrconsulting.com

SLR Consulting Australia Pty Ltd
Level 16, 175 Eagle Street, Brisbane, QLD, Australia 4000

# Appendix I City of Parramatta Concurrence and Consultation

## Brendyn Rheinberger

From: Brendyn Rheinberger
Sent: Wednesday, 6 November 2024 3:17 PM
To: 'Harry Muker'
Cc: Behzad Saleh; Paul Sartor; John Kassaa; Daniel Dalrymple-Hay; Allan Jarimba; David Upton; Sean Wilson; Harry Peter; Alexandra Moxon
Subject: RE: 6 Grand Avenue, Rosehill NSW | SSD-55522478 | CTMP Submission NCA/6/2023 [Filed 06 Nov 2024 15:17]

Categories: Filed by Mail Manager

Hi Harry,

In regard to Council's position on the use of Traffic Controllers to manage vehicle/pedestrian conflicts at the site accesses, Vaughans are accepting of this requirement at this time. In the future, Vaughans may seek an amendment to this CTMP, and should this be the case, we will seek Council's endorsement prior to implementing any changes to construction traffic management.

Thanks
Brendyn

---

From: Harry Muker <hmuker@cityofparramatta.nsw.gov.au>
Sent: Tuesday, 5 November 2024 2:24 PM
To: Brendyn Rheinberger <brheinberger@slrconsulting.com>
Cc: Behzad Saleh <BSaleh@cityofparramatta.nsw.gov.au>; Paul Sartor <PSartor@cityofparramatta.nsw.gov.au>; John Kassaa <John.Kassaa@vaughans.com.au>; Daniel Dalrymple-Hay <Daniel.Dalrymple-Hay@vaughans.com.au>; Allan Jarimba <Allan.Jarimba@vaughans.com.au>; David Upton <David.Upton@vaughans.com.au>; Sean Wilson <spwilson@slrconsulting.com>; Harry Peter <hpeter@slrconsulting.com>; Alexandra Moxon <alexandra.moxon@slrconsulting.com>
Subject: RE: 6 Grand Avenue, Rosehill NSW | SSD-55522478 | CTMP Submission NCA/6/2023

Hi Brendyn,

Unfortunately, this week is not possible due to current works priorities/personal leave.

I can do a TEAMs meeting next week on Monday/Tuesday, if this works for you.

On Monday, available times are: 10:30am to 12pm or 3pm to 4pm; Tuesday, after 9.30am (unavailable 12pm to 2pm).

Regards,

**Harry Muker | Traffic and Transport Executive Engineer**
Development and Traffic Services
City of Parramatta
PO Box 32, Parramatta NSW 2124
☎ (02) 9806 8108
✉ **hmuker@cityofparramatta.nsw.gov.au**
**Links | www.cityofparramatta.nsw.gov.au**

From: Brendyn Rheinberger <brheinberger@slrconsulting.com>
Sent: Tuesday, 5 November 2024 2:55 PM
To: Harry Muker <hmuker@cityofparramatta.nsw.gov.au>
Cc: Behzad Saleh <BSaleh@cityofparramatta.nsw.gov.au>; Paul Sartor <PSartor@cityofparramatta.nsw.gov.au>; John Kassaa <John.Kassaa@vaughans.com.au>; Daniel Dalrymple-Hay <Daniel.Dalrymple-Hay@vaughans.com.au>; Allan Jarimba <Allan.Jarimba@vaughans.com.au>; David Upton <David.Upton@vaughans.com.au>; Sean Wilson <spwilson@slrconsulting.com>; Harry Peter <hpeter@slrconsulting.com>; Alexandra Moxon <alexandra.moxon@slrconsulting.com>
Subject: RE: 6 Grand Avenue, Rosehill NSW | SSD-55522478 | CTMP Submission NCA/6/2023

***[EXTERNAL EMAIL]** Stop and think before opening attachments, clicking on links or responding. ***

Hi Harry,

If you can recall our correspondence below regarding the CTMP condition requiring traffic controllers to manage site accesses during construction. Your last email on this matter (further below) stated "*The approval authority can review and make final determination on this issue*". DPHI have reviewed the correspondence between yourself and I and are not willing to make a determination on this matter. They have informed us that they will only rely on Councils and TfNSWs review and endorsement as respective road managers.

As such, I would like to revisit this matter if possible? I'd like the opportunity to show you the site frontage where site accesses will be situated, so that I can demonstrate how little pedestrian activity will be present in these locations. I would like to provide Council with full confidence that a Spotter will be more than capable of managing the safety of the site access locations.

If this is at all possible, would you have time tomorrow for a MS Teams meeting with myself and John Kassaa from Vaughans? Please let me know.

Thanks
Brendyn

**Brendyn Rheinberger** ***(he/him/his)***
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If you have received this e-mail in error, please notify the author and delete this message immediately.

From: Brendyn Rheinberger <brheinberger@slrconsulting.com>
Sent: Friday, 27 September 2024 3:38 PM
To: Harry Muker <hmuker@cityofparramatta.nsw.gov.au>
Cc: Behzad Saleh <BSaleh@cityofparramatta.nsw.gov.au>; Paul Sartor <PSartor@cityofparramatta.nsw.gov.au>; John Kassaa <John.Kassaa@vaughans.com.au>; Daniel Dalrymple-Hay <Daniel.Dalrymple-Hay@vaughans.com.au>; Allan Jarimba <Allan.Jarimba@vaughans.com.au>; David Upton <David.Upton@vaughans.com.au>; Sean Wilson <spwilson@slrconsulting.com>; Harry Peter <hpeter@slrconsulting.com>; Alexandra Moxon <alexandra.moxon@slrconsulting.com>
Subject: RE: 6 Grand Avenue, Rosehill NSW | SSD-55522478 | CTMP Submission NCA/6/2023

Hi Harry,

It is clear that we are not getting anywhere with this debate, but I would just like to correct your inference of my comment regarding traffic controller costs compared to spotters. My intent with making this point is to highlight that VC will be required to have a traffic controller sit at the site access all day during construction hours. Considering the low pedestrian demands on the southern verge of Grand Avenue, traffic controllers won't be utilised much at all and so the costs outweigh the benefit. This will drive up construction costs generally which is not ideal for the developer, the contractor, Council or the community. Arguably, there will be zero pedestrian movements along the southern verge of Grand Avenue due to:

- There is no footpath infrastructure.
- It is not clear where pedestrians would come from.
- It is not clear where pedestrians would walk to; i.e. there are no pedestrian attractors in this industrial area and so desire lines appear to be non-existent.

I digress – I am clearly frustrated.

Regarding the BTCR, I have received two quotes for camera surveys to obtain the requested queuing and traffic volume data. I will send you a separate email relating to this.

Thanks
Brendyn

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Principal Consultant - Transport Advisory

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From: Harry Muker <hmuker@cityofparramatta.nsw.gov.au>
Sent: Friday, 27 September 2024 2:43 PM
To: Brendyn Rheinberger <brheinberger@slrconsulting.com>
Cc: Behzad Saleh <BSaleh@cityofparramatta.nsw.gov.au>; Paul Sartor <PSartor@cityofparramatta.nsw.gov.au>; John Kassaa <John.Kassaa@vaughans.com.au>; Daniel Dalrymple-Hay <Daniel.Dalrymple-Hay@vaughans.com.au>; Allan Jarimba <Allan.Jarimba@vaughans.com.au>; David Upton <David.Upton@vaughans.com.au>; Sean Wilson <spwilson@slrconsulting.com>; Harry Peter <hpeter@slrconsulting.com>; Alexandra Moxon <alexandra.moxon@slrconsulting.com>
Subject: RE: 6 Grand Avenue, Rosehill NSW | SSD-55522478 | CTMP Submission NCA/6/2023

Hi Brendyn,

I remember that you mentioned that the client did not want to pay for traffic controllers as they were expensive as compared to “spotters”.

I feel we are losing the intent of why traffic controllers have been specified. To manage the interaction between pedestrians and vehicles at the property boundary.

In that regard, I am not reconsidering my position.

The approval authority can review and make final determination on this issue.

Regards,

**Harry Muker** | **Traffic and Transport Executive Engineer**
Development and Traffic Services
City of Parramatta
PO Box 32, Parramatta NSW 2124
☎ (02) 9806 8108
✉ **hmuker@cityofparramatta.nsw.gov.au**
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From: Brendyn Rheinberger <brheinberger@slrconsulting.com>
Sent: Friday, 27 September 2024 1:35 PM
To: Harry Muker <hmuker@cityofparramatta.nsw.gov.au>
Cc: Behzad Saleh <BSaleh@cityofparramatta.nsw.gov.au>; Paul Sartor <PSartor@cityofparramatta.nsw.gov.au>; John Kassaa <John.Kassaa@vaughans.com.au>; Daniel Dalrymple-Hay <Daniel.Dalrymple-Hay@vaughans.com.au>; Allan Jarimba <Allan.Jarimba@vaughans.com.au>; David Upton <David.Upton@vaughans.com.au>; Sean Wilson <spwilson@slrconsulting.com>; Harry Peter <hpeter@slrconsulting.com>; Alexandra Moxon <alexandra.moxon@slrconsulting.com>
Subject: RE: 6 Grand Avenue, Rosehill NSW | SSD-55522478 | CTMP Submission NCA/6/2023

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**Harry – resending and copying in the wider group regarding my response.**

Hi Harry,

My recollection was that you were to discuss the on-street parking condition with your colleague. You were accepting of undertaking a Risk Assessment for replacing Traffic Controllers with Spotters. With respect, I think this is an unreasonable request and a waste of money for all. The engaged Traffic Control company will need to be directed by Vaughans to prepare specific TGSs involving traffic controllers when there is a need to stop traffic on Grand Avenue. I propose to you that this can be done on an as needed basis. For the majority of construction vehicle movements into/out of the site, there will not be a need to stop traffic. We have demonstrated this through our swept path assessment. Therefore, why is there a need to pay for qualified traffic controllers when the persons situated at the gates are to manage the pedestrian/vehicle interaction off the roadway?

I urge you to please reconsider Council's position on this matter.

Thanks
Brendyn

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those of the author and do not necessarily represent the views of SLR. This e-mail may be subject to a claim of legal privilege.

If you have received this e-mail in error, please notify the author and delete this message immediately.

From: Harry Muker <hmuker@cityofparramatta.nsw.gov.au>
Sent: Friday, 27 September 2024 12:53 PM
To: Brendyn Rheinberger <brheinberger@slrconsulting.com>
Cc: Behzad Saleh <BSaleh@cityofparramatta.nsw.gov.au>; Paul Sartor <PSartor@cityofparramatta.nsw.gov.au>; John Kassaa <John.Kassaa@vaughans.com.au>; Daniel Dalrymple-Hay <Daniel.Dalrymple-Hay@vaughans.com.au>; Allan Jarimba <Allan.Jarimba@vaughans.com.au>; David Upton <David.Upton@vaughans.com.au>; Sean Wilson <spwilson@slrconsulting.com>; Harry Peter <hpeter@slrconsulting.com>; Alexandra Moxon <alexandra.moxon@slrconsulting.com>
Subject: RE: 6 Grand Avenue, Rosehill NSW | SSD-55522478 | CTMP Submission NCA/6/2023

Hi Brendyn,

As mentioned in our conversation, I was to discuss this with my colleague, which was done. Our position is that the site boundary is to utilise the services of Traffic Controllers. No change to the condition as updated previously.

Regards,

**Harry Muker | Traffic and Transport Executive Engineer**
Development and Traffic Services
City of Parramatta
PO Box 32, Parramatta NSW 2124
☎ (02) 9806 8108
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---

From: Brendyn Rheinberger <brheinberger@slrconsulting.com>
Sent: Friday, 27 September 2024 12:45 PM
To: Harry Muker <hmuker@cityofparramatta.nsw.gov.au>
Cc: Behzad Saleh <BSaleh@cityofparramatta.nsw.gov.au>; Paul Sartor <PSartor@cityofparramatta.nsw.gov.au>; John Kassaa <John.Kassaa@vaughans.com.au>; Daniel Dalrymple-Hay <Daniel.Dalrymple-Hay@vaughans.com.au>; Allan Jarimba <Allan.Jarimba@vaughans.com.au>; David Upton <David.Upton@vaughans.com.au>; Sean Wilson <spwilson@slrconsulting.com>; Harry Peter <hpeter@slrconsulting.com>; Alexandra Moxon <alexandra.moxon@slrconsulting.com>
Subject: RE: 6 Grand Avenue, Rosehill NSW | SSD-55522478 | CTMP Submission NCA/6/2023

***[EXTERNAL EMAIL]** Stop and think before opening attachments, clicking on links or responding. ***

Hi Harry,

Thank you for that. With regard to the below condition, can you please confirm Council's acceptance of the following addition shown in RED:

**City of Parramatta Response (Updated Condition):**

*"All Traffic Guidance Schemes (TGS) prepared are to comply with AS1742.3 and Transport for NSW's "Traffic Control at Worksites" manual and be signed by a person with TfNSW certification. In that regard,* the Principal Contractor must engage a Traffic Control company to develop site-specific TGSs *for specific stages within the construction program (and not limited to):*

- *internal operations (martialling of trucks/light vehicles, trucks/light vehicles staging areas within the site, especially during periods of peak truck movement activity, noting that up to 40 truck movements per hour is envisaged)*
- *traffic controllers (managing the entry/exit movements from site including the interactions with pedestrians)"*

Reason:
Support the amendment noting "the Principal Contractor must engage a Traffic Control company to develop site-specific TGSs". Persons that manage vehicle movements at the boundary between public/private including pedestrians, must be traffic controllers, unless approved by Council through submission of a Risk Assessment.

This addition is reflective of my recollection of our phone conversation. Feel free to adjust the wording to suit your intent from this request.

Thanks

Brendyn

**Brendyn Rheinberger** ***(he/him/his)***
Principal Consultant - Transport Advisory

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those of the author and do not necessarily represent the views of SLR. This e-mail may be subject to a claim of legal privilege.

If you have received this e-mail in error, please notify the author and delete this message immediately.

From: Harry Muker <hmuker@cityofparramatta.nsw.gov.au>
Sent: Friday, 27 September 2024 12:34 PM
To: Brendyn Rheinberger <brheinberger@slrconsulting.com>
Cc: Behzad Saleh <BSaleh@cityofparramatta.nsw.gov.au>; Paul Sartor <PSartor@cityofparramatta.nsw.gov.au>; John Kassaa <John.Kassaa@vaughans.com.au>; Daniel Dalrymple-Hay <Daniel.Dalrymple-Hay@vaughans.com.au>; Allan Jarimba <Allan.Jarimba@vaughans.com.au>; David Upton <David.Upton@vaughans.com.au>; Sean Wilson <spwilson@slrconsulting.com>; Harry Peter <hpeter@slrconsulting.com>; Alexandra Moxon <alexandra.moxon@slrconsulting.com>
Subject: RE: 6 Grand Avenue, Rosehill NSW | SSD-55522478 | CTMP Submission NCA/6/2023

Hi Brendyn,

In reference to our phone conversation on Thursday 26 September, please find below the following comments and updated conditions (where relevant) in BLUE.

Regards,

**Harry Muker | Traffic and Transport Executive Engineer**
Development and Traffic Services
City of Parramatta
PO Box 32, Parramatta NSW 2124
☎ (02) 9806 8108
✉ **hmuker@cityofparramatta.nsw.gov.au**
**Links | www.cityofparramatta.nsw.gov.au**

From: Brendyn Rheinberger <brheinberger@slrconsulting.com>
Sent: Tuesday, 24 September 2024 5:34 PM
To: Harry Muker <hmuker@cityofparramatta.nsw.gov.au>
Cc: Behzad Saleh <BSaleh@cityofparramatta.nsw.gov.au>; Paul Sartor <PSartor@cityofparramatta.nsw.gov.au>; John Kassaa <John.Kassaa@vaughans.com.au>; Daniel Dalrymple-Hay <Daniel.Dalrymple-Hay@vaughans.com.au>; Allan Jarimba <Allan.Jarimba@vaughans.com.au>; David Upton <David.Upton@vaughans.com.au>; Sean Wilson <spwilson@slrconsulting.com>; Harry Peter <hpeter@slrconsulting.com>; Alexandra Moxon <alexandra.moxon@slrconsulting.com>
Subject: RE: 6 Grand Avenue, Rosehill NSW | SSD-55522478 | CTMP Submission NCA/6/2023

***[EXTERNAL EMAIL]** Stop and think before opening attachments, clicking on links or responding. ***

Hi Harry,

Thank you for your review. I have consulted with Vaughan's (VC) and they are accepting of most of these conditions. There are, however, some *Specific Conditions* that we are seeking amendment/further clarification on. Please see below.

We seek amendments to the following *Specific Condition*:

- *"All Traffic Guidance Schemes (TGS) prepared are to comply with AS1742.3 and Transport for NSW's "Traffic Control at Worksites" manual and be signed by a person with TfNSW certification. In that regard, Appendix D must be updated to reflect TGS for specific stages within the construction program (and not limited to):*
    - *internal operations (martialling of trucks/light vehicles, trucks/light vehicles staging areas within the site, especially during periods of peak truck movement activity, noting that up to 40 truck movements per hour is envisaged)*
    - *traffic controllers (managing the entry/exit movements from site including the interactions with pedestrians)"*

**Our response:**
The CTMP has been prepared as a framework document to establish controls to manage/minimise construction traffic impacts and safety. These controls, once approved by the Planning Secretary, shall be adhered to by the Principal Contractor, and if not they will be issued with an NCR. Because this document functions in this way, it is not appropriate for SLR to prepare site-specific TGSs. The reasons for this are:

- SLR are not and will not be working on-site. We do not have an appreciation of the site-specific characteristics, and we don't need to have this to develop a framework-level CTMP.
- The SLR CTMP prescribes requirements for VC to engage a traffic control company. This company shall be responsible for designing and implementing any and all TGSs required by construction activities. Should VC fail to do this, they risk receiving an NCR and potential penalties.
- Engaging a traffic control company to design and implement site-specific TGSs provides the following benefits:
    - It is safer, as the TGSs are designed with detailed knowledge of site characteristics.
    - The TGSs are informed with up-to-date construction methodologies by VC, as they arise.
    - The traffic control company engaged to implement TGSs takes on ownership of their own designed TGSs.

Regarding the requirement to situate traffic controllers at the construction access points to manage entry/exit movements and interactions with pedestrians, please refer to the attached. We sought an amendment to this condition from TfNSW and the attached correspondence provides the reasons for this, as well as TfNSWs acceptance of an amendment from "*traffic controllers"* to "spotters".

Reflective of the above, we request Council to amend this *Specific Condition* to state: "*All Traffic Guidance Schemes (TGS) prepared are to comply with AS1742.3 and Transport for NSW's "Traffic Control at Worksites" manual*

*and be signed by a person with TfNSW certification. In that regard,* ~~*Appendix D must be updated to reflect TGS*~~ the Principal Contractor must engage a Traffic Control company to develop site-specific TGSs *for specific stages within the construction program (and not limited to):*

- *internal operations (martialling of trucks/light vehicles, trucks/light vehicles staging areas within the site, especially during periods of peak truck movement activity, noting that up to 40 truck movements per hour is envisaged)*
- ~~*traffic controllers*~~ spotters *(managing the entry/exit movements from site including the interactions with pedestrians)"*

---

**City of Parramatta Response (Updated Condition):**

*"All Traffic Guidance Schemes (TGS) prepared are to comply with AS1742.3 and Transport for NSW's "Traffic Control at Worksites" manual and be signed by a person with TfNSW certification. In that regard,* the Principal Contractor must engage a Traffic Control company to develop site-specific TGSs *for specific stages within the construction program (and not limited to):*

- *internal operations (martialling of trucks/light vehicles, trucks/light vehicles staging areas within the site, especially during periods of peak truck movement activity, noting that up to 40 truck movements per hour is envisaged)*
- *traffic controllers (managing the entry/exit movements from site including the interactions with pedestrians)"*

Reason:
Support the amendment noting "the Principal Contractor must engage a Traffic Control company to develop site-specific TGSs". Persons that manage vehicle movements at the boundary between public/private including pedestrians, must be traffic controllers.

---

We seek amendments to the following *Specific Condition*:

- *"Overflow parking onto Council roads is not supported. Alternative parking arrangement are to be in place, when required."*

**Our response:**
During high-risk activities, such as when the warehouse structure, and potentially when Level 1 external works are being built, VC request the opportunity to utilise the southern kerbside on Grand Avenue, adjacent to site frontage, for light vehicle on-street parking. This will allow VC to manage the safety of their workers. As there are no residential land uses in proximity to the site, this on-street parking area is not in high demand and appears, from NearMap imagery between January and September, to not be utilised much at all. The lane widths are also sufficient to accommodate on-street parking while maintaining a generous travel lane.

We request that Council reconsider the wording of this condition, and perhaps designates the extent for where on-street parking on Grand Ave is approved for, and also for which construction activities. VC can provide Council with advance notice of upcoming high-risk activities and the need for light vehicles to park on-street. Please advise if this is acceptable.

---

**City of Parramatta Response (Updated Condition):**

"Prior to any work vehicles parking along Grand Parade for high-risk activities. A Works Zone (WZ) is to be approved and installed by Council, with all costs borne by the applicant (refer to Council's WZ application: Works Zone Application)".

Reason:
To manage construction related parking within the public roadway.

_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

Regarding the *Specific Condition* below, can I request an MS Teams meeting with you to discuss what Council's expectations are regarding the content and methodology of this BTCR. Further, will the preparation of this BTCR hold up the endorsement of CEMP/CTMP with the Planning Secretary? We are conscious that the preparation, including collation of prevailing traffic conditions, could take several weeks which is a significant delay to VC. Please advise if you are amenable to a meeting and if so, what times would suit.

- *Prior to commencement of construction works, a Background Traffic Conditions Report (BTCR) to be prepared by the traffic consultant that records the prevailing traffic conditions (traffic volumes and traffic queues) on key roads that will service the development site and surrounds between the period 7am to 6pm (Mon to Fri):*
    - *Local Roads to be included in the BTCR (and not limited to):*
        - *Grand Avenue*
        - *Colquhoun Street*
        - *Durham Street; and*
        - *Devon Street*

*Reason: Need to understand background traffic conditions to assist with vehicle movement management to and from the development site.*

_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

**City of Parramatta Response:**

As discussed, noting the importance of understanding the surrounding traffic conditions in particular traffic queues along roads that surround and provide access to the development site, to then assist with heavy and light vehicle management to and from the development site.

_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

Feel free to call me at any time to discuss the above.

Thanks
Brendyn

**Brendyn Rheinberger** ***(he/him/his)***
Principal Consultant - Transport Advisory

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From: Harry Muker <hmuker@cityofparramatta.nsw.gov.au>
Sent: Wednesday, 18 September 2024 4:37 PM
To: Brendyn Rheinberger <brheinberger@slrconsulting.com>
Cc: Behzad Saleh <BSaleh@cityofparramatta.nsw.gov.au>; Paul Sartor <PSartor@cityofparramatta.nsw.gov.au>
Subject: 6 Grand Avenue, Rosehill NSW | SSD-55522478 | CTMP Submission NCA/6/2023

You don't often get email from hmuker@cityofparramatta.nsw.gov.au. Learn why this is important

Hi Brendyn,

Council has reviewed the Construction Traffic Management Plan (CTMP) titled, 6 Grand Ave, Rosehill - SSD-55522478 – NCA/6/2023 and provide concurrence, subject to the following conditions:

Standard Conditions:

- Materials are to be delivered and spoil removed during standard construction hours. Deliveries are to be planned to ensure a consistent and minimal number of trucks arriving at site at any one time.
- Any forklift that is operating on street to load and/or unload building materials must have a conditional registration.
- SafeWork NSW accredited traffic controllers are to be used to manage vehicular and pedestrian traffic to ensure public safety whilst vehicles are entering or exiting the site. Traffic Control Plans (TCPs) are to be in accordance with AS1742.3 and TfNSW 'Traffic Control at Worksites' manual at all times and be signed by a person with SafeWork certification to prepare TCP's. A copy of the TCPs is to be held on site at all times by the responsible traffic controllers.
- Installation of a 'Works Zone' on public road shall require an approval through Parramatta Traffic Committee process. The applicant is to submit an application for a Works Zone to Council's Traffic and Transport Services, at least 12 weeks prior to the commencement of the restriction. The 'Works Zone' application form can be accessed via Council's Development and Building Form section of the website (Development and building forms | City of Parramatta (nsw.gov.au).
- Occupation of any part of the footpath or road (locating mobile crane or skip bin, carrying out work, erecting/dismantling hoarding, reconstruction of footpath and the like) during construction works of the development shall require a Road Occupancy Permit from Council. A Temporary Road Occupancy Permit is to be obtained through Council's Traffic and Transport Services, prior to occupying any part of the footpath or road. The application is to be lodged online via Council's website at www.cityofparramatta.nsw.gov.au → Submit a Request → Submit a request → Lodge an Application → Road and Road Related Infrastructure → Temporary road/Footpath Occupancy.

- Waste Container Permit is to be obtained from Council's Traffic and Transport Services, prior to for locating a skip bin on road and road related area. The application is to be lodged online via Council's website at www.cityofparramatta.nsw.gov.au → Submit a Request → Submit a request → Lodge an Application → Road and Road Related Infrastructure → Waste Container Permit.
- Oversize vehicles using local roads require approval from the National Heavy Vehicle Regulator (NHVR). The applicant shall submit an application for an Oversize Vehicle Access Permit through NHVR's portal (www.nhvr.gov.au/about-us/nhvr-portal), prior to driving through local roads within the City of Parramatta LGA.
- Hoarding/Tower Crane permit is to be obtained from Council prior to erecting any Hoarding/Tower Crane on Council road/footpath/construction site. The application can be accessed via Council's Development and Building Form section of the website (Development and building forms | City of Parramatta (nsw.gov.au).
- The roadway (including footpath) is to be kept in a serviceable state for the duration of the project. Road pavement/footpath damaged as a result of truck movements/ construction activity is to be maintained and restored during and after the duration of development by developer at no cost to Council to satisfaction of Council's Supervisor Civil Assets, contact 9806 8250.
- Affected residents and businesses must be notified in writing fourteen (14) days prior to the start of the various phases of construction. A copy of the notification shall be submitted to City of Parramatta Council. Access to these residents and businesses must be maintained unless otherwise agreed. Any comments are to be recorded and taken into consideration when planning construction activities.
- The contractor/builder is to provide a sign that provides a phone number and email address for members of the local community to make enquires or complaints regarding traffic control for the site. The Contractor is to provide a representative for meetings that may occur and may include representatives of the local community and Council staff to discuss traffic control at the site.
- Additional conditions may be applied to the Construction Traffic Management Plan in future should public amenity be detrimentally affected.
- City of Parramatta Council is to be notified of any future disruption to roadways and footpaths and any changes to the CTMP.

<u>Specific Conditions:</u>

- All Traffic Guidance Schemes (TGS) prepared are to comply with AS1742.3 and Transport for NSW's "Traffic Control at Worksites" manual and be signed by a person with TfNSW certification. In that regard, Appendix D must be updated to reflect TGS for specific stages within the construction program (and not limited to):
    - internal operations (martialling of trucks/light vehicles, trucks/light vehicles staging areas within the site, especially during periods of peak truck movement activity, noting that up to 40 truck movements per hour is envisaged)
    - traffic controllers (managing the entry/exit movements from site including the interactions with pedestrians)
- Overflow parking onto Council roads is not supported. Alternative parking arrangement are to be in place, when required.
- Under Section 5.4.2 first dot point to be adjusted to read "Heavy Vehicles using Grand Avenue must limit the use of engine or compression braking"
- Prior to commencement of construction works, a Background Traffic Conditions Report (BTCR) to be prepared by the traffic consultant that records the prevailing traffic conditions (traffic volumes and traffic queues) on key roads that will service the development site and surrounds between the period 7am to 6pm (Mon to Fri):
    - Local Roads to be included in the BTCR (and not limited to):
        - Grand Avenue

- Colquhoun Street
- Durham Street; and
- Devon Street

Reason: Need to understand background traffic conditions to assist with vehicle movement management to and from the development site.

Happy to discuss.

Regards,

**Harry Muker | Traffic and Transport Executive Engineer**
Development and Traffic Services
City of Parramatta
PO Box 32, Parramatta NSW 2124
☎ (02) 9806 8108
✉ **hmuker@cityofparramatta.nsw.gov.au**
**Links | www.cityofparramatta.nsw.gov.au**

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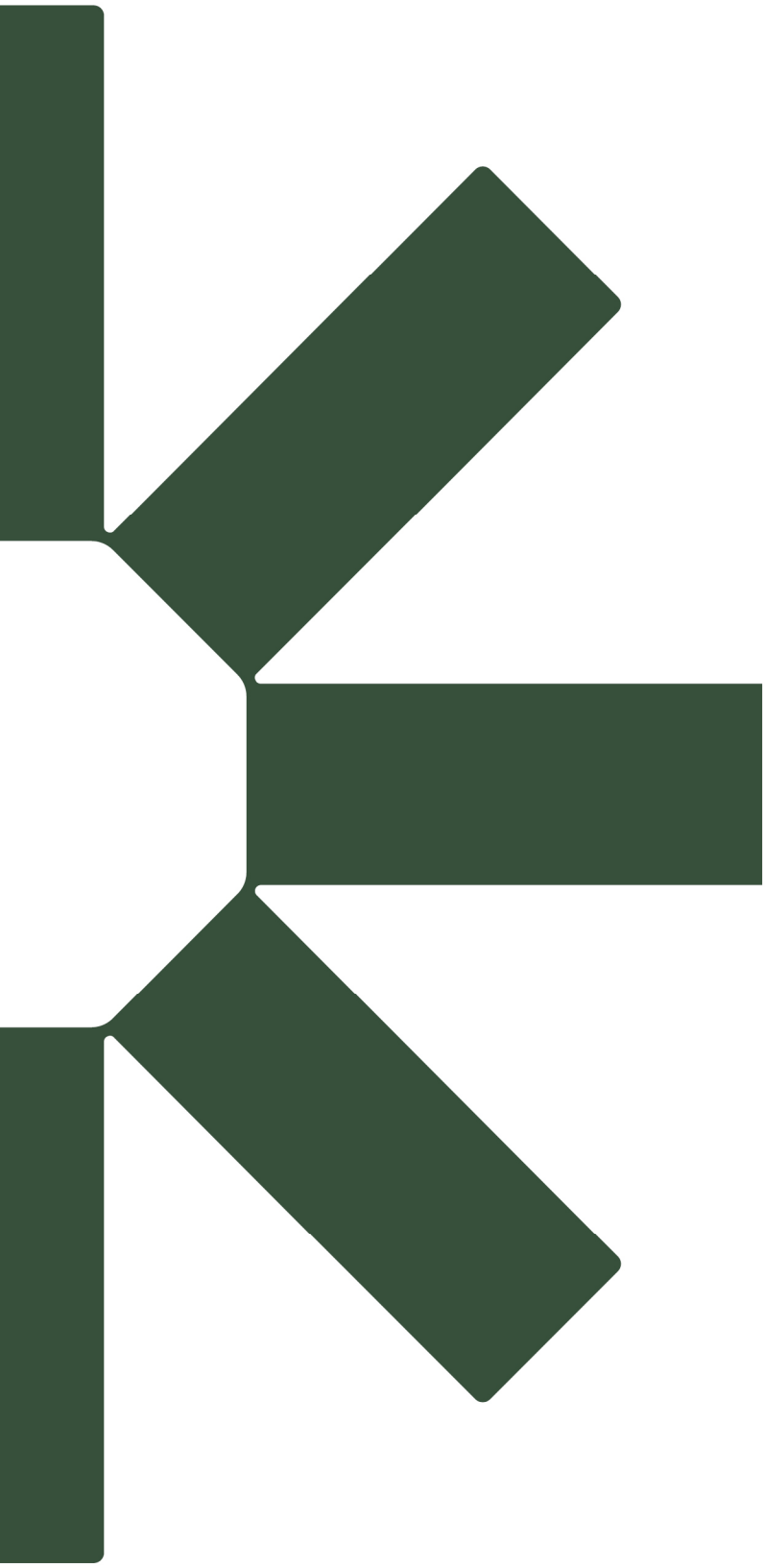
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Making Sustainability Happen

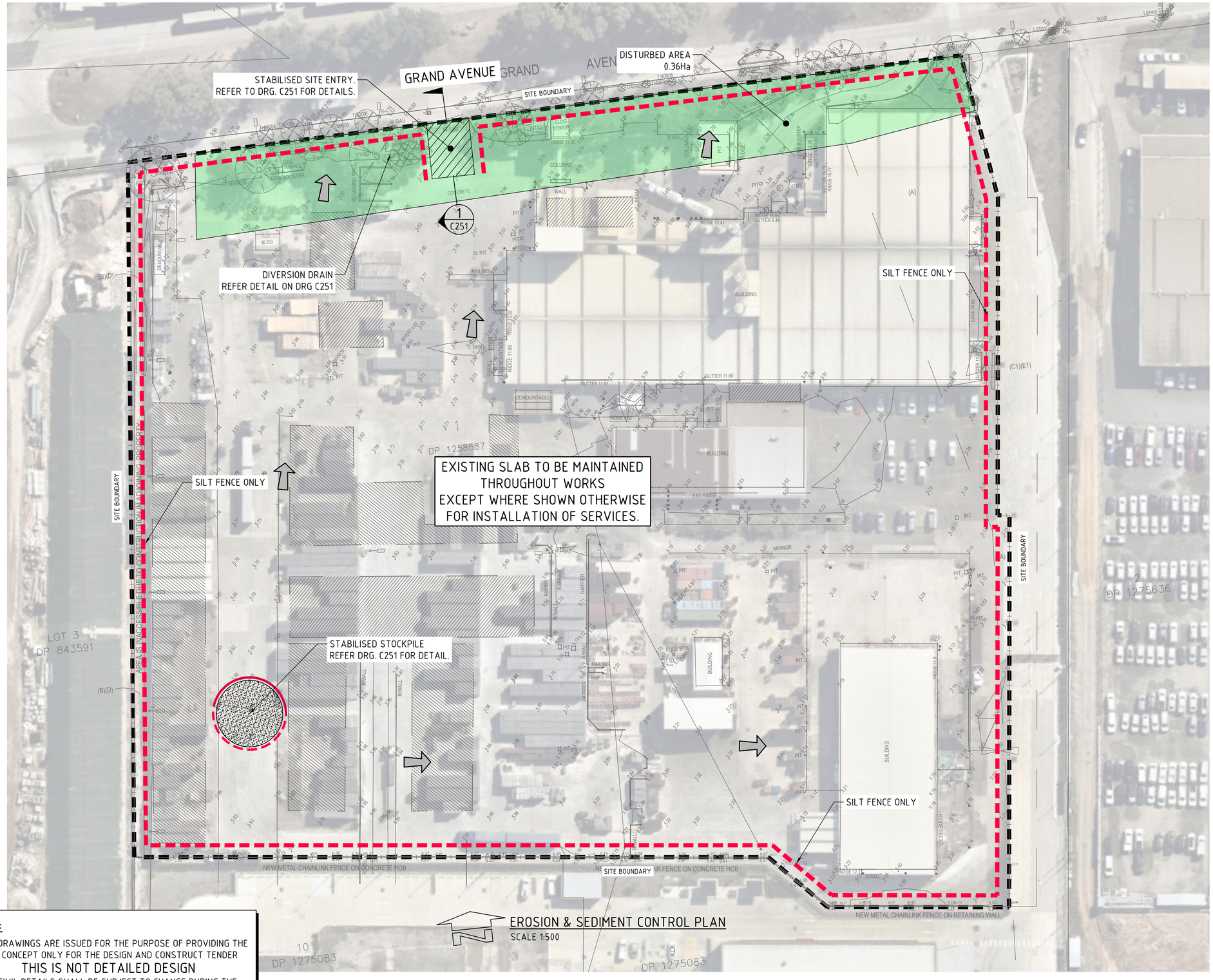
# Appendix E Erosion and Sediment Control Plan

## Construction Environmental Management Plan

**6 Grand Avenue, Rosehill NSW**

**Vaughan Constructions Pty Ltd**

SLR Project No: 640.031417.00001




EROSION & SEDIMENT CONTROL PLAN
SCALE 1:500

## NOTE:

THESE DRAWINGS ARE ISSUED FOR THE PURPOSE OF PROVIDING THE CIVIL CONCEPT ONLY FOR THE DESIGN AND CONSTRUCT TENDER

THIS IS NOT DETAILED DESIGN

THE CIVIL DETAILS SHALL BE SUBJECT TO CHANGE DURING THE DETAILED DESIGN STAGE

## EROSION CONTROL NOTES:

ALL CONTROL WORK INCLUDING DIVERSION BANKS AND CATCH DRAINS, V-DRAINS AND SILT FENCES SHALL BE COMPLETED DIRECTLY FOLLOWING THE COMPLETION OF THE EARTHWORKS.

1. SILT FENCES AND SILT FENCE RETURNS SHALL BE ERECTED CONVEX TO THE CONTOUR TO POND WATER.
2. HAY BALE BARRIERS AND GEOFABRIC FENCES ARE TO BE CONSTRUCTED TO TOE OF BATTER, PRIOR TO COMMENCEMENT OF EARTHWORKS, IMMEDIATELY AFTER CLEARING OF VEGETATION AND BEFORE REMOVAL OF TOP SOIL.
3. ALL TEMPORARY EARTH BERMS, DIVERSION AND SILT DAM EMBANKMENTS ARE TO BE MACHINE COMPACTED, SEEDED AND MULCHED FOR TEMPORARY VEGETATION COVER AS SOON AS THEY HAVE BEEN FORMED.
4. CLEAR WATER IS TO BE DIVERTED AWAY FROM DISTURBED GROUND AND INTO THE DRAINAGE SYSTEM.
5. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING AND PROVIDING ON GOING ADJUSTMENT TO EROSION CONTROL MEASURES AS REQUIRED DURING CONSTRUCTION.
6. ALL SEDIMENT TRAPPING STRUCTURES AND DEVICES ARE TO BE INSPECTED AFTER STORMS FOR STRUCTURAL DAMAGE OR CLOGGING, TRAPPED MATERIAL IS TO BE REMOVED TO A SAFE, APPROVED LOCATION.
7. ALL FINAL EROSION PREVENTION MEASURES INCLUDING THE ESTABLISHMENT OF GRASSING ARE TO BE MAINTAINED UNTIL THE END OF THE DEFECTS LIABILITY PERIOD.
8. ALL EARTHWORKS AREAS SHALL BE ROLLED ON A REGULAR BASIS TO SEAL THE EARTHWORKS.
9. ALL FILL AREAS ARE TO BE LEFT WITH A BUND AT THE TOP OF THE SLOPE AT THE END OF EACH DAYS EARTHWORKS. THE HEIGHT OF THE BUND SHALL BE A MINIMUM OF 200mm.
10. ALL CUT AND FILL SLOPES ARE TO BE SEEDED AND HYDROMULCHED WITHIN 10 DAYS OF COMPLETION OF FORMATION.
11. AFTER REVEGETATION OF THE SITE IS COMPLETE AND THE SITE IS STABLE IN THE OPINION OF A SUITABLY QUALIFIED PERSON ALL TEMPORARY WORK SUCH AS SILT FENCE, DIVERSION DRAINS ETC SHALL BE REMOVED.
12. ALL TOPSOIL STOCKPILES ARE TO BE SUITABLY COVERED TO THE SATISFACTION OF THE SITE MANAGER TO PREVENT WIND AND WATER EROSION.
13. ANY AREA THAT IS NOT APPROVED BY THE CONTRACT ADMINISTRATOR FOR CLEARING OR DISTURBANCE BY THE CONTRACTOR'S ACTIVITIES SHALL BE CLEARLY MARKED AND SIGN POSTED, FENCED OFF OR OTHERWISE APPROPRIATELY PROTECTED AGAINST ANY SUCH DISTURBANCE.
14. ALL STOCKPILE SITES SHALL BE SITUATED IN AREAS APPROVED FOR SUCH USE BY THE SITE MANAGER. A 6m BUFFER ZONE SHALL EXIST BETWEEN STOCKPILE SITES AND ANY STREAM OR FLOW PATH. ALL STOCKPILES SHALL BE ADEQUATELY PROTECTED FROM EROSION AND CONTAMINATION OF THE SURROUNDING AREA BY USE OF THE MEASURES APPROVED IN THE EROSION AND SEDIMENTATION CONTROL PLAN.
15. ACCESS AND EXIT AREAS SHALL INCLUDE SHAKE-DOWN OR OTHER METHODS APPROVED BY THE SITE MANAGER FOR THE REMOVAL OF SOIL MATERIALS FORM MOTOR VEHICLES.
16. THE CONTRACTOR IS TO ENSURE RUNOFF FROM ALL AREAS WHERE THE NATURAL SURFACE IS DISTURBED BY CONSTRUCTION, INCLUDING ACCESS ROADS, DEPOT AND STOCKPILE SITES, SHALL BE FREE OF POLLUTANTS BEFORE IT IS EITHER DISPERSED TO STABLE AREAS OR DIRECTED TO NATURAL WATERCOURSES.
17. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN SLOPES, CROWNS AND DRAINS ON ALL EXCAVATIONS AND EMBANKMENTS TO ENSURE SATISFACTORY DRAINAGE AT ALL TIMES WATER SHALL NOT BE ALLOWED TO POND ON THE WORKS UNLESS SUCH PONDING IS PART OF AN APPROVED ESCP / SWMP.

## LEGEND:

PROVIDE 1m RETURNS TO SILT FENCE AT 30m MAX. INTERVALS.
TYPICAL (N.S.O.P.)

- DENOTES DIVERSION DRAIN
- DENOTES SILT FENCE WITH CATCH DRAIN
- DENOTES SILT FENCE ONLY
- DENOTES CONSTRUCTION ENTRY
- DENOTES DISTURBED AREA
- DENOTES OVERLAND FLOW PATH

## NOTE:

EXTENT OF EXISTING SLAB TO BE LEFT IN-SITU CONTRACTOR TO JACK HAMMER THROUGH EXISTING SLAB IN A 2m GRID.

## RUSLE CALCULATION:

TOTAL CATCHMENT AREA = 4.25 ha
DISTURBED CATCHMENT AREA = 0.36 ha

$A = R \times K \times LS \times P \times C$

1. 2-yr, 6-hr ARI (S) = 6.32;
2. RAINFALL EROSIVITY FACTOR (R)
   $R = 164.74(1.1177)^S S^{0.6444} = 1091.93$;
3. SOIL ERODIBILITY FACTOR (K) = 0.075;
4. LENGTH/GRADIENT FACTOR (LS) = 0.26;
5. EROSION CONTROL PRACTICE FACTOR (P) = 1.3;
6. COVER FACTOR (C) = 1.0

SOIL LOSS (A) = $27.68 m^3/ha/yr$
= $76.89 m^3/yr$

PER BLUE BOOK GUIDELINES SECTION 6.3.2.d, FOR SITES WITH AVERAGE ANNUAL SOIL LOSS (A) < $150 m^3/yr$, A SEDIMENT RETENTION BASIN MAY BE CONSIDERED UNNECESSARY.

5m 0 10 20 30 40 50m
SCALE 1:500 AT A1 SIZE SHEET

FOR TENDER

| | | |
|---|---|---|
| ISSUED FOR TENDER | 25.03.24 | A |
| AMENDMENTS | DATE | ISSUE |

ARCHITECT: SBA ARCHITECTS

CLIENT: Hale

PROJECT
PROPOSED DEVELOPMENT
6 GRAND AVE
ROSEHILL, NSW, 2142

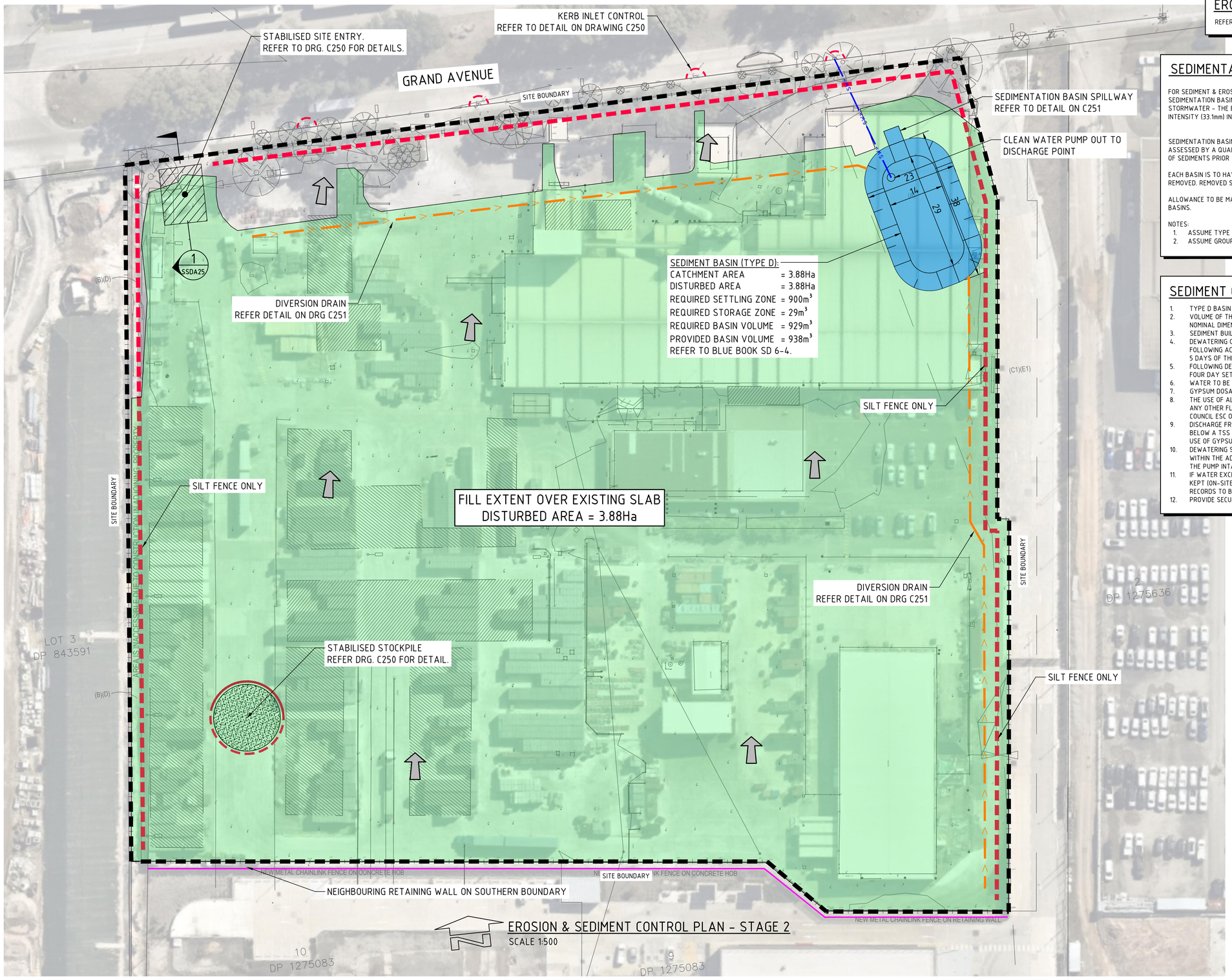
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|---|---|---|---|---|---|---|
| NZ | JB | MAR '24 | DS | A1 | AS SHOWN | C014955.00-C200 |

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COSTIN ROE CONSULTING | CIVIL & STRUCTURAL ENGINEERS

DRAWING TITLE
EROSION & SEDIMENT CONTROL PLAN

DRAWING No C014955.00-C200 ISSUE A




## EROSION CONTROL NOTES:

REFER TO DRAWING C200 FOR EROSION CONTROL NOTES

## SEDIMENTATION BASIN NOTE:

FOR SEDIMENT & EROSION CONTROL DETAILS REFER TO DRAWING C014618.01-C250 & C251.
SEDIMENTATION BASIN SIZING BASED ON RECOMMENDATIONS OF 'SOILS AN CONSTRUCTION, MANAGING URBAN STORMWATER - THE BLUE BOOK'. CAPACITY BASED ON 5-DAY RAINFALL DEPTHS AT 85th PERCENTILE INTENSITY (33.1mm) IN THE CATCHMENT AREA.

SEDIMENTATION BASINS TO COLLECT RUN-OFF IN EXTREME RAINFALL EVENTS. COLLECTED RUN-OFF TO BE ASSESSED BY A QUALIFIED LABORATORY FOR DOUSING RATES OF ALUM OR GYPSUM TO ENSURE COAGULATION OF SEDIMENTS PRIOR TO WATER BEING DISCHARGED TO COUNCIL STORMWATER SYSTEM.

EACH BASIN IS TO HAVE A MARKER PLACED AS PER THE DETAIL TO INDICATE WHEN SEDIMENT IS TO BE REMOVED. REMOVED SEDIMENT IS TO BE CLASSED AND DEWATERED PRIOR TO REMOVAL FROM SITE.

ALLOWANCE TO BE MADE DURING BENCHING OF SITE TO ENSURE RUN-OFF IS DIRECTED TO SEDIMENTATION BASINS.

NOTES:
1. ASSUME TYPE D SOIL (CLAY/SILTY CLAY)
2. ASSUME GROUP D SOIL (HIGH PLASTICITY AND SHRINK/SWELL PROPERTIES)

## SEDIMENT CONTROL BASIN NOTES:

1. TYPE D BASIN IS REQUIRED.
2. VOLUME OF THE BASINS SHALL BE AS NOMINATED ON DRAWING. NOMINAL POND LOCATIONS AND NOMINAL DIMENSIONS.
3. SEDIMENT BUILD UP TO NOT EXCEED 33% TOTAL CAPACITY OF BASIN.
4. DEWATERING OF BASIN TO BE PERFORMED TO THE BOTTOM OF THE SEDIMENT SETTLING ZONE FOLLOWING ACHIEVEMENT OF WQO's. MANAGEMENT OF DOSAGE AND DISCHARGE TO BE ACHIEVED WITHIN 5 DAYS OF THE INITIAL RAINFALL EVENT.
5. FOLLOWING DEWATERING PER NOTE 4, WATER LEVEL TO BE MAINTAINED AT 20% CAPACITY AFTER A FOUR DAY SETTLING PERIOD FOLLOWING A STORM EVENT.
6. WATER TO BE DOSED WITH GYPSUM TO ACCELERATE SETTLEMENT OF SUSPENDED SOLIDS AS REQUIRED.
7. GYPSUM DOSAGE RATE TO BE APPLIED AT APPROX. 32kg PER 100 CUBIC METRE OF COLLECTED RUNOFF.
8. THE USE OF ALUM (OR ANY OTHER ALTERNATIVE) AS A FLOCCULANT IS NOT RECOMMENDED. ALUM OR ANY OTHER FLOCCULANT IS TO BE USED ONLY FOLLOWING CONSULTATION WITH AND ACCEPTANCE FROM COUNCIL ESC OFFICERS.
9. DISCHARGE FROM POND IS PERMISSIBLE WHEN THE WATER PH IS 6.5-8.5 AND IS CLARIFIED TO AT OR BELOW A TSS OF 50mg/L. CLARIFICATION WOULD GENERALLY BE ACHIEVED IN 36-72 HOURS WITH THE USE OF GYPSUM. CORRELATION TESTS MUST BE UNDERTAKEN ON SITE TO ENSURE THIS IS ACHIEVED.
10. DEWATERING SHALL BE DONE IN SUCH A MANNER AS TO REMOVE THE CLEAN WATER (BEING WATER WITHIN THE ADOPTED CRITERIA) WITHOUT REMOVING OR DISTURBING THE SEDIMENT THAT HAS SETTLED. THE PUMP INTAKE PIPE IS NOT TO REST ON THE SETTLED SEDIMENT LAYER.
11. IF WATER EXCEEDS TSS OF 50mg/L DURING DEWATERING, PUMPING IS TO CEASE. RECORDS ARE TO BE KEPT (ON-SITE AT ALL TIMES) OF ALL MEASUREMENT PRIOR TO, DURING AND AFTER DISCHARGE. RECORDS TO BE MADE AVAILABLE TO COUNCIL OFFICERS UPON REQUEST.
12. PROVIDE SECURITY FENCE TO BASIN FOR SAFETY.

## LEGEND:

PROVIDE 1m RETURNS TO SILT FENCE AT 30m MAX. INTERVALS.
TYPICAL (N.S.O.P.)

- DENOTES DIVERSION DRAIN
- DENOTES SILT FENCE WITH CATCH DRAIN
- DENOTES SILT FENCE ONLY
- DENOTES CONSTRUCTION ENTRY
- DENOTES OVERLAND FLOW PATH
- DENOTES DISTURBED AREA

## NOTE:

EXTENT OF EXISTING SLAB TO BE LEFT IN-SITU
CONTRACTOR TO JACK HAMMER THROUGH
EXISTING SLAB IN A 2m GRID.

5m 0 10 20 30 40 50m
SCALE 1:500 AT A1 SIZE SHEET

# FOR CONSTRUCTION

| ISSUED FOR CONSTRUCTION | 12.09.24 | 0 |
|---|---|---|
| AMENDMENTS | DATE | ISSUE |

ARCHITECT: PACE ARCHITECTS

CLIENT: VAUGHAN CONSTRUCTIONS

PROJECT
PROPOSED DEVELOPMENT
6 GRAND AVE
ROSEHILL, NSW, 2142

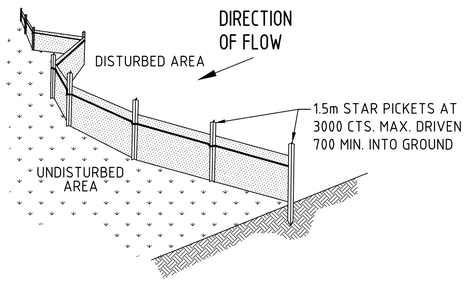
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| NZ | JB | AUG '24 | DS | A1 | AS SHOWN | C014955.01-C 201 |

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CIVIL & STRUCTURAL ENGINEERS

DRAWING TITLE
EROSION & SEDIMENT CONTROL PLAN
STAGE 2

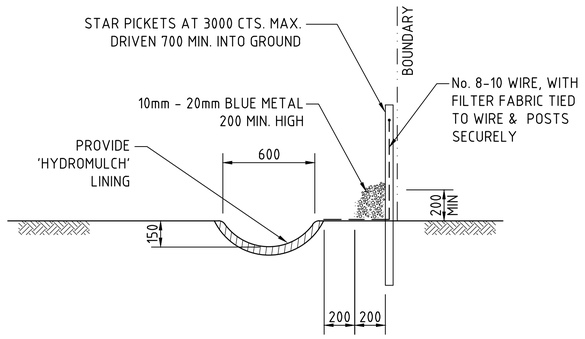
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## TYPICAL SILT FENCE DETAIL

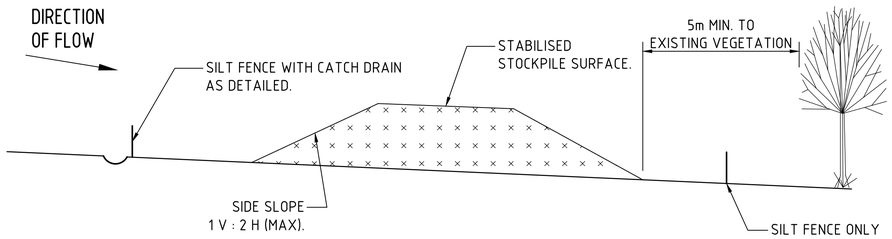
N.T.S

NOTE: PROVIDE 1m RETURNS AT 30m INTERVALS. TYPICAL




## TYPICAL OPEN DRAIN & SILT FENCE

SCALE 1:20

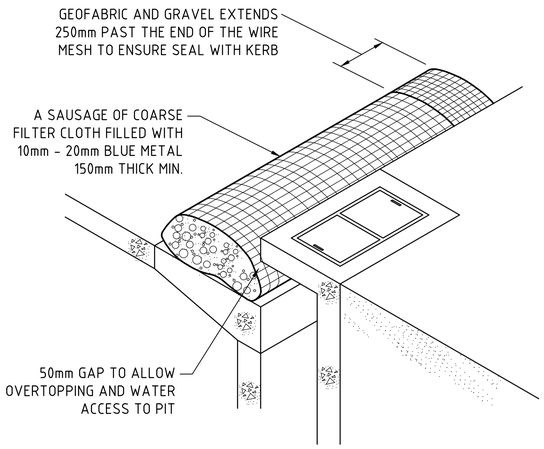



## TYPICAL STOCKPILE DETAIL

N.T.S

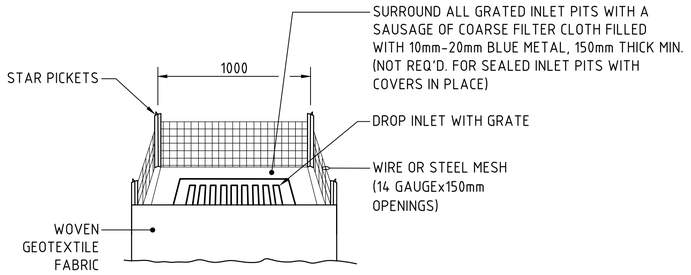
### STOCKPILE NOTES

1. PLACE ALL STOCKPILES IN LOCATIONS MORE THAN 5m FROM EXISTING VEGETATION, ROADS & HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT ELONGATED MOUNDS. SIDE SLOPE TO BE 1 V: 2 H MAX.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2m IN HEIGHT.
4. WHERE STOCKPILES ARE TO BE IN PLACE FOR MORE THAN 10 DAYS, STABILISE USING WOOD CHIP MULCH - 16 TONNE/Ha.
5. CONSTRUCT SILT FENCE WITH CATCH DRAIN ON UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES & SILT FENCE ONLY 1 TO 2m DOWNSLOPE AS SHOWN.



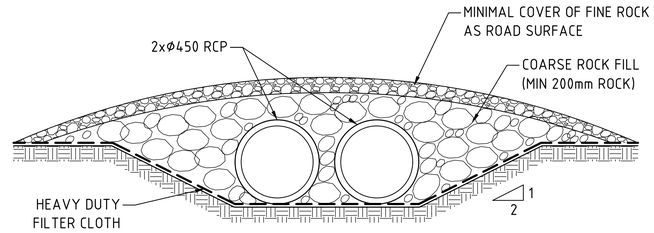

## KERB INLET CONTROL

N.T.S




## GRATED INLET PIT FILTER DETAIL

N.T.S

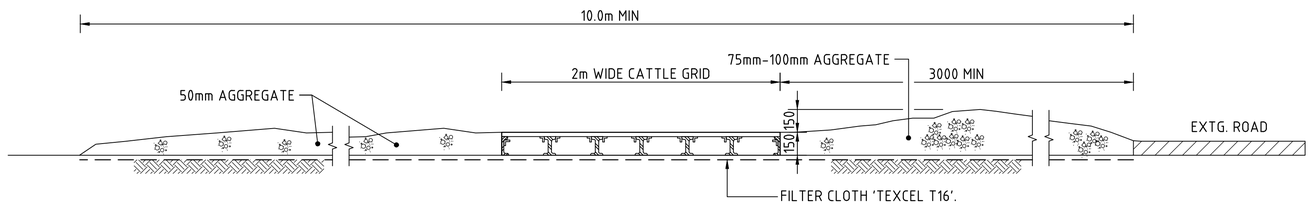



## TYPICAL CROSSING OVER DIVERSION CHANNEL

SCALE 1:20

### NOTE :

ADOPT ABOVE DETAILS AROUND ALL PITS WITHIN AREA ENCOMPASSED BY SILT FENCE & TO PITS ON THE ROAD ADJACENT TO SITE BOUNDARY.




## SECTION 1:20 (1 / C200) : STABILISED CONSTRUCTION ENTRANCE 'TRUCK SHAKER'

### NOTE:

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THIS IS NOT DETAILED DESIGN

THE CIVIL DETAILS SHALL BE SUBJECT TO CHANGE DURING THE DETAILED DESIGN STAGE

200mm 0 500 1000 1500 2000mm

SCALE 1:20 AT A1 SIZE SHEET

**FOR TENDER**

| ISSUED FOR TENDER | 25.03.24 | A |
|---|---|---|
| AMENDMENTS | DATE | ISSUE |

ARCHITECT: SBA ARCHITECTS

CLIENT: Hale

PROJECT: PROPOSED DEVELOPMENT
6 GRAND AVE
ROSEHILL, NSW, 2142

| DESIGNED | DRAWN | DATE | CHECKED | SIZE | SCALE | CAD REF: |
|---|---|---|---|---|---|---|
| NZ | JB | MAR '24 | DS | A1 | AS SHOWN | C014955.00-C251 |

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CRC COSTIN ROE CONSULTING — CIVIL & STRUCTURAL ENGINEERS

DRAWING TITLE: EROSION & SEDIMENT CONTROL DETAILS

DRAWING No: C014955.00-C251 ISSUE: A

# Appendix F Aboriginal Cultural Heritage Management Plan

## Construction Environmental Management Plan

**6 Grand Avenue, Rosehill NSW**

**Vaughan Constructions Pty Ltd**

SLR Project No: 640.031417.00001

# 6 Grand Avenue, Rosehill

## Aboriginal Cultural Heritage Management Plan

Prepared for Archile Projects

November 2024

artefact

Artefact Heritage and Environment

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Suite 56, Jones Bay Wharf
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Australia

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office@artefact.net.au

## Document history and status

| Revision | Date issued | Reviewed by | Approved by | Date approved | Review type | Revision type |
|---|---|---|---|---|---|---|
| 1 | 16 August 2024 | Ryan Taddeucci | Ryan Taddeucci | 16 August 2024 | Internal | Draft 1 |
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# 1.0 INTRODUCTION

Artefact Heritage was engaged by Hale Capital Development Management Pty Ltd (Hale), the Proponent, to prepare an Aboriginal Archaeological Cultural Heritage Assessment Report (ACHAR) for the development proposal at 6 Grand Avenue (Lot number 1. DP 1258587) Rosehill, 2142, covering a site area of 42,388m$^2$. The proposal consists of a two-storey warehouse and distribution centre. Specific works consist of the demolition of all existing buildings, minor earthworks, removal/modification of existing services, mediation works (if necessary), removal of vegetation and rationalisation and removal of existing easements in preparation for the design and construction of a two-storey warehouse and distribution centre.

The ACHAR identified several management measures for Aboriginal cultural heritage as part of the project including the development of a Construction Environment Management Plan (CEMP). On 25 July 2024, the project was issued Development Consent as a State Significant Development (SSD) (Reference number SSD-55522478). The conditions of consent (B34-36) stipulate that an Aboriginal Cultural Heritage Management Plan (ACHMP) must been prepared to support the wider CEMP for the project.

## 1.1 Purpose

The purpose of this ACHMP is to describe how Aboriginal heritage will be protected and managed during the project in accordance with the management and mitigation measures proposed in the ACHAR. This plan provides:

- A summary of the Aboriginal heritage values which are present within the project site.
- Protocols for the management of Aboriginal objects/sites located within the project site.
- Description of measures to be implemented if any Aboriginal objects are encountered during the project.
- Description of measures to be implemented if any Aboriginal skeletal remains are encountered during the project.
- Protocol for the ongoing consultation and involvement of the Aboriginal community in the management of the Aboriginal heritage of the project site.
- Requirements and triggers for the revision of this report.

Table 1 identifies where the recommendations of the ACHAR

**Table 1: Heritage management requirements**

| Heritage management requirements | Location in this document |
|---|---|
| **ACHAR** | |
| Unexpected Aboriginal objects remain protected by the *National Parks and Wildlife Act 1974*. If any such objects, or potential objects, are uncovered in the course of the activity, all work in the vicinity should cease immediately. A qualified archaeologist must be contacted to assess the find and Heritage NSW and Deerubbin LALC must be notified | Section 5.1 |

| Heritage management requirements | Location in this document |
|---|---|
| If human remains, or suspected human remains, are found in the course of the activity, all work in the vicinity should cease, the site should be secured, and the NSW Police and Heritage NSW must be notified. | Section 5.3 |

## 1.2 Condition compliance

The Conditions of Approval issued for the project relating to Aboriginal Heritage are outlined below in Table 2.

**Table 2: Conditions of Approval**

| Number | Condition | Compliance |
|---|---|---|
| **B34** | All reasonable steps must be taken to avoid harm, modification or other impact to Aboriginal objects except as authorised by this consent. | Complies. The preparation of this ACHMP demonstrates steps to avoid harm, modification or other impacts to Aboriginal objects. |
| B35 | Prior to the commencement of any clearing or construction works for the development, the Applicant must prepare an Aboriginal Cultural Heritage Management Plan for the development. The plan must form part of the CEMP required by condition C2 and must:<br>(a) be prepared by a suitably qualified and experienced expert(s);<br>(b) be prepared in accordance with the Registered Aboriginal Parties;<br>(c) to be reviewed by Heritage NSW<br>(d) include an unexpected finds protocol that specifies if any item or object of Aboriginal heritage significance is identified in site:<br>(i) all work in the immediate vicinity of the suspected Aboriginal item or object must cease immediately;<br>(ii) a 10m wide buffer area around the suspected item or object must be cordoned off;<br>(iii) Heritage NSW must be contacted immediately; and<br>(iv) 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*.<br>(e) Include requirements to undertake ongoing consultation with the Registered Aboriginal Parties during the implementation of the plan;<br>(f) Include provisions for workers on site to receive suitable heritage inductions prior to carrying out any development on the site, with records to be kept of these introductions; and,<br>(g) Include procedures and requirements for review and revision of the plan. | Complies. This ACHMP has been prepared by suitably qualified archaeologists in consultation with Registered Aboriginal Parties. It contains an unexpected finds protocol in line with these guidelines, and includes requirements and provisions regarding continuing consultation with Registered Aboriginal Parties, heritage inductions, and for the review and revisions of the ACHMP. Heritage NSW has also undertaken a preliminary review of this ACHMP and their amendments have been incorporated into this document. |

| Number | Condition | Compliance |
|---|---|---|
| B36 | The Applicant must:<br>(a) Not commence construction until the ACHMP is approved by the Planning Secretary; and,<br>(b) Implement the most recent version of the ACHMP approved by the Planning Secretary for the duration of construction of the development. | Complies. The Applicant will not commence construction until this ACHMP has been approved by the Planning Secretary and will utilise the most recent version of this document. |

## 1.3 Authorship

This ACHMP has been prepared by Kieran Murray (Aboriginal Cultural Heritage Officer, Artefact Heritage). This plan has been reviewed by Ryan Taddeucci (Aboriginal Heritage Team Leader, Artefact Heritage).

# 2.0 PROJECT CONTEXT

## 2.1 Scope of works

The Proponent proposes to develop 6 Grand Avenue at Rosehill (2142) as a two-storey warehouse and distribution centre. The proposed development involves the following:

- Demolition of existing improvements, including buildings, pavements and crossovers;
- Removal, relocation and modification of existing services and services connections to suit the proposed redevelopment;
- Minor remediation works;
- Removal of vegetation;
- Rationalisation and removal of existing easements; and
- Design and construction of a 2-storey multi-unit warehouse facility.

The project intends to provide an increase in the available warehouse and office space available in the area, supporting other industries in the precinct and Greater Parramatta area.

## 2.2 Study area

The study area is located in an existing industrial estate (Lot 1 DP 1258587), in the suburb of Rosehill (2142) within the Parramatta City Council LGA (Figure 1). The study area is wholly within the boundaries of the Deerubbin Local Aboriginal Land Council (LALC).

The area is entirely disturbed terrain and has been historically used for industrial purposes with neighbouring areas also being used for transport (light rail, train). The Rosehill racecourse is located to the west of the study area. The landscape has been levelled to largely flat terrain with the land being filled with foreign soil, rock, building and other waste materials. The original vegetation of the area has been substantially cleared.

## 2.3 Statutory context

This ACHMP has been developed in consideration of the following legislative instruments.

**Table 3: Legislative background**

| | Legislative purpose | Relevance to the current ACHMP |
|---|---|---|
| *Environmental Planning and Assessment Act 1979* | The act establishes the framework for cultural heritage values to be formally assessed in the land use planning, development assessment and environmental impact assessment processes.<br>The current project was assessed as a State Significant Development under Part 4, Division 4.1 of the EP&A Act. | The project conditions of approval under the EP&A Act will be incorporated into this ACHMP (once issued).<br>The current ACHMP is based off of the recommended conditions of the ACHAR, EIS, and Heritage NSW EIS submission |

| | Legislative purpose | Relevance to the current ACHMP |
|---|---|---|
| *Environment Protection and Biodiversity Conservation Act 1999 (Cwth)* | The main purpose of this Act is to provide for the protection of the environment especially those aspects that are of national environmental importance and to promote ecological sustainable development.<br>Heritage places are listed on the National Heritage List (NHL) for their 'outstanding heritage value to the nation' and are owned by a variety of constituents, including government agencies, organisations or individuals. Only items owned or controlled by the Commonwealth that meet the threshold for national heritage listing under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) are listed on the Commonwealth Heritage List (CHL) and/or the World Heritage List (WHL) and afforded protection under the EPBC Act. | No NHL, CHL or WHL items are located within the project site therefore the EPBC Act is not considered in this ACHMP |
| *National Parks and Wildlife Act 1974* | This Act provides protection for all Aboriginal objects and Aboriginal places.<br>Section 86 of the NPW Act identifies that it is an offence to harm or desecrate an Aboriginal object and/or an Aboriginal place.<br>A section 90 Aboriginal Heritage Impact Permit (AHIP) is generally required to harm an Aboriginal object or place. An AHIP is not required for impact associated with an approved State Significant Development. | Project approval as State Significant Development under Part 4 of the EP&A Act.<br>Conditions of approval for the approved project will be incorporated into this ACHMP (once issued)<br>The current ACHMP is based off of the recommended conditions of the ACHAR, EIS, and Heritage NSW EIS submission |
| *Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (Cwth)* | This Act provides for the preservation and protection from injury or desecration to areas and objects of particular significance to Aboriginals. Areas and objects can be protected by Ministerial Declaration and it is then an offence to contravene such a declaration. | No areas or objects within the project site have been identified as being subject to a ministerial declaration therefore this Act is not relevant to the ACHMP. |
| *Coroners Act* | This Act enables coroners to investigate certain kinds of deaths or suspected deaths in order to determine the identities of the deceased persons, the times and dates of their deaths and the manner and cause of their deaths. | This Act is relevant if Human Skeletal Remains are located within the project area and is addressed in Section 5.5 of this report |

## 2.4 Guidelines

Additional guidelines and standards relating to the management of Aboriginal cultural heritage include:

- *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW 2010a; hereafter the Consultation Requirements);
- *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW 2010b; hereafter the Code of Practice); and
- *Guide to investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW* (OEH 2011. Hereafter the Guide)

**Figure 1: Study Area**



# 3.0 CONSULTATION

This section describes consultation with Registered Aboriginal Parties (RAPs) that has been undertaken in preparation of this ACHMP.

## 3.1 Consultation undertaken during preparation of the EIS

Aboriginal community consultation was initiated during preparation of the EIS and has been completed in accordance with the Consultation requirements (OEH 2010).

Consultation and collaboration with the RAPs was integral to the assessment and will continue to be undertaken during the ongoing management of Aboriginal cultural heritage for the project.

A list of RAPs registered for the project is provided in Table 4.

**Table 4: Registered Aboriginal Parties**

| Organisation | RAP contact person |
|---|---|
| Gunya Aboriginal Cultural Heritage Services PTY LTD | Adam Gunther |
| Amanda Hickey Cultural Services (AHCS) | Amanda Hickey |
| A1 Indigenous Services PTY LTD | Carolyn Hickey |
| Clive Freeman | Clive Freeman |
| Wori Wooilywa | Daniel Chalker |
| Murra Bidgee Mullangari Aboriginal Corporation | Darleen Johnson |
| Dharug Ngurra Aboriginal Corporation | Dirk Schmitt |
| Widescope Indigenous Group | Donna Hickey & Steven Hickey |
| Butucarbin Aboriginal Corporation | Jennifer Beale |
| Darug Custodian Aboriginal Corporation | Justine Coplin |
| Bariyan Cultural Connections | Kayelene Terry |

| Organisation | RAP contact person |
|---|---|
| Wallanbah Aboriginal Site Conveyancing | Kelvin Boney |
| Koori Digs | Korri Currell |
| Corroboree Aboriginal Corporation | Name withheld |
| Didge Ngunawal Clan | Paul Boyd & Lilly Carroll |
| Kamilaroi-Yankuntjatjarra Working Group | Phil Khan |
| RAW Cultural Healing | Raymond Weatherall |
| Waawaar Awaa Aboriginal Corporation | Rodney Gunther |
| Murra Bidgee Mullangari Aboriginal Corporation | Ryan Johnson |
| Tocomwall Pty Ltd | Scott Franks |
| Gunjeewong Cultural Heritage Aboriginal Corporation | Shayne Dickson |
| Woka Aboriginal Corporation | Name withheld |

Consultation with the RAPs throughout the EIS assessment process is outlined in the ACHAR in Section 2.0

## 3.2 Consultation undertaken during preparation of the current ACHMP

A draft of the ACHMP was issued to Heritage NSW and the RAPs for review on 16 August 2024. Comments were requested by 13 September 2024. At the end of the review period five RAPs had provided comment on the ACHMP an additional two responses were received following the close of the submission period. Comments received and actions completed are presented in Table 5.

**Table 5: Responses to draft ACHMP**

| Person | Group | Comments | Action |
|---|---|---|---|
| Paul Boyd & Lilly Carroll | Didge Ngunawal Clan | We are happy from our end with everything | Noted in log |

| Person | Group | Comments | Action |
|---|---|---|---|
| Kelvin Boney | Wallanbah Aboriginal Site Conveyancing | Thank you, will do. | Noted in log |
| Justine Coplin | Darug Custodian Aboriginal Corporation | Dharug Custodian Aboriginal Corporation have received and reviewed the report for 6 Grand Avenue, Rosehill, we support the recommendations set out in this report. | Noted in log |
| Darleen Johnson & Ryan Johnson | Murra Bidgee Mullangari Aboriginal Corporation | I have read the project information and ACHAMP for the above project, I endorse the recommendations. | Noted in log |
| Steven Johnson | Woka Aboriginal Corporation | Our members have reviewed the ACHA for 6 Grand Ave Rosehill with no objections and in agreeance. | Noted in log |
| Amanda Hickey | Amanda Hickey Cultural Services (AHCS) | Thanks for your email AHCS supports the Aboriginal Cultural Heritage Management Plan (ACHMP). | Noted in log |
| Kayelene Terry | Bariyan Cultural Connections | Bariyan Cultural Connections have reviewed the Aboriginal Cultural Heritage Management Plan for the proposed construction works at 6 Grand Avenue, Rosehill and have no comments at this stage. I would like to apologize for the late reply. | Noted in log |

On 2 September 2024, Heritage NSW provided a response, requesting that the ACHMP be lodged on the Major Projects Planning Portal. In accordance with this advice, the report was lodged on the Planning Portal (see Appendix 1 for record of lodgement).

## 3.3 Triggers for consultation during construction

Further consultation with RAPs would be undertaken under the following circumstances:

- Following the identification of unexpected finds which are confirmed to be Aboriginal objects.
- Following the identification of Aboriginal human remains.

# 4.0 EXISTING ENVIRONMENT

## 4.1 Aboriginal histories

### 4.1.1 Note on language and cultural warning

Aboriginal and Torres Strait Islander people should be aware this report may contain words and terms in quotations from works written by non-Indigenous people in the past that may be confronting and considered inappropriate today. Artefact does not endorse these views or the use of these terms. These historical sources have been included because they provide information on the lives of Aboriginal people in the region.

This report also contains the names and images of deceased people and descriptions of historical events including massacres that may be distressing to some readers.

### 4.1.2 Aboriginal Histories of the Locality

Parramatta is one of several current day Sydney locations based on a traditional Aboriginal word or placename, generally understood to be from the Darug word Burramatta, which is broken down to mean, *Burra = eel, matta = place. The suffix gal = the people of, would be added to describe the Burramattagal who lived there*. European attempts to transcribe Aboriginal words were often poor, and the early colonists transcribed the place of eels as 'Parramatta' (Kohen 1986, Brook and Kohen, J. L. 1991, Kass et al. 1996).

Parramatta is in the centre of traditional Darug Country in what in 1788 Governor Arthur Phillip called the County of Cumberland. The Cumberland Plain is a biological and geological (biogeographic) feature of the Sydney Basin, the major geological basin extending from the elevated coastal sandstone formations at the Sydney coast in the east, to the Dyarubbin or Hawkesbury-Nepean River in the west and south. The mildly undulating plains consist of soils that have formed through millennia of alluvial deposition are punctuated with occasional rocky outcrops such as at Prospect Hill. Over the entire plain there are over 100 creeks and nine rivers, of which the Parramatta River rises in predominantly grassy or open woodlands to the west (Birch 2006).

The river was navigable by boats to a point at modern day Parramatta where it narrows and becomes rocky. As Surgeon John White described in April 1788; 'here the tide ceased to flow and all further progress for boats was stopped by a flat space of large broad stones over which a fresh water stream ran'. Here was the centre of the Burramattagal eel fishing and trapping activities. David Collins described how burra were harvested by placing hollow logs in the water and then drawing them up with the burra inside. At the confluence of brackish tidal waters and freshwater, the Burramattagal could catch flathead and mullet fish, tortoises, mussels, oysters, crabs, prawns, mussels, freshwater crayfish and other fish. On the riverbanks, as John Hunter noted, Aboriginal people 'live chiefly on the roots they dig from the ground … the wild yam.' Governor Phillip soon declared Burramattagal land to be 'good country' for farming and 'to be settled' as soon as the colonists were able to (White 1790).

Parramatta, accessible by boat, with fresh water and surrounded by open woodlands, was of strategic military importance to the colony as well. The first structure was a redoubt or small fort and the location chosen as the second seat of government. As historian Grace Karskens notes, Governor Phillip's attitude towards the Darug people at Parramatta was strikingly different to his attempts to gain the confidence of people such as Bennelong around Sydney Cove – 'there were no meetings, no dancing, no gifts or high hopes of "living in amity" …the settlement of Parramatta was a true invasion, with well-organised military defences (Karskens et al. 2017).

The colonists were correct in their fears of conflict and the threat Aboriginal warriors posed to their precious stock and maize crops that were spreading out into other small settlements at Prospect Hill and 'The Ponds', 2 miles northwest of Parramatta. In mid-1791, the small group of farms at the foot of Prospect Hill came under attack from 'more than one hundred' warriors in one raid, and were attacked several times over the next months, requiring soldiers to be sent out from Parramatta. Between 1791 and 1794 several colonists in the districts around Parramatta were attacked and some were killed by warriors. David Collins noted their attacks and raids had become 'frequent and extensive' and in April 1794, one raid on the Government Farm at Toongabbie turned into a battle between constables and warriors (Gapps 2018).

Ongoing resistance warfare came to a head in 1797 when Pemulwuy led a large force of warriors into the township of Parramatta itself. In what has become known as the Battle of Parramatta, at least five warriors were killed and Pemulwuy and others wounded. As he had received 'seven buck shot in his head and other parts of his body', yet soon escaped captivity, it was rumoured by both colonists and Aboriginal people alike that Pemulwuy 'could not be killed' by firearms. Pemulwuy's resistance continued, with several escaped convicts apparently joining forces with his guerrilla warband. By 1801, Governor King had had enough and issued orders to the settlers to 'drive back the hordes of natives' around Parramatta, the Georges River and Prospect Hill. In November, rewards were offered including free pardons for convicts. Pemulwuy, wanted 'dead or alive', was shot and killed in June 1802 and his head cut off and sent to England. To this day it has not been returned to his Country (Collins 1975a, Smith 2010).

Even after the death of Pemulwuy, conflict and resistance continued across the Sydney region. Another Government Order banning all Aboriginal people from entering the 'Grounds of Dwellings of any Settler' was issued in 1805. While some Aboriginal people attempted to negotiate their safety and continued access to the settlements and a 'Conference' was arranged at 'the brush between Prospect and George's River', Pemulwuy's son Tedbury had united a band that continued to harass travellers, kill stock and raid farms, until Tedbury was shot in 1810. By 1814, drought conditions and expanding settlement to the south led to more conflict, culminating in the Appin Massacre in April 1816 which effectively ended resistance warfare in the region (Gapps 2010, Karskens 2010).

Macquarie's efforts to as he called it 'civilise' Aboriginal people also centred on the Annual Feast that began in the same year as the Institution, and with the hope of attracting parents from across the Sydney region to hand their children over to the school. People were recorded having travelled from the south coast and southern highlands in 1843 to attend the feast, which proved a more enduring institution in Parramatta than the school. By the 1830s the practice of issuing blankets at the feast had turned into a kind of census of Aboriginal people (Hassall 1997, Gapps 2010).

Today, some descendants of Burramattgal such as Jules Christian continue to revive cultural traditions such as the Burramattagal Eel Festival that has been held since 2016 (Christian 2021).

The remaining Indigenous material culture of the Parramatta area is limited to the objects and materials that have withstood thousands of years of decay within the archaeological record as well as heavy levels of disturbance post-colonisation from significant farming, industrial activities, residential developments and mining. Stone tools are one of the most abundant Aboriginal material culture objects that are present within the Parramatta area. They are significant artefacts for the analysis and interpretation of changes in material culture, use of raw materials and diet. Shell middens are unsurprisingly equally commonly within the region, given the presence of the Parramatta River and the abundance of food resources it provided the local Indigenous communities. Numerous Scarred trees have been recorded in the area as evidence for the crafting of bark canoes or shields. These Bark also give evidence of the use of coolamons, dish shaped items made from the bark used during the cooking process. Fished eels could also be wrapped in bark and then smoked (Christian 2021).

The Burramattagal people hold a close connection to the land and the natural resources it provides. The Parramatta River was a primary source of food providing an abundance of fish, eels and other marine foods. Some of the species that were caught and consumed include flathead, mullet fish, tortoises, mussels, oysters, crabs, prawns, mussels and fresh water crayfish. Hollow logs were submerged in the water to trap the eels and fish inside to then be eaten (Collins 1975b). The Aboriginal people also utilised 'Fire stick farming' to facilitate hunting and the regeneration of the plant communities of the area and utilised bark from the local Eucalypt and River Oak trees that would have run along the banks and surrounding bushland areas of the Parramatta River (City of Parramatta). Another source of food collection was provided by the expert knowledge of flora species and its preparation. Berries, seeds, tree nectar, flowers, fruits, tubers and shoots would have been consumed seasonally in the diet (Brook and Kohen, J. L. 1991). John Hunter, a naval officer on the first fleet recorded seeing Indigenous people harvesting wild yams (Hunter 1968).

## 4.2 Historical impacts

The study area is within Rosehill which in 1793 was part of Elizabeth Farm, a large estate operated by the Macarther family (City of Parramatta 2020). At this time the study area was subject to land clearance and farming which would have had a minor impact on surface remains. In the 1880s the land was subdivided for industrial purposes and has continued in that use until today ('Rosehill' 2008). The use of the area for industrial activities would have further impacted surface remains while the construction of warehouses, factories and their associated infrastructure would have further impacted subsurface remains, significant dredging to alter the course of the Parramatta River is also known to have taken place in the area and has led to the soils being classified as 'disturbed'. The study area is currently occupied by a tile factory. A sequence of warehouses and other industrial buildings occupied the site as well as extensive surface disturbance.

Historical use of the project site is further discussed in Section 3.2 of the ACHAR.

## 4.3 Aboriginal archaeological assessment within the project site

Hale capital on behalf of Hale Capital Development Management Pty Ltd (Hale) (the proponent) commissioned Artefact Heritage and Environment Pty Ltd (Artefact Heritage) to prepare an Archaeological Technical Report (ATR). The ATR identified no registered sites listed within the study area and found the study area to have been disturbed as noted in Section 4.2 of this plan.

Archaeological survey of the study area in accordance with the Code of Practice was completed in March 2023 with the study area found to be heavily disturbed supporting conclusions made in the background research and predictive model. Despite the proximity of the study area to the Parramatta River, the level of disturbance within the study area indicated that there is no potential for Aboriginal sites or objects.

## 4.4 Aboriginal cultural heritage assessment

Following completion of the archaeological assessment an ACHAR was prepared to support the EIS. The report documented the results of the consultation process, identified Aboriginal cultural values associated with the project site and assessed the Aboriginal cultural and archaeological significance of the project site.

### 4.4.1 Aboriginal cultural heritage values

Table 6 provides a summary of the Aboriginal cultural heritage values which were identified during preparation of the ACHAR.

**Table 6: Summary of identified cultural values**

| Cultural heritage value | Description | Source |
|---|---|---|
| Parramatta River | Rivers and creek lines are of importance to Aboriginal people past and present as camping places and burials. | (Attenbrow 2010) |
| Continued occupation and connection through landscape and landforms of the area. | "This area is significant to the Dharug people due to the evidence of continued occupation, within close proximity to this project site there is a complex of significant sites. Landscapes and landforms are significant to us for the information that they hold and the connection to Dharug people. Aboriginal people (Dharug) had a complex lifestyle that was based on respect and belonging to the land, all aspects of life and survival did not impact on the land but helped to care for and conserve land and the sustenance that the land provided. As Dharug people moved through the land there were no impacts left, although there was evidence of movement and lifestyle, the people moved through areas with knowledge of their areas"…<br>"…Knowledge of culture, lifestyle and lore have been part of Dharug people's lives for thousands of years, this was passed down to the next generations and this started with birth and continued for a lifetime." | Darug Custodian Aboriginal Corporation through consultation process for this ACHAR. |

### 4.4.2 Significance assessment

A significance assessment of the scientific, social, historic and aesthetic values of the project site was completed as part of the ACHAR and summarised below:

#### *4.4.2.1 Historic value*

The consultation process did not identify specific historical events associated with the study area.. However, one RAP stated that the evidence of occupation in the broader region testified to a continuous history of occupation.

#### *4.4.2.2 Aesthetic value*

Darug Custodian Aboriginal Corporation commented that aboriginal values were present through continued occupation and through the landscape and landforms of the area.

#### *4.4.2.3 Socio/cultural value*

Justine Coplin of Darug Custodian Aboriginal Corporation said that the broader area in which the study area is located holds significance because the land provides connection to ancestral past and continued occupation of the land. The area holds intangible values connected with land and knowledge passed on from Elders and Ancestors. Further contributions of socio/cultural significance from RAPs as part of the consultation would be welcome.

#### *4.4.2.4 Scientific value*

As there are no archaeological values in the study area, there is no scientific significance.

# 5.0 ARCHAEOLOGICAL MANAGEMENT

## 5.1 Heritage Induction

All staff should complete a heritage induction which will outline the Aboriginal history of the area and guidance on identifying Aboriginal artefacts in the field. This is required for contractors to fulfill the Unexpected Finds Procedure as well as an outline of the legislative framework and penalties for harming Aboriginal sites without applicable consent.

The heritage induction should be delivered by a representative of the Registered Aboriginal Parties or an archaeologist to the direct Head Contractor team at start of the project. The induction of the Head Contractor team would include a PowerPoint presentation that would be recorded. The Head Contractor would then induct all subcontractors and trades utilising the PowerPoint presentation and recording as part of the site induction process.

## 5.2 Unexpected finds procedure

If unanticipated suspected Aboriginal heritage items are uncovered at any time throughout the life of the project the following steps would be undertaken.

- all work in the immediate vicinity of the suspected Aboriginal item or object must cease immediately;
- a 10 m wide buffer area around the suspected item or object must be cordoned off;
- Heritage NSW must be contacted immediately; and
- 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*.

Once the find has been secured the project archaeologist/ heritage consultant should be contacted to assess the significance of the find and determine management requirements.

If the find is identified as a genuine Aboriginal object:

- Heritage NSW and Deerubbin LALC must be notified and the RAPs for the project consulted.
- A methodology for salvage and long-term storage of the find in accordance with its identified significance must be developed in consultation with Heritage NSW and the RAPs.
- Salvage works in accordance with the methodology should be undertaken.
- The Aboriginal object should be registered on AHIMS.

Works would not recommence until written consent is received from the project archaeologist/heritage consultant.

## 5.3 Skeletal remains

Suspected human remains would be managed in accordance with the projects unexpected finds procedure. Where suspected human remains are identified during salvage excavation or construction works, all work in that area would cease and the area be cordoned off. Where it is unclear whether the remains are human, a specialist, such as a Physical Anthropologist, would be called to site to confirm.

Where it is either clear that the remains are human, or it has been confirmed by a specialist, the NSW Police and Heritage NSW Environment Line (131 555) will then be notified.

In the event that the skeletal remains are identified as being Aboriginal ancestral remains, the Registered Aboriginal Parties must be identified.

Work will not recommence in the area where skeletal remains have been identified until such time as the relevant approval has been granted.

## 5.4 Notifications to the Planning Secretary

As per Condition C9 of the Conditions of Approval, In the event of an unexpected find or the discovery of human skeletal remains, the Planning Secretary must be notified in writing via the Major Projects website immediately after the Applicant becomes aware of the incident. This notification must identify the development and set out the location and nature of the incident. Subsequent notification requirements must be given, and these are outlined in Appendix 3 of the Conditions of Approval.

In the event that the Applicant becomes aware of non-compliance with the Conditions of Approval, a non-compliance notification must be submitted to the Planning Secretary in writing via the Major Projects website within seven days of the applicant becoming aware of the non-compliance. Any non-compliance notification must comply with the requirements outlined in Condition C11 of the Conditions of Approval. A non-compliance which has been identified as an incident does not need to also be notified as a non-compliance.

## 5.5 ACHMP revision

Where unexpected finds are identified, this report will be updated. Additional consultation will be completed and documented in Section 3.0. The document history and status table on Page ii will be updated to reflect the modifications to this document. The actions and results of investigation into unexpected finds will be documented in a new section of this report. Revised management or mitigation measures will be added to this section of the report.

Under Condition C7 of the Conditions of Approval, within three months of the submission of an incident report for an unexpected find or the discovery or human skeletal terminals, the approval of any modification of the conditions of consent, or the issue of a direction of the Planning Secretary, the strategies, plans and programs required under this ACHMP must be reviewed and the Planning Secretary must be notified in writing of the outcome of any review.

Additionally, as stated in Condition C8 of the Conditions of Approval, if identified as part of the Condition C7 review process or considered necessary to improve the environmental performance of the development, the strategies, plans and programs required under this ACHMP must be revised to the satisfaction of the Planning Secretary. Where revisions are required, the revised ACHMP must be submitted to the Planning Secretary for approval within six weeks of the review required under Condition C7, or such other timing as agreed by the Planning Secretary.

# 6.0 REFERENCES

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White, J. 1790 Journal of a Voyage toNew South Wales.

# APPENDIX 1: CONSULTATION RECORDS

| CONTACT | ORGANISATION | CONTACTED BY | ORGANISATION | METHOD | DATE | COMMENT/ RESPONSE |
|---|---|---|---|---|---|---|
| **Proposed Aboriginal Cultural Heritage Management Plan (ACHMP)** | | | | | | |
| **Adam Gunther** | Gunya Aboriginal Cultural Heritage Services PTY LTD | Kelly Barton | Artefact | Email | 16/08/2024 | In accordance with Condition B35c of SSD-55522478, I am writing to request a review and comment on the Aboriginal Cultural Heritage Management Plan (ACHMP) prepared by Artefact for the proposed construction works at 6 Grand Avenue, Rosehill.<br><br>Please find attached a copy of the ACHMP and below for a link to the Major Projects page for project context: https://www.planningportal.nsw.gov.au/major-projects/projects/6-grand-avenue-multi-level-warehouse-rosehill<br><br>We would greatly appreciate if you could please provide any review comments by 13 September 2024. Please don't hesitate to contact me directly for any questions or comments. |
| **Amanda Hickey** | Amanda Hickey Cultural Services (AHCS) | Kelly Barton | Artefact | Email | 16/08/2024 | In accordance with Condition B35c of SSD-55522478, I am writing to request a review and comment on the Aboriginal Cultural Heritage Management Plan (ACHMP) prepared by Artefact for the proposed construction works at 6 Grand Avenue, Rosehill.<br><br>Please find attached a copy of the ACHMP and below for a link to the Major Projects page for project context: https://www.planningportal.nsw.gov.au/major-projects/projects/6-grand-avenue-multi-level-warehouse-rosehill<br><br>We would greatly appreciate if you could please provide any review comments by 13 September 2024. Please don't hesitate to contact me directly for any questions or comments. |
| **Carolyn Hickey** | A1 Indigenous Services PTY LTD | Kelly Barton | Artefact | Email | 16/08/2024 | In accordance with Condition B35c of SSD-55522478, I am writing to request a review and comment on the Aboriginal Cultural Heritage Management Plan (ACHMP) prepared by Artefact for the proposed construction works at 6 Grand Avenue, Rosehill. |

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| **Daniel Chalker** | Wori Wooilywa | Kelly Barton | Artefact | Email | 16/08/2024 | In accordance with Condition B35c of SSD-55522478, I am writing to request a review and comment on the Aboriginal Cultural Heritage Management Plan (ACHMP) prepared by Artefact for the proposed construction works at 6 Grand Avenue, Rosehill.<br><br>Please find attached a copy of the ACHMP and below for a link to the Major Projects page for project context: https://www.planningportal.nsw.gov.au/major-projects/projects/6-grand-avenue-multi-level-warehouse-rosehill<br><br>We would greatly appreciate if you could please provide any review comments by 13 September 2024. Please don't hesitate to contact me directly for any questions or comments. |

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| **Dirk Schmitt** | Dharug Ngurra Aboriginal Corporation | Kelly Barton | Artefact | Email | 16/08/2024 | In accordance with Condition B35c of SSD-55522478, I am writing to request a review and comment on the Aboriginal Cultural Heritage Management Plan (ACHMP) prepared by Artefact for the proposed construction works at 6 Grand Avenue, Rosehill.<br><br>Please find attached a copy of the ACHMP and below for a link to the Major Projects page for project context: https://www.planningportal.nsw.gov.au/major-projects/projects/6-grand-avenue-multi-level-warehouse-rosehill<br><br>We would greatly appreciate if you could please provide any review comments by 13 September 2024. Please don't hesitate to contact me directly for any questions or comments. |
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| **Jennifer Beale** | Butucarbin Aboriginal Corporation | Kelly Barton | Artefact | Email | 16/08/2024 | In accordance with Condition B35c of SSD-55522478, I am writing to request a review and comment on the Aboriginal Cultural Heritage Management Plan (ACHMP) prepared by Artefact for the proposed construction works at 6 Grand Avenue, Rosehill.<br><br>Please find attached a copy of the ACHMP and below for a link to the Major Projects page for project context: https://www.planningportal.nsw.gov.au/major-projects/projects/6-grand-avenue-multi-level-warehouse-rosehill<br><br>We would greatly appreciate if you could please provide any review comments by 13 September 2024. Please don't hesitate to contact me directly for any questions or comments. |
| **Justine Coplin** | Darug Custodian Aboriginal Corporation | Kelly Barton | Artefact | Email | 16/08/2024 | In accordance with Condition B35c of SSD-55522478, I am writing to request a review and comment on the Aboriginal Cultural Heritage Management Plan (ACHMP) prepared by Artefact for the proposed construction works at 6 Grand Avenue, Rosehill.<br><br>Please find attached a copy of the ACHMP and below for a link to the Major Projects page for project context: https://www.planningportal.nsw.gov.au/major-projects/projects/6-grand-avenue-multi-level-warehouse-rosehill<br><br>We would greatly appreciate if you could please provide any review comments by 13 September 2024. Please don't hesitate to contact me directly for any questions or comments. |
| **Kayelene Terry** | Bariyan Cultural Connections | Kelly Barton | Artefact | Email | 16/08/2024 | In accordance with Condition B35c of SSD-55522478, I am writing to request a review and comment on the |

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| **Kelvin Boney** | Wallanbah Aboriginal Site Conveyancing | Kelly Barton | Artefact | Email | 16/08/2024 | In accordance with Condition B35c of SSD-55522478, I am writing to request a review and comment on the Aboriginal Cultural Heritage Management Plan (ACHMP) prepared by Artefact for the proposed construction works at 6 Grand Avenue, Rosehill.<br><br>Please find attached a copy of the ACHMP and below for a link to the Major Projects page for project context: https://www.planningportal.nsw.gov.au/major-projects/projects/6-grand-avenue-multi-level-warehouse-rosehill<br><br>We would greatly appreciate if you could please provide any review comments by 13 September 2024. Please don't hesitate to contact me directly for any questions or comments. |
| **Korri Currell** | Koori Digs | Kelly Barton | Artefact | Email | 16/08/2024 | In accordance with Condition B35c of SSD-55522478, I am writing to request a review and comment on the Aboriginal Cultural Heritage Management Plan (ACHMP) prepared by Artefact for the proposed construction works at 6 Grand Avenue, Rosehill.<br><br>Please find attached a copy of the ACHMP and below for a link to the Major Projects page for project context: https://www.planningportal.nsw.gov.au/major-projects/projects/6-grand-avenue-multi-level-warehouse-rosehill |

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| **Raymond Weatherall** | RAW Cultural Healing | Kelly Barton | Artefact | Email | 16/08/2024 | In accordance with Condition B35c of SSD-55522478, I am writing to request a review and comment on the Aboriginal Cultural Heritage Management Plan (ACHMP) prepared by Artefact for the proposed construction works at 6 Grand Avenue, Rosehill. |

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| **Rodney Gunther** | Waawaar Awaa Aboriginal Corporation | Kelly Barton | Artefact | Email | 16/08/2024 | In accordance with Condition B35c of SSD-55522478, I am writing to request a review and comment on the Aboriginal Cultural Heritage Management Plan (ACHMP) prepared by Artefact for the proposed construction works at 6 Grand Avenue, Rosehill.<br><br>Please find attached a copy of the ACHMP and below for a link to the Major Projects page for project context: https://www.planningportal.nsw.gov.au/major-projects/projects/6-grand-avenue-multi-level-warehouse-rosehill<br><br>We would greatly appreciate if you could please provide any review comments by 13 September 2024. Please don't hesitate to contact me directly for any questions or comments. |
| **Scott Franks** | Tocomwall Pty Ltd c/o - Yarrawalk Pty Ltd | Kelly Barton | Artefact | Email | 16/08/2024 | In accordance with Condition B35c of SSD-55522478, I am writing to request a review and comment on the Aboriginal Cultural Heritage Management Plan (ACHMP) prepared by Artefact for the proposed construction works at 6 Grand Avenue, Rosehill.<br><br>Please find attached a copy of the ACHMP and below for a link to the Major Projects page for project context: https://www.planningportal.nsw.gov.au/major-projects/projects/6-grand-avenue-multi-level-warehouse-rosehill<br><br>We would greatly appreciate if you could please provide any review comments by 13 September 2024. |

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| **Shayne Dickson** | Gunjeewong Cultural Heritage Aboriginal Corporation | Kelly Barton | Artefact | Email | 16/08/2024 | In accordance with Condition B35c of SSD-55522478, I am writing to request a review and comment on the Aboriginal Cultural Heritage Management Plan (ACHMP) prepared by Artefact for the proposed construction works at 6 Grand Avenue, Rosehill.<br><br>Please find attached a copy of the ACHMP and below for a link to the Major Projects page for project context: https://www.planningportal.nsw.gov.au/major-projects/projects/6-grand-avenue-multi-level-warehouse-rosehill<br><br>We would greatly appreciate if you could please provide any review comments by 13 September 2024. Please don't hesitate to contact me directly for any questions or comments. |
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| **Steven Randall** | Deerubbin Local Aboriginal Land Council | Kelly Barton | Artefact | Email | 16/08/2024 | In accordance with Condition B35c of SSD-55522478, I am writing to request a review and comment on the Aboriginal Cultural Heritage Management Plan (ACHMP) prepared by Artefact for the proposed construction works at 6 Grand Avenue, Rosehill.<br><br>Please find attached a copy of the ACHMP and below for a link to the Major Projects page for project context: https://www.planningportal.nsw.gov.au/major-projects/projects/6-grand-avenue-multi-level-warehouse-rosehill<br><br>We would greatly appreciate if you could please provide any review comments by 13 September 2024. Please don't hesitate to contact me directly for any questions or comments. |
| **Kelly Barton** | Artefact | Microsoft Outlook | Undeliverable – Microsoft Outlook | Email | 16/08/2024 | **Delivery has failed to these recipients or groups:** justinecoplin@optusnet.com.au<br>Your message couldn't be delivered. Despite repeated attempts to contact the recipient's email system it didn't respond |
| **Justine Coplin** | Darug Custodian Aboriginal Corporation | Kelly Barton | Artefact | Email | 19/08/2024 | Email bounced back – problem with receivers email. Re-sent to J.Coplin and no bounce back on 19/08/24. |
| **FOLLOW UP EMAILS - ACHMP REVIEW PERIOD ENDING** | | | | | | |
| **Adam Gunther** | Gunya Aboriginal Cultural Heritage Services PTY LTD | Kelly Barton | Artefact | Email | 30/08/2024 | Please be informed two weeks remain to review and comment on the 6 Grand Ave, Rosehill ACHMP. |

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| **Amanda Hickey** | Amanda Hickey Cultural Services (AHCS) | Kelly Barton | Artefact | Email | 30/08/2024 | Please be informed two weeks remain to review and comment on the 6 Grand Ave, Rosehill ACHMP. |
| **Carolyn Hickey** | A1 Indigenous Services PTY LTD | Kelly Barton | Artefact | Email | 30/08/2024 | Please be informed two weeks remain to review and comment on the 6 Grand Ave, Rosehill ACHMP. |
| **Clive Freeman** | Clive Freeman | Kelly Barton | Artefact | Email | 30/08/2024 | Please be informed two weeks remain to review and comment on the 6 Grand Ave, Rosehill ACHMP. |
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| **Steven Randall** | Deerubbin Local Aboriginal Land Council | Kelly Barton | Artefact | Email | 30/08/2024 | Please be informed two weeks remain to review and comment on the 6 Grand Ave, Rosehill ACHMP. |
| **ACHMP RESPONSES RECEIVED** | | | | | | |
| **Paul Boyd & Lilly Carroll** | Didge Ngunawal Clan | Kelly Barton | Artefact | Email | 16/08/2024 | We are happy from our end with everything |
| **Kelvin Boney** | Wallanbah Aboriginal Site Conveyancing | Kelly Barton | Artefact | Email | 26/08/2024 | Thank you, will do. |
| **Justine Coplin** | Darug Custodian Aboriginal Corporation | Kelly Barton | Artefact | Email | 02/09/2024 | Dharug Custodian Aboriginal Corporation have received and reviewed the report for 6 Grand Avenue, Rosehill, we support the recommendations set out in this report. |
| **Darleen Johnson & Ryan Johnson** | Murra Bidgee Mullangari Aboriginal Corporation | Kelly Barton | Artefact | Email | 03/09/2024 | I have read the project information and ACHAMP for the above project, I endorse the recommendations. |
| **Steven Johnson** | Woka Aboriginal Corporation | Kelly Barton | Artefact | Email | 03/09/2024 | Our members have reviewed the ACHA for 6 Grand Ave Rosehill with no objections and in agreeance. |
| **Amanda Hickey** | Amanda Hickey Cultural Services (AHCS) | Kelly Barton | Artefact | Email | 16/09/2024 | Thanks for your email AHCS supports the Aboriginal Cultural Heritage Management Plan (ACHMP) |
| **Kayelene Terry** | Bariyan Cultural Connections | Kelly Barton | Artefact | Email | 17/09/2024 | Bariyan Cultural Connections have reviewed the Aboriginal Cultural Heritage Management Plan for the proposed construction works at 6 Grand Avenue, |

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| | | | | | | Rosehill and have no comments at this stage. I would like to apologize for the late reply. |

**From:** lilly carroll <didgengunawalclan@yahoo.com.au>
**Sent:** Friday, 16 August 2024 2:30 PM
**To:** Aboriginal Heritage Team
**Subject:** Re: Request for review Aboriginal Cultural Heritage Management Plan - SSD-55522478

Hi Kelly

We are happy from our end with everything

Sent from Yahoo Mail for iPhone

On Friday, August 16, 2024, 2:04 PM, Aboriginal Heritage Team <consultation@artefact.net.au> wrote:

> Good afternoon,
>
> In accordance with Condition B35c of SSD-55522478, I am writing to request a review and comment on the Aboriginal Cultural Heritage Management Plan (ACHMP) prepared by Artefact for the proposed construction works at 6 Grand Avenue, Rosehill.
>
> Please find attached a copy of the ACHMP and below for a link to the Major Projects page for project context:
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>
> We would greatly appreciate if you could please provide any review comments by 13 September 2024. Please don't hesitate to contact me directly for any questions or comments.
>
> Kind regards,
>
> Kelly Barton

## Aboriginal Heritage Team

**ARTEFACT HERITAGE AND ENVIRONMENT**
**Telephone:** 02 9518 8411

**Address:** Suite 56, Jones Bay Wharf, 26-32 Pirrama Rd, Pyrmont NSW 2009
**Web:** www.artefact.net.au

Artefact acknowledges Aboriginal and Torres Strait Islander peoples as the traditional owners and custodians of the lands and waters of Australia. We acknowledge the Gadigal and Wangal people of Pirrama (Pyrmont) where our Sydney office is located, the Awabakal, Worimi and Wonnaruaof the Hunter Region where our Mulubinba (Newcastle) office is located and the Wiradyuri of the Central West where our Bathurst office is located. We pay our respects to them, their culture and their Elders past and present. We thank them for sustaining and caring for Country for millennia.




**Read Artefact's email disclaimer**

**From:** Kelvin Boney <kelvingoogieboney@gmail.com>
**Sent:** Monday, 26 August 2024 9:45 PM
**To:** Aboriginal Heritage Team
**Cc:** Ryan Taddeucci
**Subject:** Re: Request for review Aboriginal Cultural Heritage Management Plan - SSD-55522478
**Attachments:** image001.jpg

Thank you, will do.

On Fri, 16 Aug 2024, 2:04 pm Aboriginal Heritage Team, <consultation@artefact.net.au> wrote:

> Good afternoon,
>
> In accordance with Condition B35c of SSD-55522478, I am writing to request a review and comment on the Aboriginal Cultural Heritage Management Plan (ACHMP) prepared by Artefact for the proposed construction works at 6 Grand Avenue, Rosehill.
>
> Please find attached a copy of the ACHMP and below for a link to the Major Projects page for project context: https://www.planningportal.nsw.gov.au/major-projects/projects/6-grand-avenue-multi-level-warehouse-rosehill
>
> We would greatly appreciate if you could please provide any review comments by 13 September 2024. Please don't hesitate to contact me directly for any questions or comments.
>
> Kind regards,
>
> Kelly Barton
> **Aboriginal Heritage Team**
>
> **ARTEFACT HERITAGE AND ENVIRONMENT**
> **Telephone:** 02 9518 8411
> **Address:** Suite 56, Jones Bay Wharf, 26-32 Pirrama Rd, Pyrmont NSW 2009
> **Web:** www.artefact.net.au
>
> Artefact acknowledges Aboriginal and Torres Strait Islander peoples as the traditional owners and custodians of the lands and waters of Australia. We acknowledge the Gadigal and Wangal people of Pirrama (Pyrmont) where our Sydney office is located, the Awabakal, Worimi and Wonnaruaof the Hunter Region where our Mulubinba (Newcastle) office is located and the Wiradyuri of the Central West where our Bathurst office is located. We pay our respects to them, their culture and their Elders past and present. We thank them for sustaining and caring for Country for millennia.



Read Artefact's email disclaimer

**From:** Kelly Barton
**Sent:** Friday, 30 August 2024 4:54 PM
**To:** 'Kelvin Boney'
**Cc:** Ryan Taddeucci
**Subject:** RE: Request for review Aboriginal Cultural Heritage Management Plan - SSD-55522478

Hi Kelvin,

Thank you for your email.

There are two more weeks remaining to review and comment on the Aboriginal Cultural Heritage Management Plan (ACHMP) prepared by Artefact for the proposed construction works at 6 Grand Avenue, Rosehill.

Looking forward to your response.

Yours in unity,

**Kelly Barton**
**Aboriginal Cultural Heritage Officer**

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**ARTEFACT HERITAGE AND ENVIRONMENT**
**Telephone:** 02 9518 8411 | **Mobile:** 0414 742 389
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**From:** Kelvin Boney <kelvingoogieboney@gmail.com>
**Sent:** Monday, August 26, 2024 9:45 PM
**To:** Aboriginal Heritage Team <consultation@artefact.net.au>
**Cc:** Ryan Taddeucci <ryan.taddeucci@artefact.net.au>
**Subject:** Re: Request for review Aboriginal Cultural Heritage Management Plan - SSD-55522478

Thank you, will do.

On Fri, 16 Aug 2024, 2:04 pm Aboriginal Heritage Team, <consultation@artefact.net.au> wrote:

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> We would greatly appreciate if you could please provide any review comments by 13 September 2024. Please don't hesitate to contact me directly for any questions or comments.
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>
> 
>
> **Read Artefact's email disclaimer**

**From:** justinecoplin@optusnet.com.au
**Sent:** Monday, 2 September 2024 9:30 AM
**To:** Kelly Barton
**Subject:** RE: Request for review Aboriginal Cultural Heritage Management Plan - SSD-55522478
**Attachments:** 6 Grand Avenue, Rosehill.pdf

----- Original Message -----
**From:**
"Kelly Barton" <Kelly.Barton@artefact.net.au>

**To:**
"Ryan Taddeucci" <ryan.taddeucci@artefact.net.au>
**Cc:**
"Aboriginal Heritage Team" <consultation@artefact.net.au>
**Sent:**
Fri, 30 Aug 2024 06:58:25 +0000
**Subject:**
RE: Request for review Aboriginal Cultural Heritage Management Plan - SSD-55522478

Dear all,

Hope you are all well.

Please be informed that there are two weeks remaining to review and comment on the Aboriginal Cultural Heritage Management Plan (ACHMP) prepared by Artefact for the proposed construction works at 6 Grand Avenue, Rosehill.

Looking forward to your response.

**Kelly Barton**
**Aboriginal Cultural Heritage Officer**

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**Read Artefact's email disclaimer**

---

**From:** Aboriginal Heritage Team
**Sent:** Friday, August 16, 2024 2:04 PM
**To:** Ryan Taddeucci <ryan.taddeucci@artefact.net.au>
**Subject:** Request for review Aboriginal Cultural Heritage Management Plan - SSD-55522478
**Importance:** High

Good afternoon,

In accordance with Condition B35c of SSD-55522478, I am writing to request a review and comment on the Aboriginal Cultural Heritage Management Plan (ACHMP) prepared by Artefact for the proposed construction works at 6 Grand Avenue, Rosehill.

Please find attached a copy of the ACHMP and below for a link to the Major Projects page for project context:
https://www.planningportal.nsw.gov.au/major-projects/projects/6-grand-avenue-multi-level-warehouse-rosehill

We would greatly appreciate if you could please provide any review comments by 13 September 2024. Please don't hesitate to contact me directly for any questions or comments.

Kind regards,

Kelly Barton
**Aboriginal Heritage Team**

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Email sent using Optus Webmail

# DHARUG CUSTODIAN

ABORIGINAL CORPORATION

DARUG CUSTODIAN
ABORIGINAL
CORPORATION

PO BOX 81 WINDSOR 2756
PHONE: 0245775181 FAX: 0245775098
MOBILE: 0414962766 Justine Coplin
EMAIL: justinecoplin@optusnet.com.au

**Attention: artefact** **Date: 02/09/24**

**Subject**: 6 Grand Avenue, Rosehill

Dear, Kelly

Our group is a non- profit organisation that has been active for over forty years in Western Sydney, we are a Dharug community group with over three hundred members. The main aim in our constitution is the care of Dharug sites, places, wildlife and to promote our culture and provide education on the Dharug history.

Our group promotes Dharug Culture and works on numerous projects that are culturally based as a proud and diverse group. It has been discussed by our group and with many consultants and researches that our history is generic and is usually from an early colonists perspective or solely based on archaeology and sites. These histories are adequate but they lack the people's stories and parts of important events and connections of the Dharug people and also other Aboriginal people that now call this area home and have done so for numerous generations.

This area is significant to the Dharug people due to the evidence of continued occupation, within close proximity to this project site there is a complex of significant sites.

Landscapes and landforms are significant to us for the information that they hold and the connection to Dharug people. Aboriginal people (Dharug) had a complex lifestyle that was based on respect and belonging to the land, all aspects of life and survival did not impact on

the land but helped to care for and conserve land and the sustenance that the land provided. As Dharug people moved through the land there were no impacts left, although there was evidence of movement and lifestyle, the people moved through areas with knowledge of their areas and followed signs that were left in the landscape. Dharug people knew which areas were not to be entered and respected the areas that were sacred.

Knowledge of culture, lifestyle and lore have been part of Dharug people's lives for thousands of years, this was passed down to the next generations and this started with birth and continued for a lifetime. Dharug people spent a lifetime learning and as people grew older they passed through stages of knowledge, elders became elders with the learning of stages of knowledge not by their age, being an elder is part of the kinship system this was a very complicated system based on respect.

Dharug sites are all connected, our country has a complex of sites that hold our heritage and past history, evidence of the Dharug lifestyle and occupation are all across our country, due to the rapid development of Sydney many of our sites have been destroyed, our sites are thousands of years old and within the short period of time that Australia has been developed pre contact our sites have disappeared.

The *Aboriginal cultural heritage consultation requirements for proponents* Section 4.1.8 refers to "Aboriginal organisations representing Aboriginal people who hold cultural knowledge". Recent consultation meetings have revealed that many of these Aboriginal organisations and individuals do not hold cultural knowledge of the Western Sydney area. The increasing involvement of such parties in cultural heritage management means that genuine local Aboriginal organisations are unable to properly care for our cultural heritage.

Many Aboriginal organisations listed in the OEH response letter do not contribute to the Aboriginal community of Western Sydney. Individuals listed in the OEH response letter do not represent the community and while they may be consulted with, should not be employed for their own personal financial benefit.

Our organisation is committed to providing benefits back to our local Aboriginal community through such measures as funding the local Aboriginal juniors' touch football team, painting classes for the local children and donating money to various charities. Employment in cultural heritage activities is source of income that organisations such as ours can use to contribute to beneficial activities and support within the community.

Dharug Custodian Aboriginal Corporation's site officers have knowledge of Dharug land, Dharug Culture, Oral histories, landforms, sites, Dharug history, wildlife, flora and legislative requirements. We have worked with consultants and developers for many years in Western Sydney (Dharug Land) for conservation, site works, developments and interpretation/education strategie

**Dharug Custodian Aboriginal Corporation have received and reviewed the report for** 6 Grand Avenue, Rosehill , we support the recommendations set out in this report.

Please contact us with all further enquiries on the above contacts.

Regards



Justine Coplin

**From:** Darleen Johnson <murrabidgeemullangari@yahoo.com.au>
**Sent:** Tuesday, 3 September 2024 10:02 AM
**To:** Kelly Barton
**Subject:** Re: Request for review Aboriginal Cultural Heritage Management Plan - SSD-55522478

**Follow Up Flag:** Follow up
**Flag Status:** Flagged

Hi Kelly
I have read the project information and ACHAMP for the above project, I endorse the recommendations.
Kind regards
Darleen
0490051102

On Friday 30 August 2024 at 04:58:29 pm AEST, Kelly Barton <kelly.barton@artefact.net.au> wrote:

Dear all,

Hope you are all well.

Please be informed that there are two weeks remaining to review and comment on the Aboriginal Cultural Heritage Management Plan (ACHMP) prepared by Artefact for the proposed construction works at 6 Grand Avenue, Rosehill.

Looking forward to your response.

**Kelly Barton**
**Aboriginal Cultural Heritage Officer**

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**ARTEFACT HERITAGE AND ENVIRONMENT**
**Telephone:** 02 9518 8411 | **Mobile:** 0414 742 389
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Read Artefact's email disclaimer

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**From:** Aboriginal Heritage Team
**Sent:** Friday, August 16, 2024 2:04 PM
**To:** Ryan Taddeucci <ryan.taddeucci@artefact.net.au>
**Subject:** Request for review Aboriginal Cultural Heritage Management Plan - SSD-55522478
**Importance:** High

Good afternoon,

In accordance with Condition B35c of SSD-55522478, I am writing to request a review and comment on the Aboriginal Cultural Heritage Management Plan (ACHMP) prepared by Artefact for the proposed construction works at 6 Grand Avenue, Rosehill.

Please find attached a copy of the ACHMP and below for a link to the Major Projects page for project context:

https://www.planningportal.nsw.gov.au/major-projects/projects/6-grand-avenue-multi-level-warehouse-rosehill

We would greatly appreciate if you could please provide any review comments by 13 September 2024. Please don't hesitate to contact me directly for any questions or comments.

Kind regards,

Kelly Barton

**Aboriginal Heritage Team**

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Read Artefact's email disclaimer

**From:** Steven Johnson <wokacorp@yahoo.com>
**Sent:** Tuesday, 3 September 2024 4:12 PM
**To:** Aboriginal Heritage Team
**Subject:** Re: Request for review Aboriginal Cultural Heritage Management Plan - SSD-55522478

Dear Kelly
Our members have reviewed the ACHA for 6 Grand Ave Rosehill with no objections and in agreeance.

Kind Regards
Steve Johnson
Woka

Sent from Yahoo Mail for iPad

On Friday, August 16, 2024, 2:04 pm, Aboriginal Heritage Team <consultation@artefact.net.au> wrote:

> Good afternoon,
>
> In accordance with Condition B35c of SSD-55522478, I am writing to request a review and comment on the Aboriginal Cultural Heritage Management Plan (ACHMP) prepared by Artefact for the proposed construction works at 6 Grand Avenue, Rosehill.
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Kelly Barton

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**Read Artefact's email disclaimer**

## Ryan Taddeucci

**From:** Amanda De Zwart <amandahickey@live.com.au>
**Sent:** Monday, 16 September 2024 8:34 AM
**To:** Kelly Barton
**Subject:** Re: Request for review Aboriginal Cultural Heritage Management Plan - SSD-55522478

Hi Kelly
Thanks for your email AHCS supports the Aboriginal Cultural Heritage Management Plan (ACHMP)
If you need anything else please don't hesitate to contact me
Have a great day
Amanda

Get Outlook for Android

---

**From:** Kelly Barton <Kelly.Barton@artefact.net.au>
**Sent:** Friday, August 30, 2024 4:58:25 PM
**To:** Ryan Taddeucci <ryan.taddeucci@artefact.net.au>
**Cc:** Aboriginal Heritage Team <consultation@artefact.net.au>
**Subject:** RE: Request for review Aboriginal Cultural Heritage Management Plan - SSD-55522478

Dear all,

Hope you are all well.

Please be informed that there are two weeks remaining to review and comment on the Aboriginal Cultural Heritage Management Plan (ACHMP) prepared by Artefact for the proposed construction works at 6 Grand Avenue, Rosehill.

Looking forward to your response.

**Kelly Barton**
**Aboriginal Cultural Heritage Officer**

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✓ ✓ ✓ 💻 💻

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**Sent:** Friday, August 16, 2024 2:04 PM
**To:** Ryan Taddeucci <ryan.taddeucci@artefact.net.au>
**Subject:** Request for review Aboriginal Cultural Heritage Management Plan - SSD-55522478
**Importance:** High

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Kelly Barton
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Read Artefact's email disclaimer

## Ryan Taddeucci

**From:** Kayelene Slater <bariyan.culturalconnections@gmail.com>
**Sent:** Tuesday, 17 September 2024 4:15 PM
**To:** Kelly Barton
**Subject:** Re: Request for review Aboriginal Cultural Heritage Management Plan - SSD-55522478

Hi Kelly

Bariyan Cultural Connections have reviewed the Aboriginal Cultural Heritage Management Plan for the proposed construction works at 6 Grand Avenue, Rosehill and have no comments at this stage. I would like to apologize for the late reply.

Kind Regards
Kayelene Slater - Manager
Bariyan Cultural Connections
Dharug Country
P: 0421 881 617
E: bariyan.culturalconnections@gmail.com
Aboriginal Owned and Operated Cultural and Heritage Business



We would like to acknowledge the traditional Custodians of Country which we live and work, we recognize their continuing connection to the land, waters and culture. We would like to pay our respects to our Elders past, present and extend to all that we may meet on our journey.



On Fri, Aug 30, 2024 at 5:32 PM Kelly Barton <Kelly.Barton@artefact.net.au> wrote:

> Dear all,

Hope you are all well.

Please be informed that there are two weeks remaining to review and comment on the Aboriginal Cultural Heritage Management Plan (ACHMP) prepared by Artefact for the proposed construction works at 6 Grand Avenue, Rosehill.

Looking forward to your response.

**Kelly Barton**
**Aboriginal Cultural Heritage Officer**

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**From:** Aboriginal Heritage Team
**Sent:** Friday, August 16, 2024 2:04 PM
**To:** Ryan Taddeucci <ryan.taddeucci@artefact.net.au>
**Subject:** Request for review Aboriginal Cultural Heritage Management Plan - SSD-55522478
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Kelly Barton

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Read Artefact's email disclaimer

## Ryan Taddeucci

**From:** Aimee Lee (Heritage NSW) <support@zendesk.environment.nsw.gov.au>
**Sent:** Monday, 2 September 2024 10:38 AM
**To:** Ryan Taddeucci
**Subject:** Request #35221 has been updated: RE: Request for review - SSD-55522478

Your request has been updated. To add additional comments, reply to this email.

Dear Kelly,

Thank you for your email.

Have you loaded the attached document to the Major Projects portal as yet?

If not, please do this as documents for SSD/SSI must be submitted via the Major Projects Planning Portal for Heritage NSW to be able to prepare a response.

If you need assistance submitting, you can find help at this link https://www.planningportal.nsw.gov.au/major-projects/services.

Please reply to this email if you have any further questions.

Kind regards
Aimee Lee
Heritage NSW
Department of Climate Change, Energy, the Environment and Water (DCCEEW)
T: 02 9873 8500 E: heritagemailbox@environment.nsw.gov.au
https://www.heritage.nsw.gov.au/
Locked Bag 5020, NSW 2124
Monday to Friday, 09:00am - 05:00pm

Website | Facebook | Instagram | LinkedIn

Please consider the environment before printing this email.

On 2024 M08 30 07:10:58 UTC, Kelly Barton kelly.barton@artefact.net.au wrote:

> Hi Barry,
>
> Hope you are well.
>
> Artefact Heritage and Environment submitted the attached ACHMP to Heritage NSW on 16 August 2024 for a review and comment, see email below. Are you able to confirm if a specific person has been allocated to look after this review, so I can follow up with them?

In accordance with Condition B35c of SSD-55522478, I am writing to request a review from Heritage NSW on the Aboriginal Cultural Heritage Management Plan (ACHMP) prepared by Artefact for the proposed construction works at 6 Grand Avenue, Rosehill. Please find attached a copy of the ACHMP and below for a link to the Major Projects page for project context:
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We would greatly appreciate if you could please provide any review comments by 13 September 2024. Should you have queries, please do not hesitate to contact me on email or via 0414 742 389.

Yours in unity,


**Kelly Barton**

**Aboriginal Cultural Heritage Officer**

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**ARTEFACT HERITAGE AND ENVIRONMENT**

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---

**From:** Ryan Taddeucci <ryan.taddeucci@artefact.net.au>
**Sent:** Friday, August 16, 2024 1:09 PM

**To:** OEH HD Heritage Mailbox <Heritagemailbox@environment.nsw.gov.au>
**Cc:** Sabrina Roesner <Sabrina.Roesner@artefact.net.au>; Lorenzo Lun <llun@archile.com.au>; Kelly Barton <Kelly.Barton@artefact.net.au>; Kieran Murray <Kieran.Murray@artefact.net.au>
**Subject:** Request for review - SSD-55522478

Good afternoon,

In accordance with Condition B35c of SSD-55522478, I am writing to request a review from Heritage NSW on the Aboriginal Cultural Heritage Management Plan (ACHMP) prepared by Artefact for the proposed construction works at 6 Grand Avenue, Rosehill. Please find attached a copy of the ACHMP and below for a link to the Major Projects page for project context:
https://www.planningportal.nsw.gov.au/major-projects/projects/6-grand-avenue-multi-level-warehouse-rosehill

We would greatly appreciate if you could please provide any review comments by 13 September 2024. Please don't hesitate to contact me directly for any questions or comments.

Kind regards,
Ryan


**Ryan Taddeucci**

**Principal & Team Leader**

| M | T | W | T | F |
|---|---|---|---|---|
| ✓ | 💻 | ✓ | 💻 | ✓ |

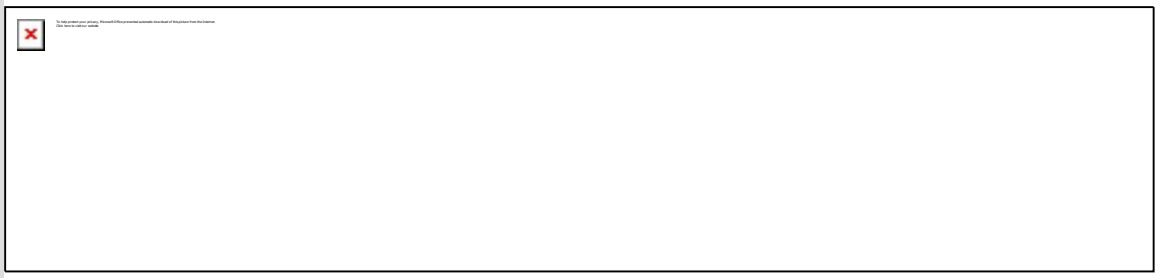
**ARTEFACT HERITAGE AND ENVIRONMENT**

**Telephone:** 02 7254 3620 | **Mobile:** 0414 738 921

**Address:** Suite 56, Jones Bay Wharf, 26-32 Pirrama Rd, Pyrmont NSW 2009

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Artefact acknowledges Aboriginal and Torres Strait Islander peoples as the traditional owners and custodians of the lands and waters of Australia. We acknowledge the Gadigal and Wangal people of Pirrama (Pyrmont) where our Sydney office is located, the Awabakal, Worimi and Wonnaruaof the Hunter Region where our Mulubinba (Newcastle) office is located and the Wiradyuri of the Central West where our Bathurst office is located. We pay our respects to them, their culture and their Elders past and present. We thank them for sustaining and caring for Country for millennia.



Read Artefact's email disclaimer

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### *Attach Evidence*

Below is a list of any consultation you have initiated through the portal. Once the public authority responds it will be automatically attached as evidence. Once each of the public authorities has responded, click "Continue". Please attach any other evidence of consultation not captured by the portal by attaching it below.

## Public Authority Response Summary

**Heritage NSW – Aboriginal cultural heritage (ACH)** (PAE-75980465)

| Status | Due Date |
| --- | --- |
| Pending Withdrawal | Wednesday, 2 October 2024 |

No response received

# Appendix G Flood Emergency Response Plan

## Construction Environmental Management Plan

**6 Grand Avenue, Rosehill NSW**

**Vaughan Constructions Pty Ltd**

SLR Project No: 640.031417.00001

COSTIN ROE CONSULTING

# FLOOD EMERGENCY RESPONSE PLAN

# 6 GRAND AVENUE

## ROSEHILL NSW 2142

*Prepared for:*

Vaughan Constructions
PO Box 451
KINGSGROVE NSW 2208

*Prepared by:*

Costin Roe Consulting Pty Ltd
Level 4, 8 Windmill Street
Millers Point, NSW, 2000

| Document Verification | |
|---|---|
| Project | 6 Grand Avenue, Rosehill |
| Document Title | Flood Emergency Response Plan |
| Project Number | CO14955.01 |
| Description | Flood emergency response plan for industrial development |
| File Name | CO14955.01-03.rpt |

| | Name | Title |
|---|---|---|
| Prepared by | Nelson Zeng | Design Engineer |
| Checked by | Daniel Soliman | Associate Director |

| Document History | | |
|---|---|---|
| **Date** | **Revision** | **Issued to** |
| 11 Sep 2024 | A | Daniel Dalrymple-Hay – Vaughan Constructions |

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# 1 INTRODUCTION

Costin Roe Consulting Pty Ltd has been engaged by Vaughan Constructions to prepare this Flood Emergency Response Plan (**FERP**) for the industrial development located at 6 Grand Avenue, Rosehill, NSW. This **FERP** has been prepared to address the relevant CoC Items for SSD-55522478.

This plan details the site responses to flooding including predicted flood levels, flood warnings and flood notifications, evacuation and refuge protocols and awareness training for employees and contractors during construction and operation.

The requirements outlined in this report are consistent with the provisions of the *Floodplain Risk Management Guideline (OEH 2007)* and the *NSW Floodplain Risk Management Manual (2023)*.

The subject area of this **FERP** comprises emergency responses for the construction and operational phases of the development.

This plan addresses the requirements of the Department of Planning, Industry and Environment Development Approval SSD-55522478 dated 25 July 2024, as included in **Table 1** below.

**Table 1.**

| SSD-55522478 | CC Condition | How It Is Addressed |
|---|---|---|
| **B16** | Prior to the commencement of construction of the development, the Applicant must prepare a Construction Flood Emergency Response Plan (CFERP) and submit it to the Planning Secretary. The Plan must form part of the CEMP required by condition C2 and must:<br>(a) be prepared by a suitably qualified and experienced person(s)<br>(b) address the provisions of the Floodplain risk management manual (2023) and Support for emergency management planning (2023); and<br>(c) include details of:<br>(i) the flood emergency responses for the construction phase of the development;<br>(ii) predicted flood levels;<br>(iii) flood warning time, flood notification, signs and depth indicators; | Refer to this report for the Flood Emergency Response Plan.<br>a) this report has been prepared by Costin Roe Consulting, being suitably qualified engineering consultants<br>b) refer to **Section 3** of this report for guidelines adopted for the **FERP**.<br>c) refer to **Section 7** of this report for the flood emergency responses.<br>c) refer to **Section 4** of this report for a discussion on flood behaviour.<br>c) refer to **Section 6.3** of this report for the flood education, awareness and preparedness program. |

| SSD-55522478 | CC Condition | How It Is Addressed |
|---|---|---|
| | (iv) assembly points and evacuation routes;<br>(v) shelter in place protocols, including suitable locations of flood free refuge areas;<br>(vi) evacuation protocols; and<br>(vii) awareness training for employees and contractors. | |
| **B20** | Prior to the commencement of operation of the development, the Applicant must prepare an Operational Flood Emergency Response Plan (OFERP) and submit it to the Planning Secretary. The Plan must:<br>(a) be prepared by a suitably qualified and experienced person(s);<br>(b) address the provisions of the Floodplain risk management manual (2023) and Support for emergency management planning (2023);<br>(c) nominate suitable flood free locations accessible from all tenancies for shelter in place scenarios;<br>(d) include details of:<br>(i) the flood emergency responses for the operational phase of the development;<br>(ii) predicted flood levels, including probable maximum flood;<br>(iii) shelter in place protocols for all relevant flooding events;<br>(iv) awareness training for employees and contractors;<br>(v) protocols for advising site employees and visitors to stay away from the site during flood events; | Refer to this report for the Flood Emergency Response Plan.<br>a) this report has been prepared by Costin Roe Consulting, being suitably qualified engineering consultants<br>b) refer to **Section 3** of this report for guidelines adopted for the **FERP**.<br>c) refer to **Appendix A** for evacuation plans demonstrating suitable flood free locations for shelter in place scenarios<br>d) refer to **Section 7** of this report for the flood emergency responses.<br>d) refer to **Section 4** of this report for a discussion on flood behaviour.<br>d) refer to **Section 6.3** of this report for the flood education, awareness and preparedness program.<br>e) refer to **Section 3.5** for guidelines relating to updates to this **FERP** |

| SSD-55522478 | CC Condition | How It Is Addressed |
|---|---|---|
| | (vi) flood warning time, flood notification, signs and depth indicators;<br>(vii) evacuation protocols including assembly points and evacuation routes (where applicable); and<br>(viii) communication strategies to ensure all potential tenants are aware of flood levels (including probable maximum flood);<br>(e) detail protocols for periodic review and update to the plan at least once every five years as well as (but not limited to):<br>(i) when flood warning systems in the area are updated;<br>(ii) when new flood evacuation routes are made available; and<br>(iii) following a flood event that triggers the OFERP. | |

# 2 DEVELOPMENT SITE

## 2.1 Site Description and Locality

The property is located within the Parramatta City Council local government area (LGA). The site is located to the south of Grand Avenue, as shown in **Figure 2.1.**




**Figure 2.1. Site Location and Aerial Imagery (Source: Nearmap March 2023)**

The existing subject site consists of a main warehouse building and car park in the northeast. Administration buildings, storage buildings and other warehouse buildings are in the central and southeast portions of the site. West portion of the site consists of predominately large outdoor storages and haul roads.

The site generally grades down from west to east. The highest level is RL 6.00m AHD central to the site. The lowest level on the site is located south of the central building at RL 5.10m. Grand Avenue, which the site fronts, falls from west (at RL 6.00) to east (RL 5.20).

The site is located approximately 200m south of the Parramatta River and 1,100m north of Duck River. The site is zoned E5 (Heavy Industrial) and is generally surrounded by similar industrial developments. The Rosehill Racecourse is located approximately 200m west of the site.

Existing attributes of the subject site are noted as follows:

- The subject site is located in the suburb of Rosehill and has a total area of 4.24ha.
- Vehicular access to the subject site is currently facilitated via existing access points on Grand Avenue.

- Several stages of warehouse demolitions and developments have occurred between 1943 and 2015. This is likely to have resulted in a significant number of buried historical structures (e.g. footings, slabs etc.) and services (pipes and pits).
- An approved development is located on the southern boundary with building FFLs of RL 7.57m and RL 7.47m. An existing retaining wall has been constructed along the southern boundary, with top of wall levels above the proposed finished levels of the development site and will be filled against towards the proposed development at 6 Grand Avenue.

## 2.2 Proposed Development

The proposal involves the construction and operation of a multi-unit warehouse and distribution facility at 6 Grand Avenue, Rosehill, which includes:

- Demolition of all existing buildings and structure
- Site preparation works, including tree clearing
- Earthworks (to achieve an FFL of RL 6.90)
- Infrastructure comprising civil works and utilities servicing
- Construction of associated hardstands and truck circulation areas.
- On-site car parking
- Landscaping and offset planting

The layout of the development prepared by PACE Architects is shown in **Figure 2.2 - Figure 2.5**.

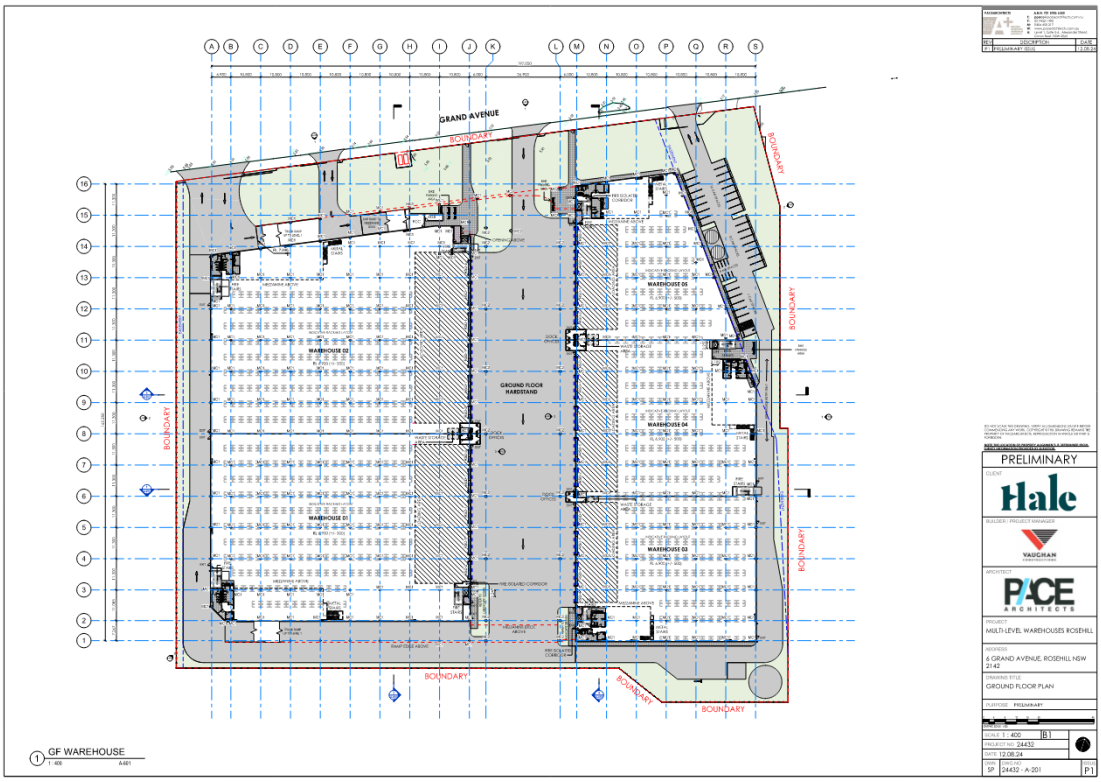


**Figure 2.2. Proposed Development (Ground Floor) – Concept Layout Plan**

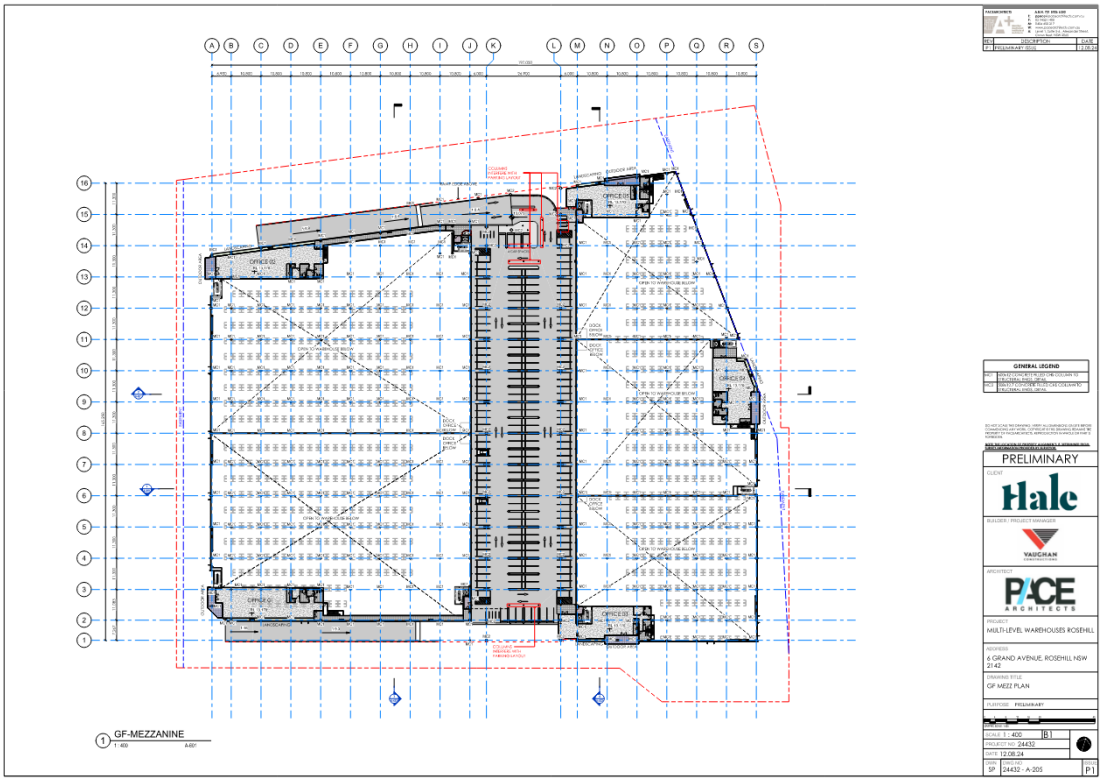



**Figure 2.3. Proposed Development (Ground Floor Mezzanine) – Concept Layout Plan**

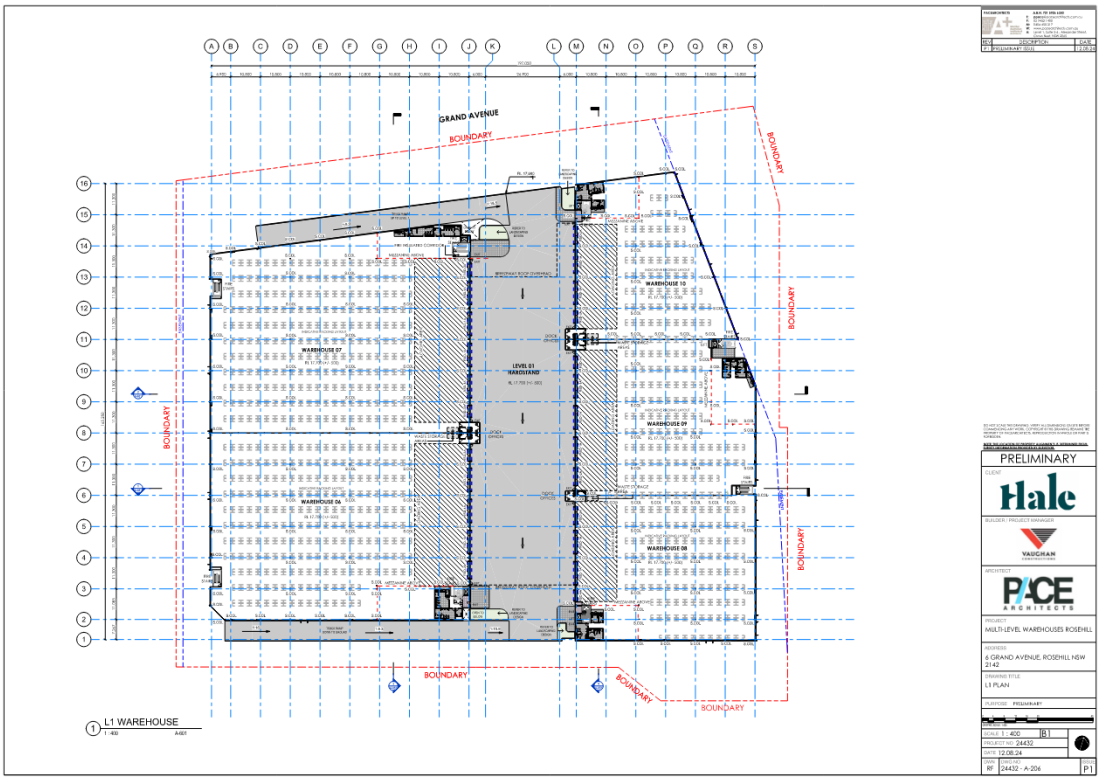



**Figure 2.4. Proposed Development (First Floor) – Concept Layout Plan**

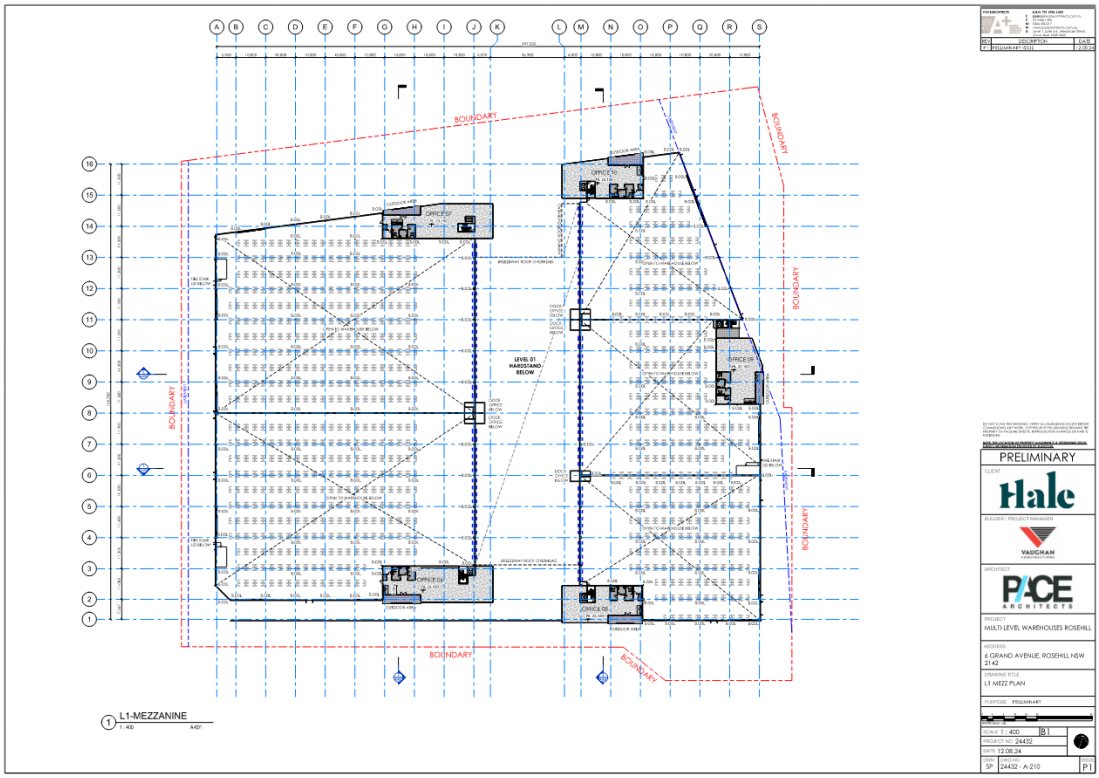



**Figure 2.5. Proposed Development (First Floor Mezzanine) – Concept Layout Plan**

## 2.3 Climate and Meteorology

The Parramatta area experiences relatively mild temperatures and moderate rainfall, with an annual average of 978.7mm of rainfall according to records from Parramatta North, Masons Drive (Station 066124 since 1965) which is 4km northeast of the development site.

Typically, the wettest month (mean rainfall) is February and the driest is usually September.

The annual mean minimum temperature is 12.2°C and the mean maximum temperature is 23.4°C. The hottest month is typically January (mean maximum of 28.6°C), and July is the coldest month (mean minimum of 6.3°C).

Climate statistics and average annual rainfall data and rainfall patterns relevant to this site (as sourced from Australian Bureau of Meteorology (BOM)) are included in reference in **Appendix B** of this **FERP**.

# 3 GENERAL REQUIREMENTS

## 3.1 General Requirements Introduction

This FERP has been prepared with the purpose of providing an understanding of flood behaviour to the facility owners, management and tenants, and contractors during construction and operation of the development.

This document has been completed with consideration to the guidelines *NSW Floodplain Risk Management Manual 2023*, the flood study completed by Costin Roe Consulting for the SSDA submission (Ref: Co14955.00-02h.rpt), and other reference documents noted in **Section 3.3**.

The following sections of this FMP provide confirmation of roles and responsibilities, statutory requirements, measures to monitor and report on impacts and performance of the measures implemented, contingency planning and protocols for review and improvement.

## 3.2 Roles and Responsibilities

- The builder during construction and the warehouse owners/ management during operations are the key persons responsible for the implementation of this FERP and have the responsibility action measures if there is potential for a safety or environmental incident to occur.
- The key roles and responsibilities for the responsible personnel in relation to flood risk management are outlined below in Table 3.1.

**Table 3.1 Roles and Responsibilities**

| Role | Responsibilities |
|---|---|
| Development Owners and Management | Provide for training in stormwater management for personnel directly involved with the implementation of this plan, as required.<br>Identify and allocate Project resources to implement the requirements of this plan.<br>Oversee the implementation and maintenance of this plan.<br>Ensure all measures are performing adequately throughout the operation of the centre in perpetuity. |
| Construction Contractor's Emergency Management (EM) | Ensure maintenance and monitoring of the stormwater management measures are undertaken in accordance with **Section 7.** |
| Construction Contractors | Ensure flood behaviour local to the development is understood.<br>Ensure personnel are educated in the overall **FERP**. |

## 3.3 Reference Documents

Guidelines and standards considered in relation to the preparation of the FERP include:

- NSW Flood Risk Management Manual 2023
- NSW Support for Emergency Planning Flood Risk Management Guideline EM01
- OEH 2007, Floodplain Risk Management Guidelines
- Costin Roe Consulting (2023), Civil Engineering Report (Co14955.00-02h.rpt)
- Parramatta City Council (2023), Flood Enquiry Information dated 21/12/23
- Stantec (2023), Parramatta River Flood Study (ref: 59916074 / 304600102)
- SES (2019). Provision of and Requirements for Flood Warning in New South Wales
- Bureau of Meteorology (2013). Service Level Specification for Flood Forecasting and Warning Services for New South Wales – Version 2.0"

## 3.4 General FERP Requirements

1. This document and associated drawings are subject to further periodic review throughout the operational period to ensure the requirements and measures set out in this **FERP** are fit for purpose and allow for any changes which might occur not envisaged during the initial preparation of the **FERP**.
2. All flood management and response measures will conform to the standards and information contained in:
    - This **FERP**;
    - Conditions of Consent;
    - the latest version of the SES Parramatta Flood Emergency Sub Plan or Parramatta Council flood emergency response plans or other emergency response plans relating to flood management.

## 3.5 Review and Improvement

During operation, effectiveness of the flood emergency response management measures will be confirmed through regular review of the **FERP**. It is recommended that this **FERP** be reviewed every 3 to 5 years once operations commence. Further additional reviews are to be undertaken in response to the following triggers:

- Following any updates to regional flood warning systems
- When new flood evacuation routes are made available; and
- Following a major flood event to confirm real life conditions against baseline conditions and make any necessary adjustments.

Adjustments as required will be made based on confirmed site conditions and effectiveness of the implemented measures. These will need to be made in conjunction with a suitably qualified engineer, or other professional, who specialises in stormwater management and flood management. Adjustments may include but are not limited to the following:

- Timing of regional warning systems and adequacy in providing early warning to flooding events
- Re-evaluation of the evacuation procedure and available evacuation routes

- Confirmation of safe areas on site during significant flooding events
- Procedures regarding protection of site goods during flooding

A copy of the updated plan and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure. Construction will be undertaken in accordance with the most recent, approved version of this **FERP**.

# 4 FLOOD BEHAVIOUR

## 4.1 Flood Behaviour Introduction

The site is located approximately 200m south of the Parramatta River, a major tidally influenced watercourse that is a main tributary of Sydney Harbour. Review of the regional flood study by Stantec as well as the flood advice from Parramatta City Council suggests that the site Is not subject to overland flow from upstream properties, nor mainstream flooding from the Parramatta River during flood events up to the PMF. During the 1% AEP, the flood level in the Parramatta River is approximately RL 4.00 directly north of the site, well below the existing site level of RL 6.00m and the Grand Avenue road level. Additionally, the ground floor level of the development is proposed to be at RL 6.90m, maintaining adequate freeboard to the 1% AEP flood levels.

In the PMF storm event, the flood level in the Parramatta River directly adjacent to the proposed development is RL7.80m AHD. At this level, the Parramatta River is understood to have broken its banks and spills into the surrounding properties. Additionally, the Duck River (a tributary of the Parramatta River) has also broken its banks. Flows from both rivers flood the Camellia precinct to depths up to 2.5m, and up to 1.0m over the proposed building FFL.

While the flood level during the PMF event inundates the ground floor of the building and its access points to Grand Avenue, the upper level offices and first floor warehouse floors will all be several metres above the PMF flood level.

**Section 2.3** discusses climate and rainfall. The wettest month is noted to be in February, however we note that the meteorologic conditions in which overland flows could be expected would be when either an East Coast Low, or similar low pressure conditions are present. These conditions are more predominant during February through June, however occurrences outside of these months could also be expected.

## 4.2 Flood Extent

Flood modelling has been completed by Costin Roe Consulting to determine the exact extent of flood affectation on the site in the 1% AEP and PMF storms. Refer to **Figures 4.1 & 4.2** below for flood mapping showing the flood levels and depths in the 1% AEP storm for pre and post developed conditions, and **Figures 4.3 & 4.4** for the PMF flood mapping.

In the pre-development state, the site experiences localised ponding in drainage sag points and is not affected by any major overland flow paths from upstream catchments. The ponding is attributed to minor tailwater influence from the Parramatta River as well as the limited capacity of surface inlets within the site. Flooding of this nature is experienced to a depth of up to 0.25m.

In the post-development state, the design of the drainage network improves the capacity for floodwater conveyance and reduces the ponding experience on site. Minor ponding is experienced in the landscaping zones along the Grand Avenue frontage, where levels have been kept lower than the adjacent ramps. Flood levels in the Grand Avenue frontage reach a maximum of approximately RL 6.00m AHD. Allowing for the council required of freeboard of 500mm, the corresponding flood planning level for habitable areas of the development is RL 6.50m AHD. It is noted that

the floor level of the planned development is above RL 6.90m AHD and therefore the development footprint is clear of the 1% AEP event.

As noted in **Section 4.1**, the site and its surrounds experience significant inundation in the PMF storm event. The flood extent shown on **Figures 4.3 & 4.4** are limited to the CRC study model extent, and that regional flood mapping demonstrates the severe extent of flooding along the Parramatta River.

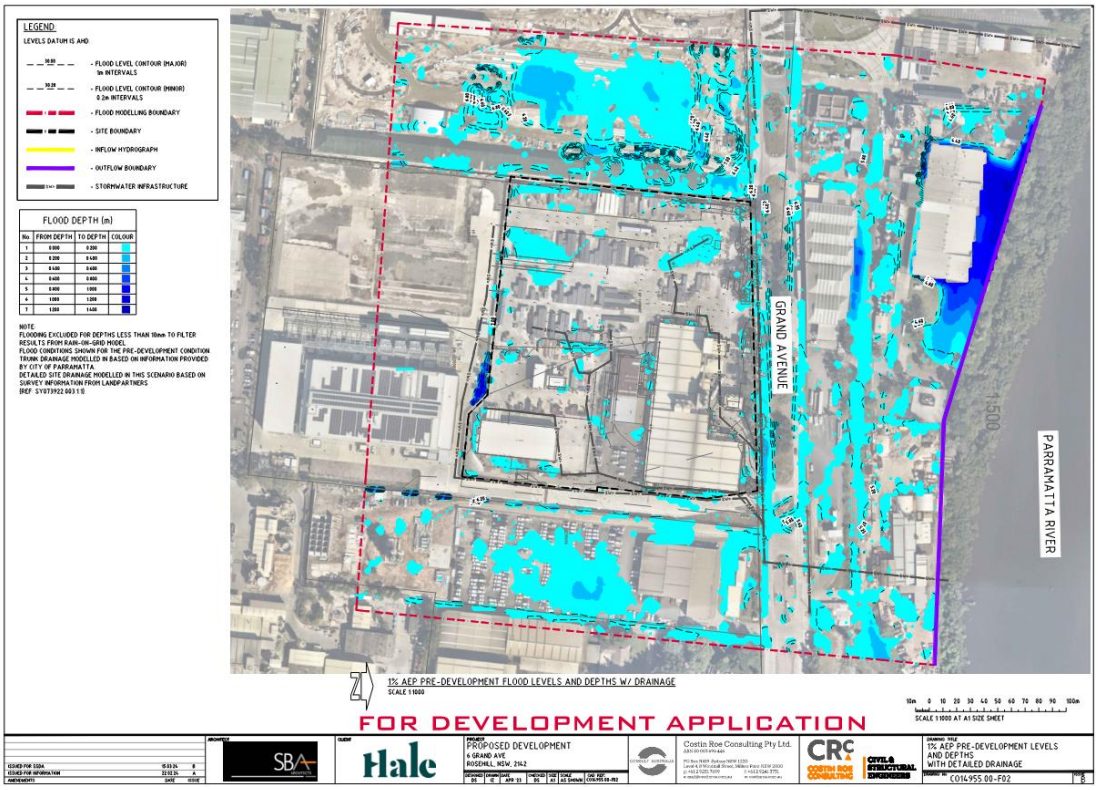



**Figure 4.1 1% AEP Pre-developed Level and Depth Output**

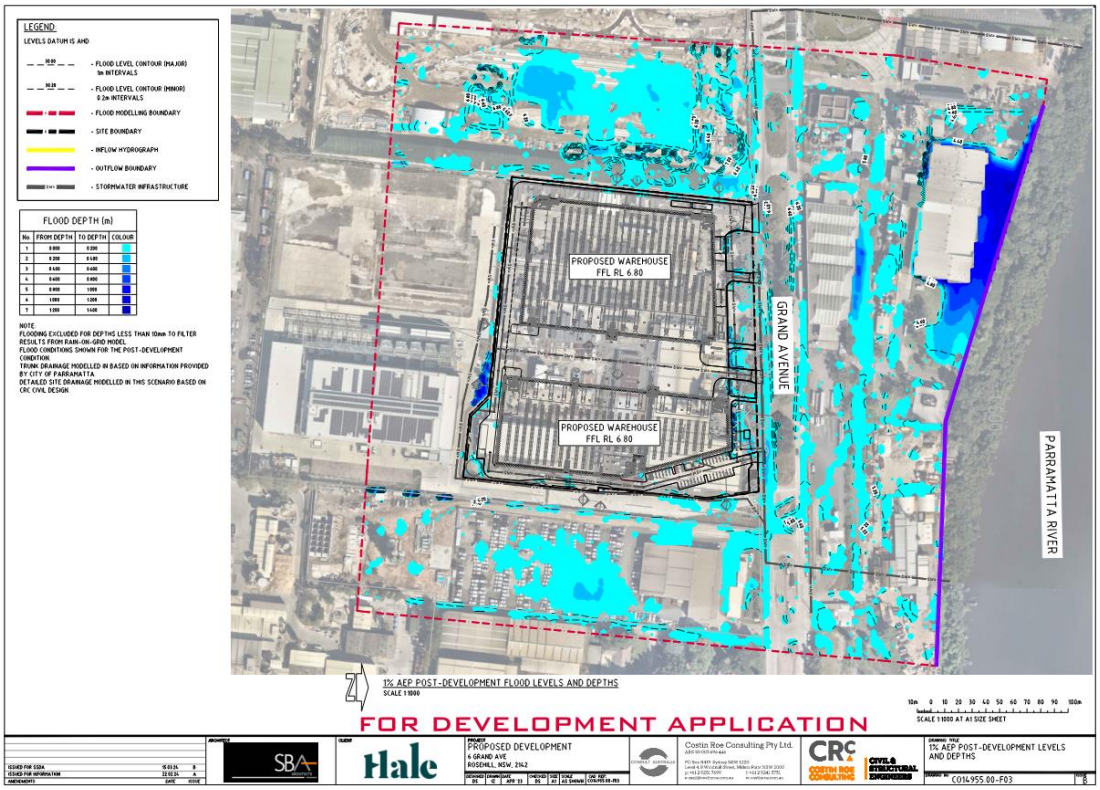



**Figure 4.2 1% AEP Post-developed Level and Depth Output**

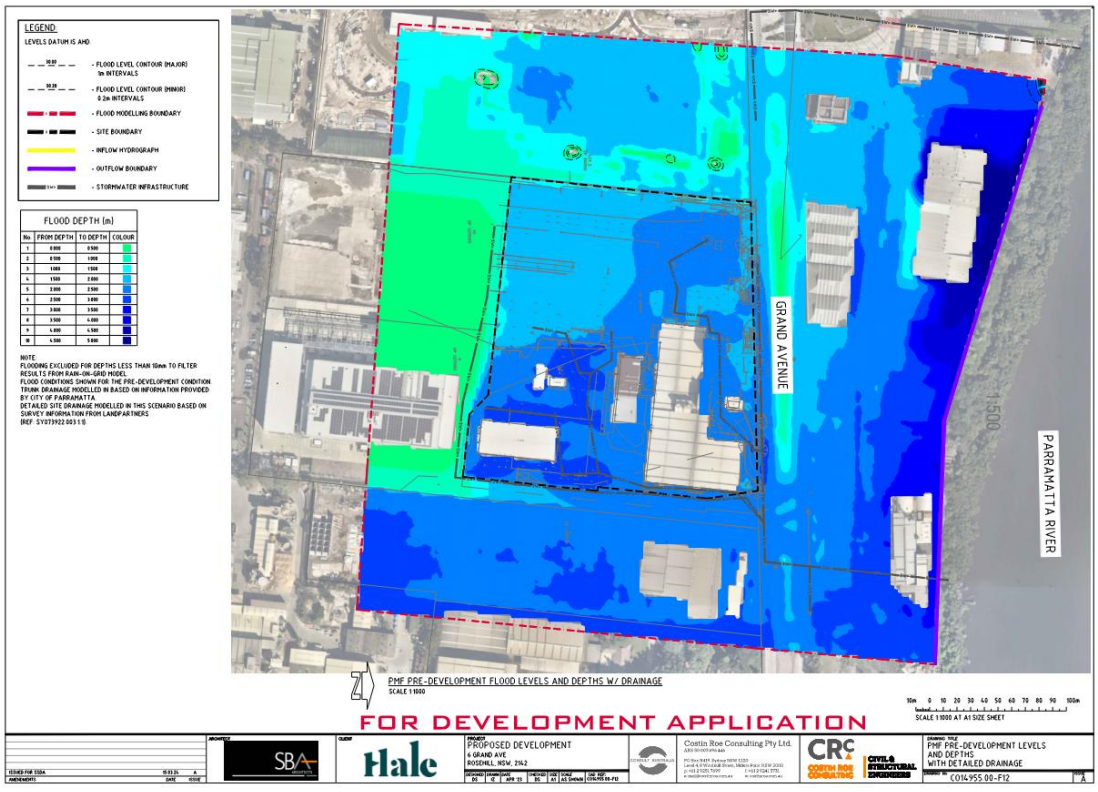



**Figure 4.3 PMF Pre-developed Level and Depth Output**

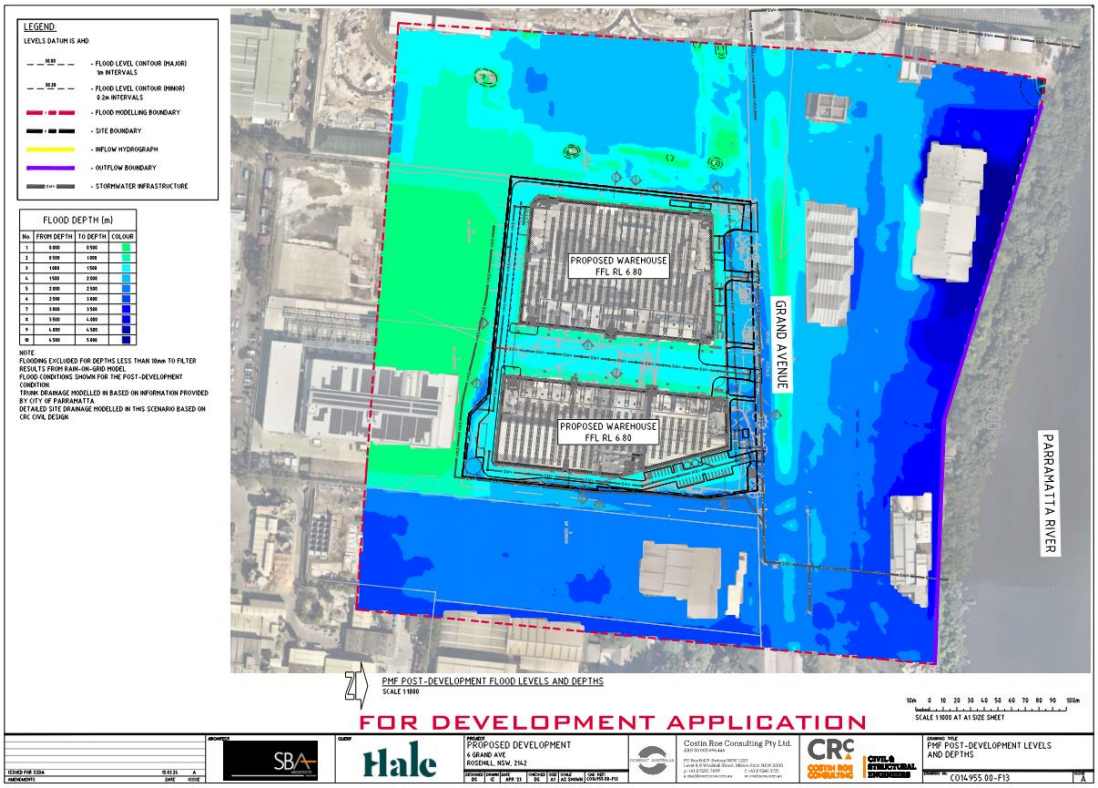



**Figure 4.4 PMF Post-developed Level and Depth Output**

## 4.3 Rate of Rise and Flood Timing

The recommended flood measures and triggers to be adopted on site will be dependent on the rate of rise of flood waters within the Parramatta River and how they relate to levels within the development site.

As the contributing catchment is relatively large, the rate of rise will generally occur over a prolonged period for most flood events.

Costin Roe Consulting has conducted a review of the detailed flood study prepared for the Veolia Camellia Recycling Centre by CH2M in 2015 (ref: 476707.D4.001 & 476707.D4.002). This flood study provides information relating the flood rate of rise in both the 1% and PMF flood events.

In relation to **River Flooding**, in the event a in the event a major flood warning is issued for the Parramatta River by the BOM, Council or any other authority, evacuation procedures and routes will be described in a Flood Emergency Response Plan for the site. From the available flood information (CH2M), it is understood that peak major floods in the river is reached in approximately 10 hours for a 1% AEP storm, and 5 hours for a PMF storm. Per CH2M, the indicative Rate of Rise of river flooding is understood to be 0.9m/hr during a 1% AEP Flood, and 1.3m/hr during a PMF Flood. It is therefore noted that at least 2.5hrs of evacuation time would be available before the Parramatta River breaks its banks and inundates the evacuation route along Grand Avenue during a PMF Event.

In relation to **Local Storm Flooding**, in the event a severe weather warning has been issued for the Camellia precinct by the BOM, Council or any other authority, and sufficient time is available prior to the onset of severe weather, then evacuation can

be made from the site. It is acknowledged that flashy flooding in Grand Avenue occurs in frequent storm events such as the 20% AEP storm. In the event early evacuation does not occur prior to the onset of rainfall, and visual flood indicators such as ponding in Grand Avenue up to the kerb level are observed, shelter-in-place procedures should be followed in the upper levels of the site. In these "flashy" and more frequent flood events, the duration of inundation is expected to be around 20-30mins following the cessation of rainfall.

# 5 HAZARD CATERGORIES & MAPPING

## 5.1 Introduction

Flood hazard categories are broken down into H1 to H6 categories depending on depth and velocity, and their interaction with each other as set out in **Figures 5.1a** and **5.1b**.

High hazard areas (H5-H6) are defined as those where there is a possible danger to personal safety and the potential for significant structural damage. Able-bodied adults would have difficulty in wading to safety. With low hazard areas (H1-H2), should it be necessary, a truck could evacuate people and their possessions, and able-bodied adults would have little difficulty in wading to safety.

Refer **Section 5.2** for hazard mapping.

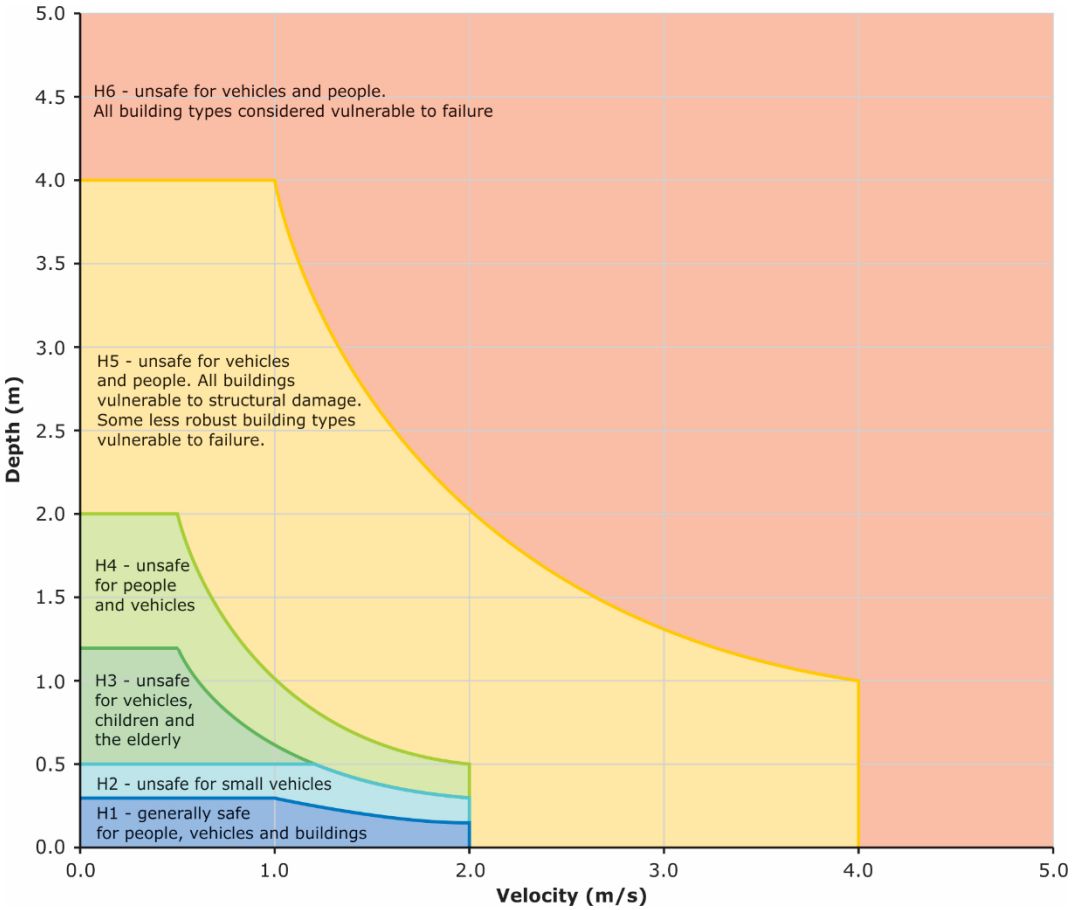



**Figure 5.1a. Provisional Flood Hazard Chart (AR&R 2019)**

Table 6.7.3. Combined Hazard Curves - Vulnerability Thresholds (Smith et al., 2014)

| Hazard Vulnerability Classification | Description |
|---|---|
| H1 | Generally safe for vehicles, people and buildings. |
| H2 | Unsafe for small vehicles. |
| H3 | Unsafe for vehicles. children and the elderly. |
| H4 | Unsafe for vehicles and people. |
| H5 | Unsafe for vehicles and people. All buildings vulnerable to structural damage. Some less robust buildings subject to failure. |
| H6 | Unsafe for vehicles and people. All building types considered vulnerable to failure. |

Table 6.7.4. Combined Hazard Curves - Vulnerability Thresholds Classification Limits (Smith et al., 2014)

| Hazard Vulnerability Classification | Classification Limit (D and V in combination) | Limiting Still Water Depth (D) | Limiting Velocity (V) |
|---|---|---|---|
| H1 | D*V ≤ 0.3 | 0.3 | 2.0 |
| H2 | D*V ≤ 0.6 | 0.5 | 2.0 |
| H3 | D*V ≤ 0.6 | 1.2 | 2.0 |
| H4 | D*V ≤ 1.0 | 2.0 | 2.0 |
| H5 | D*V ≤ 4.0 | 4.0 | 4.0 |
| H6 | D*V > 4.0 | - | - |

**Figure 5.1b. Adopted Hazard Criteria (AR&R 2019)**

## 5.2 Hazard Mapping

Flood hazard categorisation for the site and its surrounds has been assessed as part of the flood study undertaken for the Development Application. Refer to **Figure 5.2 & Figure 5.3** below for flood mapping showing the flood hazard in the 1% AEP storm for pre and post developed conditions.

In the pre-developed condition, all ponded site water generally maintains the H1 categorisation. The Grand Avenue frontage, which is largely flood free, experiences some inundation of H1 categorisation as a result of gutter flow around the north-eastern site corner. An isolated spot of H3 flooding is observed at the site boundary to the south on the neighbouring site.

In the post-developed condition, the flooding hazard area remains consistent with the pre-development condition. Low hazard flooding is expected in the Grand Avenue frontage, primarily around the site's north-eastern driveway.

In both the pre and post conditions, the flooding in Grand Avenue is sporadic at H1 levels.

Flood hazard criteria and mapping has been completed for the pre- and post-development conditions for both the 1% AEP and PMF floods as per criteria set out in the *Australian Rainfall and Runoff (2019), A Guide to Flood Estimation – Book 6 – Flood Hydraulics* and *Figure 6.7.9* as included as **Figure 5.2 to Figure 5.5** below.

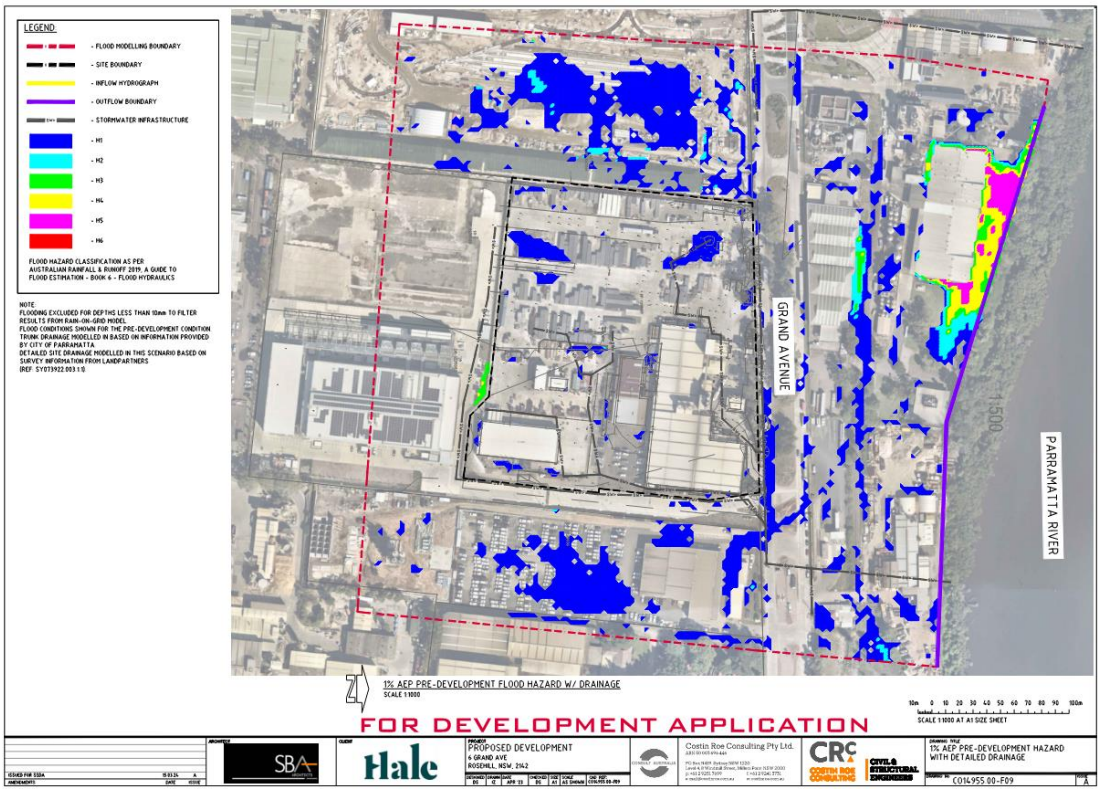



**Figure 5.2. 1% AEP Pre-developed Flood Hazard Categorisation**

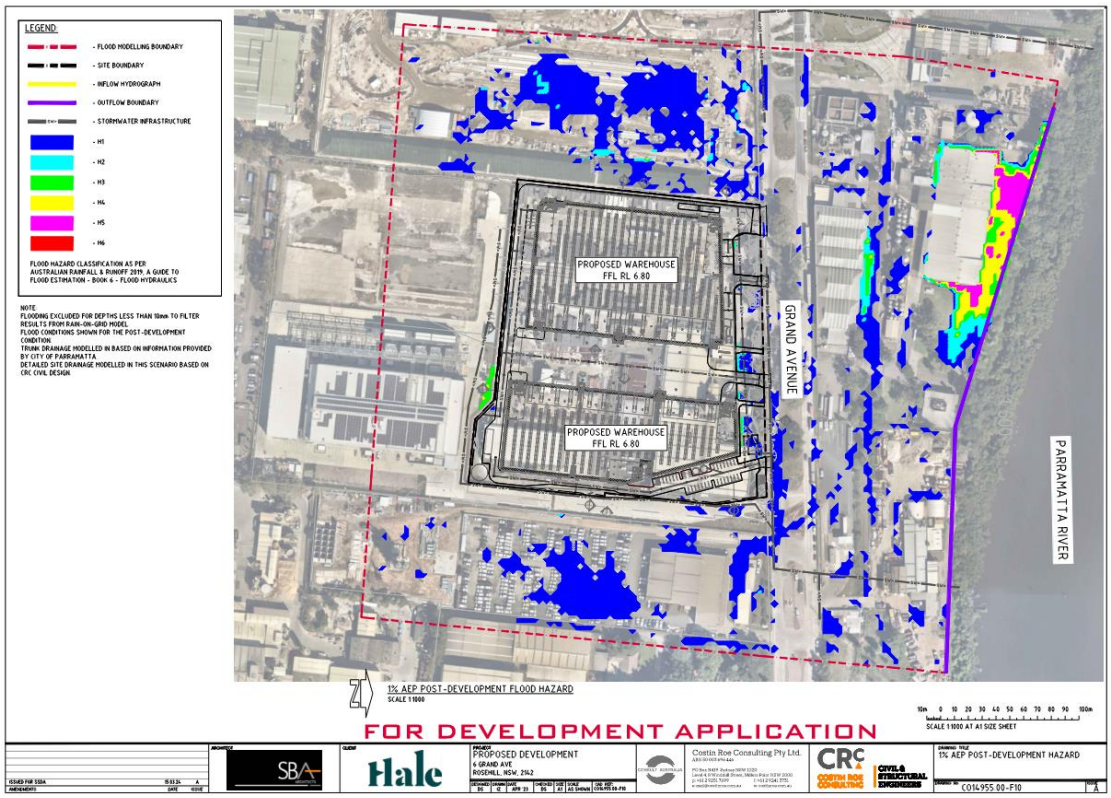



**Figure 5.3. 1% AEP Post-developed Flood Hazard Categorisation**

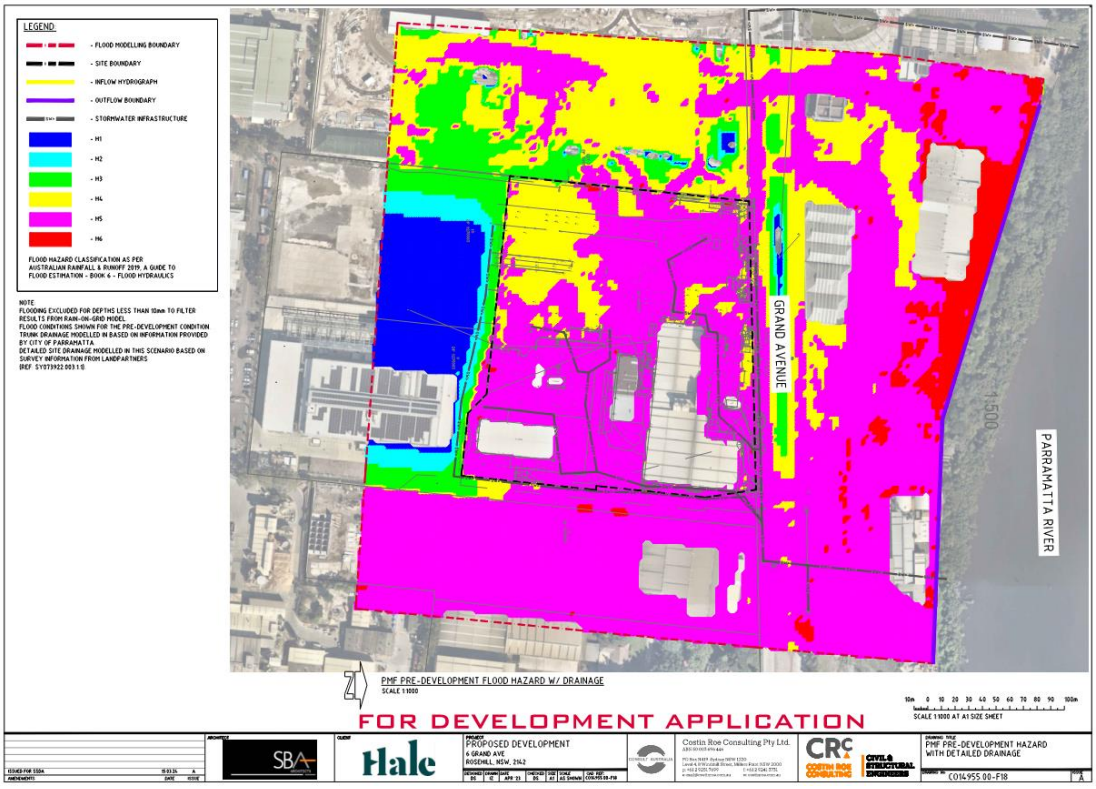



**Figure 5.4 PMF Pre-Developed Flood Hazard Categorisation**

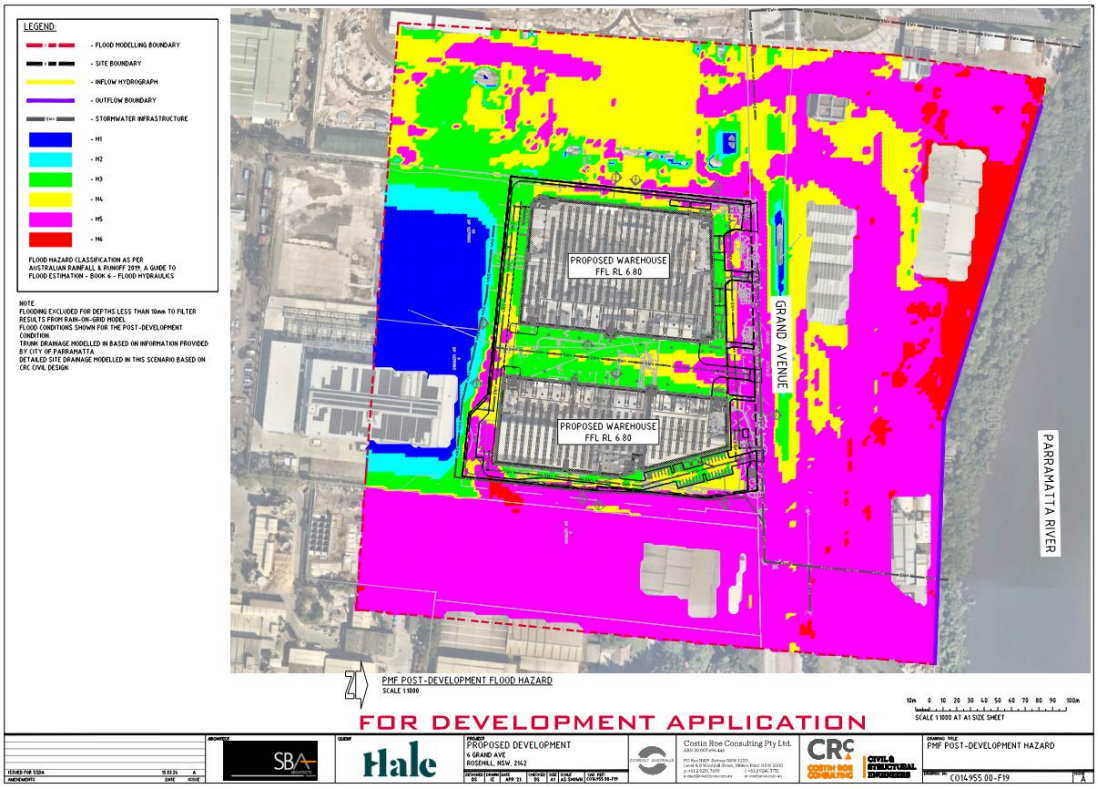



**Figure 5.5 PMF Post-Developed Flood Hazard Categorisation**

## 5.3 Flood Damage Assessment

Damage caused by floods is generally categorised as either tangible or intangible. Tangible damages are financial in nature and can be readily measured in monetary terms. They include direct damages such as damage or loss caused by floodwaters wetting goods and property, and indirect damages such as lost wages incurred during cleanup periods after the flood event. Intangible damage includes emotional stress and even mental and physical illness caused by the flood. It is difficult, if not impossible to quantify intangible damages in financial terms.

From a flood planning perspective, it is important to consider the following direct damage categories:

- Contents Damage – refers to damage to the contents of buildings, including carpets and furniture etc.;
- Structural Damage – refers to damage to the structural fabric of buildings, such as foundations, walls floors, windows, and built-in fittings; and
- External Damage – includes damage to all items external to buildings, including cars, landscaping etc.

The NSW Flood Damage Assessment Tool available on the NSW SES Flood Data Portal (NSW Flood damage assessment tool - Datasets - NSW Flood Data Portal) can be utilised to calculate damages associated with flooding and facilitate cost benefit assessments of potential floodplain risk management measures on the development site.

The tool should be used in conjunction with the Flood Risk Management - Management Measures guideline (MM01) associated with the Flood Risk Management Manual (DPE, 2023).

Additionally to the completion of the Flood Damage Assessment tool prior to operation of the facility, routine and triggered (by heavy rainfalls) inspections need to be completed and recorded during construction and during operation of the facility, as discussed below.

**Routine and Triggered Inspections**

*Routine Inspections*

It would be recommended that routine inspections of the infrastructure and structures located within the dedicated overland flow area is carried out after significant storm events. Compiling and implementing a comprehensive F*lood Damage Inspection process and procedure* is essential to safeguard the longevity of structures, ensure the safety of occupants, and protect the individuals performing the flood damage assessment.

These routine inspections are to assess the need for maintenance and are primarily concerned with checking the condition of the suspended structure and the functionality of the stormwater drainage and treatment facilities; items such as columns, footings, retaining walls, drains, drainage pits, box culverts, culverts and headwalls. Maintenance of these items is vitally important for the integrity of the suspended structure and the ongoing drainage and treatment of stormwater.

Should the inspection reveal that maintenance of any item is required, this is to be reported to the building management for action.

*Inspection Frequency*

Routine Inspections for Maintenance shall be carried out over the life of the development.

The inspections shall occur on a monthly frequency during the construction period, and shall continue on a yearly basis in perpetuity.

In addition to the normal inspection frequency nominated inspections should also be carried out following heavy rain events **(triggered inspections).** Event heavy rain inspections should be carried out as soon as practicable following an intense period of rainfall (i.e. greater than 100mm over 24 hours). A process to establish when periods of high rainfall occur should be put in place with Building Management.

*Records*

Records detailing each of the routine inspections for maintenance should be completed during the inspection, and describe in detail any required maintenance. The inspection records are to be provided to Building Management for action and then filed appropriately. Records of any maintenance carried out as a result of the inspection should be completed immediately after the works have been finalised, and filed appropriately.

*Personnel*

Routine inspections for maintenance are required to establish the need for basic maintenance, as described above. On this basis, such inspections do not require professional engineering knowledge and may be carried out by any responsible person, including property management staff or maintenance staff. It is, however, recommended that a structural engineer conduct the investigation of the conditions of the structures after a heavy rainfall event (i.e. greater than 100mm over 24 hours).

Alternatively, professional engineering staff may be employed to complete the routine inspections for maintenance concurrently with the engineering inspections for maintenance.

**Inspection Safety**

*General*

As described earlier in this document, regular inspections and maintenance of structures and drains are essential for their ongoing stability. However, carrying out inspections and maintenance activities will place those personnel involved with the inspections and maintenance at varying levels of risk. Therefore, to reduce the risk, certain minimum procedures and activities must be carried out before, during and after the inspections.

*Inspections/ Maintenance*

In order to reduce the risk, any inspections or maintenance activities should be carried out under the following protocols:

- Inspections/Maintenance teams must comprise a minimum of two, preferably three people, in order to prevent inspection personnel working alone;
- Inspections/Maintenance must be carried out within 48 hours of a rain event, preferably within 24 hours;
- Personnel completing inspections/maintenance must be able to communicate and be contactable, eg by carrying mobile phones or UHF radios; and

- For entry to confined spaces, the Contractor should establish if relevant training is required to enter these spaces, as well as provision of appropriate equipment to carry out the inspections.

*Prior to Inspection/ Maintenance*

It is the responsibility of the Building Management to appoint the appropriate personnel to carry out the inspections and maintenance, and to nominate appropriate times for the inspections to occur, according to the frequencies recommended above.

Prior to any inspection/maintenance commencing, the Building Management or representative shall:

- Review and sign off an Inspection/Maintenance Safety Plan provided by the personnel completing the inspection or carrying out the maintenance. Sufficient time should be allowed to review the plan, request changes/alterations, and approve the updated document.

The Inspection/Maintenance Safety Plan must include:

- A list of personnel and backup personnel completing the inspections/maintenance, along with their qualifications and experience. The qualifications should include a list of tertiary education (if applicable), "green card" status or equivalent (e.g. Occupational Health and Safety Induction Training for Construction Work – General Course), and any required licences such as drivers licence/Bobcat operators licence;
- A list of the items and areas to be inspected/maintained;
- The procedures to be undertaken during the inspections/maintenance;
- The methodology proposed to complete the inspections/maintenance;
- A Job Safety Analysis (JSA)/Health and Safety Plan (HASP), or equivalent, that documents the following:
    - Each Inspection/Maintenance Activity and associated Hazard.
    - An initial risk assessment;
    - Control measures to be implemented to reduce unacceptable risks; and
    - A second risk assessment that re-assesses the risk considering the control measures suggested for implementation in Point "iii" above.
- Details of evacuation procedures and muster points in the event of an emergency;
- A list of safety equipment to be taken, including a radio, first aid kit; and
- Where appropriate ablutions and wash facilities are located.
    - Ensure the inspection and maintenance personnel entering the site have filled in a dedicated Sign In/Sign Out register. This register can be located at the Building Management office. Location to be confirmed to all parties involved. The register should also record which personnel have custody of any keys that provide access through locked gates/barricades. Any keys should be signed back in at the end of each days work; and
    - Be present during a Tool Box talk that summarises the JSA/HASP, highlighting the main hazards and risks. If Building Management is aware of any hazards

and risks not mentioned in the JSA/HASP, they are to be raised during the Tool Box Talk and the JSA/HASP amended accordingly.

Following the completion of these activities, the Inspections and or Maintenance may commence.

*During Inspections/ Maintenance*

During the inspection and maintenance activities, it is the responsibility of those personnel carrying out the works to ensure that the requirements of the Inspection/Maintenance Safety Plan are adhered to. Safety whilst completing the inspections/maintenance is as important as the functionality of the drains themselves.

Whilst working within the drain pits, overland flow area or through intermediate access points, the inspection and maintenance work teams shall:

- Complete visual inspections of the drain and pits for signs of shifting and or damage;
- Check for accumulations of scale or sedimentation within the pipes/drains;
- Be vigilant with regard to loose items that could fall from the suspended slabs above;
- Be vigilant with regard to rock falls from the batters;
- Work in minimum groups of two people, preferably three;
- Perform inspections during period of forecast dry weather;
- Ensure that sufficient PPE is worn and utilised. As a minimum (subject to the maintenance activity), the following PPE is required:
    - High Visibility Safety Vest;
    - Steel Capped Boots;
    - Helmet;
    - Safety glasses;
    - Mobile Phone/UHF Radio (or other means of telecommunication);
    - First Aid Kit; and
    - Long pants and long sleeve shirts.

*Subsequent to Inspection*

At the completion of each days work, all members of the inspection/maintenance parties must complete the Sign In/Sign Out register to note that they have left the site. Any keys issued to provide access through locked gates/barricades must be returned and signed for.

The completed Inspection/Maintenance Records must be handed over to the Building Management for actioning. If a report needs to be furnished, it must be finalised and submitted within 2 weeks of inspection/maintenance works being completed.

# 6 FLOOD SAFETY AND EVACUATION

## 6.1 Introduction

This section of the report presents the relevant information in relation to egress and evacuation during the approach of a significant flood event. The information in this report can be used as a framework for the development and for more detailed emergency response plans for individual tenants.

This framework has been completed with consideration to the State Emergency and Rescue Management Act 1989 (NSW), the State Emergency Service Act 1989 (NSW), and the SES Parramatta Flood Emergency Sub Plan 2021 (refer **Appendix C**).

## 6.2 Flood Extent

The flood behaviour, including flood levels and extents (refer **Figure 4.5**), during the 1% AEP storm is included in **Section 4** of this plan.

As discussed in earlier sections of the report, the site is unaffected by any major overland flow paths and only minor ponding is observed on local sag points on the site and the Grand Avenue frontage in all storms up to the PMF. In the post-developed 1% AEP flood, flood depths generally range from 0-0.2m, with localised increases to the 0.2-0.4m range. Floodwater velocity is within the 0-0.25m/s range, maintaining a H1 hazard categorisation through the main travel routes to and along Grand Avenue.

In the PMF, the site and the Camellia/Rosehill precinct experiences significant inundation due to water overtopping the banks of the Parramatta River. The site and the Grand Avenue frontage experience flooding of depths up to 3.0m and flow velocities of up to 2.0m/s. A significant portion of the site and the general vicinity falls under the H5 hazard category and is unsafe for people or vehicles.

Further discussion on site specific effective warning measures and triggers are included in the following sections.

Affectation of surrounding roads and areas does not form part of this plan. Consultation with SES or Local Council would be necessary to confirm egress from the site to other areas surrounding the site.

## 6.3 Flood Education, Awareness and Preparedness

Development of Warning Systems

In addition to preparing an emergency evacuation procedure, it is recommended that a flood education, awareness, and preparedness program is implemented on site. The purpose of this program is to ensure that tenants and staff members on the development site are aware of the site flood risk and measures to be taken for the safety of staff and visitors in the event of an emergency. Each tenant should have a tenant specific plan which sets out flood warden, evacuation zones and responsible persons. This flood plan should:

- Provide an overview / summary of the flood risk on site;
- Explain and demonstrate emergency evacuation procedures;

- Outline that the site should not be evacuated by foot or vehicle once Grand Avenue is flooded.

This flood awareness program should be incorporated into the induction process for new and existing staff members of on-site personnel during construction and of tenants on the development site during operation and is to be repeated annually as part of any "refresher" training. The program is to be reviewed when new tenants move into the building. Management should consider installing signage in around the site which outlines the flood evacuation procedure.

Visitors are to be briefed on the basics of the flood evacuation procedure upon arrival to the site. This training may include identification of the Flood Warden on site during the duration of their stay and showing visitors the designated refuge areas and evacuation pathways.

As noted, the advice in this report can be used as a framework for these site-specific plans, in conjunction with Parramatta City Council and SES sub plans as required. During construction, the warehouse site should have a responsible person (EM or site manager) who understands the flood behaviour of this area, is familiar with this report and flood management responses set out in the **FERP**.

The NSW SES Parramatta Local Controller is responsible for monitoring the flood risk over the area and for issuing flood warnings to the community. Any person or group occupying the precinct at the time of flood danger should adhere to any warnings issued. The warning message will normally be issued via SMS (phone text) by the SES, and flood alerts would also be provided by the BOM prior to SES flood warning. During periods of heavy or forecast heavy rainfall it is important that one or some of the occupants of a facility should be able to receive such messages. The occupants must then immediately follow the flood evacuation plan in this report or the instructions of the SES controller in the area.

As described in **Section 6.4** below, the SES Warning System is based on predicted rainfall and gauges in the Springvale Drain. This includes identification of potential flooding areas, estimated impacts of flooding at different heights and action time.

The BOM/ SES warning system will provide good initial guidance for triggering of flood measures, however in addition to the SES flood warning system, it is recommended that a site-specific warning system is employed to supplement the BOM gauges. Such a warning system could consist of a series of flood depth markers or responders placed around the overland flow path and within the flood storage basin. A suitable response/trigger methodology has been outlined in **Section 6.4** which can be utilised to inform users of the site to prepare their own site-specific flood management response plans.

Flood warning and emergency response for the development site will be based on the rainfall within the adjoining catchments.

Real-time data (updated at 15-minute intervals) for these sites can be accessed through the BoM website via the following hyperlink:

http://www.bom.gov.au/nsw/flood/sydney.shtml

## 6.4 Emergency Response Planning

Flood Emergency Management planning refers to the preparation of a formal community-based plan of action to deal with the threat, onset and aftermath of flooding. It involves planning for an event equal to, or greater than the event used to derive the FPL.

The plan of action should include an on-site response plan that addresses what measures should be undertaken once the threat of a flood is determined to be imminent. A flood evacuation strategy should also be included so that all persons within the precinct are familiar with the processes required if a flood occurs.

In summary, the review shows that safe access/egress (Hazard Categorisation <H2) is available to and from all site entrances to Grand Avenue in the 1% AEP storm event as shown in **Figure 6.1** below.

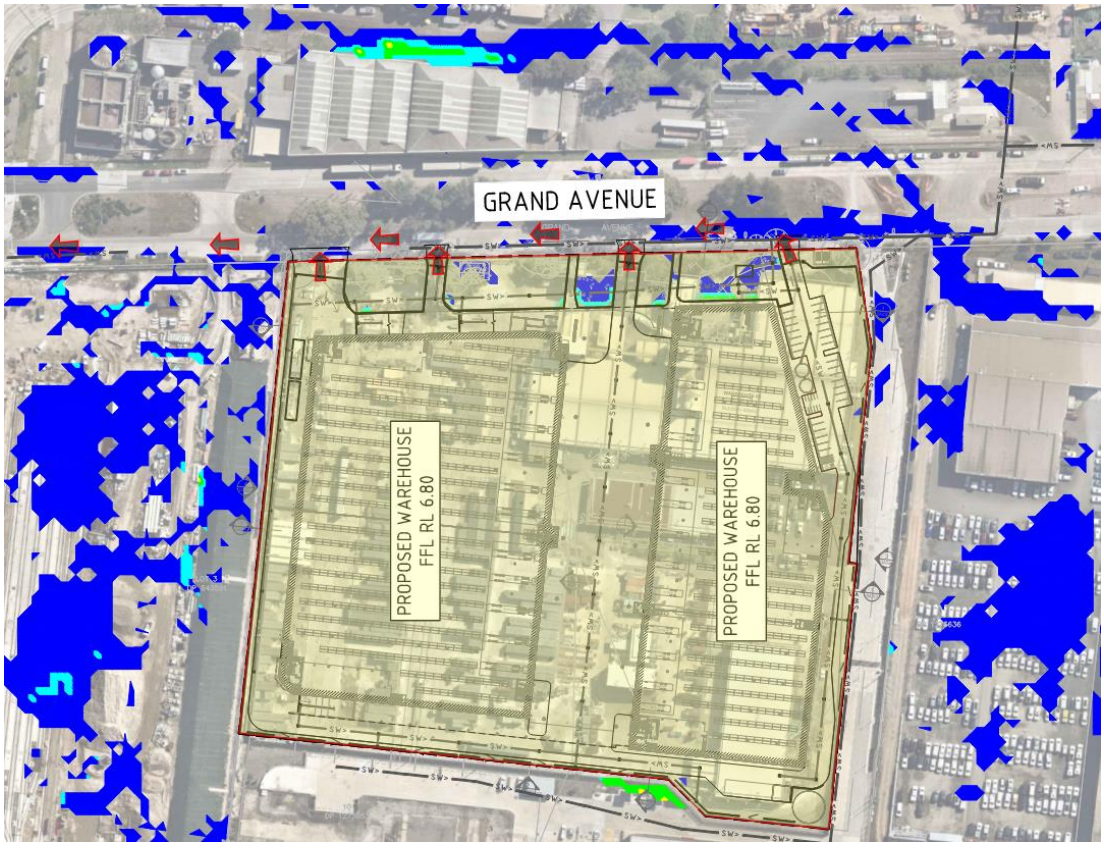



**Figure 6.1 Safe access and egress to Grand Avenue during the 1% AEP storm event**

A safe evacuation route to the site's north-west is available thorough the site's northern access points to Grand Avenue. Evacuees would be able to move to flood free areas via the M4 Motorway at the direction of the SES or other appropriate authority. The possible evacuation route is shown in **Figure 6.2** below.

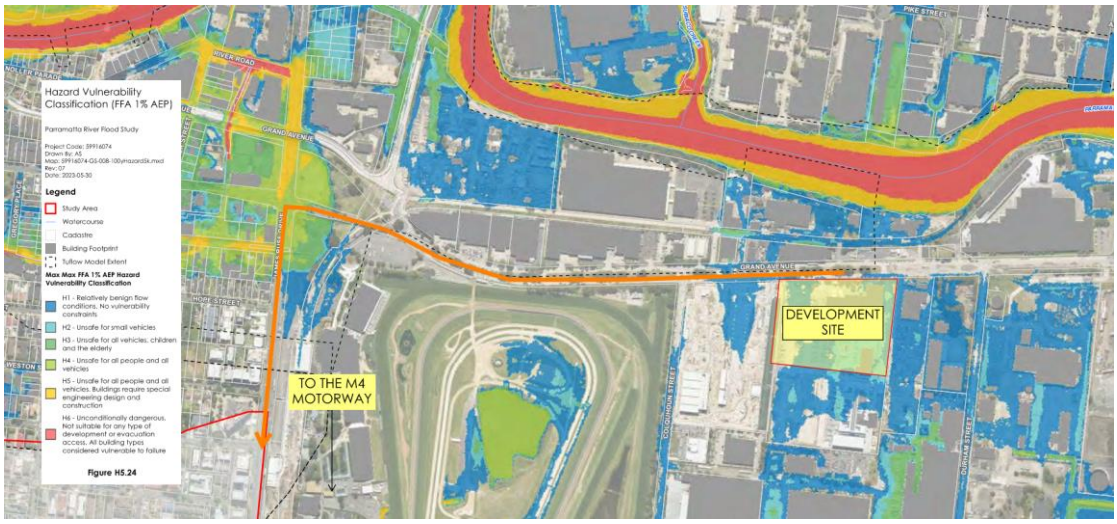



**Figure 6.2 Potential Emergency Evacuation Route**

As the proposed evacuation route passes through an area which experiences hazardous inundation during the 1% AEP flood event, it is noted that evacuation is a viable option **ONLY** prior to the onset of flood-causing rainfall. In all storm events up to the PMF, refuge outside of significant flooding is available on site during all stages of works and should be sought in place of a delayed evacuation response. In this event, shelter in place measures should be used in lieu of evacuation.

## 6.5 Preparation Steps

It is the responsibility of Management to understand the risks and dangers of flooding relating to the development site, and the need to restrict access to the flood management basin (subject to flooding) in such an event.

It is recommended that key persons within Management are registered to be able to receive flood warning messages via SMS from the NSW SES. This should include a specific Flood Warden, as well as upper management personnel. Using the contents of this report, in conjunction with property specific information such as resident details and key contact person/s, the designated Flood Warden is to prepare an NSW SES Emergency Business Continuity Plan using the following website:

https://www.sesemergencyplan.com.au/business/

It is recommended that Emergency Flood Kits are prepared and stored in a safe and accessible location on site, nominally tenants are to prepare one for each building. This kit is to contain items such as a first aid kit, torches, batteries, bottled water, non-perishable food items, medication, blankets, spare clothes, important documents, etc. Adequate supplies are to be provisioned for in the event that all expected site occupants are to shelter in place.

Lastly, the evacuation framework contained in this report must be understood and adapted, as necessary. It is recommended that a copy or copies of this report are kept at several locations on site such as the construction site shed, maintenance manager, and office administrator. A thorough understanding of *Councils Local Flood Plan* should also be made.

It is noted that significant lead warning time would not be required to enable effective flood response plans to be initiated for this site to address safety of persons, however,

lead warning would be necessary for removal of vehicles from the site, or understanding when restriction of vehicles from entering the site should be made.

# 7 FLOOD RESPONSE

## 7.1 Flood Response Introduction

The following sub-sections of the report provide information on potential flood triggers that could be utilised by site management (during construction and operation) to be able to prepare their own flood response plans.

The site management may install site flood depth gauges along Grand Avenue to understand inundation risks at key areas. During the site's construction, the flood response is limited to early evacuation to flood free areas following advice from the BOM or SES. Following the completion of the development and during the operational stage, a shelter-in-place strategy is to be implemented in the building's upper levels for tenants and staff.

The following items are to be read in conjunction with the flood management plan drawing included in **Appendix A**.

## 7.2 Emergency Response Planning

Flood Emergency Management planning refers to the preparation of a formal community-based plan of action to deal with the threat, onset and aftermath of flooding. It involves planning for an event equal to, or greater than the event used to derive the FPL.

The review of flood conditions shows that safe access (Hazard Categorisation <H1) would be available to the site up to the PMF with sufficient early warning. However, it is noted that early warning systems are not well defined in the Camellia/Rosehill peninsula, and that this is a current consideration for the Department as documented in the Camellia-Rosehill Place Strategy. This document identifies several flood-related actions to be undertaken at the precinct level, including development of warning systems, shelter-in-place and evacuation opportunities.

Further to the above, it is understood that the entire Camellia/Rosehill precinct is prone to flash flooding in frequent storm events that render some evacuation routes unsafe. The SES has recalled several recent floods in which rescues were needed to be carried out for persons trapped in flood waters in the precinct.

With the above in mind, the plan of action should include an on-site response plan that addresses what measures should be undertaken once the threat of a flood is determined to be imminent. A flood evacuation strategy should also be included so that all persons within the precinct are familiar with the processes required if a flood occurs, and the trigger warning systems available to enable safe evacuation of the site. The two main types of responses to a flood emergency are to either:

- **Evacuate** to an area above the reach of floodwaters in the PMF. The NSW SES lists this as a preferred flood response given the risks of evacuating are considered acceptable. For this project, evacuation without the appropriate warning systems in place may expose site users to risk of entrapment given the proliferation of flash flooding through the precinct. An evacuation strategy should be considered through the life of the project as part of the ongoing review of flood responses, particularly if/when flood warning technology is updated as part of the greater Camellia-Rosehill Place Strategy;

- **Shelter in Place** within the site and wait until floodwaters have receded and the emergency has passed. Shelter in Place may be considered an alternative to evacuation only if the risks of evacuating are higher than the risks of sheltering on site. SIP requires flood-free access to a shelter above the PMF level, which is available on the proposed development in the suspended warehouse floors or mezzanine-level offices. These shelters would be protected from the weather, have sufficient floor area for all people likely to be on site at any one time, and would be structurally stable in a PMF.

### 7.2.1 Evacuation

For all pluvial floods and a PMF fluvial event, both evacuation and SIP are considered as possible flood emergency response strategies for the development. The preferred emergency response strategy for this project is for early evacuation. However, the evacuation strategy would need to be developed in consultation with the SES, Parramatta Council and DPHI once flood warning alerts are made available for the Camellia Rosehill precinct to enable safe evacuation of the site prior to the onsite of flooding. Prior to the construction of the level 1 warehouse structure, evacuation is the **ONLY** available flood response in significant flooding events. Thus, during the construction phases it is recommended that site personnel and the designated Flood Warden are particularly vigilant regarding flood warnings and are prepared for evacuation prior to the onset of flooding.

### 7.2.2 Shelter in Place

In the absence of more developed flood warning systems, shelter in place shall be provisioned as part of the development. The extensive mezzanine office, the car park, the covered hardstand on the first floor and office/ warehouse amenities would provide sufficient shelter opportunities. All tenancies will be delivered with mezzanine offices which will be set to a level of RL13.170, which is approximately 5m above the PMF flood Level.

All tenancies will be able to safely seek refuge on the site should visual indicators of flooding (such as ponding in the gutter at Grand Avenue) be evident. Furthermore, provisions shall be made in the flood emergency plan to ensure sufficient emergency rations are available for extended periods of isolation. Appropriate flood preparedness training is proposed for all users of the site to ensure occupant safety in all severe weather scenarios.

The proponent will work with future tenants to adopt the appropriate measures to make these shelter opportunities available.

## 7.3 Response Triggers & Site Specific Measures During Construction

1. **Trigger 1 - A flood alert/watch/advice is issued by the BOM.**

- The BOM alert will be issued if flood producing rain is predicted. This provides an early warning that flooding may occur, however is not confirmation that flooding will occur. If this alert is issued then the designated Flood Warden should be on alert for further BOM, SES or site-specific Triggers.

2. **Trigger 2 – *General flood alert issued by the BOM.***

- A generalised flood warning would be issued when flooding is expected to occur in a given area. These would generally be provided by the BOM with three hours warning time is expected from issue of warning to peak flood level as per the "*Service Level Specification for Flood Forecasting and Warning Services for New South Wales – Version 2.0*" (Bureau of Meteorology, 2013).
- Any personnel should make the necessary preparations for site evacuation. Construction materials and machinery should be prepared to be taken off-site. Site visitors should be notified that inundation of the adjacent roads could potentially restrict egress from the site. The Flood Warden is to monitor further alerts from the BOM, SES, or site-specific triggers.
- It is noted that Trigger 3 may occur prior to Trigger 2 and the Flood Warden is required to consider this eventuality.

3. **Trigger 3 - Site flood level marker achieves flood depth of 0.1m-0.2m and/or adjacent streets are visibly inundated.**

- Flood Warden at this point should immediately evacuate any persons and machinery from the site via the designated evacuation route.
- Flood warden to contact SES for additional updates, if required.

*End of Response Operations*

Once the flood levels recede below the trigger level and the danger posed by flooding has passed, the NSW SES Parramatta Local Controller will issue an "all clear" message which will be conveyed in the same format as the warning message, via SMS. The site personnel can then return to the precinct.

## 7.4 Response Triggers & Site Specific Measures During Operation

1. **Trigger 1 - A flood alert/watch/advice is issued by the BOM.**

- The BOM alert will be issued if flood producing rain is predicted. This provides an early warning that flooding may occur, however is not confirmation that flooding will occur. If this alert is issued then the designated Flood Warden should be on alert for further BOM, SES or site-specific Triggers.

2. **Trigger 2 – *General flood alert issued by the BOM.***

- A generalised flood warning would be issued when flooding is expected to occur in a given area. These would generally be provided by the BOM with three hours warning time is expected from issue of warning to peak flood level as per the "*Service Level Specification for Flood Forecasting and Warning Services for New South Wales – Version 2.0*" (Bureau of Meteorology, 2013).

- Any personnel should make the necessary preparations for site evacuation. Site visitors should be notified that inundation of the adjacent roads could potentially restrict egress from the site. The Flood Warden may take measures to prepare the Emergency Flood Kit for use. Occupants of the upper level tenancies should make the necessary preparations to accommodate occupants from the ground floor tenancies.
- It is noted that Trigger 3 may occur prior to Trigger 2 and the Flood Warden is required to consider this eventuality.

**3. <u>Trigger 3 - Site flood level marker achieves flood depth of 0.1m-0.2m and/or adjacent streets are visibly inundated.</u>**

- Flood Warden at this point should immediately evacuate any persons and machinery from the flood affected area. The Flood Warden should direct individuals in the vicinity to seek refuge within the Level 1 hardstand, warehouse and office areas, and restrict access to the Grand Avenue exits.
- Flood warden to contact SES for additional updates, if required.

*<u>End of Response Operations</u>*

Once the flood levels recede below the trigger level and the danger posed by flooding has passed, the NSW SES Parramatta Local Controller will issue an "all clear" message which will be conveyed in the same format as the warning message, via SMS. The site occupiers can then leave the industrial precinct if on site refuge was undertaken, or return to the precinct if evacuated.

# 8 CONCLUSION

Costin Roe Consulting Pty Ltd has been commissioned to develop this **FERP** for the industrial development at 6 Grand Avenue, Rosehill, NSW.

The report provides a summary of flood behaviour of local flooding which affects the site, and the different conditions which cause flooding on the site.

Flood preparedness and response techniques have been clarified, including warning triggers and distribution of the flood response procedures during construction and operational stages of the development. During flooding events, the flood affected area is to be evacuated as early as possible and closed for all personnel and vehicles and access to the adjacent roads is to be restricted. Upon completion of the warehouse and if evacuation is not viable, staff and visitors should be directed to seek refuge within the upper levels of the site's warehouse building until flooding recedes.

Further the report provides the framework for the preparation of the flood egress plans as required throughout the construction and operational phases of the development.

We trust this report meets your current requirements and should you wish to discuss the matter further please do not hesitate to contact the undersigned.

Yours faithfully,
**Costin Roe Consulting Pty Ltd**

**Nelson Zeng**
Design Engineer – Civil

**Daniel Soliman**
Associate Director - Civil

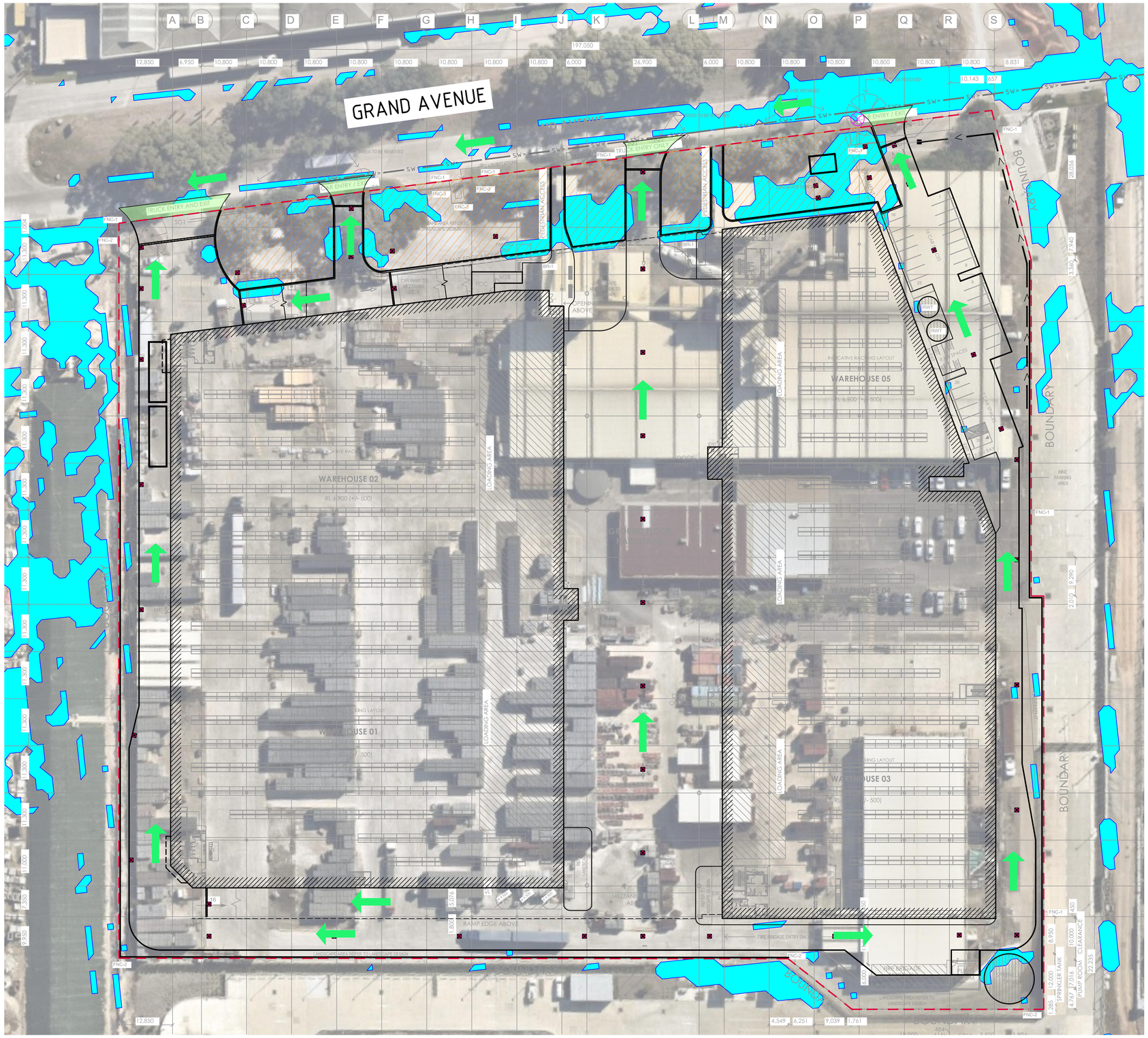
# 9 REFERENCES


- NSW Flood Risk Management Manual 2023
- NSW Support for Emergency Planning Flood Risk Management Guideline EM01
- OEH 2007, Floodplain Risk Management Guidelines
- Costin Roe Consulting (2023), Civil Engineering Report (Co14955.00-02h.rpt)
- Parramatta City Council (2023), Flood Enquiry Information dated 21/12/23
- Stantec (2023), Parramatta River Flood Study (ref: 59916074 / 304600102)
- SES (2019). Provision of and Requirements for Flood Warning in New South Wales
- Bureau of Meteorology (2013). Service Level Specification for Flood Forecasting and Warning Services for New South Wales – Version 2.0"
- SES (2021), Parramatta LGA Flood Emergency Sub Plan

# 10 APPENDICES

# Appendix A

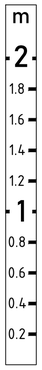
## FLOOD RISK MANAGEMENT PLANS




FLOOD MANAGEMENT PLAN
SCALE 1:500




FLOODWAY WARNING SIGN
NTS
SUGGESTED SIZE 600mm x 450mm
TO BE PROVIDED AROUND THE FLOOD AFFECTED ZONE IN SUITABLE AREA
T.B.C ON SITE




TYPICAL WATER DEPTH BOARD
SCALE 1:20

WATER DEPTH NOTE:
WATER DEPTH BOARDS ARE PLACED IN THE FLOOD AFFECTED AREA AND ENTRY/EXIT LOCATIONS.

## EVACUATION NOTES:

1. USING ONE OF THE ROUTES SHOWN, MOVE TO THE BUILDING QUICKLY - DO NOT RUN & WATCH OUT FOR VEHICLES
2. ASSIST OTHERS, IF IT IS SAFE TO DO SO
3. NOTIFY ANY STAFF ON THE PREMISES
4. DO NOT ACCESS ANY AREAS WHERE FLOOD DEPTH MARKERS SHOW DEPTH GREATER THAN 100mm

## IN AN EMERGENCY:

CALL 000 AND ASK FOR THEIR APPROPRIATE EMERGENCY SERVICE. WHEN ASKED, PROVIDE THE FOLLOWING INFORMATION:

1. ADDRESS: 6 GRAND AVENUE, ROSEHILL NSW
2. NEAREST CROSS STREET: CORNER OF GRAND AVENUE AND COLQUHOUN STREET
3. TYPE OF EMERGENCY
4. INFORMATION ABOUT THE EMERGENCY
5. YOUR NAME AND CONTACT NUMBER

LEGEND:

- PEDESTRIAN EVACUATION ROUTE
- DENOTES APPROXIMATE 1% AEP FLOOD EXTENT
- NOMINAL LOCATION OF FLOOD SIGN & DEPTH BOARD
- OVERLAND FLOW DIRECTION

5m 0 10 20 30 40 50m
SCALE 1:500 AT A1 SIZE SHEET

FOR INFORMATION

| AMENDMENTS | DATE | ISSUE |
|---|---|---|
| ISSUED FOR INFORMATION | 12.09.24 | A |

ARCHITECT: PACE ARCHITECTS
CLIENT: VAUGHAN CONSTRUCTIONS

PROJECT
PROPOSED DEVELOPMENT
6 GRAND AVE
ROSEHILL, NSW, 2142

| DESIGNED | DRAWN | DATE | CHECKED | SIZE | SCALE | CAD REF: |
|---|---|---|---|---|---|---|
| NZ | JB | AUG '24 | DS | A1 | AS SHOWN | C014955.01-FMP001 |

CONSULT AUSTRALIA

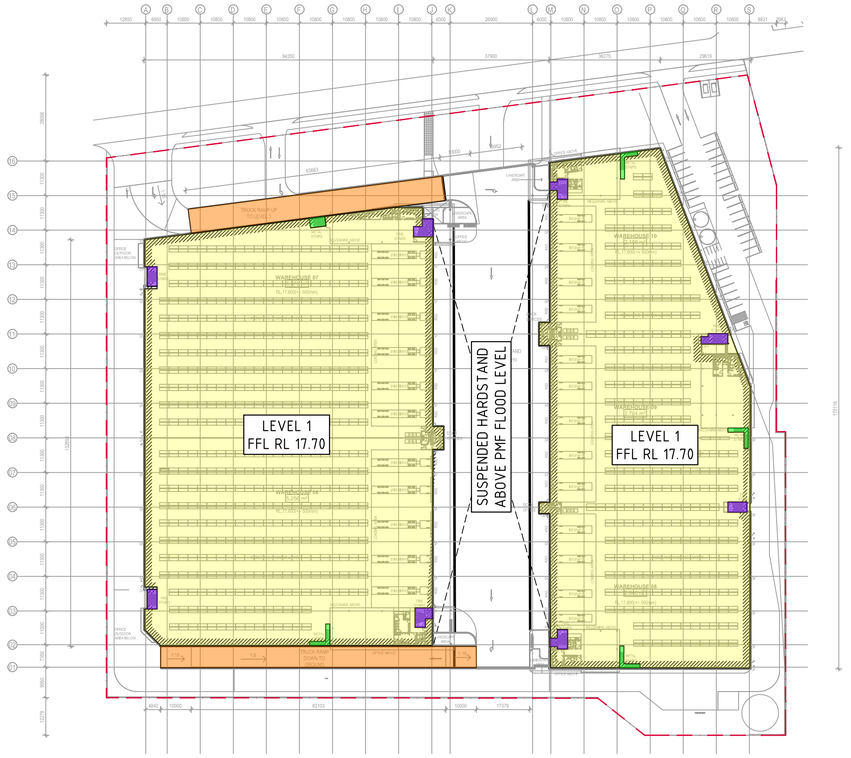
Costin Roe Consulting Pty Ltd.
ABN 50 003 696 446
PO Box N419 Sydney NSW 1220
Level 4, 8 Windmill Street, Millers Point NSW 2000
p: +61 2 9251 7699 f: +61 2 9241 3731
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COSTIN ROE CONSULTING | CIVIL & STRUCTURAL ENGINEERS

DRAWING TITLE
FLOOD EVACUATION PLAN

DRAWING No C014955.01-FMP001
ISSUE A




SHELTER IN PLACE ACCESS PLAN – GROUND FLOOR
SCALE 1:500




SHELTER IN PLACE ACCESS PLAN – LEVEL 1
SCALE 1:500

## SHELTER IN PLACE NOTES:

1. SHELTER IN PLACE TO BE PROVISIONED FOR IN THE EVENT THAT EARLY EVACUATION OF THE SITE IS NOT POSSIBLE PRIOR TO A SIGNIFICANT FLOODING EVENT
2. IF PONDING DEPTHS IN GRAND AVENUE EXCEED 100mm, SITE OCCUPANTS ARE TO SHELTER IN PLACE
3. USING ONE OF THE ACCESS POINTS SHOWN, MOVE TO THE BUILDING QUICKLY – DO NOT RUN & WATCH OUT FOR VEHICLES
4. SEEK REFUGE IN ONE OF THE AREAS ABOVE THE PMF FLOOD LEVEL SHOWN.
5. ASSIST OTHERS, IF IT IS SAFE TO DO SO
6. NOTIFY ANY STAFF ON THE PREMISES

## LEGEND:

- DENOTES APPROXIMATE 1% AEP FLOOD EXTENT
- DENOTES INTERNAL ACCESS BETWEEN LEVELS (STAIRS, LIFTS)
- DENOTES STAIRS TO ELEVATED MEZZANINE OFFICES
- DENOTES RAMPING BETWEEN LEVELS
- DENOTES INTERNAL FLOOR AREA ABOVE PMF FLOOD LEVEL (RL 7.80)
- DENOTES GROUND FLOOR PEDESTRIAN ACCESS DOOR

5m 0 10 20 30 40 50m
SCALE 1:500 AT A1 SIZE SHEET

**FOR INFORMATION**

| | | |
|---|---|---|
| ISSUED FOR INFORMATION | 12.09.24 | A |
| AMENDMENTS | DATE | ISSUE |

ARCHITECT: PACE ARCHITECTS
CLIENT: VAUGHAN CONSTRUCTIONS

PROJECT
PROPOSED DEVELOPMENT
6 GRAND AVE
ROSEHILL, NSW, 2142

| DESIGNED | DRAWN | DATE | CHECKED | SIZE | SCALE | CAD REF: |
|---|---|---|---|---|---|---|
| NZ | JB | AUG '24 | DS | A1 | AS SHOWN | C014955.01-FMP002 |

CONSULT AUSTRALIA

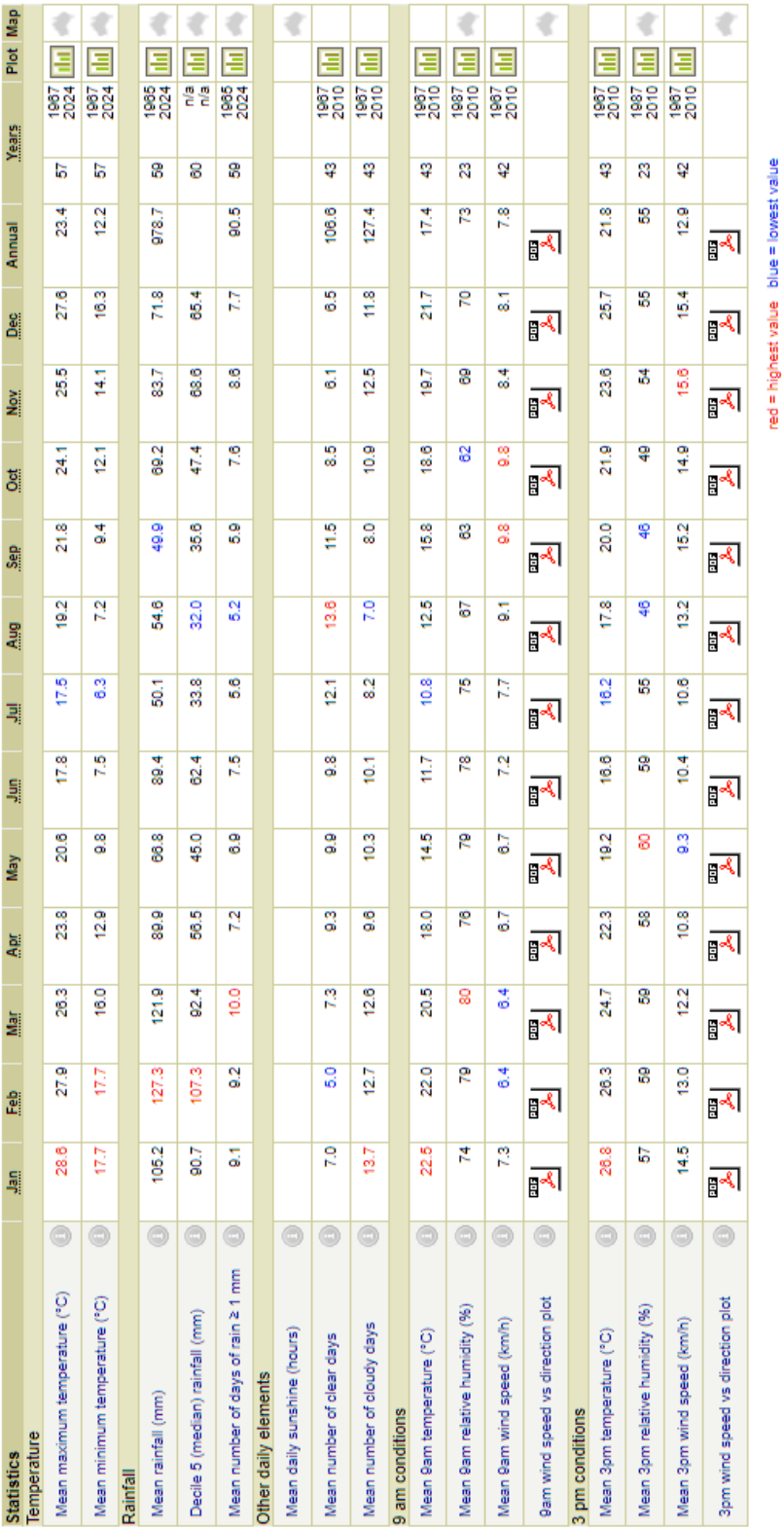
Costin Roe Consulting Pty Ltd.
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COSTIN ROE CONSULTING
CIVIL & STRUCTURAL ENGINEERS

DRAWING TITLE
SHELTER IN PLACE PLAN

DRAWING No C014955.01-FMP002
ISSUE A

# Appendix B

## MONTHLY RAINFALL AND CLIMATE STATISTICS



| Statistics | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Annual | Years | Plot | Map |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Temperature** | | | | | | | | | | | | | | | | |
| Mean maximum temperature (°C) | 28.6 | 27.9 | 26.3 | 23.8 | 20.6 | 17.8 | 17.5 | 19.2 | 21.8 | 24.1 | 25.5 | 27.6 | 23.4 | 57 | 1967 2024 | |
| Mean minimum temperature (°C) | 17.7 | 17.7 | 16.0 | 12.9 | 9.8 | 7.5 | 6.3 | 7.2 | 9.4 | 12.1 | 14.1 | 16.3 | 12.2 | 57 | 1967 2024 | |
| **Rainfall** | | | | | | | | | | | | | | | | |
| Mean rainfall (mm) | 105.2 | 127.3 | 121.9 | 89.9 | 66.8 | 89.4 | 50.1 | 54.6 | 49.9 | 66.2 | 83.7 | 71.8 | 978.7 | 59 | 1965 2024 | |
| Decile 5 (median) rainfall (mm) | 90.7 | 107.3 | 92.4 | 56.5 | 45.0 | 62.4 | 33.8 | 32.0 | 35.6 | 47.4 | 68.6 | 65.4 | | 60 | n/a n/a | |
| Mean number of days of rain ≥ 1 mm | 9.1 | 9.2 | 10.0 | 7.2 | 6.9 | 7.5 | 5.6 | 5.2 | 5.9 | 7.6 | 8.6 | 7.7 | 90.5 | 59 | 1965 2024 | |
| **Other daily elements** | | | | | | | | | | | | | | | | |
| Mean daily sunshine (hours) | | | | | | | | | | | | | | | | |
| Mean number of clear days | 7.0 | 5.0 | 7.3 | 9.3 | 9.9 | 9.8 | 12.1 | 13.6 | 11.5 | 8.5 | 6.1 | 6.5 | 106.6 | 43 | 1967 2010 | |
| Mean number of cloudy days | 13.7 | 12.7 | 12.6 | 9.6 | 10.3 | 10.1 | 8.2 | 7.0 | 8.0 | 10.9 | 12.5 | 11.8 | 127.4 | 43 | 1967 2010 | |
| **9 am conditions** | | | | | | | | | | | | | | | | |
| Mean 9am temperature (°C) | 22.5 | 22.0 | 20.5 | 18.0 | 14.5 | 11.7 | 10.8 | 12.5 | 15.8 | 18.6 | 19.7 | 21.7 | 17.4 | 43 | 1967 2010 | |
| Mean 9am relative humidity (%) | 74 | 79 | 80 | 76 | 79 | 78 | 75 | 67 | 63 | 62 | 69 | 70 | 73 | 23 | 1987 2010 | |
| Mean 9am wind speed (km/h) | 7.3 | 6.4 | 6.4 | 6.7 | 6.7 | 7.2 | 7.7 | 9.1 | 9.8 | 9.8 | 8.4 | 8.1 | 7.8 | 42 | 1967 2010 | |
| 9am wind speed vs direction plot | | | | | | | | | | | | | | | | |
| **3 pm conditions** | | | | | | | | | | | | | | | | |
| Mean 3pm temperature (°C) | 28.8 | 26.3 | 24.7 | 22.3 | 19.2 | 16.6 | 16.2 | 17.8 | 20.0 | 21.9 | 23.6 | 25.7 | 21.8 | 43 | 1987 2010 | |
| Mean 3pm relative humidity (%) | 57 | 59 | 59 | 58 | 60 | 59 | 55 | 46 | 46 | 49 | 54 | 55 | 55 | 23 | 1987 2010 | |
| Mean 3pm wind speed (km/h) | 14.5 | 13.0 | 12.2 | 10.8 | 9.3 | 10.4 | 10.6 | 13.2 | 15.2 | 14.9 | 15.6 | 15.4 | 12.9 | 42 | 1967 2010 | |
| 3pm wind speed vs direction plot | | | | | | | | | | | | | | | | |

red = highest value  blue = lowest value

## PARRAMATTA NORTH (MASONS DRIVE)

### Mean rainfall (mm)

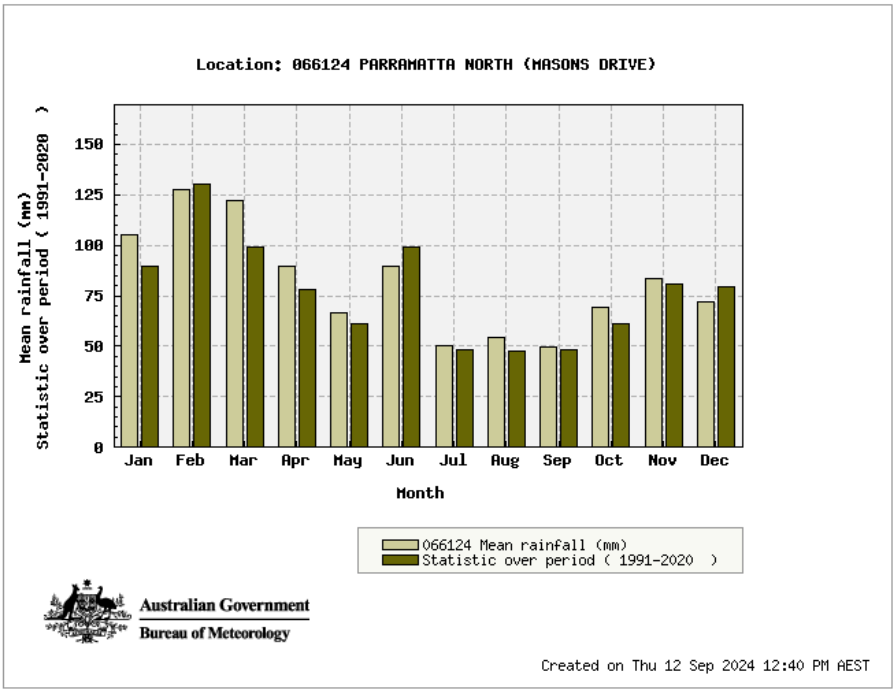
**Site details**

**Site name:** PARRAMATTA NORTH (MASONS DRIVE) **Site number:** 066124 **Commenced:** 1965
**Latitude:** 33.79 S **Longitude:** 151.02 E **Elevation:** 55 m **Operational status:** Still Open

Yearly data | 30 year statistics | Comparison site | First statistic | Second statistic

**Note:** Only one option can be redrawn at a time

Compare with statistics for the 30 year period: 1991-2020 Redraw




| Statistics | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Annual | Years |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mean rainfall (mm) for years 1965 to 2024 | 105.2 | 127.3 | 121.9 | 89.9 | 66.8 | 89.4 | 50.1 | 54.6 | 49.9 | 69.2 | 83.7 | 71.8 | 978.7 | 59 |
| **Statistics** | **Jan** | **Feb** | **Mar** | **Apr** | **May** | **Jun** | **Jul** | **Aug** | **Sep** | **Oct** | **Nov** | **Dec** | **Annual** | **Years** |
| Mean rainfall (mm) for years 1991 to 2020 | 89.9 | 130.3 | 99.1 | 78.3 | 61.3 | 99.0 | 48.0 | 47.4 | 48.5 | 61.3 | 80.8 | 79.6 | 921.6 | 30 |

*12.3* = Not quality controlled

# Appendix C

## PARRAMATTA LOCAL SES FLOOD PLAN

# PARRAMATTA LGA

# FLOOD EMERGENCY

# SUB PLAN

**A Sub Plan of the Local Emergency Management Plan (EMPLAN)**

**Volume 1 of the Parramatta LGA Local Flood Plan**

**Endorsed by the Parramatta Emergency Management Committee**

**November 2021**

# AUTHORISATION

The Parramatta LGA Flood Emergency Sub Plan is a sub plan of the Parramatta Local Emergency Management Plan (EMPLAN). It has been prepared in accordance with the provisions of the ***State Emergency Service Act 1989*** (**NSW**) and is endorsed by the Local Emergency Management Committee in accordance with the provisions of the ***State Emergency and Rescue Management Act 1989*** **(NSW)**.

**Authorised**

*NSW SES Unit Commander*

Date: **15/12/2021**

**Endorsed**

*Chair, Local Emergency Management Committee*

Date: 16/12/2021

# VERSION HISTORY

| Version Number | Description | Date |
|---|---|---|
| | | |
| | | |

# AMENDMENT LIST

Suggestions for amendments to this plan should be forwarded to:

Community Planning and Engagement
NSW State Emergency Service
PO Box 6126, Wollongong NSW 2500
nswses.communityplanning@ses.nsw.gov.au

Amendments in the list below have been entered in this plan.

| Amendment Number | Description | Updated by | Date |
|---|---|---|---|
| | | | |
| | | | |

# DISTRIBUTION LIST

Available for general use and distribution on the NSW State Emergency Service website www.ses.nsw.gov.au

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# 1 OUTLINE AND SCOPE

## 1.1 PURPOSE

1.1.1 The purpose of this plan is to set out the multi-agency arrangements for the emergency management of flooding in the Parramatta Local Government Area (LGA).

## 1.2 AUTHORITY

1.2.1 This plan is written and issued under the authority of the *State Emergency and Rescue Management Act 1989* (NSW) ('SERM Act'), the *State Emergency Service Act 1989* (NSW) ('SES Act') and the NSW State Emergency Management Plan (EMPLAN).

1.2.2 This plan is a sub plan to the Parramatta Local Emergency Management Plan (EMPLAN) and is endorsed by the Parramatta Emergency Management Committee (LEMC).

## 1.3 ACTIVATION

1.3.1 This plan does not require activation. The arrangements set out in this plan are always active.

1.3.2 The Parramatta Emergency Management Plan (EMPLAN) is active at all times in anticipation of the need to coordinate support and resources requested by combat agencies, including the NSW State Emergency Service (NSW SES).

## 1.4 SCOPE

1.4.1 The area covered by this plan is the Parramatta LGA. The Parramatta LGA and its principal towns, villages, rivers and creeks are shown in Appendix A.

1.4.2 The council area is in the NSW SES Metro Zone and for emergency management purposes is part of the North West Metro Emergency Management Region.

1.4.3 The plan sets out the Parramatta local emergency management arrangements for prevention, preparation, response and initial recovery for flooding in the Parramatta LGA.

1.4.4 In this plan a flood is defined as a relatively high water level which overtops the natural or artificial banks in any part of a stream, river, estuary, lake or dam, and/or local overland flooding associated with drainage before entering a watercourse, and/or coastal inundation resulting from super-elevated sea levels and/or waves (including tsunami) overtopping coastline defences.

1.4.5 This plan outlines the local level arrangements for the management of downstream consequences of dam failure.

## 1.5 GOALS

1.5.1 The primary goals for flood emergency management in NSW are:

a. Protection and preservation of life.

b. Establishment and operation of flood warning systems.

c. Issuing of community information and community warnings.

d. Coordination of evacuation and welfare of affected communities.

e. Protection of critical infrastructure and community assets essential to community survival during and emergency incident.

f. Protection of residential property.

g. Protection of assets and infrastructure that support individual and community financial sustainability and aid assisting a community to recover from an incident; and

h. Protection of the environment and conservation values considering the cultural, biodiversity and social values of the environment.

## 1.6 KEY PRINCIPLES

1.6.1 The protection and preservation of human life (including the lives of responders and the community) is the highest priority.

1.6.2 Evacuation is the primary response strategy for people impacted by flooding.

## 1.7 ROLES AND RESPONSIBILITIES

1.7.1 General responsibilities of emergency service organisations and functional areas are set out in the NSW State EMPLAN and NSW State Flood Plan.

1.7.2 Specific roles and responsibilities for agencies, functional areas and organisations in relation to flooding within the Parramatta LGA are detailed within this plan, Appendix B and Appendix C.

1.7.3 Any agency with agreed responsibilities in this plan that are temporarily, or no longer able to fulfil their responsibilities must as soon as possible notify the:

a. NSW SES Incident Controller (for local or zone level responsibilities during response operations).

b. NSW SES Zone Duty Commander (for regional level responsibilities outside of response operations).

## 1.8 PLAN MAINTENANCE AND REVIEW

1.8.1 The NSW SES will maintain the currency of this plan by:

a. Ensuring that all supporting emergency services and functional areas, organisations and officers mentioned in it are aware of their roles and responsibilities.

b. Conducting exercises to test arrangements.

c. Reviewing the contents of the plan:

- When there are changes which alter agreed plan arrangements.
- When changes to land use strategic plans and policies increase the population at risk.

- After a flood including from after action reviews, reports, or inquiries; and
- As determined by the NSW SES Commissioner.

d. The plan is to be reviewed no less frequently than every five years or after a significant flood event.

### 1.9 SUPPLEMENTARY DOCUMENTS

1.9.1 Supplementary material published in previous versions of the Local Flood Plan is now maintained on the NSW SES website at: https://www.ses.nsw.gov.au/about-us/flood-storm-and-tsunami-plans/ including:

a. Flood Plan Glossary.

b. NSW SES Dam Failure Notification Flowchart.

c. NSW SES Resupply Flowchart.

# 2 OVERVIEW OF NSW FLOOD HAZARD AND RISK

### 2.1 THE FLOOD THREAT

2.1.1 The NSW SES maintains information on the nature of flooding and effects of flooding on the community in the Parramatta LGA.

2.1.2 Declared dams in or upstream of the Parramatta Local Government Area.

| Dam Name | Owner |
|---|---|
| **Lake Parramatta** | City of Parramatta Council |
| **McCoy park retarding Basin** | City of Parramatta Council |
| **Loyalty Road Retention Basin** | Hawkesbury - Nepean CMA |
| **Sierra Place Retarding Basin** | The Hills Shire Council |
| **Fox Hills Retarding Basin** | Cumberland Council |
| **Murfield Golf Club** | Muirfield Golf Club LImited |
| **Muirfield Golf Course Det. Basin** | Muirfield Golf Club Limited |
| **Northmead Reserve Det. Basin** | The Hills Shire Council |
| **Gooden Reserve** | The Hills Shire Council |
| **CSIRO Retarding Basin** | Cumberland City Council |
| **Pied Piper Playground** | Blacktown City Council |
| **West Epping Park** | City of Parramatta |

# 3 PREVENTION/ MITIGATION

### 3.1 INTRODUCTION

3.1.1 The Floodplain Development Manual outlines the NSW Government's Flood Prone Lands Policy which details the framework for managing flood prone land in New South Wales. Incorporation of floodplain risk management into land use

planning is one of the key means to limit the exposure to flood risks to our communities and help build long term resilience to future flood events.

### 3.2 LAND USE PLANNING

3.2.1 **Strategy:** Work with landuse planning and consent authorities to advocate that the risks arising from floods are considered so as to prevent the creation of intolerable impacts of these hazards on the community.

**Actions:**

a. NSW SES will provide strategic input about land use planning matters which have or will create significant flood risk.

b. NSW SES will provide responses to land use planning proposal referrals that have or will create significant flood risk.

### 3.3 FLOODPLAIN RISK MANAGEMENT

3.3.1 **Strategy**: NSW SES advocates for the recognition of emergency management considerations through participation in the floodplain risk management program.

**Actions**:

a. NSW SES will provide coordinated and consistent emergency management advice to councils and other agencies in relation to the management of land that is subject to flooding or coastal inundation; and

b. NSW SES will provide advice, support and technical resources for NSW SES representatives to contribute effectively to local Floodplain Management Committees.

# 4 PREPARATION

### 4.1 INTRODUCTION

4.1.1 Preparation includes arrangements or plans to deal with an emergency or the effects of an emergency.

### 4.2 FLOOD EMERGENCY PLANNING

4.2.1 **Strategy**: NSW SES develop, review and maintain Flood Sub Plans

4.2.2 **Actions**:

a. Develop and review this NSW SES Local Flood Plan as required. Local Flood Plans outline the specific arrangements for management of flood events within an LGA, and may include cross boundary arrangements; and

b. Review plans as per Section 1.8.

4.2.3 Local EMPLAN Consequence Management Guides for flood are not required for communities covered by NSW SES Local Flood Plans.

### 4.3 FLOOD INTELLIGENCE SYSTEMS

4.3.1 **Strategy**: NSW SES develop and maintain a flood intelligence system to identify flood behaviour, its impact on the community and required response actions.

**Actions**:

a. Gather and assess flood information for the full range of flood types and severities.

b. Collect, collate, and assess information on the characteristics of communities at risk and the potential effects of flooding on communities at risk; and

c. Share flood intelligence information with supporting agencies.

## 4.4 DEVELOPMENT OF WARNING SYSTEMS

4.4.1 **Strategy**: Develop, maintain and prepare systems for the provision of flood warnings and associated warning services.

**Actions**:

a. All levels of government work in partnership to develop and maintain flood warning infrastructure.

b. NSW SES maintains a list of the requirements for flood warnings for flood gauges in NSW (including flood classifications, warning times required and key statistics) and can be found in the supplementary document to the NSW State Flood Plan (see Section 1.9)..

c. The NSW SES will recommend new warning services and changes to warning alert levels for gauges to the NSW Flood Warning Consultative Committee.

d. The State Government, in partnership with Local Government, is responsible for developing and maintaining flash flood warning systems for local catchments where required.

e. City of Parramatta Council has developed and maintains a flash flood warning system for Parramatta CBD .

f. Dam Owners will provide Dam Failure Warning Systems (where required) and consult NSW SES on alert levels and messaging. Alert level definitions are listed in Dam Emergency Plans.

g. NSW SES maintains a dedicated dam failure hotline and procedures to ensure priority dissemination of dam failure warnings.

h. NSW SES develops and maintains warning and flood information products by:

- Utilising flood intelligence data.
- Developing pre-written warning and flood information products.
- Continuously reviewing warning and flood information products; and
- Consulting with affected communities, key stakeholders, Dam Safety NSW and the NSW Flood Warning Consultative Committee; and maintain Operational Readiness.

## 4.5 BRIEFING, TRAINING AND EXERCISING

4.5.1 **Strategy**: Ensure NSW SES, supporting agencies, functional areas and the community are prepared and familiar with the strategies and arrangements within the Flood Sub Plan and supporting documents.

**Actions**:

a. NSW SES will consult stakeholders throughout the development of plans.

b. NSW SES will inform stakeholders of content changes after revisions.

c. NSW SES will ensure their facilities and resources are maintained and operationally ready.

d. NSW SES will train personnel for their expected flood operation roles; and

e. NSW SES will regularly brief stakeholders on the exercise arrangements contained in the NSW Flood Sub Plan.

## 4.6 COMMUNITY RESILIENCE TO FLOODING

4.6.1 **Strategy**: NSW SES provides and maintains a flexible volunteer workforce to support community resilience.

**Actions**:

a. Ensure ongoing recruitment and training of a diverse range of volunteers.

b. Ensure pre-planning to facilitate the management of spontaneous volunteers and community members during a flood.

4.6.2 **Strategy**: NSW SES works with individuals, communities, businesses and government agencies to build flood resilience.

**Actions**:

a. Work with communities to understand and manage the risks associated with floods, including providing business continuity guidance (NSW SES Business Floodsafe), family preparedness (NSW SES Home Floodsafe) and other engagement strategies.

b. NSW SES will collate, assess and disseminate flood information to the community.

c. Collaborate with individuals, businesses, government agencies and communities when developing flood intelligence, preparedness and response information.

d. Plan for floods collaboratively with communities through community and stakeholder participation and engagement.

# 5 RESPONSE

## 5.1 INTRODUCTION

5.1.1 Flood response operations will begin:

a. On receipt of a Bureau of Meteorology (BoM) Severe Weather Warning or Thunderstorm Warning that includes heavy rain or storm surge; or

b. On the receipt of a BoM Flood Watch or Flood Warning; or

c. On receipt warnings for flash flood; or

d. On receipt of a dam failure alert; or

e. When other evidence leads to an expectation of flooding.

## 5.2 INCIDENT MANAGEMENT ARRANGEMENTS

5.2.1 **Strategy**: Maintain effective control of flood operations across New South Wales.

**Actions**:

a. The NSW SES uses the Australasian Inter-service Incident Management System (AIIMS) to manage the flood response.

b. Control of flood response will be at the lowest effective level and may be scaled to suit the incident.

c. The NSW SES State Duty Commander will appoint Incident Controllers and establish Incident Control Centres (see NSW SES facilities on map in Appendix A).

d. The Incident Controller, in consultation with participating supporting emergency services and Functional Areas will determine the appropriate breakdown of an incident area into Divisions and/or Sectors in accordance with the principles of AIIMS as well as the predefined Divisions and Sectors outlined within the NSW SES Intelligence System

5.2.2 **Strategy**: Maintain Incident Control Centre(s).

**Actions**:

a. NSW SES will operate Incident Control Centre(s) as required.

b. The NSW SES Incident Control Centre(s) will:

- Control resources from NSW SES and coordinate resources of supporting emergency services and functional areas.
- Manage Request for Assistance (RFA) tasking and ensure they are actioned in a timely manner.
- Undertake response planning and determine future resourcing requirements; and
- Coordinate information flow, including warnings, public information and social media.

5.2.3 **Strategy**: Provide effective liaison between the NSW SES and supporting agencies or functional areas in accordance with Local EMPLAN.

**Actions**:

a. Supporting emergency services and Functional Areas should provide Liaison Officers to NSW SES Incident Control Centre(s) and/or Emergency Operation Centres as required; and

b. NSW SES will provide Liaison Officer(s) to Emergency Operations Centres as required.

5.2.4 **Strategy**: Coordinate resources and logistics support to ensure operational effectiveness.

**Actions**:

a. The NSW SES Incident Controller will notify agencies of potential access issues between locations, for the consideration of pre-deploying of resources.

b. The NSW SES may request resources and logistics support directly from a supporting emergency service or Functional Area.

c. Wherever possible, supporting organisations are to provide their own logistic support in consultation with NSW SES where appropriate.

d. The NSW SES Incident Controller will control air support operations and may utilise supporting agencies in the management of aircraft.

## 5.3 USE OF INFORMATION AND COLLECTION OF INTELLIGENCE

5.3.1 **Strategy**: Ensure flood information is effectively communicated and collected during a flood.

**Actions**:

a. Information relating to the consequences of flooding, response strategies, situational awareness and operational updates will be distributed by NSW SES to supporting emergency services and Functional Areas listed under this Plan.

b. All supporting emergency services and Functional Areas will accurately record and report information relevant to their activities and any real time flood information (including road closure information) to the NSW SES Incident Controller. This may be in the form of a combined Emergency Operations Centre (EOC) report, or direct from agencies where an EOC has not been established.

c. The NSW SES may establish and operate a Joint Intelligence Unit to coordinate the collection, collation, interpretation, mapping, actioning and dissemination of information; and

d. Reconnaissance, mapping, damage assessments, intelligence validation and post flood evaluation will be coordinated by NSW SES. This may occur post impact and continue into the recovery phase.

5.3.2 **Strategy**: Ensure flood intelligence is incorporated into operational decision-making.

**Action**: The NSW SES will use flood intelligence and official forecasts and warnings, to undertake an assessment of the predicted impact of a flood and to inform operational decision-making.

## 5.4 PROVISION OF INFORMATION AND WARNINGS TO THE COMMUNITY

5.4.1 **Strategy**: Timely and effective warnings are distributed to the community.

**Actions**:

a. The BoM issues public weather and flood warning products before and during a flood. These may include:

- Severe Thunderstorm Warnings with reference to heavy rainfall
- Regional Severe Thunderstorm Warnings with reference to heavy rainfall
- Detailed Severe Thunderstorm Warnings (for Sydney / Newcastle / Wollongong) with reference to heavy rainfall,
- Severe Weather Warnings with reference to heavy rainfall and/or storm surge,
- Flood Watches, and
- Flood Warnings.

b. City of Parramatta Council will use the following established flash flood warning system for Parramatta CBD to provide warnings and information to NSW SES, key stakeholders and the community. Floodsmart

c. Dam Owners will utilise Dam Failure Warning Systems to provide warnings and information to NSW SES and communities (where appropriate).

d. NSW SES Incident Controllers will issue the following NSW SES flood information products incorporating warnings from the above, expected consequences and safety messages:

- Livestock and Equipment (pump) Warnings
- Local Flood Advices
- Flood Bulletins
- NSW SES Evacuation Warning
- NSW SES Evacuation Order
- NSW SES All Clear

e. NSW SES liaises with the Bureau of Meteorology to discuss the development of flood warnings as required.

f. NSW SES provides alerts and deliver flood information to affected communities using a combination of the following methods:

- Mobile and fixed public address systems.
- Two-way radio.
- Emergency Alert (SMS and voice message alerting system).
- Telecommunications (including Auto dial systems).
- Facsimile
- Standard Emergency Warning Signal.
- Doorknocking.

- Mobile and fixed sirens.
- Variable message signs.
- Community notices in identified hubs.
- Distribution through established community liaison networks, partnerships and relationships; and
- NSW SES social media and website.

g. NSW SES may request supporting agencies redistribute NSW SES alerts and information, including through the provision of doorknocking teams.

h. Road closure information will be provided to the community through the following agencies/methods:

- Local Government Council websites; and
- My Road Info
- Transport for NSW 'Live Traffic' website: www.livetraffic.com or 'Transport InfoLine': 131 500. VMS messaging on roadways may also be used to advise motorists.

i. The Public Information and Inquiry Centre will be established by the NSW Police Force where required to provide information regarding evacuees and emergency information. Contact details will be broadcast once the centre is established.

j. The Disaster Welfare Assistance Line will be established by Disaster Welfare Services where required to provide information on welfare services and assistance. Assistance line contact details will be broadcast once Disaster Welfare Services commence.

## 5.5 PROTECTION OF PROPERTY

5.5.1 **Strategy**: Coordinate the protection of property from destruction or damage arising from floods.

**Action**: NSW SES, supporting agencies, and community volunteers will assist the community (where resources are available, feasible and safe to do so) in:

a. The protection of properties through flood protection systems (e.g. sandbagging) to minimise entry of water into buildings; and

b. The raising or moving of household furniture and commercial stock/equipment.

## 5.6 ROAD AND TRAFFIC CONTROL

5.6.1 **Strategy**: Coordinate the closing and re-opening of flood affected roads.

**Actions**:

a. City of Parramatta Council will coordinate the closure and reopening of council managed roads once inspections have been carried out by the relevant authority.

b. Transport for NSW will coordinate the closure and reopening of the state road network.

c. The NSW Police Force may close and re-open roads but will normally only do so (if the City of Parramatta Council or Transport for NSW have not already acted and if public safety requires such action;

d. NSW SES will assist with erecting road closure signs and barriers when time and resources permit.

5.6.2 **Strategy**: Coordinate traffic control measures in flood affected areas.

a. The NSW SES Incident Controller may direct the imposition of traffic control measures into flood affected areas in accordance with the provisions of the *State Emergency Service Act, 1989* and the *State Emergency Rescue Management Act, 1989.*

b. The NSW SES Incident Controller may request the Local Emergency Operations Controller provide suitable personnel to assist with traffic coordination.

## 5.7 PROTECTION OF ESSENTIAL SERVICES

5.7.1 Local and Region EMPLAN's contain infrastructure inventories.

5.7.2 **Strategy**: Minimise disruption to the community by ensuring protection of infrastructure and supply of essential energy and utility services.

**Actions**:

a. Transport Services Functional Area will keep the NSW SES informed of the status of transport network infrastructure.

b. The Energy and Utility Services Functional Area is to coordinate the assessment and restoration of essential energy and utility services (not including telecommunications).

c. The Telecommunications Services Functional Area is to coordinate the assessment and restoration of telecommunications and the Government Radio Network.

d. The Engineering Services Functional Area is to coordinate the assessment and restoration of critical public buildings for example hospitals; and

e. Functional Areas will keep the NSW SES informed of the status of utilities and infrastructure.

## 5.8 EVACUATION

5.8.1 Evacuation is the NSW SES's primary response strategy for managing the population at risk of flooding.

5.8.2

5.8.3 **Strategy**: Conduct planning to ensure all evacuation constraints are considered.

**Actions**:

a. Evacuations will take place when there is a risk to public safety. Circumstances may include:

- Evacuation of people when their homes or businesses are likely to flood.
- Evacuation of people who are unsuited to living in isolated circumstances, due to flood water closing access; and
- Evacuation of people where essential energy and/or utility services are likely to fail or where buildings have been or may be made uninhabitable; and

b. The NSW SES will consider the following in evacuation decisions:

- Duration of evacuation.
- Characteristics of the community.
- Numbers requiring evacuation.
- Availability of evacuation routes and transport.
- Time available for evacuation.
- Evacuee management requirements; and
- Resources and delivery of evacuation information.

c. NSW SES Incident Controllers, and flood planners will carefully consider the risks involved in conducting evacuations.

d. All evacuation decisions will be made as per the current NSW SES policies and procedures, and consistent with the NSW Evacuation Management Guidelines.

e. Potential Evacuation Centres are located in Local EMPLAN; and

f. The NSW Police Force will coordinate the provision of overall security for evacuated areas.

5.8.4 **Strategy**: Evacuate people pre-emptively from dangerous or potentially dangerous places and or locations created by the flood hazard to safe locations away from the hazard.

a. NSW SES will control and coordinate the evacuation of affected communities.

b. The NSW SES Incident Controller will warn communities to prepare for a possible evacuation, where circumstances allow such lead time.

c. The NSW SES Incident Controller will order any necessary evacuations and provide information to the community about when and how to evacuate.

d. Support to evacuation operations may be requested from other emergency services and supporting agencies using arrangements in the local EMPLAN and supporting plans.

e. Health Services Functional Area will coordinate the evacuation of hospitals, health centres and aged care facilities (including nursing homes) in consultation with the NSW SES and Welfare Services.

f. School administration offices (Government and Private) will coordinate the evacuation of schools in consultation with the NSW SES and Welfare Services, if not already closed.

g. Camping Ground proprietors will inform the NSW SES Incident Controller when camping ground evacuations have been completed.

h. People who are reluctant or refuse to comply with any Evacuation Order will be referred to the NSW Police Force.

## 5.9 EVACUEE MANAGEMENT AND WELFARE

5.9.1 Research and experience in flood operations shows that most evacuees go to family, friends and commercial accommodation outside the impact area.

5.9.2 **Strategy**: Maintain the welfare of communities and individuals affected by the impact of a flood.

**Actions**:

a. NSW SES will provide initial welfare for evacuees where required but will hand the responsibility over to the Welfare Services Functional Area as soon as possible. In these cases, the NSW SES will brief the Welfare Services Functional Area at the earliest opportunity regarding the level of assistance required.

b. Welfare Services Functional Area will manage evacuation centres for affected residents and travellers in accordance with the Welfare Services Functional Area Supporting Plan.

c. Schools Administration (Government and Private) will manage the safety of students directly affected by flooding and will work with the NSW SES in the temporary closure of schools and will coordinate with NSW SES Transport and Welfare Services in the management of school evacuees.

d. Disaster Victim Registration will be controlled and coordinated by the NSW Police Force with the assistance of NSW SES and Welfare Services Functional Area.

e. NSW SES will provide details of all residents assisted in evacuations to the Welfare Services Functional Area as early as possible.

f. Where the expected remaining number of evacuees and the duration of evacuation is assessed to be beyond the capability and capacity of the established evacuation centre arrangements the SEOCON may establish Major Evacuation Centres or Mass Care facilities; and

g. The decision to establish Major Evacuation Centres or Mass Care Facilities will be made by the NSW SES and SEOCON in consultation with members of the State Emergency Management Committee.

5.9.3 **Strategy**: Coordinate available and accessible health services for flood affected communities.

**Action**: The provision of environmental health advice, assessment of public health risks and coordination of immediate mental health support will be provided by Health Services Functional Area.

5.9.4 **Strategy**: Coordinate maintenance of food supplies for flood affected communities.

**Actions**: All matters relating to the primary production, manufacturing, processing and handling of all food from primary industries to retail, inclusive of

all restaurants, food services and catering businesses should be referred to the NSW Food Authority through the Agriculture and Animal Services Functional Area.

5.9.5 **Strategy**: Maintain the welfare of animals impacted by a flood.

**Actions**:

a. Agriculture and Animal Services Functional Area will coordinate the welfare of livestock, pets, companion animals and wildlife including support to primary producers, animal holding establishments and community members; and

b. Agriculture and Animal Services Functional Area role will assist with evacuation, emergency care of animals and assessment, humane destruction and disposal of affected animals, and supply of emergency fodder, water and aerial support where necessary.

## 5.10 FLOOD RESCUE

5.10.1 **Strategy**: Control and coordinate flood rescue of people and domestic animals.

**Actions**:

a. NSW SES will perform flood rescue, where training and equipment is suitable and where a risk assessment has indicated that the risk to rescuers is acceptable.

b. Flood rescue operations will be conducted in accordance with the State Rescue Board Land Rescue Policy and the NSW State Rescue Board Flood Rescue Policy which sets out the framework, governance, responsibilities and requirements for the management and conduct of flood rescue in NSW.

c. NSW SES may request other supporting emergency services to undertake flood rescues on behalf of the NSW SES. Agencies must be authorised/accredited to undertake flood rescue operations in accordance with State Rescue Board requirements, as prescribed by NSW SES. Supporting emergency services must supply information regarding rescues performed to the NSW SES. Notification arrangements with NSW Police Force are outlined in the NSW State Rescue Board Flood Rescue Policy; and

d. Rescue agencies will conduct rescue of domestic small and large animals as per the State Rescue Board Land Rescue Policy (and may include Large Animal Rescue of family horses and cows at a residence or property). The rescue of livestock (which includes commercial animals found on farming and breeding enterprises) will be coordinated through Animal and Agriculture Services Functional Area.

## 5.11 RESUPPLY

5.11.1 **Strategy**: Coordinate resupply to towns and villages isolated by flooding to minimise disruption to the community.

**Actions**:

a. NSW SES will advise communities and businesses if flood predictions indicate that areas are likely to become isolated, and indicative timeframes where possible.

b. Retailers should be advised to ensure sufficient stock is available for the duration of the flood.

c. When isolation occurs, NSW SES will establish loading points where retailers can instruct suppliers to deliver goods.

d. NSW SES will endeavour to deliver mail to isolated communities but may not be able to do so according to normal Australia Post timetables.

e. NSW SES will assist hospitals with resupply of linen and other consumables where able.

f. NSW SES may request resupply assistance from supporting agencies.

## 5.12 ALL CLEAR AND RETURN

5.12.1 **Strategy**: Coordinate the safe return of communities to flood affected areas when the immediate danger to life and property has passed.

**Actions**:

a. NSW SES Incident Controller will determine when it is safe to progressively return in consultation with the relevant Emergency Operations Controller and supporting agencies, considering the impact on the following:

- Access and egress
- Communications
- Power supply
- Gas supply
- Infrastructure damage
- Hazardous materials; and
- Public health risks (including sewerage)

b. NSW SES Incident Controller will specify the level of access to affected communities as the following:

- Not suitable for access.
- Limited access by emergency services and response agencies.
- Limited access by residents and/or business operators; or
- Full access

c. NSW SES Incident Controller will issue an 'All Clear' message when the immediate and forecast danger to life and property has passed for areas assessed as safe; and

d. The NSW SES will facilitate the return of evacuees to their homes.

## 5.13 END OF RESPONSE OPERATIONS

5.13.1 **Strategy**: Conclude response operations.

**Actions**:

a. Response operations will conclude when:

- The physical impact of the flood has ceased.
- All requests for assistance related to the flood have been completed;
- The need for warning and evacuation no longer exist.
- There is no further likelihood of rescuing people.
- Resupply is no longer required (resupply operations may occur concurrently with the recovery phase).
- Response to fire and hazardous material incidents have concluded (not including subsequent clean-up of contaminated sites); and
- All affected areas have had an 'All Clear' issued.

## 5.14 POST IMPACT ACTIONS

5.14.1 **Strategy**: Learnings from the event are used to inform recovery and future events.

**Actions**:

a. NSW SES will continue to engage with communities after significant floods through convening one or more community forums, workshops or other opportunities to provide communities a chance to provide feedback, address any concerns and provide input into the recovery process. These will typically include other agencies such as the Bureau of Meteorology, Welfare Services and City of Parramatta Council representatives.

b. NSW SES will ensure that damage assessment information is provided to the relevant Emergency Operations Controller to inform the recovery impact assessment.

c. NSW SES will conduct After Action Reviews, wherever possible, within three weeks of the end of response operations, which will involve all stakeholders. Findings will be shared and incorporated into improved disaster resilience planning.

d. NSW SES will undertake/coordinate a comprehensive review of intelligence and plans following significant flood events.

5.14.2 **Strategy:** Participate in post flood data collection analysis.

**Actions:** NSW SES will work with the NSW Department of Planning, Industry and Environment (DPIE) and City of Parramatta Council on post flood data collection analysis including review of flood intelligence where necessary.

# 6 RECOVERY OPERATIONS

## 6.1 INTRODUCTION

6.1.1 Recovery is the process of returning an affected community to its proper level of functioning after an emergency. It will generally commence simultaneously with the Response phase.

6.1.2 Recovery operations will be initiated and conducted as outlined in the NSW State EMPLAN and as further detailed in the NSW Recovery Supporting Plan.

### 6.2 NSW SES RECOVERY ROLE

6.2.1 **Strategy**: NSW SES will support recovery operations and established Recovery Committees.

6.2.2 **Actions**:

a. NSW SES will provide representation to Recovery Committees as required and may have an ongoing role in the Recovery phase.

b. NSW SES roles on Recovery Committees may include providing information about any continuing response, guidance on mitigation strategies and general advice and assistance to the committee as a subject matter specialist and or expert.

c. NSW SES will provide information to Resilience NSW to support applications to Treasury for Natural Disaster Relief and Recovery Arrangements.

d. The NSW SES, in conjunction with a Recovery Committee, will provide a service to support the information needs of a community immediately following a flood; and

e. NSW SES and where required supporting agencies will assist with clean-up operations after floods, where possible when resources and personnel permit.

# 7 ABBREVIATIONS

For a full list of abbreviations refer to the NSW State Flood Plan - Abbreviations

# 8 GLOSSARY

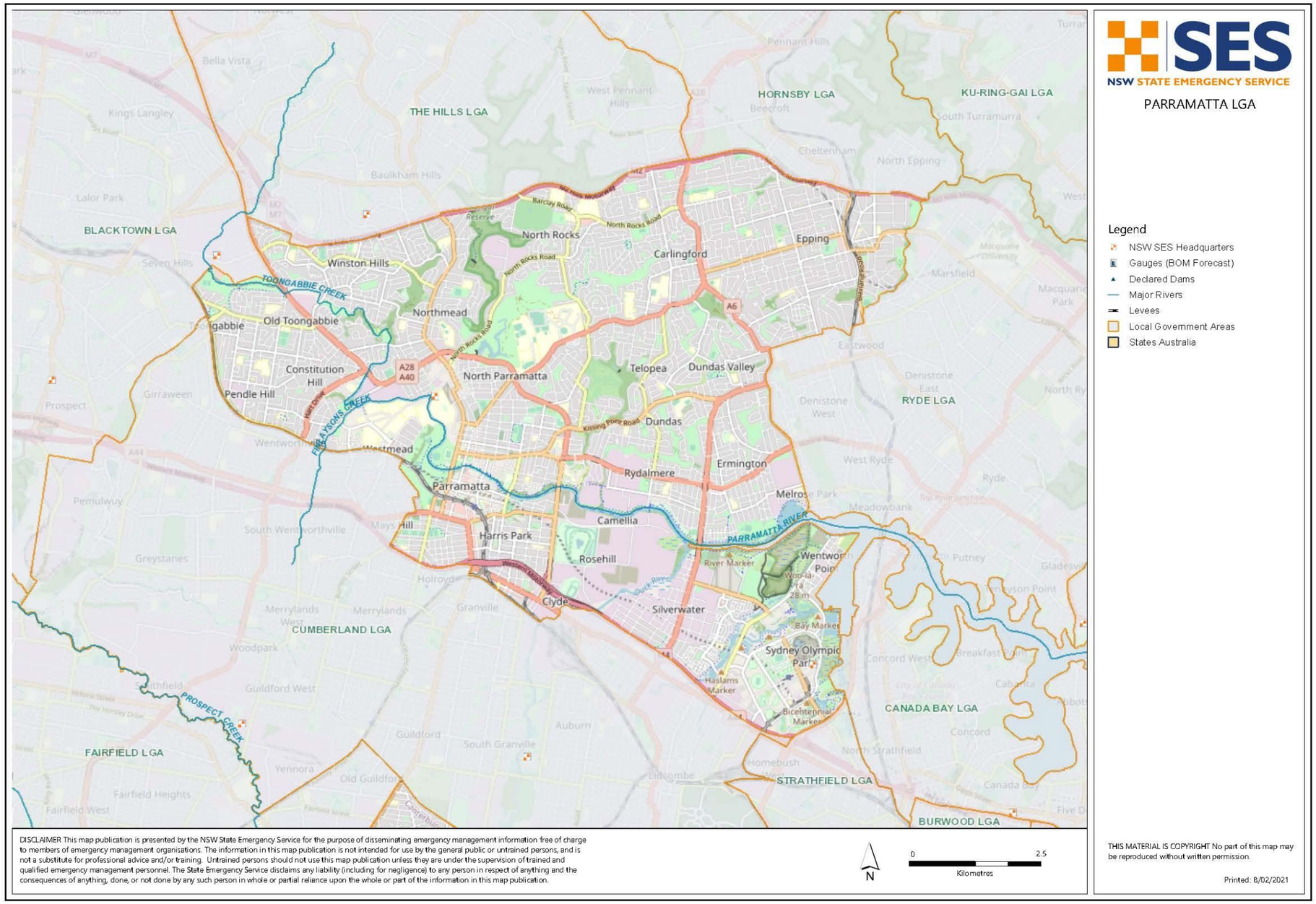
Common emergency service terminology can be found within the Australian Disaster Resilience Glossary.

Readers should refer to EMPLAN Annex 9 – Definitions.

Refer to the NSW State Flood Plan for a complete glossary of terminology used throughout this plan and within NSW SES Flood Plans.

**For a full list of definitions refer to the Supporting Document - State Flood Plan Glossary** https://www.ses.nsw.gov.au/media/2650/glossary.pdf

# 9 Appendix A – Map of Parramatta LGA




NSW STATE EMERGENCY SERVICE

PARRAMATTA LGA

Legend

- NSW SES Headquarters
- Gauges (BOM Forecast)
- Declared Dams
- Major Rivers
- Levees
- Local Government Areas
- States Australia

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# 10 Appendix B – Roles and Responsibilities

| AGENCY | RESPONSIBILITIES |
|---|---|
| **NSW State Emergency Service** | The NSW SES is the designated Combat Agency for floods, storms and tsunami and controls response operations. NSW SES roles and responsibilities in relation to floods are detailed within the New South Wales State Flood Plan. |

| AGENCY | RESPONSIBILITIES |
|---|---|
| **Agriculture and Animal Services Functional Area** | The roles and responsibilities for Agriculture and Animal Services are outlined in the Agriculture and Animal Services Supporting Plan<br><br>Roles and responsibilities in addition to the Supporting Plan are:<br><br>• Disseminate briefing information to participating agriculture and animal services and related stakeholders.<br><br>• When activated the Agriculture and Animal Services will coordinate the provision of required services which may include:<br><br>– Coordinate response for animal welfare including pets, livestock and wildlife.<br>– Supply and delivery of emergency fodder.<br>– Emergency water replacement in certain circumstances; and<br>– Financial, welfare and damage assessment assistance to flood affected primary producers.<br><br>• Support recovery arrangements including:<br><br>– Administer transport subsidies to primary producers. |
| **Australian Government Bureau of Meteorology** | The roles and responsibilities of the Australian Government Bureau of Meteorology are outlined in the NSW State Flood Plan. |
| **City of Parramatta Council** | **Preparedness**<br><br>• Establish and maintain floodplain and coastal risk management committees and ensure that key agencies are represented.<br><br>• Develop and implement floodplain risk management plans in accordance with the NSW Government's Flood Prone Land Policy and the Floodplain Development Manual.<br><br>• Provide levee studies, flood studies and floodplain management studies to the NSW SES.<br><br>• Maintain Dam Safety Emergency Plans for the City of Parramatta dams and provide copies to the NSW SES.<br><br>• Provide information on the consequences of dam failure to the NSW SES for incorporation into planning and flood intelligence. |

| AGENCY | RESPONSIBILITIES |
|---|---|
| | • Coordinate the development of warning services for catchments prone to flash flooding (small catchments), where appropriate;<br>• Maintain council-owned flood warning networks and flood mitigation works.<br>• Participate in NSW SES-led flood emergency planning meetings, to assist in the preparation of Flood Sub-Plans.<br>• Maintain a plant and equipment resource list for the council area.<br>• Contribute to community engagement activities.<br>**Response**<br>• Subject to the availability of council resources, assist the NSW SES with flood operations including:<br>– Traffic management on council managed roads.<br>– Provision of assistance to the NSW SES (plant, equipment and personnel where able and requested).<br>– Property protection tasks including sandbagging.<br>– Assist with the removal of caravans from caravan parks<br>– Warning and/or evacuation of residents and other people in flood liable areas.<br>– Provision of back-up radio communications<br>– Resupply of isolated properties; and<br>– Technical advice on the impacts of flooding.<br>– Close and reopen council roads (and other roads nominated by agreement with Transport for NSW) and advise the NSW SES, the NSW Police Force and people who contact the council for road information.<br>– Assist the NSW SES to provide filled sandbags and filling facilities to residents and business in areas which flooding is expected.<br>• Assist with making facilities available for domestic pets and companion animals of evacuees during evacuations.<br>• Operate flash flood warning systems;<br>• Operate flood mitigation works including critical structures such as detention basins and levees and advise the NSW SES regarding their operation.<br>• Manage and protect council-owned infrastructure facilities during floods.<br>• Provide advice to the NSW SES and the Health Services Functional Area during floods about key council managed infrastructure such as sewerage treatment and water supply. |

| AGENCY | RESPONSIBILITIES |
|---|---|
| | • Advise the Environmental Protection Agency of any sewerage overflow caused by flooding.<br>• Work with the NSW SES and DPIE to collect flood related data during and after flood events.<br>**Recovery**<br>• Provide for the management of health hazards associated with flooding including removing debris and waste.<br>• Ensure premises are fit and safe for reoccupation and assess any need for demolition.<br>• Provide services, assistance and advice to State Government in accordance with the State Recovery Plan. |
| **Caravan Park and Camp Ground Proprietor(s)** | • Prepare a flood emergency plan for the site;<br>• Ensure that campers, owners and occupiers of movable dwellings are aware that the site is flood liable by providing a written notice to occupiers taking up residence and displaying this notice and emergency management arrangement within the park.<br>• Ensure that owners and occupiers of movable dwellings are aware that if they are expecting to be absent for extended periods, they should:<br>– Provide the manager of the caravan park with a contact address and telephone number in case of an emergency; and<br>– Leave any movable dwelling in a condition allowing it to be relocated in an emergency (i.e.: should ensure that the wheels, axles and draw bar of the caravans are not removed and are maintained in proper working order).<br>• Ensure that occupiers are informed of Flood Information. At this time, occupiers should be advised to:<br>– Ensure that they have spare batteries for their radios.<br>– Listen to a local radio station for updated flood information; and<br>– Prepare for evacuation and movable dwelling (cabins) relocation.<br>• Ensure that owners and occupiers of caravans are aware of what they must do to facilitate evacuation and movable dwelling relocation when flooding occurs.<br>• Coordinate the evacuation of people and the relocation of movable dwellings when floods are rising and their return when flood waters have subsided. Movable dwellings will be relocated back to the caravan park(s) by owners or by vehicles and drivers arranged by the park managers.<br>• Secure any movable dwellings that are not able to be relocated to prevent floatation; and |

| AGENCY | RESPONSIBILITIES |
|---|---|
| | • Inform the NSW SES of the progress of evacuation and/or movable dwellings relocation operations and of any need for assistance in the conduct of these tasks. |
| **Childcare Centres and Preschools** | • When notified of possible flooding or isolation, childcare centres and preschools should.<br>– Liaise with the NSW SES and arrange for the early release of children whose travel arrangements are likely to be disrupted by flooding and/or road closures; and<br>– Assist with coordinating the evacuation of preschools and childcare centres. |
| **Dams Safety NSW** | The roles and responsibilities of the Dams Safety NSW (formerly NSW Dam Safety Committee) are outlined in the NSW State Flood Plan. |
| **Department of Defence** | Arrangements for Defence Assistance to the Civil Community are detailed within the State EMPLAN (section 448). |
| **Department of Industry** | The roles and responsibilities for the Department of Industry (Crown Lands and Water Division) are outlined in the NSW State Flood Plan. |
| **Energy and Utilities Services Functional Area** | The roles and responsibilities for Energy and Utilities Services are outlined in the Energy and Utility Services Supporting Plan (EUSPLAN).<br>Roles and responsibilities in addition to the Supporting Plan are:<br>• Assist NSW SES with identification of infrastructure at risk of flood damage where resources are available.<br>• Facilitate local utility service distribution providers (electricity, gas, water, wastewater) to:<br>– Provide advice to the NSW SES of any need to disconnect power/gas/water/wastewater supplies or of any timetable for reconnection.<br>– Advise the NSW SES of any hazards from utility services during flooding and coastal erosion/inundation.<br>– Advise the public with regard to electrical hazards during flooding and coastal erosion/inundation, and to the availability or otherwise of the electricity supply.<br>– Clear or make safe any hazard caused by power lines or electricity distribution equipment.<br>– Reconnect customers' electrical/ gas/ water/wastewater installations, when certified safe to do so and as conditions allow.<br>– Assist the NSW SES to identify infrastructure at risk of flooding for incorporation into planning and intelligence. |
| **Engineering Services Functional Area** | The roles and responsibilities for Engineering Services are outlined in the Engineering Services Supporting Plan. |

| AGENCY | RESPONSIBILITIES |
|---|---|
| **Environmental Services Functional Area** | The roles and responsibilities for Environmental Services are outlined in the Environmental Services (ENVIROPLAN) Supporting Plan. |
| **Floodplain Management Australia** | The roles and responsibilities of Floodplain Management Australia are outlined in the New South Wales State Flood Plan. |
| **Fire and Rescue NSW (as per NSW State Flood Plan)** | **Preparedness**<br>• Identify and notify the NSW SES of any locations at risk of fire (within Fire Districts (13) or hazardous materials that pose a significant threat to surrounding populations due to the impact of a flood for incorporation into NSW SES flood intelligence and planning; and<br>**Response**<br>• Meet the agreed arrangements described in the NSW SES and Fire and Rescue NSW Mutual Aid Agreement.<br>• Provide Incident Management personnel and Liaison Officers to the NSW SES where required.<br>• When requested by NSW SES, provide support to the NSW SES in response to flood emergencies across the State.<br>• Assist the NSW SES with the warning and/or evacuation of at-risk communities.<br>• Assist the NSW SES with the monitoring/reconnaissance of flood prone areas.<br>• Provision of Land Based and In Water Flood Rescue Operators as required.<br>• Provision of appropriately trained personnel to perform Down the Wire (DTW) functions as required.<br>• Conduct Hazmat operations including asbestos risks, rising from flood emergencies in coordination with the SES Incident Controller.<br>• Decontamination of Flood Rescue Operators as required.<br>• Assist the NSW SES with the resupply of isolated communities and/or properties.<br>• Assist the NSW SES with property protection tasks including sandbagging.<br>• Provide resources for pumping flood water out of buildings and from low-lying areas.<br>• Assist with clean-up operations, including the hosing out of flood affected properties. |

| AGENCY | RESPONSIBILITIES |
|---|---|
| | • Provide trained staff to support a joint intelligence unit, if established by NSW SES, including Remotely Piloted Aircraft System (RPAS) pilots to assist with field observations.<br>• Assist the NSW SES to undertake damage assessment including structural collapse risks.<br>• Coordinate the pre-deployment of fire resources to communities within NSW Fire Districts if access is expected to be lost, in consultation with the NSW SES; and<br>• Coordinate the deployment of the FRNSW High trans Pump to locations in consultation with NSW SES.<br>**Recovery**<br>• Participate in After Action Reviews as required. |
| **Health Services Functional Area** | The roles and responsibilities for Health Services Functional Area are outlined in the Health Services (HEALTHPLAN) Supporting Plan.<br>Roles and responsibilities in addition to the Supporting Plan are:<br>• Ensure that appropriate business continuity plans are developed for essential health infrastructure and are activated during floods. |
| **Local Emergency Operations Controller (LEOCON)** | • Monitor flood operations.<br>• If requested, coordinate support for the NSW SES Incident Controller. |
| **Local Emergency Management Officer (LEMO)** | • If requested by the NSW SES Incident Controller, advise appropriate agencies and officers of the start of response operations. |
| **Manly Hydraulics Laboratory (MHL)** | The roles and responsibilities of Manly Hydraulic Laboratory are outlined in the NSW State Flood Plan. |
| **Marine Rescue NSW (as per NSW State Flood Plan)** | **Response**<br>• When requested by NSW SES, assist in flood operations when training and equipment are available and suitable including assistance with:<br>– Warning and/or evacuation of at-risk communities.<br>– Providing communications personnel.<br>– Property protection tasks including sandbagging; and<br>– Flood rescue operations. |
| **NSW Ambulance** | The roles and responsibilities for NSW Ambulance are outlined in the Health Services (HEALTHPLAN) Supporting Plan. |
| **NSW Department of Education** | **Preparedness**<br>• Liaise with the NSW SES and arrange for the early release of students whose travel arrangements are likely to be disrupted by flooding |

| AGENCY | RESPONSIBILITIES |
|---|---|
| | and/or road closures (or where required, for students to be moved to a suitable location until normal school closing time);<br>• Ensure that evacuation plans for flood liable schools have arrangements for flooding; and<br>• Assist NSW SES with community engagement and capacity building programs.<br>**Response**<br>• Assist with the coordination of the evacuation of schools and the immediate welfare of students until returned to the appropriate carer.<br>• Pass information to school bus drivers/companies and/or school principals on expected or actual impacts of flooding; and<br>• Provide space in schools for evacuation centres where necessary. |
| **NSW Department of Industry, Planning and Environment (as per NSW State Flood Plan)** | **Prevention**<br>• Oversee the delivery of the NSW Flood Prone Land Policy including financial support through the Floodplain Management Program. Provide technical advice to councils and state agencies including assistance with the identification of risks, the preparation and implementation of Floodplain Risk Management Plans and associated mitigation and management actions and understanding flood mitigation schemes including levees.<br>• Work with the NSW SES on the Flood Data Access Program to improve the provision of flood information through the NSW Flood Data Portal.<br>• Assist the Department of Industry-Water in the preparation of rural floodplain management plans under the *Water Management Act 2000* (NSW); and<br>• Provision of strategic technical advice to support floodplain risk management and environmental water management in rural areas of the Murray Darling Basin.<br>**Preparedness**<br>• Assist the NSW SES in the exercising of Flood Sub Plans.<br>• Management of the state government's water level gauges for the flood warning network in tidal areas in NSW (Manly Hydraulic Laboratory operates this system as a service provider on behalf of DPIE.).<br>• Advise NSW SES about conditions which may lead to coastal inundation or retarded river drainage near the coast.<br>**Response**<br>• Provide related advice on flood risks to the NSW SES on request; and |

| AGENCY | RESPONSIBILITIES |
|---|---|
| | • Work with the relevant local council and NSW SES to collect flood related data during and after flood events.<br>**Recovery**<br>Support recovery committees as required. |
| **NSW Food Authority** | The roles and responsibilities for NSW Food Authority are outlined in the Food Industry Emergency Sub Plan. |
| **NSW National Parks and Wildlife Services (as per NSW State Flood Plan)** | **Preparedness**<br>• Assist the NSW SES with identification of road infrastructure in National Parks at risk of flooding.<br>**Response**<br>• Close and reopen National Parks and Wildlife Service roads when affected by flood waters and advise the NSW SES of its status.<br>• Facilitate the safe reliable access by emergency resources on National Parks and Wildlife Service managed roads.<br>• Assist the NSW SES with the communication of warnings and information provision to the public through variable message signs and other appropriate means; and<br>Close and direct people to leave camping grounds at risk of flooding in National Parks and Wildlife Service managed areas. |
| **NSW Police Force (as per NSW State Flood Plan)** | **Preparedness**<br>• Participate in NSW SES briefings, training and exercises as required.<br>**Response**<br>• Provide a Liaison Officer to the NSW SES Operation Centre if required.<br>• When requested by NSW SES, in flood operations when training and equipment are available and suitable.<br>– Assist with warning and/or evacuation of at-risk communities.<br>– Assist with monitoring / reconnaissance of flood prone areas.<br>– Assist with flood rescue operations.<br>• Conduct road and traffic control operations in conjunction with council and/or Transport NSW.<br>• Coordinate searches for missing people within flood affected areas.<br>• Coordinate security of supply lines evacuated and damaged areas.<br>• Manage Disaster Victim Registration; and<br>• Operate the Public Information and Inquiry Centre, if requested or otherwise needed during flood events. |

| AGENCY | RESPONSIBILITIES |
|---|---|
| | **Recovery**<br>• Participate in After Action Reviews as required. |
| **NSW Rural Fire Service (as per NSW State Flood Plan)** | **Preparedness**<br>• Participate in NSW SES briefings, training and exercises as required; and<br>• Meet the agreed arrangements described in the NSW SES/NSW RFS Memorandum of Understanding.<br>**Response**<br>• Provide a Liaison Officer to the NSW SES Operation Centre or Emergency Operations Centre as required.<br>• Provide Incident Management Personnel when requested.<br>• Provide trained staff to support a joint intelligence unit, if established by NSW SES.<br>• Provide aviation support, management and advice as requested through the State Air Desk.<br>• Provide speciality aircraft and appropriately trained personnel to perform Down the Wire (DTW) functions as required.<br>• Assist with Damage Assessments; and<br>• Provide Strike Teams during flood operations when requested by NSW SES. This may include assistance with:<br>– Warning and/or evacuation of at-risk communities.<br>– Monitoring / reconnaissance of flood prone areas.<br>– Property protection tasks including sandbagging.<br>– Pumping flood water out of buildings and from low-lying areas.<br>– Back-up radio communications.<br>– Clean-up operations, including the hosing out of flood affected properties.<br>– Deploying resources to communities within Rural Fire Districts where access is expected to be lost in consultation with the NSW SES.<br>– The resupply of isolated communities and/or properties; and<br>– Decontamination of NSW SES Flood Rescue Operators as required.<br>**Recovery**<br>• Participate in After Action Reviews as required. |
| **NSW Volunteer Rescue Association (as per NSW State Flood Plan)** | **Response** |

| AGENCY | RESPONSIBILITIES |
|---|---|
| | • Where requested by the NSW SES, assist in flood operations when training and equipment are available and suitable, including assistance with:<br>– The warning and/or evacuation of at-risk communities.<br>– Flood rescue operations.<br>– Monitoring / reconnaissance of flood prone areas.<br>– Resupply of isolated communities and/or properties; and<br>– Property protection tasks including sandbagging. |
| **Resilience NSW** | The roles and responsibilities of Resilience NSW are outlined in the NSW State Flood Plan. |
| **Owners of Declared Dams within or upstream of the LGA (as per NSW State Flood Plan)** | **Preparedness**<br>• Assist the NSW SES with community engagement programs.<br>• Provide NSW SES with information necessary for response planning and warning distribution.<br>• Assist the NSW SES identify correlations between water level and/or discharges at the dam for use in flood response operations (warning and evacuation); and<br>• Consult with the NSW SES State Headquarters in the development of Dam Emergency Plans, including the development of dam failure alerts, in accordance with the Dam Safety Committee Guidelines.<br>**Response**<br>• Where water level monitoring or other instrumentation allows, provide NSW SES with flood advices as per pre-agreed thresholds for use in downstream flood response operations (warnings).<br>• Notify NSW SES of potential or actual dam failures in accordance with the Dam Emergency Plan and Dam Safety NSW Guidelines.<br>• Close at-risk camping grounds / recreational areas within their managed areas.<br>• In the case of declared dams whose risks are intolerable, assist the NSW SES in planning to warn and evacuate people at risk of dam failure and maintain and operate any special Dam Failure Warning Systems and/or automatic telemetered monitoring devices to assist with early detection of incidents which are installed until such time that the risks have been lowered to an acceptable level; and<br>Owners of gated dams:<br>• Provide all available information to the BoM and the NSW SES on storage levels and actual and prospective water releases and their likely impacts on downstream river levels. |

| AGENCY | RESPONSIBILITIES |
|---|---|
| | • Advise the downstream community of prospective and actual water releases, except in those circumstances where the BoM would issue flood warnings; and<br>• Where possible actively work with NSW SES and the BoM to reduce the impacts of flooding on communities through management of water releases within identified safe parameters and within statutory licencing provisions under the *Water Management Act 2000* and *Water NSW Act 2014*. |
| **Public Information Services Functional Area** | The roles and responsibilities for Public Information Services are outlined in the Public Information Services Supporting Plan.<br>Roles and responsibilities in addition to the Supporting Plan are:<br>• On receipt of advice from NSW SES of any weather event likely to result in significant multi agency operational activity, the Public Information Functional Area Coordinator PIFAC determines if a daily multi-agency teleconference is required to ensure that the information needs of each agency are being met and to address any issues. These teleconferences continue through the response phase into the recovery phase. |
| **Transport for NSW** | • Transport for NSW coordinates information on road conditions for emergency services access.<br>• Transport for NSW coordinates the management of the road network across all modes of transport.<br>• Transport for NSW in conjunction will assist the NSW SES with the evacuation of at-risk communities by maintaining access and egress routes.<br>• Transport for NSW will assist the NSW SES with the communication of flood warnings and information provision to the public through Live Traffic and Social Media according to the VMS protocols and procedures.<br>• Assist the NSW SES with identification of road infrastructure at risk of flooding. |
| **SEOCON/SEOC** | The roles and responsibilities of the SEOCON/SEOC are outlined in the New South Wales State Flood Plan. |
| **Surf Life Saving NSW (as per NSW State Flood Plan)** | **Preparedness**<br>• Contribute to NSW SES reviews into plans, policies and procedures as required; and<br>• Participate in NSW SES briefings, training and exercises as required.<br>**Response** |

| AGENCY | RESPONSIBILITIES |
|---|---|
| | • Assist the NSW SES with the warning and/or evacuation of at-risk communities.<br>• Provide accommodation in Surf Life Saving facilities for evacuation centres where required; and<br>• Assist the NSW SES with flood rescue operations, where training and equipment are suitable. |
| **Telecommunications Services Functional Area** | The roles and responsibilities for Telecommunications Services are outlined in the Telecommunications Services (TELCOPLAN) Supporting Plan. |
| **Transport Services Functional Area** | The roles and responsibilities for Transport Services are outlined in the Transport Services Supporting Plan.<br>Roles and responsibilities in addition to the Supporting Plan are:<br>• Participate in risk management studies.<br>• Assist the NSW SES to identify transport infrastructure at risk of flood damage for incorporation into planning and intelligence; and<br>• Coordinate the provision of traffic and transport operations as consistent with the roles of Transport organisations. |
| **Water NSW** | The roles and responsibilities for Water NSW are outlined in the New South Wales State Flood Plan. |
| **Welfare Services Functional Area** | The roles and responsibilities for Welfare Services are outlined in the Welfare Services Functional Area Supporting Plan. |

# 11 Appendix C – Community Specific Roles and Responsibilities

| | |
|---|---|
| **Community Members** | **Preparedness**<br>• Understand the potential risk and impact of flooding.<br>• Prepare homes and property to reduce the impact of flooding.<br>• Understand warnings and other triggers for action and the safest actions to take in a flood.<br>• Households, institutions and businesses develop plans to manage flood risks, sharing and practicing this with family, friends, employees and neighbours.<br>• Have an emergency kit; and<br>• Be involved in local emergency planning processes.<br>**Recovery**<br>• Assist with community clean-up if required and able to do so. Participate in After Action Reviews if required. |

# Appendix D

## FLOOD EVACUATION INDUCTION AND SIGNOFF

| PROJECT POSITION | NAME | SIGNATURE | REVISIONS | | | |
|---|---|---|---|---|---|---|
| | | | <DATE> | <DATE> | <DATE> | <DATE> |
| Project Director | | | | | | |
| Project Manager | | | | | | |
| Site Manager / Flood Warden | | | | | | |
| Site Supervisor | | | | | | |
| Contract Manager | | | | | | |
| Contract Administrator | | | | | | |
| WHS /Environmental Manager | | | | | | |
| Quality Co-ordinator | | | | | | |
| Leading Hand | | | | | | |
| Add others: | | | | | | |
| | | | | | | |
| | | | | | | |

# Appendix E

## PARRAMATTA CITY COUNCIL FLOOD ENQUIRY

Our Reference: FL/270/2023
Contact: Peter Sirianni
Telephone: 02 9806 8250
Fax: 02 9806 5906

Costin Roe Consulting
Level 4, 8 Windmill Street
MILLERS POINT NSW 2000

21 December 2023

# FLOOD ENQUIRY APPLICATION

## Property Details

| | |
|---|---|
| **Address** | 6 Grand Avenue, ROSEHILL NSW 2142. |
| | *This form applies for up to three adjoining sites relating to the same development. A separate Flood Enquiry form and fee will be required for more than 3 or separate lots.* |

## Delivery Preference

soula.kaldas@costinroe.com.au

## Reason for Enquiry

## Property Type

***** GST not applicable from 1 July 2013*****

| | |
|---|---|
| Flooding Application – Commercial | $599.00 |

**Disclaimer:** Flood levels and flood extent lines are based on current information held by Council. Council does not accept responsibility for the accuracy of this information. Any pipe sizes and location of pits and pipe lines should be confirmed by site investigation.
The flood levels shown on the back of this form are only an approximate guide and have been derived using the current computer simulated model.
The information provided in this document is presented in good faith to assist the public in understanding Council's drainage requirements that apply within the Parramatta Local Government Area. It is the responsibility of each individual using this information to undertake their own checks and confirm this information prior to its use.
City of Parramatta Council, its agents and employees are not liable (whether by reason of negligence, lack of care or otherwise) to any person for any damage or loss whatsoever which has occurred or may occur in relation to that person taking or not taking (as the case may be) action in respect of any representation, statement, or advice referred to above.

**Refer to back of this form for level information issued**

# Flood Enquiry Information Issued - 21 December 2023

**Mainstream Flooding**

| | | | |
|---|---|---|---|
| Is this property affected by mainstream flooding?<br>**6 Grand Avenue, ROSEHILL** | | | ☒ Yes<br>☐ No |
| **Flood Levels** | Closest Cross Sections: *(Please refer to Flood Study):*<br>**Refer to Flood Map** | | |
| 5% AEP | | m AHD | **Comments**:<br>**See Note on Flood/Hazard Maps** |
| 1% AEP | | m AHD | |
| PMF | RL 7.8 | m AHD | |
| ☒ Refer to flood maps provided for detailed flood levels. | | | |
| Flood information is obtained from the following flood study report:<br>**Lower Parramatta River Floodplain Risk Management Study – Flood Study Review, 2005 (SKM)** | | | |

Note: Flood inundation can be verified by detail survey to AHD undertaken by a Registered Surveyor.

**Local Flooding**

| | |
|---|---|
| Is the property located within a Hatched Grey Area?<br>*Properties located within a **Hatched Grey Area** are subjected to flooding from the local catchment.* | ☐ Yes<br>☒ No |
| Is the property located within a Grey Area?<br>*Properties located within a **Grey Area** are subjected to additional site drainage controls to manage flooding in the local catchment.* | ☐ Yes<br>☒ No |
| Is the property likely to be affected by overland stormwater run-off from the local catchment? | ☒ Subject to Detailed Investigation |
| ***Note:** You are required to contact Council's Development Service Engineer for any details and requirements relating to development that is affected by local flooding.* | |

**Additional Recommended Actions**

| | |
|---|---|
| ☒ | The Applicant needs to discuss the proposal to re-develop this site with Council's Town Planner and Development Services Engineer. |
| ☒ | The Applicant needs to contact Council's Town Planner and organise a pre-lodgement meeting to discuss any proposal to redevelop this property. |
| ☒ | The Applicant needs to refer to Council's Local Floodplain Risk Management policy for details relating to developing a land affected by flooding. |

***Definitions: (As per NSW Floodplain Development Manual dated April 2005)***

1. **AHD** – a common national surface level datum approximately corresponding to mean sea level.
2. **ARI** – the long term average number of years between the occurrences of a flood as big as or larger than, the selected event.
3. **PMF** – is the largest flood that could conceivably occur at a particular location, usually estimated from probable maximum precipitation.
4. **AEP** – Annual Exceedance Probability is the chance of a flood of a given or larger size occurring in any one year, usually expressed as a percentage.

# City of Parramatta Council Flood Map - 5% AEP

N

1:8,000

| Chainage | Flood Level (metre AHD) |
|---|---|
| | 5% AEP |
| 4634 | 4.04 |
| 4823 | 3.92 |
| 4987 | 3.75 |
| 5153 | 3.66 |
| 5278 | 3.65 |
| 5353 | 3.61 |
| 5490 | 3.55 |
| 5653 | 3.51 |
| 5795 | 3.46 |
| 5931 | 3.35 |
| 6167 | 3.24 |

**NOTE:** The Lower Parramatta River Floodplain Risk Management Study – Flood Study Review is being updated by the Parramatta River Flood Study which is currently at draft final stage. The information indicated on this map may change subject to final completion of the update and adoption of the Flood Study by Council.

**Legend**

- Ground Contour (metre AHD)
- Stormwater Pit
- Stormwater Pipe
- 5% AEP Flood Surface Contour (m AHD)
- Lower Parramatta River Cross Section
- 5% AEP Flood
- Hatched Grey Area
- Grey Area
- City of Parramatta Boundary

DISCLAIMER: Flood levels and flood extent lines are based on current information held by Council. Council does not accept responsibility for the accuracy of this Information. Any pipe sizes and location of pits and pipe lines should be confirmed by site investigation.
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# City of Parramatta Council Flood Map - 1% AEP

N

1:8,000

| Chainage | Flood Level (metre AHD) |
|---|---|
| | 1% AEP |
| 4634 | 4.64 |
| 4823 | 4.52 |
| 4987 | 4.33 |
| 5153 | 4.22 |
| 5278 | 4.23 |
| 5353 | 4.18 |
| 5490 | 4.12 |
| 5653 | 4.08 |
| 5795 | 4.03 |
| 5931 | 3.90 |
| 6167 | 3.78 |

**NOTE:** The Lower Parramatta River Floodplain Risk Management Study – Flood Study Review is being updated by the Parramatta River Flood Study which is currently at draft final stage. The information indicated on this map may change subject to final completion of the update and adoption of the Flood Study by Council.

**Legend**

- Ground Contour (metre AHD)
- Stormwater Pit
- Stormwater Pipe
- 1% AEP Flood Surface Contour (m AHD)
- Lower Parramatta River Cross Section
- 1% AEP Flood
- Hatched Grey Area
- Grey Area
- City of Parramatta Boundary

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# City of Parramatta Council Flood Map - PMF

N

1:8,000

| Chainage | Flood Level (metre AHD) |
|---|---|
| | PMF |
| 4634 | 8.48 |
| 4823 | 8.36 |
| 4987 | 7.99 |
| 5153 | 7.80 |
| 5278 | 7.99 |
| 5353 | 7.89 |
| 5490 | 7.83 |
| 5653 | 7.74 |
| 5795 | 7.75 |
| 5931 | 7.48 |
| 6167 | 7.40 |

**NOTE: 1.** PMF extents for A'Becketts Creek not shown.

**2.** The Lower Parramatta River Floodplain Risk Management Study – Flood Study Review is being updated by the Parramatta River Flood Study which is currently at draft final stage. The information indicated on this map may change subject to final completion of the update and adoption of the Flood Study by Council.

**3.** The A'Becketts Creek Flood Study is also in the process of being updated. The update will include PMF levels/extents.

**Legend**

- Ground Contour (metre AHD)
- Stormwater Pit
- Stormwater Pipe
- PMF Flood Surface Contour (m AHD)
- Lower Parramatta River Cross Section
- PMF
- Grey Area
- Hatched Grey Area
- City of Parramatta Boundary

DISCLAIMER: Flood levels and flood extent lines are based on current information held by Council. Council does not accept responsibility for the accuracy of this Information. Any pipe sizes and location of pits and pipe lines should be confirmed by site investigation.
The flood levels provided are only an approximate guide and have been derived using the current computer simulated model.
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21/12/2023

**NOTE: 1.** Hazard extents for A'Becketts Creek not shown.

**2.** The Lower Parramatta River Floodplain Risk Management Study – Flood Study Review is being updated by the Parramatta River Flood Study which is currently at draft final stage. The information indicated on this map may change subject to final completion of the update and adoption of the Flood Study by Council.

**3.** The A'Becketts Creek Flood Study is also in the process of being updated. The update will include hazard extents.

# City of Parramatta Council Flood Hazard Map

N

1:8,000

DISCLAIMER: Flood levels and flood extent lines are based on current information held by Council. Council does not accept responsibility for the accuracy of this Information. Any pipe sizes and location of pits and pipe lines should be confirmed by site investigation.
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**Legend**

- Ground Contour (metre AHD)
- Stormwater Pit
- Stormwater Pipe
- Lower Parramatta River Cross Section
- High Hazard - 1% AEP
- Low Hazard - 1% AEP
- Low Hazard
- Grey Area
- Hatched Grey Area
- City of Parramatta Boundary

Printed
21/12/2023


COSTIN ROE
CONSULTING

# Appendix H Tree Protection Measures

## Construction Environmental Management Plan

**6 Grand Avenue, Rosehill NSW**

**Vaughan Constructions Pty Ltd**

SLR Project No: 640.031417.00001

## 6.5. Specific Tree Protection Measures

Table 14 shows specific tree protection measures that are required to ensure the trees nominated for retention remain viable post-construction. These measures are to be read in conjunction with Appendix C – Tree Protection Management Plan (TPMP) and Section 6.9. Tree Sensitive Construction Methods. The TPMP indicates the position of tree protection devices and other measures to ensure the protection of trees within the site to be retained as part of the proposed development.

**Table 14: Specific Tree Protection Measures**

| Specific Recommendation - Includes Generic Recommendations + | Tag QTY (Tree QTY) | Tree Numbers |
|---|---|---|
| Civil and landscape plans must maintain existing levels if this tree is to be retained. Landscaping is to be tree sensitive with contingencies made to ensure if roots are encountered during, that landscape features and plants are moved to avoid roots >50mm diameter. | 1 (1) | 10 |
| Civil and landscape plans must maintain existing levels if this tree is to be retained. Landscaping is to be tree sensitive with contingencies made to ensure if roots are encountered during, that landscape features and plants are moved to avoid roots >50mm diameter. Cultivation within the TPZ is not permitted. Fill using a topsoil may be possible. | 21 (21) | 31, 40, 49, 50, 53, 55, 56, 57, 58, 59, 60, 63, 64, 68, 69, 70, 71, 73, 74, 78, 84 |
| Footpath is to be moved to avoid a 10% TPZ encroachment or constructed using tree sensitive measures.<br>Civil and landscape plans must maintain existing levels if this tree is to be retained. Landscaping is to be tree sensitive with contingencies made to ensure if roots are encountered during, that landscape features and plants are moved to avoid roots >50mm diameter. Cultivation within the TPZ is not permitted. Fill using a topsoil may be possible. | 1 (1) | 47 |
| Root mapping required during driveway demolition. Civil and landscape plans must maintain existing levels if this tree is to be retained. Landscaping is to be tree sensitive with contingencies made to ensure if roots are encountered during, that landscape features and plants are moved to avoid roots >50mm diameter. Cultivation within the TPZ is not permitted. Fill using a topsoil may be possible. | 1 (1) | 72 |
| Treat soil area at least 6 months prior to construction with Mycogold Biostim and Seamungus granular fertiliser (or similar). Install irrigation and mulch for the duration of the project.<br>Civil and landscape plans must maintain existing levels if this tree is to be retained. Landscaping is to be tree sensitive with contingencies made to ensure if roots are encountered during, that landscape features and plants are moved to avoid roots >50mm diameter. Cultivation within the TPZ is not permitted. Fill using a topsoil may be possible. | 1 (1) | 35 |
| **Total** | **25 (25)** | |

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# Appendix I Complaint Register

## Construction Environmental Management Plan

**6 Grand Avenue, Rosehill NSW**

**Vaughan Constructions Pty Ltd**

SLR Project No: 640.031417.00001

# COMPLAINTS REGISTER

Project Name: Project No:

| DATE | NATURE OF THE COMPLAINT | COMPLAINT REGESTERED BY: NAME & CONTACT DETAILS | REPORTED TO: NAME AND CONTACT DETAILS | INVESTIGATED BY: NAME AND CONTACT DETAILS | CORRECTIVE ACTION REQUIRED | PERSON RESPONSIBLE FOR IMPLEMENTING CORRECTIVE ACTION | DATE CORRECTIVE ACTION COMPLETED |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| | | | | | | | |
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This document is an un-controlled copy when printed or downloaded from the company intranet system. Revisions will not automatically be updated

# Appendix J Incident and Investigation Report Form

## Construction Environmental Management Plan

**6 Grand Avenue, Rosehill NSW**

**Vaughan Constructions Pty Ltd**

SLR Project No: 640.031417.00001

# INCIDENT & INVESTIGATION REPORT FORM

**This form must be completed by site personnel and forwarded to Head Office for all "lost time, medical treatment injuries & near miss incidents that didn't but could have resulted in serious injury to a worker" to provide the basis for incident analysis directed towards injury prevention.**

| **PART A INCIDENT NOTIFICATION** | | | |
|---|---|---|---|
| Project Name: | | Project No. | |
| Project Address: | | | |
| Report Completed By: | | Position: | |

| Incident Classification | | |
|---|---|---|
| ☐ Safety | ☐ Environment | ☐ Other |

| Type of Occurrence | | |
|---|---|---|
| ☐ Near Miss | ☐ Equipment/Property Damage | ☐ Injury |

| Employer Details | | | |
|---|---|---|---|
| Employers Company Name | | | |
| Employers Company Address | | | |
| | | | |
| Employer Site Supervisor | | Contact Phone No. | |

| Part A-1 Incident Details | | | | | | | |
|---|---|---|---|---|---|---|---|
| Incident First Reported to: | | | | | | | |
| Date of Incident: | | Time of Incident: | | Date Reported: | | Time Reported: | |
| Describe the Incident and where it occurred: | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| Immediate actions taken to control the incident area (protect other workers), if required, (brief): | | | | | | | |
| | | | | | | | |
| | | | | | | | |
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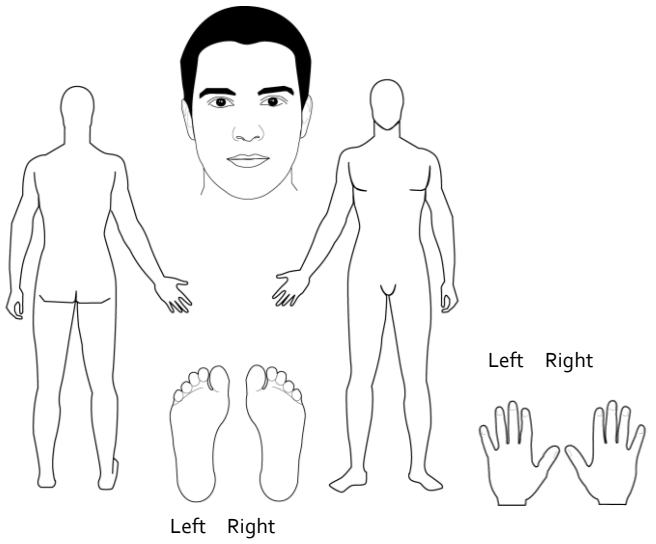
| Worker / Witness Details | | | | |
|---|---|---|---|---|
| Name of Worker / Witness: | Contact Number: | Employer: | Statement Attached | |
| | | | ☐ Yes | ☐ No |
| | | | ☐ Yes | ☐ No |
| | | | ☐ Yes | ☐ No |
| | | | ☐ Yes | ☐ No |
| | | | ☐ Yes | ☐ No |
| Statement details: | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

| Part A-2 | Injured Worker Details | | |
|---|---|---|---|
| Name of injured person: | | Induction No. | |
| Gender | | Date of Induction | |
| Date of Birth | | Age | |
| Occupation | | Contact Phone No. | |
| Main Tasks Performed | | | |

| Injury Details | | | | | |
|---|---|---|---|---|---|
| ☐ Injury | | ☐ Illness | | ☐ No Injury/Illness Sustained | |
| Type of Injury/Illness (Tick appropriate box below): | | | | | |
| ☐ | Abrasion, scrapes | ☐ | Amputation | ☐ | Burn (chemical / heat) |
| ☐ | Chemical Exposure | ☐ | Crush injury | ☐ | Eye Injury |
| ☐ | Fracture / Dislocation | ☐ | Head Injury | ☐ | Laceration (cut, puncture) |
| ☐ | Sprain / Strain | ☐ | Other | | |
| | | | | | |

| First Aid – Medical | | | | |
|---|---|---|---|---|
| First Aid Treatment - Required? | ☐ Yes | ☐ No | ☐ N/A | First Aiders name: |
| | | | | |
| Medical Treatment - Required? | ☐ Yes | ☐ No | ☐ N/A | Medical Centre/Hospital Details: |
| | | | | |
| | | | | |

## Diagram of Incident/Accident or Injury:

| ***Indicate position of injury:*** | ***Location:*** ***(Diagram of incident)*** |
|---|---|
|   | |

| Work Consequences - Status | | | |
|---|---|---|---|
| Returned to work (normal duties) | ☐ Yes | ☐ No | ☐ N/A |
| Returned to work alternative duties (list alternate duties) | ☐ Yes | ☐ No | ☐ N/A |
| Ceased work (unfit for duties - LTI) (Construction Manager to be notified immediately) | ☐ Yes | ☐ No | ☐ N/A |
| Number of work days lost until returned to work (work days only) | No. | | |
| Medical Certificate of Capacity supplied: | ☐ Yes | ☐ No | ☐ N/A |
| | | | |
| | | | |
| | | | |

| Internal Notification | | | | |
|---|---|---|---|---|
| Director / General manager | ☐ Yes | ☐ No | ☐ N/A | |
| Construction Manager | ☐ Yes | ☐ No | ☐ N/A | |
| Project Manager | ☐ Yes | ☐ No | ☐ N/A | |
| Site Manager | ☐ Yes | ☐ No | ☐ N/A | |
| HSE Coordinator | ☐ Yes | ☐ No | ☐ N/A | |
| OHS Rep | ☐ Yes | ☐ No | ☐ N/A | |
| RTW Coordinator | ☐ Yes | ☐ No | ☐ N/A | |
| **External Notification** | | | | |
| Client / Client Representative | ☐ Yes | ☐ No | ☐ N/A | |
| Employer (if contractor / labour hire) | ☐ Yes | ☐ No | ☐ N/A | |
| Other: | ☐ Yes | ☐ No | ☐ N/A | Details: |
| Authority Notification: | ☐ Yes | ☐ No | ☐ N/A | Reference Number: |

## PART B INCIDENT INVESTIGATION

| Personnel Involved in Incident Investigation | | |
|---|---|---|
| Name: | Contact Number: | Employer: |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

| Work Environment | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Where did the incident occur? | ☐ | Inside | ☐ | Outside | | | | |
| What were the weather conditions? | ☐ | Fine / Dry | ☐ | Rain / Wet | ☐ | Windy | ☐ | Other |
| Comment Other | | | | | | | | |
| Shift (tick relevant): | ☐ | Day | ☐ | Afternoon | ☐ | Night | ☐ | Overtime |
| Shift worked prior to the incident/injury: | | Start time: | | % of shift worked: | | | | |

| Incident Area Conditions (Were they adequate?) | | | | Comments |
|---|---|---|---|---|
| Lighting | ☐ Yes | ☐ No | ☐ N/A | |
| Temperature | ☐ Yes | ☐ No | ☐ N/A | |
| Noise | ☐ Yes | ☐ No | ☐ N/A | |
| Dust / Fumes / Ventilation | ☐ Yes | ☐ No | ☐ N/A | |
| Barricading / Guardrails | ☐ Yes | ☐ No | ☐ N/A | |
| Housekeeping | ☐ Yes | ☐ No | ☐ N/A | |

| Safe Work Method Statement / Toolbox Talk / Permit | | | |
|---|---|---|---|
| Enter the relevant response next to each question<br>All “no” and “N/A” answers MUST be explained in the comments section | | | |
| Had a Safe Work Method Statement (SWMS) been developed for the task? | ☐ Yes | ☐ No | ☐ N/A |
| Had a Work Permit been issued for the task? | ☐ Yes | ☐ No | ☐ N/A |
| Had the SWMS and / or permit(s) been breached? | ☐ Yes | ☐ No | ☐ N/A |
| Had the person(s) involved in the task been tool-boxed/inducted and signed into the SWMS / Toolbox Talk? | ☐ Yes | ☐ No | ☐ N/A |
| Comments: | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| PART C | SEQUENCE OF EVENTS / CONTRIBUTING FACTORS | |
|---|---|---|
| 1 | Example:<br>Hydraulic hose connection was loose and leaking oil not identified. | |
| 2 | Oil leaked from forklift hydraulic hose | |
| 3 | Outcome – Employee slipped on oil on the workshop floor. | |
| 4 | | |
| 5 | | |
| 6 | | |
| 7 | | |
| 8 | | |
| 9 | | |
| 10 | | |

| PART D CORRECTIVE ACTIONS | | | | |
|---|---|---|---|---|
| Action(s) to Prevent Re-occurrence | Action Priority | Action by Who (Responsibility) | Actioned When (Date) | Action Completion Sign Off |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Note: Action Priority: 1 = Immediate 2 = Short-term (by end of shift) 3 = Medium-term (within 7 days)

| PART E | INFORMATION REQUIRED FOR RECORD KEEPING (attach applicable documents) | | |
|---|---|---|---|
| ☐ | Worker / Witness Induction Form(s) (copy) | ☐ | Applicable SWMS (copy) |
| ☐ | Plant Induction Form (copy) | ☐ | Applicable Prestart / Tool Box Form (copy) |
| ☐ | Applicable Permit(s) (copy) | ☐ | Authority Incident Notification Form (copy) |
| ☐ | Medical Certificate of Capacity | ☐ | Contractor / Employer Incident Report (copy) |
| ☐ | Additional Witness Statement(s) | ☐ | Photos (if applicable) |
| ☐ | Other | | |

This document is an un-controlled copy when printed or downloaded from the company intranet system. Revisions will not automatically be updated.

| PART F REVIEW & SIGN OFF | | |
|---|---|---|
| **Note:** Site Manager and Project Manager must not sign off until all corrective actions are verified as having been completed. | | |
| | | |
| Site Manager's Name: | Signature: | Date: |
| Comments: | | |
| | | |
| | | |
| | | |
| Project Manager's Name: | Signature: | Date: |
| Comments: | | |
| | | |
| | | |
| | | |
| Construction Manager's Name: | Signature: | Date: |
| Comments: | | |
| | | |
| | | |

# Appendix K Site Induction and Worker Record Form

## Construction Environmental Management Plan

**6 Grand Avenue, Rosehill NSW**

**Vaughan Constructions Pty Ltd**

SLR Project No: 640.031417.00001

# SITE INDUCTION and WORKER RECORD

| | | |
|---|---|---|
| Project Name: ***TIME & PLACE VILLAWOOD*** | Project No. ***22298*** | Induction No. |
| Employer: | Direct Employee or Subcontractor | |
| Worker Name: | Occupation / Role | |
| Address: | | |
| Phone: (Home) | Mobile: | |
| Emergency Contact: | Emergency Contact Phone No.: | |
| Known Allergies / Health Problems: | Date of Birth | |
| | | |

| |
|---|
| Construction Induction (White) Card No. |
| Registered Trade (Type & No.). Trade. Registration No. |
| Superannuation Registration No. |
| Long Service Leave Registration No. |
| First Aid Certificate: Level: Number: Expiry Date: |

Operators Certificates / Qualifications:

| Operator Code(s) | Licence / Card Number | Expiry Date |
|---|---|---|
| | | |
| | | |
| | | |

| TICK YES ONLY IF EXPLANATION IS CLEAR AND UNDERSTOOD | YES | NO | N/A |
|---|---|---|---|
| **INTRODUCTION**: IS ENGLISH LANGUAGE / WRITTEN TEXT UNDERSTOOD? | | | |
| **Site induction Booklet - Copy offered to inductee** | | | |
| **CONDITIONS OF EMPLOYMENT:** | | | |
| Location and availability to the Project Safety Management Plan, Health & Safety Policy and Management System, Construction Environmental Management Plan, health & safety legislation and codes of practice etc explained. | | | |
| Health & Safety legislation has precedence over work processes and must be complied with. | | | |
| **Vaughan Construction Policies** explained. | | | |
| **Site entry conditions explained?** | | | |
| **Work Days / RDO's / Site Hours explained** - No work on site unless supervised by a Vaughan Representative | | | |
| Vaughan Constructions Drug & Alcohol Policy & Testing requirements explained | | | |
| **Site rules** and acceptable behaviour explained? - no horseplay, maximum 10 kilometre per hour speed limit, etc | | | |
| **Issue Resolution Procedures** as per Section 6.7 of HSMS, Health & Safety Legislation & EBA (where applicable) | | | |
| **Site OH&S Representatives/Committee** role on site explained? H&S Rep details displayed | | | |
| **A safe work method statement (SWMS) is required for all work onsite,** with you consulted on its development. | | | |
| **Has your employer trained you in the Safe Work Method Statement (*SWMS*) for your work?** | | | |
| **Working at Heights** - fall protection is required if you can be injured falling from one level to another | | | |
| If your work requires you to work where you could be injured falling from one level to another then you must have a SWMS for the task | | | |
| **Work at Heights Permit** is required for certain tasks. Check if you require a permit prior to working at heights. | | | |
| **Safety Equipment / Personal Protective Equipment *( PPE )*** - must be worn to suit task | | | |
| **Safety Footwear** - wearing of safety footwear is mandatory | | | |
| **Safety Helmets** - wearing of hard hats is mandatory in hard hat areas. | | | |
| **Hi-Visible clothing** must be worn at all times | | | |

| TICK YES ONLY IF EXPLANATION IS CLEAR AND UNDERSTOOD | YES | NO | N/A |
|---|---|---|---|
| **UV Protection** – clothing that provides suitable UV Protection is required to be worn. No Singlets are permitted. | | | |
| **Site workplace cleanliness** - always use amenities, clean your work area at least daily | | | |
| **Concrete Washout Area** - Concrete trucks & Pumps are to wash out in the designated wash out area. | | | |
| **Paint & Plaster Washout Area** - Paint & Plaster tools are only to be washed out in the designated wash out area | | | |
| **Rubbish & Recycling** - Rubbish placed in bins on site is sorted & recycled. Please use them to keep the site safe | | | |
| **Safety Signage** - this signage is for your safety, ensure it is visible, do not cover or move it | | | |
| **Electrical Tools & Leads** – ensure they are tested and tagged, suspend all leads, no piggyback plugs allowed | | | |
| **Scaffolding** - Only use if complete, Never alter another workers scaffold, report defects | | | |
| **Explosive Powered Tools** - To be used only by qualified operators | | | |
| **Excavations & Trenches** – Obtain an excavation permit prior to commencing any excavation work | | | |
| **Excavations / Trenches and Penetrations** - Always maintain protection barriers | | | |
| **In Ground Services** - The location of all live in ground services has been explained via the Site Management Plan | | | |
| **Plant and Equipment and Motor Vehicles** - To be used only by qualified operators in a safe manner | | | |
| **Vehicles leaving site -** Wheels and tracks of equipment leaving site so that mud is not placed on public roads | | | |
| **Hazardous Manual Handling and Lifting** - Always use correct lifting techniques ( See booklet/site plan ) | | | |
| **Concrete Cutting & Coring Permit -** must be obtained prior to commencing cutting and coring work. | | | |
| **Hot Work Permit -** to be obtained prior to commencing works that generate heat, sparks or use open flame | | | |
| **Welding and Cutting Equipment** - To be used only by qualified operators | | | |
| **225mm (9inch) Angle Grinders** - Only double clutch type that stop the blade if it jams are permitted for use | | | |
| **Hazardous Substances & Dangerous Goods** - Ensure products are entered into the site register. Are stored safely in designated areas. Location of spill kits explained. | | | |
| **Structural Steel Erection** - an approved erection sequence is required | | | |
| **Precast Concrete Panels -** an approved erection sequence and bracing plan is required. | | | |
| **General Prohibitions** - See booklet for offence/s that will not be tolerated | | | |
| **Unsafe work - Report all unsafe work practices and / or hazards to a Vaughan Representative or a H&S Representative ASAP.** | | | |
| **Accident** procedures explained? - What to do and how to get help? | | | |
| **First Aid** - Have the first aiders, facilities and procedures been explained? | | | |
| **Emergency situation** - Emergency phone numbers and evacuation plans are displayed in lunch rooms and prominent locations on site. | | | |

| **SITE INDUCTION -QUESTION & ANSWER** ( Must be completed successfully to commence work on site) | **Pass** | **Fail** |
|---|---|---|
| **1) Where is the Emergency Evacuation Point located on site?**<br>**Answer:** | | |
| **2) What is the name of at least one First Aider on site?**<br>**Answer:** | | |
| **3) Who do you report unsafe work practices or Hazards to?**<br>**Answer:** | | |

In signing this induction record I acknowledge that I have attended the induction and have received a safety induction booklet and have understood the Health and Safety Policy for this project and agree to abide by the same.

SIGNED: ……..…….. DATE: ……

**Worker**

SIGNED: …….…….. DATE: ……

**Vaughan Constructions Pty Ltd / Inductor**

# Appendix L Heritage Induction

## Construction Environmental Management Plan

**6 Grand Avenue, Rosehill NSW**

**Vaughan Constructions Pty Ltd**

SLR Project No: 640.031417.00001



artefact

# 6 Grand Avenue, Rosehill

## Heritage Induction



artefact

# Artefact acknowledges Aboriginal and Torres Strait Islander peoples

## ACKNOWLEDGEMENT OF COUNTRY

# What is Heritage?

- Cultural heritage is the inherited physical remains and intangible attributes of past generations and societies. Buildings, structures, landscapes, trees and archaeological relics are easily recognisable as physical/tangible heritage. Intangible heritage refers to things that are not physical, including traditions, language and knowledge. Natural places and environments can also be defined as heritage
- Each person working on the site should undertake this heritage induction as part of their responsibility to protect the potential heritage of 6 Grand Avenue and ensure no features are damaged or affected beyond the approved scope of works.



# How is Heritage Protected? 1/2

- Heritage and archaeology is protected by the following legislation in NSW:
  - *National Parks and Wildlife Act 1974* (NPW Act)
  - *Heritage Act 1977* (Heritage Act)
  - *Environmental Planning and Assessment Act 1979* (EP&A Act).



# How is Heritage Protected? 2/2

- **Aboriginal Sites**
  - 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 Heritage**
  - State Heritage Register items and historical Archaeological Relics are protected under the Heritage Act. The Heritage Council of NSW should be notified of any Archaeological Relics found during works in accordance with section 146 of the Heritage Act.



# Heritage – 6 Grand Avenue, Rosehill 1/2

- **Aboriginal Heritage**

  - This area is significant to the Dharug people due to the evidence of continued occupation and proximity to a complex of significant sites within the region. The current oldest known Aboriginal site in Sydney and the south-eastern coastline of Australia is located approximately 2.5km west of the study area and dates to approximately 30,000 years Before the Present (BP)



# Heritage – 6 Grand Avenue, Rosehill 2/2

- **Historical Heritage**
  - This land was originally granted to John MacArthur in 1793
  - Land was likely used for agricultural and farming activities throughout the nineteenth and early twentieth century
  - Land used for industrial purposes, including by the Wunderlich Tile Works throughout the twentieth century



# Aboriginal Heritage 1/3

- **Aboriginal Cultural Heritage assessment has concluded:**
  - No Registered Aboriginal sites or previously unrecorded Aboriginal sites or objects are known within the study area
  - Disturbance from commercial warehouses and infrastructure has disturbed the original landform and soil integrity, diminishing the potential for Aboriginal sites.



# Aboriginal Heritage 2/3

- **Aboriginal Cultural Heritage assessment has concluded:**

  - The Parramatta River is located approximately 250 metres north and is of great importance to Aboriginal people
  - The Dharug people's connection to the land is evident in the significant sites near this study area which reflect a complex lifestyle based on respect and conservation of the land, with cultural knowledge and traditions passed down through generations for thousands of years.



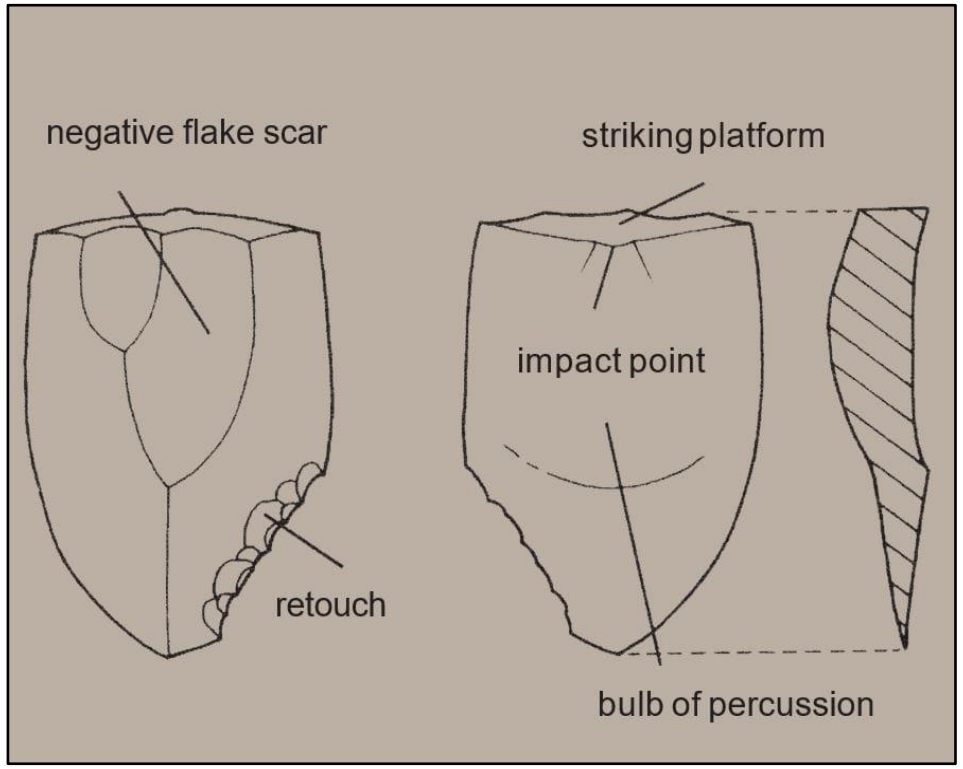
# Aboriginal Heritage 3/3

- **Identifying Aboriginal objects:**

  - Although no Aboriginal sites or objects have been identified within the study area, stone artefacts have the potential to be present in deeper layers of soil. Characteristics of Aboriginal stone tools include:
    - Sharp edge
    - Retouch along one or more edges
    - Stone rich in silica (does it sparkle? If so, it likely has a high silica content)
    - Stone type is often different to natural rock in the area.



# Examples of Aboriginal Heritage




**Characteristics of stone flakes**




**Representative examples of stone artefacts encountered across the Sydney Basin**

# Historical Heritage 1/2

- **Historical Heritage assessment has concluded:**
  - There are no listed heritage items within the study area
  - There is one listed heritage item located adjacent and to the north of the study area. This item is locally significant and listed on the Parramatta Local Environment Plan as ‘Tram alignment’ (LEP no. I6).



# Historical Heritage 2/2

- **Historical Heritage assessment has concluded:**

  - Nil-Low potential for Locally Significant Archaeological Works (structural resources) from the 19th century
  - Moderate-High potential for Archaeological Works (structural resources) from the 20th century. Such resources are unlikely to reach the threshold of Local significance



# Examples of Historical Heritage



Intact Glass Bottle



Sandstone drainage infrastructure



Brick feature



Brick drainage infrastructure



Brick footing and wall



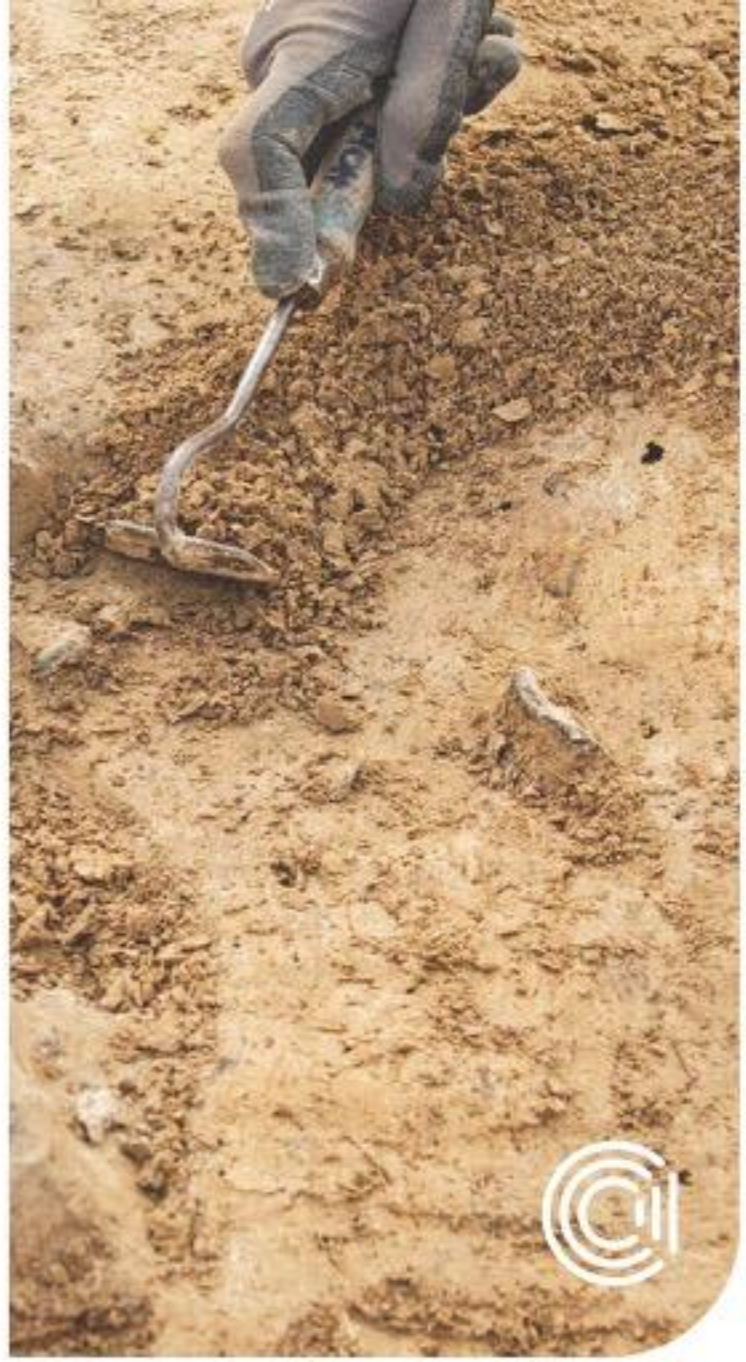

Wooden Pipe

# What are your responsibilities?

- **To protect cultural heritage, you should:**

  - Stop work and notify your supervisor if you think you have discovered a potential archaeological resource
  - Stop work and follow the Unexpected Finds Procedure (UFP) if you think you have discovered a potential archaeological resource

**If you discover any potential heritage item – stop work and notify your supervisor. If you are not sure if you have identified historical or aboriginal archaeological resources, it is important to <u>ASK</u> before you disturb the item.**

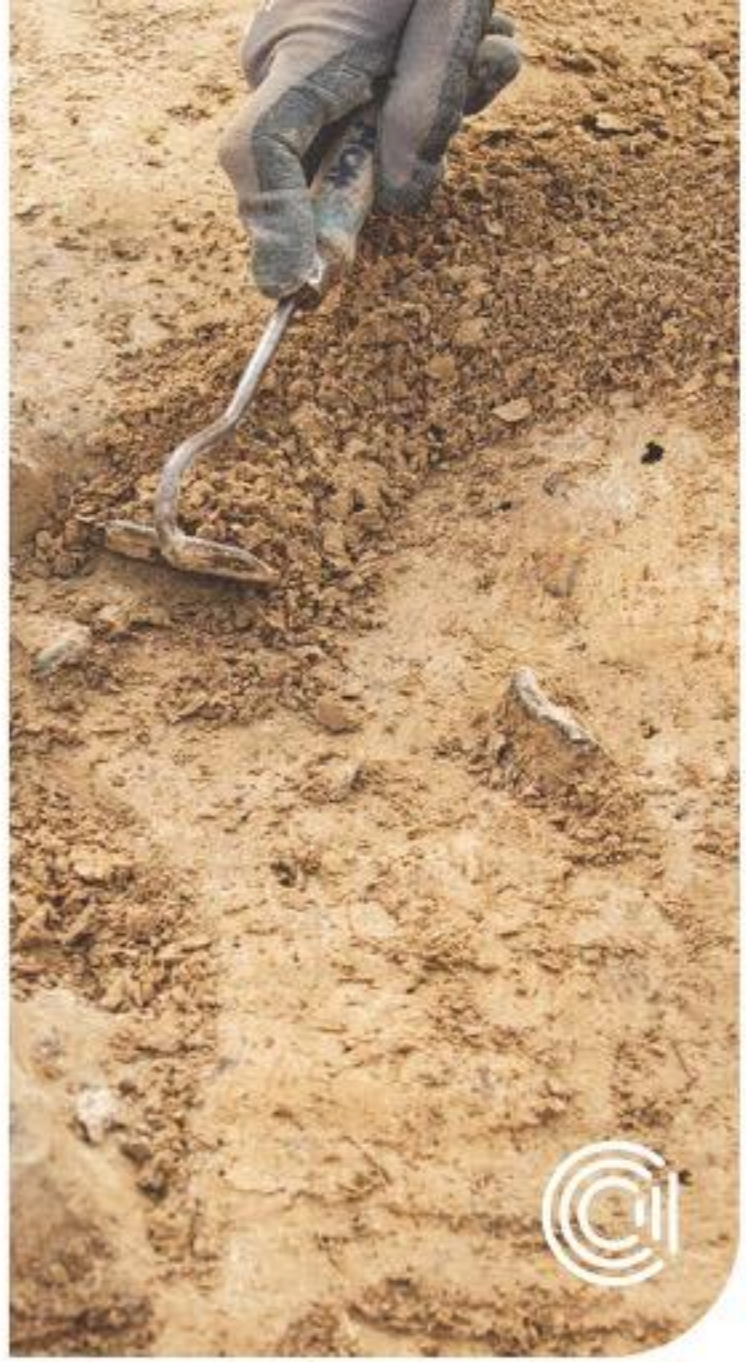


# Unexpected Finds Procedure

- **The Unexpected Heritage Finds Procedure (UFP) must be followed in the event that an unexpected Aboriginal or Historical archaeological finds is encountered:**

  - If archaeological finds are identified during any stage of the project, works in the area MUST CEASE, the area must be adequately protected, and a suitably qualified archaeologist notified to carry out more detailed investigation and assessment

  - If the archaeological assessment determines that the archaeological find is a ‘relic’, then further approvals may be required to allow works to proceed.



# Appendix M Site Safey & Environmental Inspection Report & Meeting Minutes

## Construction Environmental Management Plan

**6 Grand Avenue, Rosehill NSW**

**Vaughan Constructions Pty Ltd**

SLR Project No: 640.031417.00001

# SITE SAFETY & ENVIRONMENTAL INSPECTION REPORT & MEETING MINUTES

(to be held at least the first working day of each working week)

| | |
|---|---|
| **Project Name:**<br>**TIME & PLACE**<br>**VILLAWOOD** | **Project No.** *22298* |
| **Project Manager:** | **Date:** |
| **Site Manager:** | |
| **Workers Elected H&S Rep:** | |
| **Site First Aider (Level 2 & 3):** | |
| | |
| **Attendance at inspection (Including subcontractors):** | |
| | |
| **Approx. No. of workers on site:** | |

**HAZARD CLASSIFICATION KEY:**

**CLASS A** – condition that is a serious danger and which should be isolated then rectified **immediately**

**CLASS B** – that which is less dangerous than A, but which should be rectified **within 24 hours**

**CLASS C** – that which is not dangerous but which should be rectified **within 7 days**

| Item No. | | Complies Yes | Complies No | Not Required | Hazard A / B / C |
|---|---|---|---|---|---|
| | **GENERAL:** | | | | |
| 1. | Vaughan Health & Safety Policy and Management System on site | | | | |
| 2. | Project Safety Management Plan / Project Risk Assessment | | | | |
| 3. | Project Environmental Management Plan on site | | | | |
| 4. | Copy of Acts, Regulations, Codes of Practice on site | | | | |
| 5. | Emergency Phone numbers displayed | | | | |
| 6. | Chemical Storage areas & Evacuation Plan Displayed | | | | |
| 7. | Emergency Drill(s) conducted within first month then at six month intervals (Date of most recent drill……..) | | | | |
| 8. | Warning Horn or other method of evacuation notification | | | | |
| 9. | Public Safety – Hoardings, Barricades, Temporary Fences, Lighting | | | | |
| 10. | Fire extinguisher(s) available & tested (Site Office & Temp Boards) | | | | |
| 11. | Existing services located/risks identified | | | | |
| 12. | Traffic Management Plan for Roadworks / Off Site Works Available | | | | |
| 13. | Weekly Site Safety Committee Inspection Reports conducted and corrective actions signed off | | | | |
| 14. | Induction Handbooks available and displayed in lunch sheds. | | | | |
| 15. | Signed Policies available and displayed on site. | | | | |
| 16. | Waste Management Plan available on site. | | | | |
| 17. | Visitor sign in book available on site. | | | | |
| 18. | Minutes from Preconstruction Meeting on site. | | | | |
| 19. | If you are injured at work poster displayed (where required). | | | | |
| | **REGISTERS:** | | | | |
| 20. | Register – Electrical Equipment being used (pie warmer, fridge, etc.) | | | | |
| 21. | Register – Residual Current Device (RCD) – Testing and Tagging | | | | |
| 22. | Register – Site Induction / Site Worker | | | | |
| 23. | Register – Injuries | | | | |
| 24. | Register – Plant and Equipment Induction | | | | |
| 25. | Register – Hazardous Substances & Dangerous Goods / SDS | | | | |
| 26. | Register – Safe Work Method Statements (SWMS) | | | | |
| 27. | Register – Fire Extinguisher | | | | |
| 28. | Register – Crane Truck Delivery | | | | |
| 29. | Register – Harness Inspection | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 30. | Register – Scaffold Register | | | | |
| 31. | Register – Complaints / Corrective Action | | | | |

| Item No. | | Complies Yes | Complies No | Not Required | Hazard A / B / C |
|---|---|---|---|---|---|
| | **SAFE WORK METHOD STATEMENT –** *A SWMS IS REQUIRED FOR ALL ACTIVITIES ON SITE* | | | | |
| 32. | Currently onsite trades are: | | | | |
| 33. | Trade – | | | | |
| 34. | Trade – | | | | |
| 35. | Trade – | | | | |
| 36. | Trade – | | | | |
| 37. | Trade – | | | | |
| 38. | Trade – | | | | |
| 39. | Trade – | | | | |
| 40. | Trade – | | | | |
| 41. | Trade – | | | | |
| 42. | Trade – | | | | |
| | **TASK OBSERVATION –** *A Task Observation Check List (Appendix No. 40) is to be completed on a SWMS for one trade each week* | | | | |
| 43. | Trade & SWMS | | | | |
| | **PROTECTIVE CLOTHING:** | | | | |
| 44. | Visitor **PPE** (Personal Protective Equipment) available | | | | |
| 45. | Safety signage (e.g.: hard hats, vests, eye, ear, HAZCHEM, etc) | | | | |
| 46. | Hard hats being worn (General Site Compliance) | | | | |
| 47. | High visibility clothing being worn | | | | |
| 48. | Safety footwear being worn | | | | |
| 49. | Eye protection available (being worn where required) | | | | |
| 50. | Hearing protection provided and used where required | | | | |
| 51. | Safety Harness in good condition with inspection documentation available | | | | |
| 52. | Sun cream available | | | | |
| | **AMENITIES – GENERAL:** | | | | |
| 53. | Covered access from inclement weather | | | | |
| 54. | Crushed rock walkways around shedding | | | | |
| 55. | Crushed rock walkways defined to work area | | | | |
| 56. | Amenities in clean condition / cleaned daily | | | | |
| 57. | First Aid Kit & Defibrillator provided and maintained | | | | |
| 58. | Hot water washing facilities | | | | |
| | **LUNCH ROOMS** *(Standard VC Shed = 18 No. Men)* | | | | |
| 59. | No. of Lunch Sheds | | | | |
| 60. | Ventilation / air-conditioning / heating (tagged) | | | | |
| 61. | Fly screens on windows | | | | |
| 62. | Lighting (natural / artificial with guards) | | | | |
| 63. | Shed ELCB's fitted, tested | | | | |
| 64. | Shed – equipment tagged | | | | |
| 65. | Noticeboard for displaying notices etc | | | | |
| 66. | No smoking sign | | | | |
| 67. | Hat / coat hooks | | | | |
| 68. | Seating | | | | |
| 69. | Tables (Laminex / vinyl) | | | | |
| 70. | Food Warmer (Tagged) | | | | |
| 71. | Urn / Kettle (Tagged) | | | | |
| 72. | Lids on tea / coffee / sugar containers (Spoons?) | | | | |
| 73. | Refrigerator / cold drinking water | | | | |
| 74. | Flooring – vinyl | | | | |
| 75. | Garbage bins with Lids and Liners / Emptied Daily | | | | |

| Item No. | | Complies | | Not | Hazard |
|---|---|---|---|---|---|
| | | Yes | No | Required | A / B / C |
| | **CHANGE ROOM FACILITY:** | | | | |
| 76. | No. of Change shedding | | | | |
| 77. | Ventilation / Air-conditioning / Heating (Tagged) | | | | |
| 78. | Fly screens on windows | | | | |
| 79. | Lighting (natural / artificial with guards) | | | | |
| 80. | No smoking sign | | | | |
| 81. | Hat / coat hooks | | | | |
| 82. | Seating | | | | |
| | **SANITARY FACILITIES:** | | | | |
| 83. | No. of Sanitary Sheds | | | | |
| 84. | Ventilation / Fly Screens on windows | | | | |
| 85. | Lighting (Natural / Artificial with guards) | | | | |
| 86. | Garbage Bins with Lids and Liners / Emptied Daily | | | | |
| 87. | Toilets cleaned daily | | | | |
| 88. | Hat / coat hooks | | | | |
| 89. | No Smoking Sign | | | | |
| 90. | Toilet partitions / Doors hinged / lockable | | | | |
| 91. | Lift flaps / toilet seats | | | | |
| 92. | Toilet roll holders / toilet paper | | | | |
| 93. | Soap / Paper towel provided | | | | |
| 94. | Connected to temporary water | | | | |
| 95. | Connected to sewer / tank | | | | |
| | **FIRST AID SHED:** *(Required only if more than 100 No. Workers on Site)* | | | | |
| 96. | Ventilation / air-conditioning / heating (tagged) | | | | |
| 97. | Fly screens on windows | | | | |
| 98. | Lighting (natural / artificial with guards) | | | | |
| 99. | No smoking sign | | | | |
| 100. | Hat / Coat hooks | | | | |
| 101. | Seating | | | | |
| 102. | Flooring – Vinyl | | | | |
| 103. | Garbage bins with Lids and Liners / Emptied Daily | | | | |
| | **SITE ACCESS:** | | | | |
| 104. | Personnel access to work site from amenities | | | | |
| 105. | Roadways formed and defined | | | | |
| 106. | Overhead electrical cable protection | | | | |
| 107. | Site cleanliness – Storage area provided / materials stockpiled | | | | |
| 108. | Site Induction to Ceiling Space | | | | |
| | **ELECTRICAL:** | | | | |
| 109. | Temporary wiring protected and labelled as “Temporary” | | | | |
| 110. | Temporary Boards weatherproof, signage, insulated lead access, secured down, ELCB fitted, tagged, tested | | | | |
| 111. | Temporary Safety lighting to work areas (caged if low height) | | | | |
| 112. | Emergency access / egress lighting installed (also above temp boards) | | | | |
| 113. | Power extension leads tagged | | | | |
| 114. | Lead stands or insulated hooks in use | | | | |
| 115. | Power tools tagged | | | | |
| 116. | Generators | | | | |
| 117. | Certificate of Electrical Compliance supplied. | | | | |
| 118. | Signage displayed where power fed from and power points and light switches marked. | | | | |

| Item No. | | Complies | | Not Required | Hazard A / B / C |
|---|---|---|---|---|---|
| | | Yes | No | | |
| | **WORKING AREA ENVIRONMENT:** | | | | |
| 119. | Dust control (water cart / sweeper) as required | | | | |
| 120. | MDF (ventilated cutting room / isolated area) | | | | |
| 121. | Cement fibre product (ventilated cutting room / isolated area) | | | | |
| 122. | Synthetic Mineral Fibres (SMF) sealed, bagged | | | | |
| 123. | Noise level (Max 85 Dba - see equipment plate or supplier) | | | | |
| 124. | Designated storage area for materials / equipment | | | | |
| 125. | Hazardous Substance & Dangerous Goods stored correctly | | | | |
| 126. | **SDS** on-site Safety Data Sheets | | | | |
| 127. | Spill kit available and maintained | | | | |
| 128. | Site water runoff control measures in place (stormwater & ground water) i.e. silt traps on fencing, hay bays filter water runoff, etc. | | | | |
| 129. | Rumble / Shaker grid at site entrance / exit and maintained | | | | |
| 130. | Council roads clean of dirt and mud at site entry and exit points | | | | |
| 131. | Concrete washout area established and maintained | | | | |
| 132. | Painters and Plasterers washout procedure established | | | | |
| 133. | Site skip bin not located on public area / Permit obtained | | | | |
| 134. | Site bins / skip not over full, emptied regularly | | | | |
| 135. | Skip bin recycling reports available on site | | | | |
| | **EXCAVATION & TRENCHING WORK:** | | | | |
| 136. | Existing In Ground Services Info, Dial B4 U Dig Info<br>List *Dial Before You Dig* monthly expiry date: | | | | |
| 137. | Excavations over 1.5 m shored, benched, bunting | | | | |
| 138. | Safe entry / exit from excavations | | | | |
| 139. | Company in charge of excavation work over 1.5 m deep<br>…….. | | | | |
| | **LADDERS / BARRICADING / HANDRAILING / SCAFFOLDING:** | | | | |
| 140. | Roof access stair tower | | | | |
| 141. | Roof handrailing (3m either side of opening / access) | | | | |
| 142. | Scaffold Plan developed (supplied) where a person or object has the potential to fall 4mtrs or more | | | | |
| 143. | Barricading / handrailing to stairs, areas above 2 m high | | | | |
| 144. | Are all ladders industrial rated & in good condition | | | | |
| 145. | A-Frame step ladders not in use permitted without a Work at Height Permit | | | | |
| 146. | Ladders secured top & bottom, extends min 900mm above step off point | | | | |
| 147. | Surrounding area / workers protected | | | | |
| 148. | Scaffolding complete to Australian Standard requirements | | | | |
| 149. | Handover certificate supplied for edge protection guardrails installed on site | | | | |
| 150. | Temporary props, bracing & structures inspected for damage and condition | | | | |
| | **DEMOLITION:** | | | | |
| 151. | Hazardous Substances (i.e Asbestos) Report on site | | | | |
| 152. | Demolition Safe Work Method Statement in use | | | | |
| 153. | Clearance certificate supplied if asbestos removal was greater than 10 square metres. | | | | |
| | **SUSPENDED FORMWORK** | | | | |
| 154. | Is information about the design and erection of formwork available on site | | | | |
| 155. | Has the formwork been inspected and signed off prior to pouring by an engineer | | | | |
| 156. | Has an engineer approved formwork removal and any back propping | | | | |

| Item No. | | Complies Yes | Complies No | Not Required | Hazard A / B / C |
|---|---|---|---|---|---|
| | **STRUCTURAL STEEL: *Supervising Rigger*** | | | | |
| 157. | Documentation provided for structural steel manufactured off site, that the welds have been inspected and passed prior to erection | | | | |
| 158. | Erection sequence schedule approved by an engineer and on site. | | | | |
| 159. | Crane lift plan available on site for dual lifts, 50 tonnes or more and lifting near overhead powerlines. | | | | |
| 160. | Daily sign off sheets / plans being completed by Lead Rigger for partially completed structures (ensuring appropriate bracing installed) | | | | |
| | **PRECAST CONCRETE PANELS : *Supervising Rigger*** | | | | |
| 161. | Manufacturers Certificate of Compliance (“Birth Certificate”) supplied to site prior to panels being unloaded and erected. | | | | |
| 162. | Crane lift plan prepared and available on site | | | | |
| 163. | Bracing plan has been designed and a copy is on site. | | | | |
| 164. | Braces are fitted with a permanent plate stating that they comply with Australian Standard AS3850 | | | | |
| 165. | Brace sheer pins are fitted with a device that requires a tool be used to allow their removal | | | | |
| 166. | Temporary bracing inspected for damage and condition | | | | |
| 167. | Systems in place to stop mobile plant from striking panel props | | | | |
| | **STRUCTURAL WELDING** | | | | |
| 168. | Structural Welding procedure available on site? | | | | |
| 169. | Structural Welding qualifications available / verified? | | | | |
| 170. | Structural Welding inspections conducted? | | | | |
| | **PERMITS** | | | | |
| 171. | Hot Work Permits being authorised and signed off | | | | |
| 172. | Concrete Cutting / Coring Permit being authorised | | | | |
| 173. | Trenching / Excavation Permit being authorised | | | | |
| 174. | Work at heights permit being authorised | | | | |
| 175. | | | | | |

| Item No. | | Complies Yes | Complies No | Not Required | Hazard A / B / C |
|---|---|---|---|---|---|
| | **GENERAL BUSINESS:** | | | | |
| | (Discuss & record any General Business that arose during the meeting. Include any relevant information, discussion, or consultation with site workers. Forward any relevant or urgent information directly to Vaughan Constructions Construction Manager in your State) | | | | |
| | | | | | |
| 176. | | | | | |
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| Item No. | | Complies | | Not Required | Hazard A / B / C |
|---|---|---|---|---|---|
| | | Yes | No | | |
| | **PLANT & EQUIPMENT (CRANE, BOOM, EWP, OTHER):** | | | | |
| | **User:** | | | | |
| 177. | Service record and daily inspection log signed by operator | | | | |
| 178. | Visual inspection of plant | | | | |
| 179. | Plant and equipment being operated properly | | | | |
| 180. | Plant Operators Licence | | | | |
| 181. | PPE being worn | | | | |
| 182. | Surrounding area / workers protected from falling object risk | | | | |
| 183. | Firm stable ground for plant and equipment use | | | | |
| 184. | Powerline Hazard (Power Authority / rules in use) | | | | |
| 185. | No leads or ropes attached (pull over risk) – Signage Displayed | | | | |
| | **PLANT & EQUIPMENT (CRANE, BOOM, EWP, OTHER):** | | | | |
| | **User:** | | | | |
| 186. | Service record and daily inspection log signed by operator | | | | |
| 187. | Visual inspection of plant | | | | |
| 188. | Plant and equipment being operated properly | | | | |
| 189. | Plant Operators Licence | | | | |
| 190. | PPE being worn | | | | |
| 191. | Surrounding area / workers protected from falling object risk | | | | |
| 192. | Firm stable ground for plant and equipment use | | | | |
| 193. | Powerline Hazard (Power Authority / rules in use) | | | | |
| 194. | No leads or ropes attached (pull over risk) – Signage Displayed | | | | |
| | **PLANT & EQUIPMENT (CRANE, BOOM, EWP, OTHER):** | | | | |
| | **User:** | | | | |
| 195. | Service record and daily inspection log signed by operator | | | | |
| 196. | Visual inspection of plant | | | | |
| 197. | Plant and equipment being operated properly | | | | |
| 198. | Plant Operators Licence | | | | |
| 199. | PPE being worn | | | | |
| 200. | Surrounding area / workers protected from falling object risk | | | | |
| 201. | Firm stable ground for plant and equipment use | | | | |
| 202. | Powerline Hazard (Power Authority / rules in use) | | | | |
| 203. | No leads or ropes attached (pull over risk) – Signage Displayed | | | | |
| | **PLANT & EQUIPMENT (CRANE, BOOM, EWP, OTHER):** | | | | |
| | **User:** | | | | |
| 204. | Service record and daily inspection log signed by operator | | | | |
| 205. | Visual inspection of plant | | | | |
| 206. | Plant and equipment being operated properly | | | | |
| 207. | Plant Operators Licence | | | | |
| 208. | PPE being worn | | | | |
| 209. | Surrounding area / workers protected from falling object risk | | | | |
| 210. | Firm stable ground for plant and equipment use | | | | |
| 211. | Powerline Hazard (Power Authority / rules in use) | | | | |
| 212. | No leads or ropes attached (pull over risk) – Signage Displayed | | | | |
| 213. | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

**Project Name:** _____ **Project No.** _____

| Item No. | Company / Contractor | Hazard Rating | CORRECTIVE ACTION REQUIRED | Rectified Yes | Rectified No | Date Completed |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |

# Appendix N Non-Aboriginal Environmental Heritage

## Construction Environmental Management Plan

**6 Grand Avenue, Rosehill NSW**

**Vaughan Constructions Pty Ltd**

SLR Project No: 640.031417.00001

artefact

# Memo: 6 Grand Avenue, Rosehill – Environmental Heritage Sub-plan

| | |
|---|---|
| **Project**: 6 Grand Avenue, Rosehill | **Date:** 23 September 2024 |
| **To:** Lorenzo Lun, Achile Projects | **From:** Jonny Love, Heritage Consultant, Artefact Heritage |

## Introduction

Artefact Heritage and Environment (Artefact Heritage) have been engaged by Archile Projects (Archile) to prepare the Environmental Heritage Sub-plan for inclusion in the Construction Environment Management Plan (CEMP) for the development at 6 Grand Avenue, Rosehill (Lot 1 DP 1258587) (the study area). The proposal is to develop an ambient multi-level warehouse or distribution centre which includes ancillary offices and car parking areas.

This CEMP sub-plan has been prepared to meet the project conditions of consent (SSD-55522478). Approval for the SSD application was granted on 25 July 2024 subject to meeting the Conditions of Approval (CoA) outlined by the Minister for Planning and Public Spaces (Consent Authority) under Section 4.38 of the Environmental Planning and Assessment Act 1979.[1]

The CoA for the environmental management of the project outlines the requirement for the development of a CEMP (CoA C2). This sub-plan has been prepared to meet, in part, the requirements of CoA C2 and to support the wider CEMP being prepared by the proponent.

This environmental heritage sub-plan outlines a review of the historical land use of the study area, presents an overview of the potential archaeological resource and significance, and recommended mitigation measures for the proposal which includes the implementation of an Unexpected Finds Procedure (UFP).

This letter contains historical context and assessment information drawn from the 2023 Non-Aboriginal Statement of Heritage Impact (SoHI) prepared by Artefact Heritage.[2] This SoHI was prepared in support of CoA B37 for the proposal.

## Historical heritage context

There are no listed heritage items within the study area. There is one listed heritage item immediately adjacent to the northern boundary of the study area, identified as 'Tram alignment' (LEP #I6). The item is locally significant and is listed on the Parramatta Local environmental Plan 2023. The location of heritage items within the vicinity of the study area is shown in Figure 1.

[1] NSW Government, Department of Planning: Housing and Infrastructure, 6 Grand Avenue Multi-Level Warehouse Rosehill, SSD-55522478.
[2] Artefact Heritage and Environment (2023), 6 Grand Avenue, Rosehill: Non-Aboriginal Statement of Heritage Impact, Report prepared for Hale Capital.

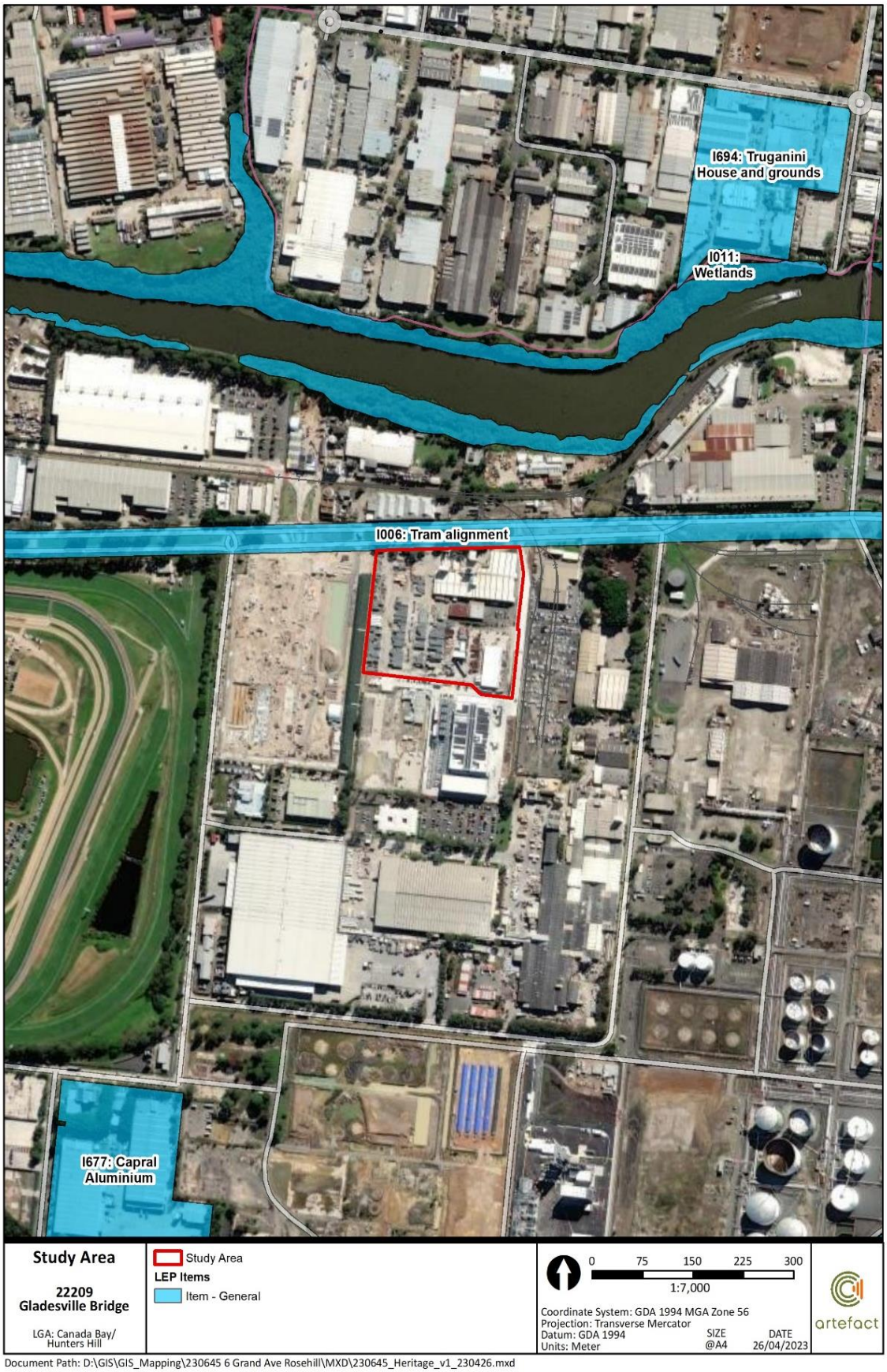



**Figure 1: Location of the study area and surrounding heritage items**

## Land use summary

The European occupation of the study area has been divided into three general phases of historical activity, which are outlined in Table 1 below.

**Table 1: Land use summary**

| Phase | Discussion | Degree of survival | Significance |
|---|---|---|---|
| Phase 1 (1793–1883)<br><br>Early land grant to John Macarthur | **Historical activities**<br>• Initial land grant to John MacArthur<br>• The area was likely significantly cleared of native vegetation forming paddocks for pastoral activities<br>• There is no historical evidence to indicate building on the site from this period, with it being used mainly for grazing or still having tree coverage<br>• Establishment of light-weight timber structures associated with yard structures, such as paddocks, pig sties or calf pens may have occurred.<br>**Potential archaeological remains**<br>• Evidence of vegetation removal/landscape modification such as tree boles, plough marks, terracing<br>• Evidence of fence lines/boundaries i.e. postholes<br>• Evidence of lightweight structures for agricultural purposes. | Nil–Low | Local |
| Phase 2 (1883–1915)<br><br>Subdivision | **Historical activities**<br>• Land remained vacant until 1915 with land being purchased by the Wunderlich Tile Company. | Nil | No significance |
| Phase 3 (1915–present)<br><br>Wunderlich Tile Works | **Historical activities**<br>• Industrial development of the study area began soon after with the south-eastern portion of the study area being developed prior to 1930<br>• Further development of the study area under Wunderlich Tile Works continued throughout the 20th century.<br>**Potential archaeological remains**<br>• Evidence associated with the construction of the Wunderlich Tile Works and industrial complex<br>• Potential remains may include timber or metal remains from undocumented structures. Structural remains associated with the warehouses such as concrete slabs, brick footings and utilities. | Moderate–High | Unlikely to reach the threshold of Local significance |

### Summary of archaeological potential and significance

The archaeological assessment has identified **Moderate-High** potential for historical archaeological remains associated with Phase 3 (1915–present) to be present within the study area. This assessed level of potential is consistent with early land grants and historical sources which demonstrate the study area was likely cleared land until 1915 when development associated with Wunderlich Tile development works were undertaken.

The archaeological resource associated with Phase 3 is unlikely to have a strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history. Additionally, potential archaeological remains associated with the Wunderlich Tile Works are likely to be disturbed by later industrial activity, and common in fabric, type, layout and are unlikely to be any different to archaeology of any early to mid-twentieth century industrial complex. As a result, the archaeological resource associated with Phase 3 of the study area are **unlikely** to reach the Local significance threshold.

## Historic heritage management

The following mitigation measure must be implemented during all project work that requires ground penetration, including excavation:

Unexpected Heritage Finds Procedure

The following Unexpected Heritage Finds Procedure must be followed in the event that an unexpected historical archaeological finds is encountered:

- If archaeological remains are identified during any stage of the project, works in the area must cease, the area must be adequately protected, and a suitably qualified archaeologist notified to carry out more detailed investigation and assessment
- If the archaeological assessment determines that the remains are 'relics' in the meaning of the Heritage Act 1977, the Department of Climate Change, Energy, the Environment and Water must be notified about the discovery of relics in accordance with Section 146 of the Heritage Act 1977. Further approval/s may be required to allow the works to proceed
- As an SSD project, the Environmental Representative (ER) must also be notified to determine, based on advice from an archaeologist, if harm to unexpected archaeological remains is consistent with project approvals, if DPE requires notification, and if further approval and/or modifications under the Environmental Planning & Assessment Act 1979 are required prior to recommencement of work.

Heritage induction

- All staff involved in the proposed works, including design professionals and tradespeople, must receive a heritage induction prior to the commencement of works. The heritage induction should cover the historical values of the site and the potential for the project to encounter archaeological remains
- The induction should make contractors aware of the recommendations and mitigation methods included in this report, including the procedure to follow in the event that an unexpected archaeological find is encountered. Clear lines of communication must be established for the reporting of any such finds and for procedures to be rapidly implemented.

# REFERENCES

Artefact Heritage and Environment (2023), 6 Grand Avenue, Rosehill: Non-Aboriginal Statement of Heritage Impact, Report prepared for Hale Capital.

NSW Government, Department of Planning: Housing and Infrastructure, 6 Grand Avenue Multi-Level Warehouse Rosehill, SSD-55522478.

# Appendix O Waste Management Plan

## Construction Environmental Management Plan

**6 Grand Avenue, Rosehill NSW**

**Vaughan Constructions Pty Ltd**

SLR Project No: 640.031417.00001

# 6 Grand Avenue, Rosehill NSW

## Hale Capital Development Management Pty Ltd

## Waste Management Plan

**151,380 | 61873**

**31 May 2023**



**We acknowledge the Traditional Custodians of Country throughout Australia and their connections to land, sea and community.**

We pay respect to Elders past and present and in the spirit of reconciliation, we commit to working together for our shared future.



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# 1. Introduction

JBS&G Pty Ltd (JBS&G) has been engaged on behalf of Hale Capital Development Management Pty Ltd (Hale, 'the client') to prepare a Waste Management Plan (WMP) for the redevelopment of 6 Grand Avenue, Rosehill, NSW (the site). The site is currently occupied by existing industrial buildings and a carpark area and is legally identified as Lot 1 in DP 1258587 which occupies a total area of approximately 4.2 hectares (ha) (**Figure 1**).

The current planning application (SSD-55522478) seeks consent for demolition of existing structures and construction of two multi-unit warehouse buildings including ancillary office space, landscaping and car parking.

## 1.1 Scope

This WMP has been developed to address the Secretary's Environmental Assessment Requirements (SEARs) issued by the NSW Department of Planning and Environment for warehouse and distribution centre applications as part of SSD-55522478.

**Table 1.1** presents the SEARs required to be addressed to support the project:

**Table 1.1: Relevant SEARs**

| Key Issue | Requirement | Relevant Section of Report |
|---|---|---|
| Waste | Identify, quantify and classify the likely waste streams to be generated during construction and operation | Waste streams associated with the construction phase of the project are presented in **Section 4**. |
| | Provide the measures to be implemented to manage, reuse, recycle and safely dispose of the waste | Material handling, transport and disposal requirements are detailed in **Section 4** and **Section 5**. |
| | Identify appropriate servicing arrangements for the site. | Servicing arrangements associated with waste generation during operation are presented in **Section 5**. |
| | If buildings are proposed to be demolished or altered, provide a hazardous materials survey. | Addressed in a separate hazardous building material survey (HBMS) report. |

In accordance with the SEARs listed above, the scope of this WMP is to:

- address the likely waste streams generated during the works;
- provide indicative estimations of waste quantities; and
- propose management, reuse, recycling and disposal procedures during the demolition, excavation, construction and operational works of the redevelopment works within the subject site.

## 1.2 Objectives

The key objective of this WMP is to support the client in their project through identifying the types and quantities of potential waste streams and to establish management measures to prevent environmental harm, minimise waste and maximise resource preservation.

This WMP specifically aims to:

- Address the SEARs for waste as required by legislation;

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- Promote waste minimisation through avoiding and reducing waste generation;
- Promote the recycling of building and demolition materials;
- Comply with legislative criteria and adhere to waste minimisation guidance and standards;
- Apply the waste management hierarchy (**Section 3.3**) throughout construction; and
- Specify safe and appropriate management of potentially contaminated wastes.

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# 2. Project Description

As mentioned previously, 6 Grand Avenue, Rosehill is currently an industrial site, containing industrial buildings and a carpark area. Planned works will result in further industrial use as the site is planned to include two warehouse buildings containing multiple units once construction is complete.

## 2.1 Location and Site Layout

Information relating to the site are provided in **Table 2.1** below. The site location is illustrated in **Figure 1**.

**Table 2.1: Site Details**

| | |
|---|---|
| Site Address | 6 Grand Avenue, Rosehill, NSW 2142 |
| Local Government | City of Parramatta |
| Zoning | IN3 Heavy Industrial (Parramatta LEP 2011) |
| Surrounding Land Use | The site is within an area surrounded by other industrial properties. To the north of the site, beyond neighbouring industrial properties, is Parramatta River. |

## 2.2 Project Scope of Works

The site is proposed to be developed as two multi-unit warehouse buildings which includes:

- Demolition of all existing buildings and structure;
- Site preparation works, including tree clearing;
- Earthworks;
- The construction of two warehouse buildings which will be undertaken in a staged development approach consisting of warehouse B constructed in the southern portion of the site (Stage 1) and warehouse A constructed in the northern portion of the site (Stage 2). This WMP concerns Stage 2 of the development;
- Two levels of office for each unit (located on ground and mezzanine floors);
- 308 car park spaces are proposed along the boundary of the site for the Stage 2 development. Access to the car park will be via Grand Avenue with the entry and exit to the car park to be constructed in the central portion of the northern boundary;
- The warehouse building, ground floor office and the car park will not comprise a basement. Importation of soil will be undertaken to raise the site level by approximately 1.5m prior to onsite building works for flood prevention and levelling purposes;
- The area around the buildings is proposed to consist of hardstand;
- Minor landscaped areas are proposed along the southern boundary and at minor locations within the car park and outside the northern office areas; and
- Lifts and associated stairwells will extend from the ground floor to the mezzanine level in the office areas.

Detailed design drawings are included in **Appendix A**.

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# 3. Legislative Requirements and Guidelines

## 3.1 Legislation

This WMP has been prepared in accordance with the requirements of the NSW *Waste Avoidance and Resource Recovery Act 2001* (WARR Act), and the NSW Protection of the Environment Operations Act 1997 (POEO Act). These and other key legislation relevant to waste management at the site are provided in **Table 3.1**.

**Table 3.1: NSW Waste Legislation Summary**

| Legislation | Purpose |
|---|---|
| *Protection of the Environment Operations Act 1997*<br>Protection of the Environment Operations (Waste) Regulation 2014<br>Protection of the Environment Operations (General) Regulation 2009 | The Act is the key piece of environment protection legislation administered by the NSW Environment Protection Authority (EPA). The object of the Act is to achieve the protection, restoration and enhancement of the quality of the NSW environment.<br>The Act enables the Government to establish policy instruments for setting environmental standards, goals, protocols and guidelines. |
| *Waste Avoidance and Resource Recovery Act 2001* | The WARR Act promotes waste avoidance and resource recovery to achieve a continual reduction in waste generation, provides for development of a state-wide Waste Strategy, and introduces a scheme to promote extended producer responsibility for the life cycle of a product. Objectives of the Act include:<br>• To encourage the most efficient use of resources and to reduce environmental harm;<br>• To ensure that resource management options are considered against a hierarchy (see **Section 3.3**);<br>• Provide for the continual reduction in waste generation;<br>• To minimise the consumption of natural resources and the final disposal of waste;<br>• To ensure that industry shares with the community the responsibility for reducing and dealing with waste; and<br>• To assist in the achievement of the objectives of the POEO Act. |
| *Environmental Planning and Assessment Act 1979*<br>Environmental Planning and Assessment Regulation 2000 | The Act and the Regulation provide the overarching structure for planning in NSW. They provide for a number of other statutory documents to support the planning structure, including State Environmental Planning Policies and Local Environmental Plans. The objectives include:<br>• The proper management, development and conservation of natural and artificial resources; and<br>• To encourage ecologically sustainable development. |

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| Legislation | Purpose |
|---|---|
| *Environmentally Hazardous Chemicals Act 1985* | The Act provides for control of the effect on the environment of chemicals and chemical wastes. The EPA is responsible for administering this legislation, in partnership with other state government agencies.<br>It is the primary legislation for specifically regulating environmentally hazardous chemicals throughout their life cycle. The Act sets out requirements for:<br>• Chemical Control Orders (CCOs) which are used to manage specified hazardous chemicals and chemical wastes;<br>• Technology assessments, which ensure that premises treating or destroying chemicals are safe and appropriate for their purpose; and<br>• Licensing of individuals or industries who manage chemicals that are subject to a CCO. |
| *Contaminated Land Management Act 1997*<br>Contaminated Land Management Regulation 2013 | The Act establishes a process for investigating and (where appropriate) remediating land that the EPA considers to be contaminated significantly enough to require regulation. |

## 3.2 Guidelines

Guidance documents and policies considered in the preparation of this WMP are included in **Table 3.2**.

**Table 3.2: NSW Guidance Summary**

| Guideline | Purpose |
|---|---|
| NSW Environment Protection Authority (EPA) Waste Classification Guidelines 2014 (EPA 2014) | The Waste Classification Guidelines have been established by the NSW EPA to assist waste generators to classify wastes. Wastes are classified into groups that pose similar risks to environment and human health. Waste classifications are discussed further in **Section 4.1** and **Section 5.1**. |
| Building Code of Australia (BCA) | The BCA contains technical provisions for the design and construction of buildings and other structures, covering such matters as structure, fire resistance, access and egress, services and equipment, and energy efficiency as well as certain aspects of health and amenity. |
| NSW EPA's Waste and Sustainable Materials (WSM) Strategy 2041, Stage 1: 2021-2027 | The WSM strategy aims to continually improve the state's policies and targets for waste reduction and landfill diversion. Stage 1 of the strategy sets the following targets:<br>• reduce total waste generated by 10% per person by 2030;<br>• have an 80% average recovery rate from all waste streams by 2030;<br>• significantly increase the use of recycled content by governments and industry;<br>• phase out problematic and unnecessary plastics by 2025;<br>• halve the amount of organic waste sent to landfill by 2030. |

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| Guideline | Purpose |
|---|---|
| NSW EPA's Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities 2012 | The guide provides advice to assist architects, developers, council staff and building managers to incorporate better waste management practice into the design, establishment, operation and ongoing management of waste services in commercial and industrial developments. |
| How to manage and control asbestos in the workplace, SafeWork NSW Code of Practice, 2016 (NSW Government) | The Code of Practice is an approved code of practice under the *Work Health and Safety Act 2011*.<br>The code provides guidance on how to manage risks associated with asbestos and asbestos containing material at the workplace and thereby minimise the incidence of asbestos-related diseases such as mesothelioma, asbestosis and lung cancer. |
| How to safely remove asbestos, SafeWork NSW Code of Practice 2016 (NSW Government) | The Code of Practice is an approved code of practice under the *Work Health and Safety Act 2011*.<br>The code provides practical guidance on how to safely remove asbestos from all workplaces including structures, plant and equipment and is to be read in conjunction with *How to manage and control asbestos in the workplace* Code of Practice. |
| Australian Government Construction and Demolition Waste Guide, 2011 | The aim of the guide is to help develop effective markets for materials diverted or derived from the construction and demolition waste stream. |
| Australian Government Sustainable Procurement Guide, 2018 | The guide aims to reduce the adverse environmental, social and economic impacts of purchased products and services throughout their life through considerations such as waste disposal and the cost of operation and maintenance over the life of the goods. The guide was developed to assist Australian Government purchasers to include sustainability considerations in all stages of the procurement process, from identifying the business need to disposal of goods. |
| Sampling Design Guidelines – Contaminated Sites. NSW EPA, 1995 | The Sampling Design Guidelines were established by the NSW EPA to:<br>• Encourage the use of a statistically based approach to the design and sampling for contaminated sites and the interpretation of these samples for assessing and validating contaminated sites; and<br>• Provide a convenient summary of statistical methods. |

Under Clause 11 of SEPP (State and Regional Development) 2011, DCPs developed under LEPs, are not applicable to State Significant Development (SSD). As such the Waste Management Guidelines within the Parramatta DCP 2011 are not relevant. However, they have been appreciated as part of this WMP.

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## 3.3 Waste Hierarchy

Waste management for the project will be undertaken in accordance with the waste hierarchy, which underpins the objectives of the *Waste Avoidance and Resource Recovery Act 2001*. The waste hierarchy shown below demonstrates preferred approaches to waste management to ensure sustainable development and use of resources.




The hierarchy also aims to maximise efficiency and avoid unnecessary consumption of resources. This WMP seeks to implement the waste hierarchy to minimise waste disposal and promote waste reduction in order of preference:

- Reduce or avoid waste through selection of items and design;
- Reuse materials without further processing;
- Recycle and process waste for reuse as a new product;
- Recover energy through combustion of materials where acceptable and in accordance EPA
- Regulations;
- Treat waste to stabilise the waste product for disposal or reuse; and
- Dispose of waste when no other management options are appropriate.

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# 4. Construction

## 4.1 Waste Streams and Classification

Waste streams and preliminary classifications are summarised in the following sections.

### 4.1.1 EPA Waste Classification

The NSW EPA Waste Classification Guidelines (EPA 2014) provides for the classification of wastes into groups that pose similar risks to the environment and human health, which are defined in the POEO Act. Classes of waste described in the guideline are described in **Table 4.1**.

**Table 4.1: Summary of NSW EPA Waste classifications**

| Waste Classification | |
|---|---|
| Special waste | Special wastes are wastes that pose specific regulatory requirements due to the risks of harm to the environment and human health. These wastes include clinical and related waste, asbestos waste, waste tyres, and anything classified as special waste under an EPA gazettal notice. |
| Liquid waste | Liquid waste is classified as any waste (other than special waste) that meets the following criteria:<br>• Has an angle of repose of less than 5 degrees above horizontal;<br>• Becomes free flowing at or below 60 degrees Celsius or when it is transported;<br>• Is generally not capable of being picked up by a spade or shovel; and/or<br>• Is classified as liquid waste under an EPA gazettal notice. |
| Pre-classified waste:<br>• Hazardous waste<br>• Restricted solid waste<br>• General solid waste (putrescible)<br>• General solid waste (non-putrescible). | Where the waste is neither liquid nor special waste; the EPA has pre-classified other commonly generated waste types, as defined in Schedule 1 of the POEO Act. This includes hazardous waste, restricted solid waste, general solid (putrescible) and general solid (non-putrescible) waste. Putrescible waste is the component of the waste stream that is liable to become putrid, and usually refers to vegetative, food and animal products.<br>A list of all currently gazetted waste classifications is provided on the EPA website at: www.epa.nsw.gov.au/waste/wastetypes.htm.<br>Where material is classified as hazardous waste, it is noted that such materials cannot be directly disposed of and must be treated prior to disposal by an appropriately licensed facility/operator. |
| Wastes classified via chemical assessment:<br>• Hazardous waste<br>• Restricted solid waste<br>• General solid waste (putrescible)<br>• General solid waste (non-putrescible). | Where the waste does not fall into one of the above categories, chemical assessment of the material is required to finalise a waste classification as per the procedures outlined in detail in EPA (2014) and/or consideration of General or Specific Waste immobilisation approvals as approved under the *Protection of the Environmental Operations (Waste) Regulation* (2014). |

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### 4.1.2 Waste Streams and Classification

A variety of waste types are expected be generated during the site preparation and construction parts of the project. Potential waste types and corresponding EPA classifications for the 6 Grand Avenue redevelopment are summarised in **Table 4.2**.

**Table 4.2: Potential Waste Types and Classification**

| Waste Type | EPA Classification | Generated | Project Phase |
|---|---|---|---|
| Excavated Soil | Subject to Waste Classification as per EPA 2014 following excavation | ✓ | Excavation, Construction |
| Rock and excavated stone | General solid waste (non-putrescible) | Potential | Excavation, Construction |
| Green waste (Garden Organics) | General solid waste (non-putrescible) | Potential | Excavation (site preparation) |
| Metals (including roofing) | General solid waste (non-putrescible) | ✓ | Demolition, Excavation, Construction |
| Wood waste (including joinery offcuts) | General solid waste (non-putrescible) | ✓ | Demolition, Construction |
| Blockwork | General solid waste (non-putrescible) | ✓ | Demolition, Construction |
| Glazed Bricks | General solid waste (non-putrescible) | Potential | Demolition, Construction |
| Concrete (Building frames, cores & roof; external works; slab) | General solid waste (non-putrescible) | ✓ | Demolition, Excavation, Construction |
| Plasterboard | General solid waste (non-putrescible) | ✓ | Demolition, Construction |
| Glass | General solid waste (non-putrescible) | ✓ | Demolition, Construction |
| Carpet Tiles | General solid waste (non-putrescible) | ✓ | Demolition, Construction |
| Vinyl | General solid waste (non-putrescible) | Potential | Demolition, Construction |
| Plastic (Artificial Turf and other durables (non-packing)) | General solid waste (non-putrescible) | Potential | Demolition, Construction |
| Plastic and foam packaging | General solid waste (non-putrescible) | ✓ | Construction |
| General refuse | General solid waste (putrescible), and General solid waste (non-putrescible) | ✓ | Excavation and Construction |

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| Waste Type | EPA Classification | Generated | Project Phase |
|---|---|---|---|
| Electrical (HV and LV) | General solid waste (non-putrescible) | ✓ | Demolition, Construction |
| Optic fibre wiring | General solid waste (non-putrescible) | Potential | Demolition, Construction |
| Light bulbs | Hazardous waste | Potential | Demolition, Construction |
| Batteries | Hazardous waste | Potential | Demolition, Construction |
| Empty drums (e.g. oil, fuel, chemicals, paint, spill clean-up) | Hazardous waste if the containers previously used to store Dangerous Goods (Class 1, 3, 4, 5 or 8) and from which residues have not been removed by washing or vacuuming.<br>General solid (non-putrescible) waste if containers cleaned by washing or vacuuming. | Potential | Demolition, Excavation, Construction |
| PVC pipes (stormwater, electrical, optic fibre, sewer) | General solid waste (non-putrescible) | Potential | Demolition, Construction |
| Site runoff (wastewater) | Liquid waste | Potential | Demolition, Construction |
| Sewage | Liquid waste | Potential | Demolition, Construction |
| Asbestos containing materials | Special waste | ✓ | Demolition |
| Lead based paints | Hazardous waste | Potential | Demolition |

### 4.1.3 Waste Quantities

**Demolition**

During the development of a detailed schedule of planned works, the quantity of waste generated, and the locations of temporary waste storage areas will be confirmed. Based on initial site inspections and appraisal by the demolition/construction contractor, waste quantities will be estimated.

The demolition schedule will be developed to ensure appropriate temporary waste storage areas are available for storage of demolition waste. If required, waste will be periodically removed from the site during the demolition works to ensure there is sufficient waste storage capacity available.

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**Construction**

Indicative quantities of waste likely to be generated during construction (excluding excavation and other enabling works) will be determined when the detailed demolition schedule has been established. It is expected that actual waste quantities and composition will vary depending on outcomes of detailed design, materials specification and construction planning and methods.

Indicative waste volumes have been provided for context based on benchmark data developed by the UK Building Research Establishment Group (BRE 2012[1]), see **Table 4.3**), which is based on waste generation at various construction projects including healthcare, commercial, industrial and public buildings.

A value of 13 $m^3$ per 100 $m^2$ has been adopted to estimate waste generation for the construction phase of this project, for industrial building waste. Indicative waste composition information shown in the **Table 4.4** below (derived from the Sustainability Victoria Waste Wise Tool Kit (2013[2])) provides an estimate of quantities for each waste stream during construction of an industrial building. **Table 4.5** shows approximate quantities of each waste type to be produced during the construction phase of the project, based on the Sustainability Victoria Waste Wise Tool Kit (2013) values. These values are an estimation and may vary from actual amounts of waste produced during construction.

Strategies that will be implemented to minimise waste generation and maximise reuse and recycling are outlined in **Section 4.2**.

**Table 4.3: Average Volumes of Waste Produced by Different Project Types**

| Project Type | Average volume ($m^3$) of waste per 100$m^2$ |
|---|---|
| Residential | 18.1 |
| Public buildings | 20.9 |
| Leisure | 14.4 |
| Industrial Buildings | 13.0 |
| Healthcare | 19.1 |
| Education | 20.7 |
| Commercial Other | 17.4 |
| Commercial Offices | 19.8 |
| Commercial Retail | 20.9 |

Source: BRE (2012)

[1] Building Research Establishment Group. *Smartwaste - BRE Waste Benchmark Data* (BRE 2012)

[2] Sustainability Victoria Waste Wise Tool Kit (2013)

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**Table 4.4: Guide to Waste Composition and Volumes – Construction**

| Material | Estimated Waste % | Conversion Factor (Density) (Tonne per $m^3$) |
|---|---|---|
| Hard material | 32% | 1.2 |
| Timber | 24% | 0.3 |
| Plastics | 15% | 0.13 |
| Cement sheet | 9% | 0.5 |
| Gypsum material | 6% | 0.2 |
| Metals | 6% | 0.9 |
| Paper / card | 4% | 0.1 |
| Vegetation | 3% | 0.15 |
| Soil | 1% | 1.6 |
| Other | 0.3% | 0.3 |

Source: Sustainability Victoria Waste Wise Tool Kit (2013)

**Table 4.5: Approximate Quantities of Waste Generated During Construction Phase**

| Waste Type | Approximate quantity ($m^3$) |
|---|---|
| Hard material | 2020.6 |
| Timber | 378.9 |
| Plastics | 102.6 |
| Cement sheet | 236.8 |
| Gypsum material | 63.1 |
| Metals | 284.1 |
| Paper / card | 21.0 |
| Vegetation | 23.7 |
| Soil | 84.2 |
| Other | 4.7 |

Source: Sustainability Victoria Waste Wise Tool Kit (2013)

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## 4.2 Waste Management

Site specific waste management measures have been developed in line with the waste hierarchy outlined in **Section 3.3** and in accordance with the relevant legislative requirements and guidelines. These measures are applicable to the demolition and construction phases of the project.

### 4.2.1 Avoidance and Reduction of Waste

The demolition, excavation and construction contractor will be required to avoid waste generation, and endeavour to reuse materials where possible, thereby minimising waste generation.

During the construction phase, waste generation will be avoided through strategic selection of materials during design and purchasing, considering options to reduce waste generation for the project. This includes consideration of procurement of materials which are prefabricated, use minimal packaging, and are suitable for reuse across the site. Selection of construction materials will also consider the use of recycled items where practicable.

Opportunities to avoid wastes generated by construction include:

- Develop a procurement policy which considers waste avoidance measures such as:
    - Order site specific or prefabricated items where practicable to minimise surplus material;
    - Consider packaging material provided by suppliers during purchasing and reduce this requirement where possible, or consider returnable packaging;
    - Material selection to consider recycled items;
- Refine waste stream estimates to ensure adequate on-site storage and segregation; and
- Refine estimated volumes of materials for construction.

### 4.2.2 Reuse and Recycling

For waste materials onsite, measures to separate waste streams will be implemented. This includes segregating wastes into appropriate dedicated bins or areas for reclamation on site or transportation to a designated recycling facility.

Concrete waste and waste rinse water are not to be disposed of at the site and rinse waters are required to be prevented from entering surface waters, including natural and artificial watercourses.

If material containing asbestos is identified and cannot be safely removed/encapsulated, off-site disposal is the most appropriate option. The construction contractor will then liaise with a licensed asbestos removalist to determine a suitable disposal facility. Measures for dealing with hazardous waste (asbestos) are discussed in **Table 4.6**.

Procedures to manage the reuse and recycling of waste materials during construction include:

- Incorporation of waste management into development staging to promote reuse of materials across the site;
- Ensure areas for waste segregation are easily accessible and clearly defined;
- Ensure contractors are familiar with onsite waste storage areas for appropriate waste segregation;
- Determine suitability of materials generated during demolition for use in construction; and
- Consider opportunities for materials reuse in areas in proximity to the site or local construction activities where practicable.

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### 4.2.3 Treatment and Disposal

Project wastes may require treatment to stabilise them for appropriate disposal to reduce the risk of harm to human health or the environment. These materials are not suitable for reuse or recycling and must be segregated and disposed of via a suitably qualified contractor.

Wastes will only be sent to landfill or disposal facilities where the prioritised management methods in the hierarchy cannot be effectively implemented. The construction contractor will liaise with the local council to determine appropriate disposal locations for potential waste streams.

Measures to manage the treatment and disposal of waste materials during construction include:

- Ensure wastes which cannot be reused or recycled and require disposal are clearly segregated from those which have the potential to be reused.
- Provide segregated bins for subcontractors to dispose of construction waste (i.e., metal, plastics and cardboard).
- Contractors and staff to be inducted into site waste management practices.
- Hazardous materials including asbestos (if identified) to be disposed of in accordance with the handling and disposal requirements of SafeWork NSW and NSW EPA.
- General wastes to be disposed of in accordance with NSW EPA/local council requirements.
- Toilet facilities must be regularly serviced and emptied by a licensed contractor.

Concrete waste and waste rinse water are not to be disposed of at the site and rinse waters are required to be prevented from entering surface waters, including natural and artificial watercourses.

### 4.2.4 Waste Stream Management Options

The waste management measures outlined in **Table 4.6** will be implemented for each waste stream generated as part of the project. Key waste streams identified for this project have been discussed in more detail in this section to ensure appropriate waste handling for each type of waste.

Each waste stream will be separated and stored appropriately to ensure each type of waste is handled in the most appropriate and efficient way. The numbers and size of waste storage bins, containers, stockpile areas and loading zones on site will be determined by the demolition/excavation and construction contractor.

The Principal Contractor appointed by the client will implement its own waste management systems in accordance with this plan to ensure any existing waste management systems are not impacted by the redevelopment works.

### 4.2.5 Other Considerations

To ensure waste is not unintentionally tracked off-site, the vehicles or trailers used to transport waste or excavated spoil from the site will be covered before leaving the subject site, to prevent spillage or escape of dust, waste or spoil from the vehicle or trailer. Any mud, splatter, dust and other material that is likely to be released from the wheels, underside or body of vehicles, or plant leaving the site will also be removed through a shaker bay or wash down area prior to leaving the subject site.

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**Table 4.6: Waste Stream Management**

| Waste Stream | Project Phase | Management |
|---|---|---|
| **Concrete** | Demolition and Construction | Concrete waste is likely to be generated during the demolition phase and the construction of the new building.<br><br>Concrete may also be generated from demolition of existing hardstand areas including kerbing and footpaths for external and landscaping works.<br><br>There is also a possibility that concrete waste may be generated from excess concrete poured during construction, although this will be minimised wherever possible using the methods outlined in **Section 4.2.1**.<br><br>Concrete can be reprocessed and may, in some instances, be reused across the subject site, however, the general practice is to break up/crush the concrete and arrange for disposal to a recycling facility or disposal offsite.<br><br>Options may include disposal of excess concrete to a HDPE lined pit on site, to allow for regular reprocessing or disposal to a recycling facility. Wet supply may be placed back into supply trucks to return to the producer at the cost of an additional fee. |
| **Soil** | Demolition, Excavation and Construction | Soil is likely to be generated during establishment activities, removal of trees, potential excavation to establish required site levels, installation of infrastructure and other construction activities. Soil surplus to the site requirements will be sampled, analysed and classified in accordance with NSW EPA Waste Classification Guidelines (EPA 2014) prior to for offsite disposal at a facility that is licensed to accept that class of waste.<br><br>As no previous environmental reports were provided by the client, whilst a 90% recycled and re-used target has been set for the project, it is anticipated that the excavated materials that meet the relevant site reuse criteria will, where possible be reused to establish the required site levels during construction works. A soil management plan (as part of a Construction Environmental Management Plan) will be developed to provide guidance for all soil testing, excavation, reuse and disposal works.<br><br>In general, it is expected that assessment of relevant material will identify that undisturbed natural soil and bedrock at the site will meet the definition of VENM for off-site disposal or re-use purposes. VENM is considered suitable for re-use on-site, or alternatively, may be suitable for beneficial reuse at another site as fill material. In accordance with Part 1 of the Waste Classification Guidelines (EPA 2014), the VENM is pre-classified as general solid waste and may also be disposed of accordingly to a facility that is licensed to accept it.<br><br>Where stockpiling is required prior to redistribution, control measures to avoid sediment and erosion will be implemented where appropriate. This may include establishing a bund or lining of the base with an impermeable HDPE plastic liner. |

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| Waste Stream | Project Phase | Management |
|---|---|---|
| | | Where excess soil cannot be redistributed or has been situated in proximity to asbestos containing materials, the soil is required to be treated and/or disposed of, potentially as low-level contaminated waste via a licensed removalist to a disposal facility. |
| **Rock and excavated stone** | Demolition, Excavation and Construction | Rock and excavated stone may be generated during potential excavation and construction of new buildings for footing and foundation construction.<br><br>Depending upon the quantities and properties of the materials generated, materials may be used as aggregate or sub-base for other works across the site as described in the **Soil** section above. |
| **Metals** | Demolition and Construction | Metal wastes are likely to be generated during removal of roofing within the demolition/site establishment phase. There is also a possibility that metal waste may be generated from excess materials purchased for the site as part of construction work, although this will be minimised wherever possible using the methods outlined in **Section 4.2.1**.<br><br>Principal Contractor appointed by the client will investigate and determine appropriate storage and recycling of metals to reduce waste, including location and signage of skip bins onsite.<br><br>Where recycling of metal is not feasible, for example distribution to salvage yards for reuse, the contractor will organise disposal of the timber to a licensed waste facility. |
| **Green Waste/ Wood Waste** | Demolition, Excavation, Construction | Green/wood waste is likely to be generated during removal of trees and excavation of topsoil (mulch) for site grading purposes. It is likely that wood waste (timber) may be generated during the demolition phase as well as from excess materials purchased as part of building construction works, although this will be minimised wherever possible using the methods outlined in **Section 4.2.1**.<br><br>Principal Contractor appointed by the client will investigate and determine appropriate storage and recycling of timber to reduce waste, including location and signage of skip bins onsite. |
| **Plasterboard** | Demolition, Construction | Plasterboard is likely to be generated during the demolition phase as well as the construction of new buildings, although this will be minimised wherever possible using the methods outlined in **Section 4.2.1**.<br><br>Principal Contractor appointed by the client will investigate and determine appropriate storage and recycling of plasterboard to reduce waste, including location and signage of skip bins onsite.<br><br>Uncontaminated plasterboard (e.g. offcuts) or material with low levels of contamination such as nails and screws is completely recyclable and can be recycled for use in new plasterboard or the gypsum used in agricultural soil conditioners. |

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| Waste Stream | Project Phase | Management |
|---|---|---|
| **Plastics** | Construction | Plastic wastes associated with packaging for construction materials can be recycled or in some cases returned to the supplier of the materials for reuse. Where possible, plastic (non-durable) wastes will be reduced using the methods outlined in **Section 4.2.1**. |
| **General Waste** | Demolition, Excavation and Construction | Wastes such as food waste, organics and biodegradable material will be created as a result of worker activity on site. Non-putrescible wastes are generally inert, or solid, and are not able to be composted, recycled, reprocessed or reused.<br><br>Principal Contractor appointed by the client will ensure adequate bins are provided on site for putrescible waste. This is particularly important around worker congregation areas, site office areas and toilet facilities.<br><br>It is likely that general waste will increase at times of internal and service fit out during construction, primarily associated with excess packaging materials and workers on site. Principal Contractor will determine the location of skip bins and specify waste stream separation measures across the site.<br><br>Where possible, co-mingled recycling bins will be provided in common areas at work sites for plastic and glass bottles, soft drink cans, aluminium and tin cans to avoid these items being disposed to landfill. Specialised bins for cigarette butts will also be provided in designated smoking areas. |
| **Hazardous Waste – General** | Demolition, Excavation and Construction | Small quantities of hazardous wastes may be uncovered during the demolition phase. Hazardous waste could also be generated during construction of new buildings (e.g. light bulbs, batteries, used drums from oil, fuel, chemicals or paint).<br><br>Separate containers for the safe storage of these wastes will be provided where applicable, prior to removal offsite by an appropriately licensed contractor for recycling or disposal at a licensed facility. |

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| Waste Stream | Project Phase | Management |
|---|---|---|
| **Hazardous Waste – Asbestos** | Demolition and Excavation | Asbestos poses a risk to human health through exposure of loose fibres when damaged or disturbed. As such, asbestos is classified as special waste under the POEO Act, and the EPA (2014) Waste Classification Guidelines. Special wastes pose unique regulatory requirements due to the management responsibilities to minimise risk of harm.<br><br>A prior Hazardous Material Survey has identified the presence of asbestos containing materials on the proposed site. When asbestos containing materials are identified within work areas and require removal, a site and material specific asbestos removal control plan (ARCP) will be developed by a competent person or a licenced asbestos assessor or licensed asbestos removal contractor prior to the commencement of any asbestos removal works. The ARCP will be developed in accordance with the requirements of SafeWork NSW How to Safely Remove Asbestos, Code of Practice 2016. Controls may include:<br>• Appropriate PPE including respiratory protective equipment<br>• Air monitoring undertaken by an accredited expect<br>• The asbestos work area and removal site will be clearly defined and restricted to unauthorised personnel<br><br>All asbestos removal, transport and disposal must be performed in accordance with NSW legislative requirements including storing or wrapping in polythene bags.<br><br>Any asbestos removed from site will be inspected by a competent person or licenced asbestos assessor prior to movement to the waste disposal facility. |

## 4.3 Roles and Responsibilities

This WMP forms the basis of waste management on site for the demolition/excavation and construction phase of the 6 Grand Avenue redevelopment works.

It is expected that all demolition and construction personnel will commit to the WMP and be responsible for their own actions in adhering the waste management objectives. Waste management criteria (such as those contained in this report) is to be contractually binding for all contractors working on the site.

A Construction Site Manager will be the key person responsible for implementation of the WMP and adherence to applicable legislation, guidelines, licensing and project conditions outlined herein.

**Table 4.7** presents suggested responsibilities for waste management.

**Table 4.7: Roles and Responsibilities**

| Role | Responsibility |
|---|---|
| Environmental Management Representative | • Compliance with applicable environmental licences, legislation and project conditions. Ensure environmental management plan(s) across the site are adhered to and accurate to site conditions.<br>• Undertake inspections to ensure compliance. |
| Construction Site Manager | • Ensuring workers and subcontractors are inducted into the WMP along with other applicable management plans.<br>• Responsible for undertaking procurement of construction materials in accordance with the waste management hierarchy.<br>• Segregation of waste streams where required to ensure appropriate use, treatment and/or disposal. |
| Health and Safety Manager | • Safety inductions for all staff, workers and visitors.<br>• Work with Construction Site Manager to determine safe handling of asbestos waste in compliance with regulatory requirements. |
| Site Workers | • Responsible for acting in accordance with the WMP and site inductions.<br>• Informing the Construction Site Manager of any waste management incidences and Health and Safety Manager of any safety issues associated with on-site activities. |

### 4.3.1 Training and Awareness

Staff present on site during the construction stage of the project will be required to undertake induction and awareness training inclusive of the WMP and site-specific waste management. This includes:

- Induction to the waste management hierarchy and use across the site; and
- Details of responsibilities for waste management and key personnel;
- Site specific waste management practices relevant to the project stage such as:
    - Waste storage and stockpiling locations;
    - Waste disposal requirements;
    - Hazardous or special wastes;
    - Record of waste disposal details and receipts; and
- Knowledge of emergency response procedures and contacts; and
- Asbestos Awareness Training.

Signage will be provided on site to ensure waste management measures are communicated across the subject site, particularly for contractors and visitors who are not regularly on site. Signage will highlight correct procedures for separating wastes where required, locations of bins and waste storage areas, labelling of designated bins, potential hazards associated with the waste streams and handling, and contact details should any issues be encountered.

Signage will be prepared and located on site in accordance with the Australian Standard (AS 1319) for safety signs, and the NSW EPA and Australian Standard for recycling signage.

## 4.4 Monitoring and Reporting

The following activities will be undertaken to inform future onsite waste management and to determine the success of the WMP:

- Ensure waste quantities generated are recorded, including tracking of receipts from waste recycling or disposal via the appointed waste contractor;
- Record waste classification and testing results;
- Review the WMP in light of any changes to construction activities or further information which may alter waste management practices;
- Undertake auditing of waste management across the site as a component of broader environmental site audits;
- Undertake visual inspections daily to ensure waste management controls are implemented and maintained across site; and
- Undertake final review of the WMP upon project completion to ensure information accurately reflects site activities, and to assist future waste management.

Outcomes of audits and waste tracking will be reported to the client or the Principal Contractor, potentially through weekly or monthly reporting to ensure waste management objectives are adhered to.

### 4.4.1 Corrective Action

Where formal auditing, daily visual inspections or incident reporting identify incorrect storage or disposal procedures, or maintenance or waste management issues, observations will be promptly reported to the Construction Site Manager and recorded. The Construction Site Manager will determine appropriate measures to rectify the issues in a timely manner in consultation with the Environmental Management Representative and Health and Safety Manager where required.

# 5. Operation

## 5.1 Waste Stream and Classification

### 5.1.1 Site Specific Waste Streams

Potential waste types and corresponding EPA classifications for the operation of facilities constructed on the site are summarised in **Table 5.1**.

**Table 5.1: Potential Waste Types and Classifications**

| Waste Type | EPA Classification | Waste Stream |
|---|---|---|
| Paper including all types of recyclable paper but excluding paper towels, toilet paper and tissues. | General solid waste (non-putrescible) | Paper recycling |
| Cardboard, excluding waxed cardboard. | General solid waste (non-putrescible) | Cardboard recycling |
| Metals (steel, aluminium, stainless steel, and copper piping or wire) | General solid waste (non-putrescible) | Co-mingled recycling, specific recycling or general waste |
| Wood (timber, wooden pallets) | General solid waste (non-putrescible) | Specific recycling or general waste |
| Plastics (recyclables) | General solid waste (non-putrescible) | Co-mingled recycling |
| Plastics (non-recyclables) | General solid waste (non-putrescible) | General waste |
| Soft plastics | General solid waste (non-putrescible) | Soft plastic recycling |
| Green waste (grass clippings and tree prunings) | General solid waste (non-putrescible) | General waste or compost |
| Glass including bottles and containers. | General solid waste (non-putrescible) | Co-mingled recycling |
| Light bulbs, batteries, e-waste | Potentially hazardous waste | Specific recycling |
| General refuse such as food scraps and non-recyclable plastics. | General solid waste (putrescible) or<br>General solid waste (non-putrescible) | General waste |

## 5.2 Waste Generation Quantities

### 5.2.1 Estimated Waste Quantities During Operation

At the time of writing this WMP, it is unknown what service each warehouse will provide once operational. Therefore, this WMP will address the potential waste generated by assessing general warehouse and office uses. On this basis, it is appropriate to estimate indicative waste generation quantities for the site from calculated waste generation rates as per the Sustainability Victoria Multi-unit and Commercial Development Waste and Recycling Generation Rates Calculator (2023). This source was selected for waste generation calculation as the City of Parramatta Waste Management Guidelines for new Development Applications (2016) document does not include waste generation rates.

To derive indicative quantities of waste upon construction completion it is assumed that the site will be categorised as ten warehouse spaces and ten office spaces under the Sustainability Victoria (2023) waste generation rates and will operate 7 days a week. The ten assumed warehouse spaces will comprise of an area of 36,870 $m^2$ and the ten assumed office spaces will comprise of an area of 3,607 $m^2$.

**Table 5.2** summarises the waste generation rates based on Sustainability Victoria (2023). This table estimates waste generation rates for generic warehouse/distribution centre activities. Waste generation rates of the office areas have been calculated to account for administerial waste etc.

**Table 5.2: Sustainability Victoria (2023) Estimated Average Waste and Recycling Generation Rates**

| Premises Type | Area of Space ($m^2$) | Average Waste Generation | Average Recycling Generation |
|---|---|---|---|
| Warehouse | 36,870 | 10 L / per day / per 100$m^2$ | 10 L / per day / per 100$m^2$ |
| Offices | 3,607 | 10 L / per day / per 100$m^2$ | 10 L / per day / per 100$m^2$ |

From the rates in the table above, it is estimated that the site will produce approximately the following amount of waste per day:

- Waste: 28,334 L
- Recycling: 28,334 L

This current estimate is based on generic office and warehouse/distribution centre uses. It is expected that actual waste quantities and composition will depend on the final activities of the site.

Strategies that will be implemented to minimise waste generation and maximise reuse and recycling are outlined in **Section 5.3.1**.

## 5.3 Waste Management

### 5.3.1 EPA Waste Classification

**Avoidance and Reduction of Waste**

The ongoing site users will be required to minimise waste generation, and endeavour to reuse waste where available. Waste will be avoided through strategic selection of materials during purchasing which takes into account options which may reduce waste generation during ongoing operation of the site. This includes considering procurement of materials which use minimal packaging and are suitable for reuse. Selection of operational materials will also consider the use of recycled items where practicable.

Opportunities to avoid wastes generated by operation include:

- Develop a procurement policy which considers waste avoidance measures such as:
    - Order site specific or prefabricated items where practicable to minimise surplus material.
    - Consider packaging material provided by suppliers during purchasing and reduce this requirement where possible or consider returnable packaging.
    - Material selection to consider recycled items.
- Refine waste stream estimates to ensure adequate on-site storage and waste segregation, and to inform future procurement policies.

**Reuse and Recycling**

Measures to separate waste streams will be implemented to maximize re-use and recycling. This includes segregating wastes into appropriate dedicated bins or areas for reclamation on site or transportation to a designated recycling facility.

Procedures to manage the reuse and recycling of waste materials during operation include:

- Incorporate waste management into site management procedures to promote reuse and/or recycling of materials.
- Ensure areas for waste segregation are easily accessible and clearly defined.
- Ensure staff are familiar with onsite waste storage areas for appropriate waste segregation.
- Consider opportunities for materials reuse and/or recycling where practicable.

**Treatment and Disposal**

Operational wastes may require treatment to stabilise them for appropriate disposal to reduce the risk of harm to human health or the environment. These materials may not be suitable for reuse or recycling and will be segregated and disposed of via a suitably qualified contractor for the waste stream.

Wastes will only be sent to landfill or disposal facilities where the prioritised management methods in the hierarchy cannot be implemented in a cost effective or practical manner. The site manager will liaise with the local council to determine appropriate disposal locations for potential waste streams.

Measures to manage the treatment and disposal of waste materials during operation include:

- Ensure wastes which cannot be reused or recycled and require disposal are clearly segregated from those which have the potential to be reused.
- Provision of segregated waste bins for each waste type.
- Maintenance staff to be inducted into site waste management practices.

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- Hazardous materials to be disposed of in accordance with the handling and disposal requirements of SafeWork NSW and NSW EPA.
- General wastes to be disposed of in accordance with local council requirements.

### 5.3.2 Waste Storage Systems and Designated Waste Areas

Due to the unknown future occupants of the warehouses located on site, any waste storage systems implemented are subject to change.

Based on the volumes of waste calculated in **Section 5.2.1**, the estimated numbers of bins are provided in **Table 5.3**. The below estimates are for the entire site (i.e the ten proposed warehouses combined) and so the bins will be split across ten waste storage areas (WSA).

**Table 5.3: Operational waste storage requirements for whole development**

| Type | Estimated Storage Vessels | Estimated Volume of Storage | Calculated Waste Volumes (Table 5.2 5.2.1) |
|---|---|---|---|
| Waste | 26 x 1,100 L wheelie bins/mobile garbage bins (MGB)<br>(or another combination) | 28,600 L | 28,334 L |
| Recycling | 26 x 1,100 L wheelie bins/mobile garbage bins (MGB)<br>(or another combination) | 28,600 L | 28,334 L |

As per Appendix A (design drawings) there is a designated WSA within each unit (located adjacent to the loading areas of each warehouse).

To ensure the waste requirements are action during operation, each tenant is to provide their own operational waste management plan (OWMP) which will be written into their tenancy agreements.

### 5.3.3 Waste Facilities Construction / Maintenance

All waste facilities must comply with the Building Code of Australia (BCA) and all relevant Australian Standards (AS) in accordance with the requirements of the City of Parramatta DCP (2011).

### 5.3.4 Waste Collection

The WSA are located adjacent to the loading areas of each warehouse and therefore easily accessible when collection is required.

Waste collection vehicles shall not obstruct access to adjacent premises, roadways or the footpath. In addition, waste collection must be carried out with due care for public safety including other road users, cyclists and pedestrians.

Each warehouse opens onto the communal hardstand of the site (**Appendix A**) from its assigned loading dock. This shared space allows for all bins to be collected by a waste collection vehicle from the same approximate area. The waste collection vehicle will have adequate manoeuvring space around the site and will not have to reverse at any time while collecting bins from the site.

A licensed waste contractor will need to be engaged in order to ensure waste is correctly removed from the facility. All potential waste streams must be accounted for when hiring a waste collection contractor. Written evidence of the contract with the licensed collector for waste and recycling collection is to be provided to the client and the City of Parramatta Council and held on site.

## 5.4 Ongoing Management

This WMP is intended to be a starting point for the empty warehouses once construction of the site is complete. If the final warehouses are occupied by different third-party companies, then separate OWMPs must be provided by each separate company.

Having suitable waste management systems in place is only one element of an effective waste management system at a "commercial" facility. Compliance by the administrative manager, staff, cleaning contractors and waste collection contractor is essential to ensure the efficacy of the system.

### 5.4.1 Roles and Responsibilities

It is expected that all personnel will commit to the WMP and be responsible for their own actions in adhering to the waste management objectives.

An Administrative Manager will be the key person responsible for implementation of the WMP and adherence to applicable legislation, guidelines, licences and project conditions. The Administrative Manager will also be responsible for maintenance of the cleaning infrastructure such as the service doors, locks, lighting, signage, colour coding and repair/replacement of MGBs.

**Table 5.4** below presents suggested responsibilities for waste management.

**Table 5.4: Roles and Responsibilities**

| Role | Responsibility |
|---|---|
| Administrative Manager | Ensuring staff are inducted into the WMP and other applicable management plans.<br>Responsible for undertaking procurement of operational materials in accordance with the waste management hierarchy.<br>Segregation of waste streams where required to ensure appropriate use, treatment and/or disposal.<br>Compliance with applicable environmental legislation and project conditions.<br>Ensure environmental management plan(s) across the site are adhered to and accurate to site conditions.<br>Undertake inspections to ensure compliance.<br>Maintenance of waste-related signage, colour coding and MGBs.<br>Security of waste storage areas during day-to-day business.<br>Ensure no waste is placed on the public way. |
| Staff | Adherence to the WMP.<br>Placement of waste/recycling within correct bins.<br>Notify manager when bins are overfull and require transport to the MGBs.<br>Informing the Administrative Manager of any waste management incidences. |
| Licensed Waste Collection Contractor | Responsible for collection, disposal and/or recycling of waste in accordance with contract and relevant legislation and guidance.<br>Provide feedback on actual volumes of waste and recycling collected to enable waste volume evaluation by Administrative Manager. |

### 5.4.2 Training and Awareness

All staff and contractors will undertake awareness training of the WMP and site-specific waste management. This includes:

- Induction to the waste management hierarchy and use across the site.
- Details of responsibilities for waste management and key personnel.
- Site specific waste management practices such as:
    - Waste storage and stockpiling locations;
    - Waste disposal requirements;
    - Hazardous or special wastes; and
    - Record of waste disposal details and receipts.
- Knowledge of emergency response procedures and contacts.

Signage will be provided on site to ensure waste management measures are communicated across the site. Signage will highlight correct procedures for separating wastes where required, locations of bins and waste storage areas, labelling of designated bins, potential hazards associated with the waste streams and handling, and contact details should any issues be encountered.

Signage will be prepared and located on site in accordance with the Australian Standard (AS 1319) for safety signs, and the NSW EPA and Australian Standard for recycling signage.

## 5.5 Monitoring and Reporting

The following activities will be undertaken to inform future onsite waste management and to improve the efficiency in achieving the outcomes of the WMP:

- Review of waste streams and waste quantities.
- Review the WMP in light of any changes to operational activities or further information which may alter waste management practices.
- Undertake auditing of waste management across the site as a component of broader environmental site audits.
- Undertake visual inspections to ensure waste management controls are implemented and maintained across site.
- Undertake annual review of the WMP to ensure information accurately reflects site activities, and to assist future waste management.

Where formal auditing, general inspections or incident reporting identify incorrect storage or disposal procedures, or maintenance or waste management issues, observations will be promptly reported to the Administrative Manager and recorded. The Administrative Manager will determine appropriate measures to rectify the issues in a timely manner.

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# 6. Closing

This WMP must be in accordance with the site's SEARs application which requires the following waste management measures to be addressed:

*'Identify, quantify and classify the likely waste streams to be generated during construction and operation. Provide the measures to be implemented to manage, reuse, recycle and safely dispose of this waste. Identify appropriate servicing arrangements for the site.'*

This WMP was written at a time when future potential occupants of each warehouse were unknown. As such, this WMP addresses the potential waste generated by assessing generic warehouse/distribution centre uses.

Prior to commencement of construction, a Construction Environmental Management Plan (CEMP) will need to be developed. This WMP will form a sub-plan of the CEMP for the redevelopment works. The CEMP must also include a soil management plan and an asbestos removal control plan.

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# 7. Limitations

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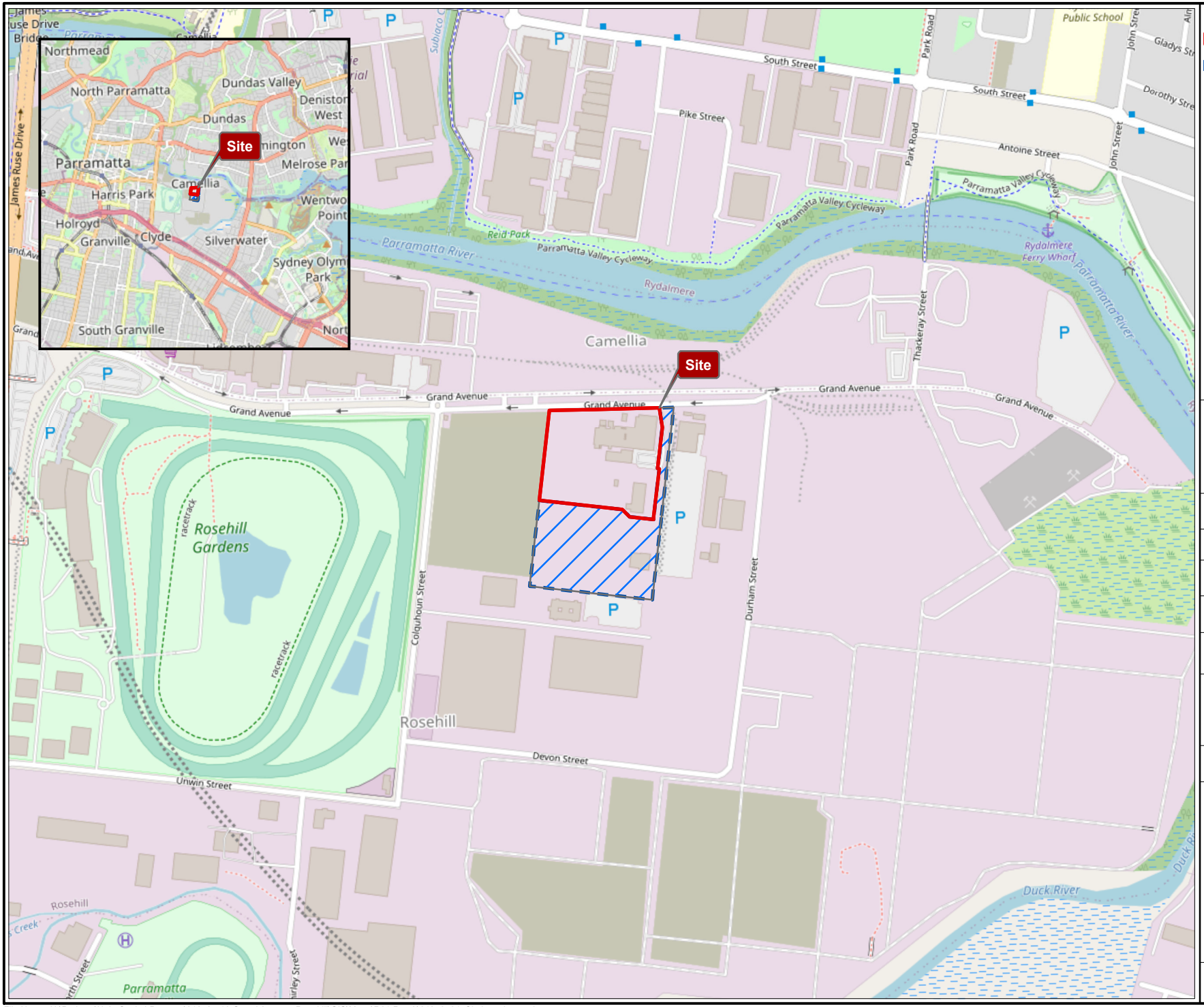
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# Figures

**Figure 1: Site Location**

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**Legend**

- Approximate Site Boundary - Stage 2
- Stage 1 – Not Part of Current Investigation

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| | |
|---|---|
| Job No: 61873 | |
| Client: Hale Capital Partners | |
| Version; R02 Rev 0 | Date 22/10/2021 |
| Drawn By: JA | Checked By: JZ |
| Scale 1:10,000 | |

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metres

Coord. Sys. GDA 1994 MGA Zone 56

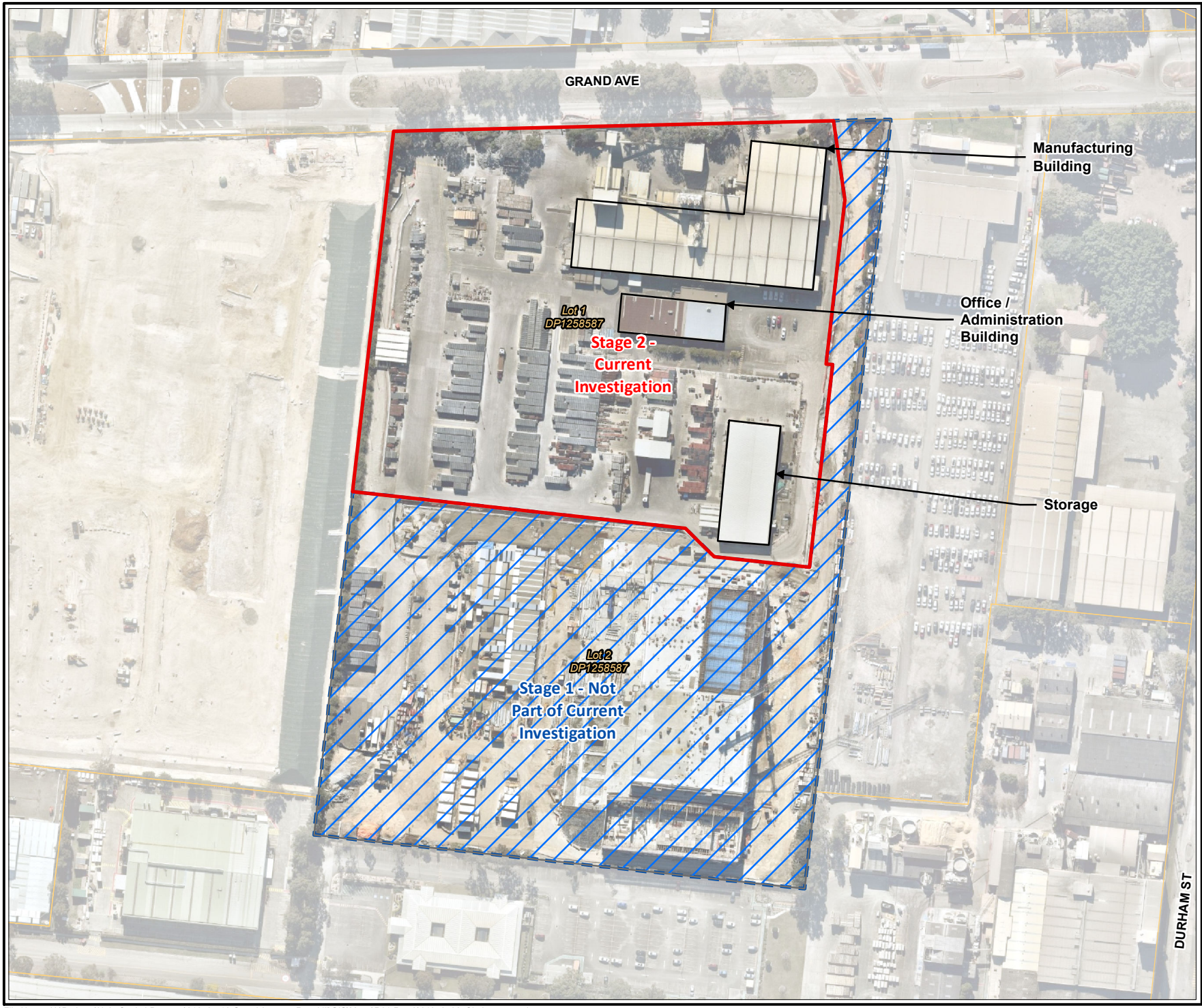
**6 Grand Avenue, Rosehill, NSW**

**SITE LOCATION**

**FIGURE 1**

File Name: N:\Projects\Hale Capital Partners\61873 - 10 Grand Avenue, Rosehill\GIS\Maps\R01 Rev A\61873_01_SiteLocation.mxd
Reference: © OpenStreetMap (and) contributors, CC-BY-SA

**Figure 2: Site Layout**




**Legend**

- Approximate Site Boundary - Stage 2
- Stage 1 – Not Part of Current Investigation
- NSW Cadastre (DFSI, 2021)
- Site Features

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|---|---|
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| Client: Hale Capital Partners | |
| Version: R02 Rev 0 | Date 22/10/2021 |
| Drawn By: JA | Checked By: JZ |
| Scale 1:2,500 | |

0 25 50
metres

Coord. Sys. GDA 1994 MGA Zone 56

**6 Grand Avenue, Rosehill, NSW**

**SITE LAYOUT**

**FIGURE 2**

File Name: N:\Projects\Hale Capital Partners\61873 - 10 Grand Avenue, Rosehill\GIS\Maps\R01 Rev A\61873_02_SiteLayout.mxd
Reference: Nearmap - www.nearmap.com.au (Capture Date: 07/08/2021)

# Appendix A Design Drawings

Hale




1 WAREHOUSE - GROUND FLOOR 1 : 500

GENERAL LEGEND:

B1 - BOLLARD TYPE 1
COL-C - CONCRETE COLUMN
COL-S - STEEL COLUMN
RSD - ROLLER SHUTTER DOOR
FCC - FIRE CONTROL CENTRE
FNC-1 - PALISADE
FNC-2 - CHAIN WIRE
DP - DOWNPIPES
RW - RETAINING WALL
GEF - GROUND EXHAUST FAN
SEF - SMOKE EXHAUST FAN
SD/FD - SMOKE / FIRE DAMPER
TG1 - TELESCOPIC GATE
TYP - (TYPICAL)
SG1 - SLIDING GATE
SG2 - SWING GATE
SG3 - SWING GATE - PEDESTRIAN

SITE BOUNDARY
LOT BOUNDARY
BUILDING SETBACK
TO BE DEMOLISHED

EXISTING TREE TO BE RETAINED - REFER TO ARBORIST REPORT

S# SIGNAGE - REFER TO SIGNAGE DETAILS

FIRE SERVICES
LANDSCAPE AREA
WASTE AREA

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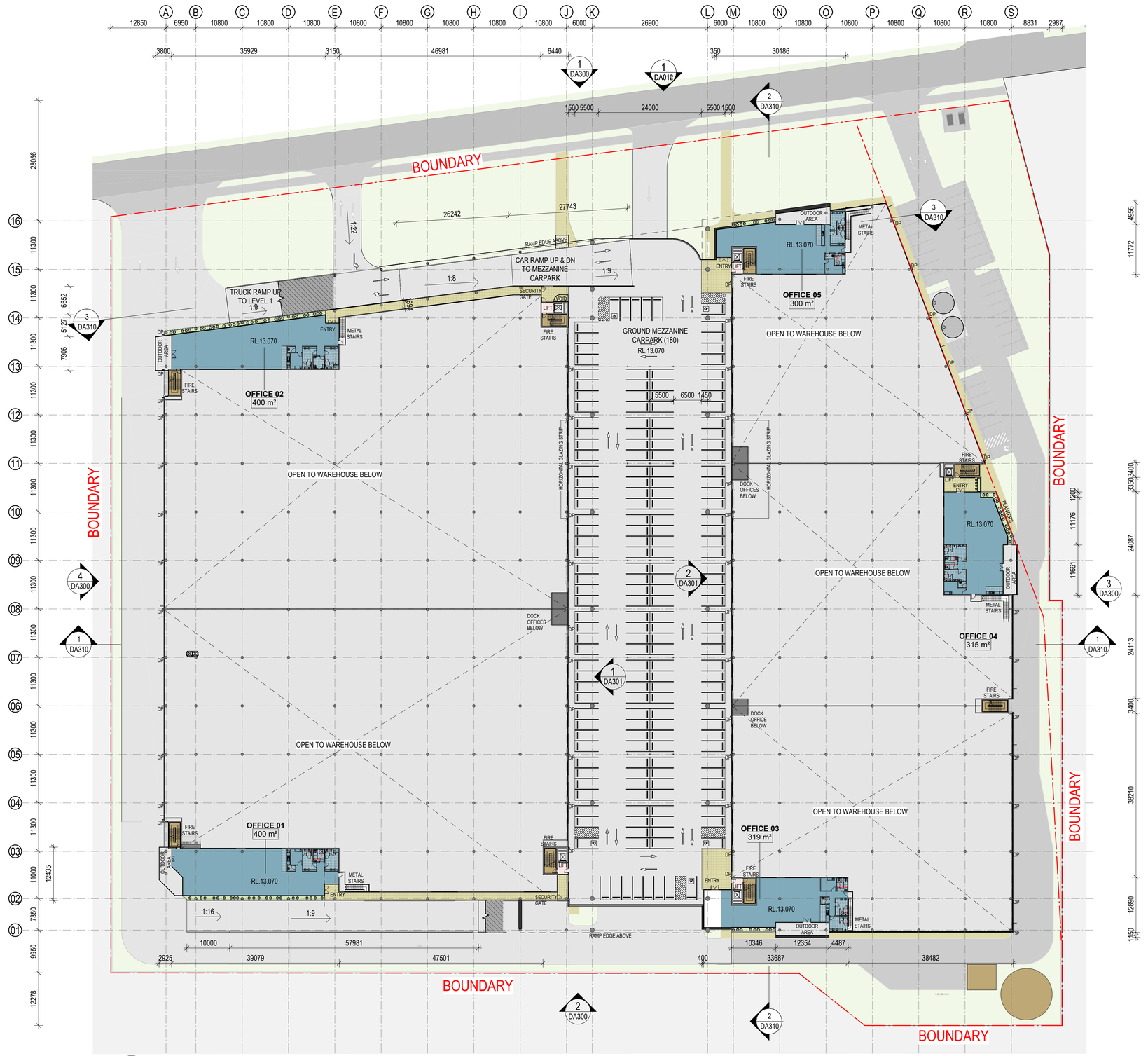
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1 MEZZANINE OFFICE - GROUND 1 : 500

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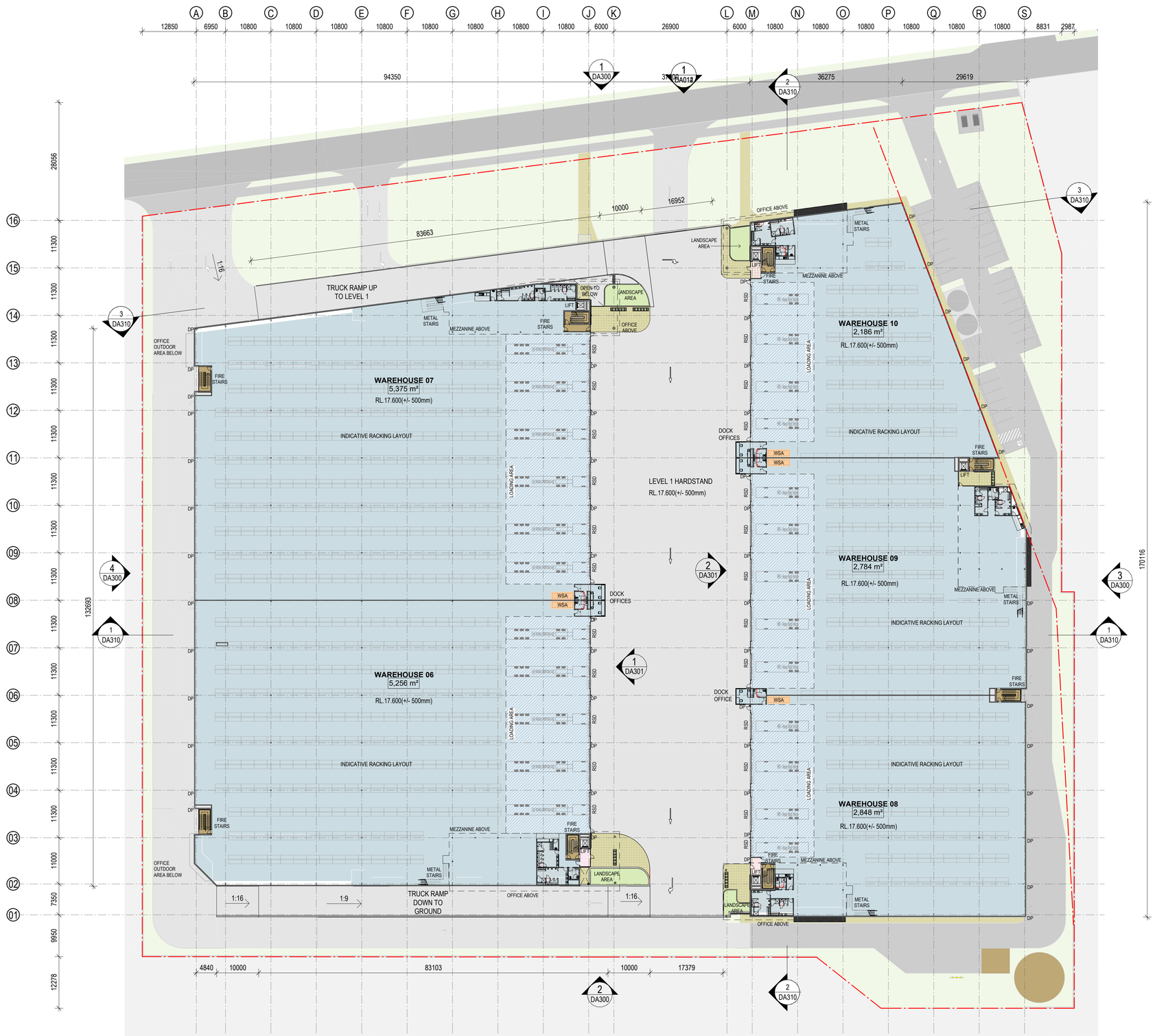
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1 WAREHOUSE - LEVEL 1 1 : 500

## GENERAL LEGEND:

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RSD - ROLLER SHUTTER DOOR
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SG3 - SWING GATE - PEDESTRIAN

SITE BOUNDARY
LOT BOUNDARY
BUILDING SETBACK
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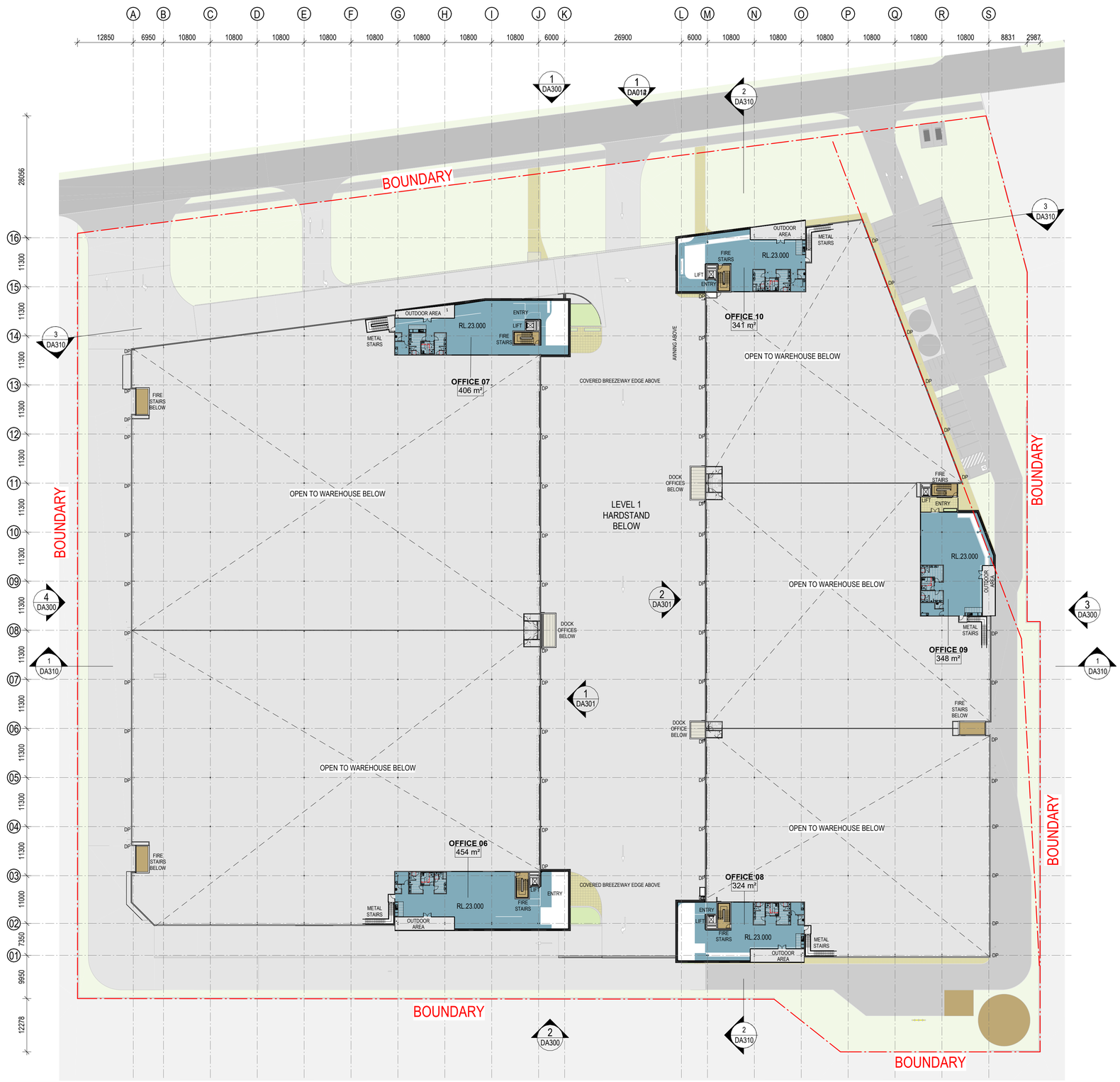
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1 MEZZANINE OFFICE - LEVEL 1 1 : 500

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# Appendix P Remedial Action Plan

## Construction Environmental Management Plan

**6 Grand Avenue, Rosehill NSW**

**Vaughan Constructions Pty Ltd**

SLR Project No: 640.031417.00001

# 6 Grand Avenue, Rosehill NSW

## Hale Capital Development Management Pty Ltd

## Remedial Action Plan

**61873 | 155,370**

**25 October 2023**

**We acknowledge the Traditional Custodians of Country throughout Australia and their connections to land, sea and community.**

We pay respect to Elders past and present and in the spirit of reconciliation, we commit to working together for our shared future.



**Caring for Country** The Journey of JBS&G
**Artist:** Patrick Caruso, Eastern Arrernte

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**Appendix B Historical Investigations – Summary Tables of Soil and Vapour Analytical Results**
**Appendix C Historical Investigations – Summary Tables of Groundwater Analytical Results**

# Abbreviations

| Term | Definition |
|---|---|
| ACM | Asbestos Containing Materials |
| AHD | Australian Height Datum |
| AMP | Asbestos Management Plan |
| ASS | Acid Sulfate Soils |
| bgs | Below Ground Surface |
| BTEX | Benzene, Toluene, Ethylbenzene and Xylenes |
| CEMP | Construction Environmental Management Plan |
| COPC | Contaminant of Potential Concern |
| CSM | Conceptual Site Model |
| DECCW | NSW Department of Environment, Climate Change and Water |
| DP | Deposited Plan |
| DQOs | Data Quality Objectives |
| ENM | Excavated Natural Material |
| HIL | Health Investigation Level |
| JBS&G | JBS&G Australia Pty Ltd |
| ha | Hectare |
| LTSMP | Long-Term Site Management Plan |
| OCP | Organochlorine Pesticides |
| OEH | Office of Environment and Heritage |
| PAHs | Polycyclic Aromatic Hydrocarbons |
| PASS | Potential Acid Sulfate Soils |
| PCB | Polychlorinated Biphenyls |
| POEO Act | Protection of Environment Operations Act |
| SAQP | Sampling, Analysis and Quality Plan |
| TRH | Total Recoverable Hydrocarbons |
| UST | Underground Storage Tank |
| VENM | Virgin Excavated Natural Material |
| VOCs | Volatile Organic Carbons |

# 1. Introduction

JBS&G Australia Pty Ltd (JBS&G) has been engaged by Hale Capital Development Management Pty Ltd (Hale, 'the client') to complete a remedial action plan (RAP) for proposed redevelopment at the property located at 6 Grand Avenue, Rosehill NSW (the site). The site is legally identified as Lot 1 in development plot (DP) 1258587 and occupies a total area of approximately 4.2 hectares (ha) and its location is shown on **Figure 1**. The site was previously part of a larger property that included land to the south of the site. The larger property was recently subdivided and redevelopment of the southern lot (Stage 1) is currently occurring as shown on **Figure 2**.

The site is currently occupied by CSR Building Products Ltd (CSR) and is used for the manufacture of roof tiles. The site includes a number of warehouses and also includes significant outdoor storage areas for tiles. The warehouses at the site were operational at the time of the assessment, and most of the outdoor space was utilised for package and material storage purposes.

A number of historical investigations have been completed at the site to assess the potential for contamination to be present that have identified asbestos in soils. This RAP details the procedures that will be implemented to remediate impacted soils in accordance with guidelines made or endorsed by the NSW Environment Protection Authority (EPA) and in consideration of the principles of ecologically sustainable development (ESD).

## 1.1 Objectives

The proposed remediation strategy aims to manage asbestos impacted soils during the site remediation works, and to develop a long term management plan to demonstrate no unacceptable health or ecological risks from impacts left in-situ.

To achieve this strategy, the specific objectives of this RAP are to:

- Summarise the site characteristics;
- Summarise the previous findings of site contamination assessments for the purposes of establishing the extent of contamination;
- Define the extent of remediation required;
- Assess appropriate remediation options including consideration of ESD principles;
- Provide details of the proposed remediation methodology, including consideration of relevant regulatory requirements as well as associated safety and environmental management controls;
- Establish the requirements for the selection of criteria relevant to the future use of the site; and
- Provide details of the environmental characterisation / validation program (including reporting).

## 1.2 Reports Relied Upon

A number of historical investigations have been completed at the site to assess the potential for contamination to be present which is associated with existing and historical uses. The following contamination investigations or validation reports completed for the site have been reviewed for preparation of this RAP:

- *Environmental Site Investigation, 10 Grand Avenue, Rosehill, NSW,* KPMG SGA, 26 July 2016, (KPMG SGA 2016);
- *Human Health Risk Assessment, 10 Grand Avenue, Camellia, NSW,* JBS&G, 19 July 2017 (JBS&G 2017a)
- *Remedial Action Plan, 10 Grand Avenue, Camellia, NSW,* JBS&G, 19 July 2017 (JBS&G 2017b);
- *Long-Term Site Management Plan (LTSMP), 10 Grand Avenue, Rosehill, NSW*, Douglas Partners Pty Ltd, 9 January 2019, (Douglas 2019a);
- *Remediation Action Plan, Lot 1, 10 Grand Avenue, Camellia, NSW,* Edison Environmental & Engineering Pty Ltd, 9 January 2019 (Edison 2019b);
- *Addendum to Remedial Action Plan, 10 Grand Avenue, Rosehill, NSW*, Douglas Partners Pty Ltd, 18 December 2019, (Douglas 2019);
- *Site Audit Report, Remediation Action Plan, Audit No. RS 117, Lot 1, 10 Grand Avenue, Camellia, NSW,* Ramboll Australia Pty Ltd, 27 March 2020, (Ramboll 2020a);
- *Site Audit Statement, Remediation Action Plan, Statement No. RS 117, Lot 1, 10 Grand Avenue, Camellia, NSW,* Ramboll Australia Pty Ltd, 27 March 2020, (Ramboll 2020b); and
- *Environmental Site Investigation, 6-8 Grand Avenue,* Rosehill, NSW, JBS&G, 29 April 2022 (JBS&G 2022).

In addition, JBS&G has obtained the following NSW EPA documentation for 6 Grand Avenue, Camellia (former Akzo Nobel Chemical Factory, adjacent property to the west):

- Site Audit Statement – Area A, Rod Hardwood, 30 April 2012 (Hardwood 2012a);
- Site Audit Statement – Area B, Rod Hardwood, 30 April 2012 (Hardwood 2012b);
- Site Audit Statement – Area C, Rod Hardwood, 30 April 2012 (Hardwood 2012c);
- Notice for Maintaining Remediation (number 28002), issued 26 August 1998 from NSW EPA to Akzo Nobel Chemicals Limited (EPA 1998);
- Declaration of remediation site (number 21035), issued 21 January 2003;
- Agreed Voluntary Remediation Proposal (number 26051), issued 29 October 2003 from NSW EPA to Akzo Nobel Chemicals Pty Ltd (EPA 2003);
- Agreed Voluntary Remediation Proposal (number 26117), issued 23 February 2009 from NSW EPA to Akzo Nobel Chemicals Pty Ltd (EPA 2009); and
- Approved Voluntary Management Proposal (number 20101705), issued 30 March 2010 from NSW EPA to Akzo Nobel Chemicals Pty Ltd (EPA 2010).

Assessment for the hydrogeological upgradient site have been reviewed as the migration of contamination attributed to the site is considered responsible for the contamination encountered on the site.

# 2. Site Condition and Surrounding Environment

## 2.1 Site Identification

The site is located at 6 Grand Avenue, Rosehill, NSW. The site location is shown on **Figure 1**. The site layout and associated cadastral boundaries are shown on **Figure 2** and key details are summarised in **Table 2.1**.

**Table 2.1: Summary of Site Details and Surrounding Conditions**

| | |
|---|---|
| **Title Identification** | Lot 1 DP 1258587 |
| **Address** | 6 Grand Avenue, Rosehill, NSW |
| **Local Government** | City of Parramatta |
| **Easting**<br>**Northing** | E: 318085<br>N: 6255844 |
| **Previous Use** | Industrial |
| **Proposed Use** | Commercial / Industrial |
| **Off-site Area** | Approximately 4.2 hectares (ha) |

## 2.2 Site Description

A site inspection was undertaken by JBS&G on 5 October 2021.

The site is operated by CSR Building Products. Site operations included construction earthworks along the east driveway, a main warehouse building in the north where tile manufacturing is undertaken and large areas of outdoor storage including tile and timber products, sealed drums containing dangerous goods, sand, a processing silo and forklift refuelling area (gas).

The site contained three large buildings. The tile manufacturing building located in the northern portion, the office/administration building was located to the south of the manufacturing building and a storage building in the southeast portion.

Entry and exit from the site is via Grand Avenue along the eastern boundary. Car parking for the site was located to the east of the office/administration building. The eastern boundary driveway was mostly barricaded due to construction works.

High traffic areas which were predominantly used by trucks and forklifts were concrete sealed. These were generally along the boundaries of the site and around the manufacturing building. The footprint of the former buildings in the central portion of the site was also sealed. The remaining areas, used for storage of tiles, were unsealed and consisted of compacted gravel or road base.

## 2.3 Geology

Review of 1:100,000 'Sydney' Geological Survey of NSW Sheet 9130 (1983) indicates the site and surrounds are underlain by Quaternary aged sediments including silty to peat quartz sand, silt and clay and man made fill potentially consisting of dredged estuarine sand and mud, demolition rubble industrial and household waste.

Previous investigations on site generally identified sandy fill material with anthropogenic inclusions including asbestos cement sheeting, ranging to a depth of 2.6 mbgs, above natural brown interbedded clays and sands.

## 2.4 Hydrogeology

Groundwater at the site was reported in KPMG SGA (2016) to be at a depth of approximately 0.64 and 2.78 metres below ground surface (mbgs). KPMG SGA identified that the groundwater flow at the site was generally to the east and north east. It is expected that regional groundwater would migrate towards Parramatta River located approximately 400m to the north east.

The underlying geology consisted of fill material and quaternary fluvial sediments. The quaternary sediments consist of sand, silt, clay and peat layers. As such, it is expected that groundwater beneath the site would have varying hydraulic conductivities and yields. It is expected that historical paleochannels exist within the vicinity of the site which may locally alter the groundwater flow direction.

## 2.5 Hydrology

Surface run-off at the sealed areas of the site is expected to enter the local stormwater system via collection drains located at the site. The final discharge location of the stormwater system is expected to be Parramatta River. Any surface water collected in the unsealed areas of the site are expected to infiltrate through the geology and contribute to the underlying groundwater system.

## 2.6 Acid Sulfate Soils (ASS)

Review of the ASS Risk Map (DLWC 1997[1]) indicated that the site is located within an area of 'disturbed terrain', which is consistent with the site's location and geology. Soil investigations are required to assess these areas for acid sulfate soil potential.

Review of accessible data using the eSpade tool, hosted by NSW Office of Environment and Heritage (OEH) (2022) indicates the site is located within an area of 'disturbed terrain, elevation >4m AHD.'

## 2.7 Surrounding Land-use

The surrounding land uses are summarised as follows:

- North: Grand Avenue and beyond industrial land, followed by Parramatta River;
- East: industrial use including concrete recyclers, former Clyde Refinery and bitumen plant;
- South: commercial/industrial use including former James Hardie landfill (now a James Hardie warehouse) and former Clyde Refinery; and
- West: former Akzo Nobel site, Colquhoun Street and beyond Rosehill Racecourse.

The nearest potential sensitive ecological receptor is considered to be Parramatta River located approximately 200m to the north of the site.

[1] *Prospect/Parramatta River Acid Sulfate Soil Risk Map (Edition 2*), Department of Land and Water Conservation 1997, (DLWC 1997)

## 2.8 Site History

The site history has been based on the KPMG SGA (2016) Environmental Site Investigation. KPMG SGA (2016) reported that the site has been used for industrial purposes since at least 1930. The site was understood to have been occupied by CRS Building Limited (or associated companies) for over 100 years for tiles production and storage.

The factory originally occupied the northern portion of the site with additional buildings constructed in the central and southern portions of the site between 1965 and 1982. These building were demolished in approximately 2015.

The surrounding land had been used for industrial use since 1930. A review of available information indicated that the industrial activities were likely associated with manufacturing. The adjacent property to the west (Akzo Nobel, 6 Grand Avenue) was known to undertake chemical manufacturing. Chemicals associated with the Akzo Nobel property include hexavalent chromium and volatile chlorinated hydrocarbons.

A former James Hardie landfill is understood to be located to the south west of the site. The historical material placed with the landfill and the original landfill design is unknown. However assessment of other James Hardie landfills in the Parramatta area has identified an abundance of asbestos containing materials.

## 2.9 Proposed Development

The development plans are provided in **Appendix A**. It is understood that the client is proposing to redevelop the site for commercial purposes that will comprise the demolition of existing structures and subsequent construction of a large multi-level commercial / industrial building. All structures are constructed at grade (i.e. no basements or underground levels) and there are minimal landscaped areas as part of the proposed development. As such, consideration has been given to the relevant land-use of “HIL D - Commercial/industrial, includes premises such as shops, offices, factories and industrial sites” as detailed in National Environment Protection (Assessment of Site Contamination) Measure, 1999 (as amended 2013), National Environment Protection Council (NEPC 2013).

# 3. Summary of Previous Investigations

As listed in **Section 1.2** several previous investigations have been completed for the site. The scope and results of these investigations are summarised in the following sections. Copies of analytical results summary tables for these reports are provided in **Appendix B** (for soils and sub-slab vapour) and in **Appendix C** (for groundwater).

## 3.1 Voluntary Remediation Proposal (no. 26051) (EPA 2003)

The Voluntary Remediation Proposal (number 26051) (VRP 26051) was issued by NSW EPA to Akzo Nobel Chemicals Pty Ltd on 29 October 2003. The contaminants in the soil and groundwater at the site were listed in the VRP 26051 as volatile chlorinated hydrocarbons (including carbon tetrachloride, chloroform, dichlorodifluoromethane and trichloromethane) and chromium.

Akzo Nobel had been addressing the chromium contamination on the eastern portion of the site since 1990 and the VCH contamination on the southwestern portion of the site since 1996. The remediation strategy adopted was primarily cap and contain with ongoing extraction of contaminated groundwater both at the source area and at the downgradient of the site boundary to prevent the contamination from migrating offsite. As the groundwater extraction was expected to continue, the NSW EPA issued the VRP 26051 to ensure ongoing involvement of the site.

The VRP 26051 outlines the reporting requirements for ongoing groundwater monitoring which also includes the perpetration of annual monitoring reports.

## 3.2 Voluntary Remediation Proposal (no. 26117) (EPA 2009)

The Voluntary Remediation Proposal (number 26117) (VRP 26117) was issued by NSW EPA to Akzo Nobel Chemicals Pty Ltd on 23 February 2009. The VRP 26117 stated that the site is contaminated with substances in such a way as to present a significant risk of harm. The contaminants were listed as carbon tetrachloride, chloroform and hexavalent chromium.

The remedial works were to be undertaken in three stages. These stages were listed as:

- Stage 1 – Area A – north eastern portion of the site;
- Stage 2 – eastern former chrome residue pond; and
- Stage 3 – western former chrome residue ponds and Area B (south western portion of site).

The Stage 1 remedial works were to be undertaken immediately at the time the VRP 26117 was issued. The proposed remedial works consisted of the excavation of impacted soil, treatment of soil and reuse of soil. On site treatment of VCH impacted groundwater was to be addressed through the construction of a groundwater re-circulation system in excavation Area A to continue in-situ treatment.

The milestones (i.e. commencement date) for the Stage 2 and 3 remediation works were proposed to be provided within an additional voluntary remediation proposal.

## 3.3 Voluntary Remediation Proposal (no. 20101705) (EPA 2010)

The Voluntary Remediation Proposal (number 20101705) (VRP 20101705) was issued by NSW EPA to Akzo Nobel Chemicals Pty Ltd on 30 March 2010. The VRP 20101705 was produced document the remedial milestones required for the Stage 2 and 3 remedial works.

The proposed remedial works to be undertaken in Area B comprised:

- Excavation of the secondary containment sources in soil and groundwater;
- On site treatment of carbon tetrachloride contaminated soil. Treated soil will be validated as suitable for re-use on site before being replaced in the excavations; and
- Construction of groundwater extraction recirculation system in excavation Area B to continue in-situ treatment if needed.

After a period of operation, estimated at 6-12 month but likely longer, the groundwater treatment / remediation system will be switched off. The data collected will show that:

- There is no significant off-site migration of contamination; and
- The plume is stable or diminishing and groundwater migrating off site does not contain contaminated concentrations above agreed site criteria.

## 3.4 Site Audit Statement – Area A (Hardwood 2012a)

Rod Hardwood from Environmental Strategies was engaged as Site Auditor for a portion of the adjoining Akzo site (referred to as Area A) and issued a Section B Site Audit Statement (SAS) for 6 Grand Avenue Camellia on 30 April 2012. Area A was located in the north-eastern portion of the site and was approximately 700m$^2$ in area.

The SAS stated that the site could be made suitable for a commercial/industrial land use subject to compliance with the following conditions:

- The SAS is read in conjunction with the Site Audit Report (10058 SAR 125a: Area A dated 30 April 2012);
- Groundwater pumping and treatment resulting in the hydraulic containment of groundwater in the vicinity of Area A is required to continue until groundwater information and modelling can accurately and reliably demonstrate to the NSW EPA and Environmental Auditor that no off-site migration of contamination above acceptable criteria will occur;
- An Environmental Management Plan (EMP), compliant with the Guidelines for the NSW Site Auditor Scheme (2$^{nd}$ Edition) (2006) is required to be completed and implemented within 6 months of the date of the SAS. In accordance with the guidelines, the NSW EPA and Site Auditor will require to be consulted on the EMP prior to finalisation of the document;
- Until the above condition is discharged, site works are required to be conducted in accordance with the EES Revised Interim Site Management Plan for the site (dated 19 December 2011);
- A holistic site groundwater monitoring programme is to be established in consultation with NSW EPA and the Site Auditor. Part of the programme will require the following items for groundwater in the vicinity of Area A to be addressed:
    - Assessment of the number and location of shallow groundwater monitoring wells in and around Area A;
    - Assessment of the number and location of deep groundwater monitoring wells in and around Area A;

- Assessment of shallow and deep groundwater monitoring wells around the pile walls along the northern and eastern site boundary;
- Groundwater monitoring programme to adequately assess all the main contaminants of concern, hydrogeological effects in the area including hydraulic depression due to pumping and mounding due to backfill of Area A to 98% and the installation of the pile wall;
- Assessment of groundwater flow around the pile walls and into Grand Avenue and to the East onto the adjacent site; and
- Assessment of groundwater quality coming into the vicinity of Area A

The Auditor further commented that it still required to be demonstrated the sub-slab vapour concentrations in Area A are at an acceptable level for continued commercial/industrial site use. This Auditor reported that acceptability may change depending on climatic conditions and sensitive parameters such as soil moisture. It is therefore imperative for individual architectural footprint proposals to measure these sensitive parameters and consider them in the design of any buildings and assess the need for specific vapour mitigation systems as appropriate.

## 3.5 Site Audit Statement – Area B (Hardwood 2012b)

Rod Hardwood from ES was further engaged as a Site Auditor for the area of the adjoining site referred to as Area B. Mr Harwood issued a Section B SAS for Area B, 6 Grand Avenue Camellia on 30 April 2012. Area B was located in the western portion of the site and was approximately 6,750m$^2$ in area.

The SAS stated that the site could be made suitable for a commercial/industrial land use subject to compliance with the following conditions:

- The SAS is read in conjunction with the Site Audit Report (10058 SAR 125b: Area B dated 30 April 2012);
- An Environmental Management Plan (EMP), compliant with the Guidelines for the NSW Site Auditor Scheme (2nd Edition) (2006) is required to be completed and implemented within 6 months of the date of the SAS. In accordance with the guidelines, the NSW EPA and Site Auditor will require to be consulted on the EMP prior to finalisation of the document;
- Until the above condition is discharged, site works are required to be conducted in accordance with the EES Revised Interim Site Management Plan for the site (dated 19 December 2011);
- No buildings or structures are to be constructed over Area B without an adequate soil vapour assessment to ensure that adequate construction design and vapour abatement is incorporated, if required, to protect site workers;
- A holistic site groundwater monitoring programme is to be established in consultation with NSW EPA and the Site Auditor. Part of the programme will require the following items for groundwater in the vicinity of Area A to be addressed:
  - Assessment of the number and location of shallow groundwater monitoring wells in and around Area B;
  - Assessment of the number and location of deep groundwater monitoring wells in and around Area B;
  - Assessment of shallow and deep groundwater monitoring wells around the western site boundary;
  - Groundwater monitoring programme to adequately assess all the main contaminants of concern,(including containment issues related to the 'black product (HCBD) identified during

excavations), hydrogeological effects in the area due to the backfilling of Area B to 98% standard level of compaction; and;

- Assessment of groundwater quality upgradient and downgradient of Area B

## 3.6 Site Audit Statement – Area C (Hardwood 2012c)

Rod Hardwood from ES as role as Site Auditor issued a Section B SAS for an area referred to as Area C, within the adjoining 6 Grand Avenue Camellia site on 30 April 2012. Area C was located in the central portion of the (Akzo) site and was approximately 2,900m$^2$ in area.

The SAS stated that the site could be made suitable for a commercial/industrial land use subject to compliance with the following conditions:

- The SAS is read in conjunction with the Site Audit Report (10058 SAR 125c: WCLRP dated 30 April 2012);
- An Environmental Management Plan (EMP), compliant with the Guidelines for the NSW Site Auditor Scheme (2nd Edition) (2006) is required to be completed and implemented within 6 months of the date of the SAS. In accordance with the guidelines, the NSW EPA and Site Auditor will require to be consulted on the EMP prior to finalisation of the document;
- Until the above condition is discharged, site works are required to be conducted in accordance with the EES Revised Interim Site Management Plan for the site (dated 19 December 2011);
- No buildings or structures are to be constructed over the WCLRP without an adequate soil vapour assessment to ensure that adequate construction design and vapour abatement is incorporated. This will also ensure protection of site workers and consideration within the design of the WCLRP containment cell will also be required to ensure the integrity of the cell is not compromised by loading of foundations.
  Any need for engineering measures to mitigate vapours to permit the construction of buildings will need be addressed within the conditions of an Environmental Management Plan
- A holistic site groundwater monitoring programme is to be established in consultation with NSW EPA and the Site Auditor. Part of the programme will require the following items for groundwater in the vicinity of the Western CLRP to be addressed:
  - Assessment of the number and location of shallow groundwater monitoring wells in and around WCLRP;
  - Assessment of the number and location of deep groundwater monitoring wells in and around WCLRP;
  - Assessment of shallow and deep groundwater monitoring wells between the WCLRP and the eastern site boundary; and
  - Groundwater monitoring programme to adequately assess all the main contaminants of concern, due to the remediation conducted at the site.
- Ongoing shallow and deep groundwater monitoring will be required to demonstrate the effectiveness of the WCLRP containment cell over time. The frequency and extent of monitoring is to be agreed with NSW ERPA and the Site Auditor as part of the holistic site-wide groundwater monitoring programme to follow.
- Methane gas production from the organic barrier layer will require to be assessed conceptually over the next 2 years. Akzo Nobel will provide a summary report for discussion

on the state of methanogenesis and their options on how long the monitoring program should proceed for review by the Auditor or NSW EPA prior to monitoring.

## 3.7 Environmental Site Assessment (ESA) (KPMG 2016)

KPMG SGA (2016) undertook an environmental site investigation (ESI) at the site consisting of soil, groundwater and soil vapour investigations. The investigation was undertaken to assess areas of environmental concern including potential sources for neighbouring site.

The results of the investigation identified asbestos within the fill material. In addition, asbestos containing materials were observed on the soil surface and generally appeared to be associated with demolition of former buildings.

Slightly elevated concentrations of heavy metals (arsenic, cadmium, copper, lead and zinc), chloroform, carbon tetrachloride and tetrachloroethylene were identified within the groundwater at the site. Based on the laboratory results, groundwater flow direction (to the west or north west) and the review of the site history, it was considered that the source of the VCHs within the groundwater and soil vapour was the adjacent Akzo Nobel property.

Elevated soil vapour concentrations of chloroform, bromodichloromethane, benzene, naphthalene and carbon tetrachloride were identified beneath the site.

Information from SafeWork NSW indicated the historical presence of two underground storage tanks (USTs) in the eastern portion of the site. No evidence of the USTs was observed (fill points, dip points or covers). No information was provided indicating that the USTs had been decommissioned or removed. The potential USTs were not considered to pose a significant risk to the ongoing use of the site should they be present, however the USTs should be removed if presence during redevelopment works.

The KPMG SGA (2016) assessment reported that data presented could be considered reliable for the purposes of characterising the site.

## 3.8 Human Health Risk Assessment (JBS&G 2017a)

A human health risk assessment (HHRA) was completed for the site, including the Stage 1 and Stage 2 development areas. The assessment considered the levels of volatile chlorinated hydrocarbons assessed by KPMG SGA (2016) along with the likely future site layout, and concluded that an unacceptable inhalation risk may exist to future site users. It was recommended that future construction works incorporate a vapour barrier below buildings.

## 3.9 Remedial Action Plan (JBS&G 2017b)

A Remedial Action Plan (RAP) was prepared to allow development of the site with management of the risks posed by contamination to be adequately protective of human health and the environment. The RAP included vapour mitigation controls below buildings, importation of approximately 1.5 m of Virgin Excavated Natural Material / Excavated Natural Material (VENM/ENM) to form the new site level and an ongoing management of the integrity of the vapour barrier via an Environmental Management Plan (EMP).

The RAP was prepared based on the results of the KPMG SGA (2016) ESA, the HHRA (JBS&G 2017a) and the provided development plans. The RAP identified an insufficient sampling density in the northern portion of the site (Stage 2) which may result in remedial / management strategies based on maximum levels of groundwater / soil vapour impacts in the Stage 1 area being unnecessarily adopted in the Stage 2 area. The present JBS&G ESA has targeted the Stage 2 area including a grid based soil vapour assessment and additional groundwater characterisation.

The RAP summarised EPA documentation for the characterisation and remediation of contamination present across the west site boundary at 6 Grand Avenue (former Akzo Nobel site). The remedial strategy for the former Akzo site has been implemented by the current site owner (Transport for NSW) and includes deep cutoff walls that are intended to prevent ongoing migration of groundwater contamination onto 6 Grand Avenue.

## 3.10 Long-Term Site Management Plan (Edison 2019a)

Edison Environmental & Engineering Pty Ltd (Edison) was engaged by Grand 4 Investment Pty Ltd (Grand 4) to prepare a long-term site management plan for 10 Grand Avenue, Camellia, NSW. Using previous reports, the investigation noted the following potential sources of contamination:

- Imported fill of unknown origin;
- Demolition residue;
- Historical industrial impacts; and
- Leak spills and inappropriate waste spill or storage of chemicals on-site and from adjoining properties.

The management plan acknowledged asbestos within the fill, as well as chlorinated hydrocarbon and heavy metal contamination of the soil and groundwater. The investigation refers back to the proposed remediation strategies in **Section 3.9** before suggesting several long-term management requirements:

- Regular inspections of the building to ensure physical integrity;
- No intrusive works without prior approval; and
- Prompt reporting of any unusual odours with subsequent ambient air sampling upon a report.

## 3.11 Remediation Action Plan (Edison 2019b)

Edison Environmental & Engineering Pty Ltd (Edison) was engaged by Grand 4 Investment Pty Ltd (Grand 4) to prepare a remedial action plan for 10 Grand Avenue, Camellia, NSW.

The RAP included vapour mitigation controls below buildings, placement of a marker barrier and importation of clean fill, location and removal or abandoned USTs, and secure capping and construction of a perimeter containment all around the former Akzo Nobel site to reduce contamination migrating on-site. Development of an asbestos management plan and an LTSMP was also recommended.

## 3.12 Addendum to Remedial Action Plan (Douglas 2019)

Douglas Partners undertook a review of the JBS&G RAP (2017) by request of Van der Meer Consulting. The review found that the RAP presented by Edison (2019b) was applicable and appropriate for the proposed site development. In addition, they provided a design for the proposed vapour barrier and ventilation layer based on the design in Edison (2019b) and suggested engineering investigations to further inform the design, including:

- Groundwater monitoring to evaluate the effectiveness of any remedial works at the Akzo Nobel site;
- Additional delineation of the VOC plume in groundwater;
- Additional work to re-evaluate the need for a vapour barrier proposed in the RAP (Edison 2019b).

The report also suggests that the development is unlikely to disturb and ASS or potential acid sulfate soils (PASS) but should the development plans change, an acid sulfate soils management plan (ASSMP) will have to be prepared and implemented.

## 3.13 Site Audit Report (no. RS 117) (Ramboll 2020a)

The Audit was conducted to provide an independent review by an EPA Accredited Auditor of the suitability and appropriateness of the remediation action plan and was conducted by Rowena Salmon of Ramboll Australia (Ramboll). Several reports dating back to 2012 were reviewed or referenced for the purpose of the audit.

The existing buildings were outside of the chlorinated hydrocarbon plume and were determined to be at low-risk of vapour intrusion. Groundwater was determined not to be exracted for beneficial use without further assessment.

The report stated that successful implementation of the Edison RAP (2019b) would render the site suitable for the proposed land use. An LTEMP would be required, as well as, validation of success of each of the proposed remedial strategies and a sampling, analysis and quality plan (SAQP).

## 3.14 Site Audit Statement (no. RS 117) (Ramboll 2020b)

Rowena Salmon from Ramboll was engaged as a Site Auditor for 10 Grand Avenue, Rosehill, NSW. Salmon issued a SAS for the site on 27 March 2020.

The SAS stated that the site could be made suitable for a commercial/industrial land use subject to compliance with the following conditions:

- No basements are permitted in the final design;
- No piling for the buildings, only slab on ground construction;
- Hard surface to cover most of the site with only minor landscaping;
- Ground level is to be raised 1.5 m with a minimum of 0.5 m of clean imported soil; and
- No groundwater is to be extracted for beneficial reuse.

In addition, the Auditor required the preparation of an SAQP to confirm the extent of contamination in groundwater and inform the proposed building layout and vapour controls. A remedial works plan would also be required to document the extent of the building footprint and required vapour controls determined by the SAQP. Following remedial and development works, preparation of a site audit statement is required.

## 3.15 ESA (JBS&G 2022)

JBS&G (2022) undertook an ESA at the site consisting of soil, groundwater and soil vapour investigations. The investigation was undertaken to assess the requirements of the JBS&G RAP (2017b) to further characterise the site. The areas of environmental concern were:

- Chlorinated hydrocarbon impacts within soil vapour across the site;
- Asbestos containing materials within fill material at the site; and
- Heavy metals and chlorinated hydrocarbons within the groundwater.

A grid based sub-slab vapour assessment was undertaken within accessible areas of the site. A total of 40 sub-slab vapour locations were completed. Results identified predominantly non-detect concentrations of volatile organic carbon (VOCs) (including chlorinated hydrocarbons) below site pavements. There were no exceedances of the adopted conservative screening level criteria. Vapour assessment results were consistent with the low level of volatile contaminants assessed in groundwater,

and were indicative of levels that would not suggest an unacceptable risk to future site users in a commercial / industrial setting.

Six monitoring wells were installed and sampled during the investigation. All reported contaminants of potential concern (COPCs) were below the adopted criteria within groundwater with the exception of some elevated levels of heavy metals. Heavy metal concentrations were considered indicative of urban background concentrations. Low levels of some chlorinated hydrocarbons were assessed in groundwater near the site west boundary but were lower than those previously reported in the KPMG SGC (2016) assessment.

During installation of soil vapour probes and the groundwater monitoring wells, soils samples were collected. There were no unacceptable odours or staining seen during soil logging. The reported concentrations of all contaminants of concern in soil samples were below the adopted criteria protective of human health under the proposed land-use, aside from friable asbestos analysed in some soil samples.

Sample locations are marked in **Figure 3**, exceedances are displayed in **Figure 4.**

# 4. Conceptual Site Model (CSM)

A detailed CSM for the site has been included in EMM (2021b) and is briefly summarised in this Section. NEPC (2013) identified the essential elements of a CSM as including:

- Known and potential sources of contamination and contaminants of concern including the mechanism(s) of contamination;
- Potentially affected media (soil, sediment, groundwater, surface water, indoor and ambient air);
- Human and ecological receptors;
- Potential and complete exposure pathways; and
- Any potential preferential pathways for vapour migration (if potential for vapours identified).

Each of these elements is discussed in the following sections.

## 4.1 Known Sources of Contamination

Historical industrial activities on and in proximity of the site have been identified as potential sources of contamination. The site history assessment and review of previous reports for the site identified the following main potential contamination sources:

- Imported fill material of unknown origin;
- Impacts associated with historical industrial use; and
- Leaks spills, inappropriate waste disposal or inappropriate storage of chemicals on-site and from adjoining properties.

As discussed in **Section 3** the site and surrounding properties have been subjected to a number of previous investigations which have identified the presence of fill contaminated with asbestos. While these investigations identified groundwater contaminated with chlorinated hydrocarbons and heavy metals, recent data shows that this is no longer a concern (JBS&G 2022). Remediation works at the former Akzo Nobel site have severely limited migration of upgradient groundwater contamination and heavy metal concentrations are considered indicative of urban background concentrations and do not require management.

It is noted that ASS have also been identified as a potential environmental issue on the site. However, the management of these materials will be undertaken through development of an ASSMP.

## 4.2 Potential for Migration from Site

Contaminants generally migrate from site via a combination of windblown dusts, rainwater infiltration, groundwater migration and surface water runoff. The potential for contaminants to migrate is a combination of:

- The nature of the contaminants (solid/liquid and mobility characteristics);
- The extent of the contaminants (isolated or widespread);
- The location of the contaminants (surface soils or at depth); and
- The site topography, geology, hydrology and hydrogeology.

The potential contaminants identified above from previous investigation are generally in either a solid form (e.g. asbestos) or liquid form (e.g. heavy metals, chlorinated hydrocarbons, etc).

With respect to whether these pathways are complete it is noted that:

- The predominant surface cover currently on the site of hardstand pavements and building footprints would limit, or negate, the potential for migration to occur by most of these pathways. This would also be the case following redevelopment of the site as per the design plans (**Appendix A**).
- With respect to groundwater, the elevated heavy metals are considered to be indicative of urban background concentrations, and would likely be no higher than those levels currently present in the Parramatta River.

## 4.3 Potential Human or Ecological Receptors

**Table 4.1** summarises potential human receptors and associated exposure pathways for the site identified based on the range of exposure scenarios that may occur under standard commercial / industrial use of the site.

Potential human populations who may be exposed to site impacts in the future (if they are not remediated or appropriate management is not implemented prior to or during development) include:

- Future construction and site maintenance workers; and
- Future and current sub-surface excavation and intrusive workers.

Given the current developed nature of the site (i.e. concrete hardstand, no exposed soils) asbestos impacts within the fill does not pose a risk to current site users. Future sub-surface construction/maintenance workers that are working beneath the hardstand and in direct contact with fill material may be exposed to asbestos impacts.

**Table 4.1: Summary of Potential Exposures**

| Area | Potentially Source of Impact | Receptor | Exposure Pathways for Commercial Use (Complete or Not Complete?) | | | | Comment |
|---|---|---|---|---|---|---|---|
| | | | Inhalation - Particulates | Inhalation – Vapour | Oral | Dermal | |
| Site | Potentially Impacted soil | Commercial worker | C[1] | C | C[1] | C[1] | Considered low Risk: There is potential for asbestos containing material (ACM) to be present in fill material underlying the full extent of the site. Exposure to this ACM impacted fill can be managed through an EMP. |
| | | Site Visitor | C[1] | C | C[1] | C[1] | |
| | | Maintenance Worker (underground) | C[1] | C | C[1] | C[1] | |
| | Potentially impacted groundwater | Commercial worker | - | C | N | N | Considered low Risk: Current heavy metals concentrations are within the range of urban background levels. Chlorinated hydrocarbons concentrations have decreased to a level below the site adopted criteria (JBS&G 2022). The requirement to prevent all users from contacting groundwater at depth can be managed through an EMP. |
| | | Site Visitor | - | C | N | N | |
| | | Maintenance Worker (underground) | - | C | C | C | |
| Adjacent surface water receptors | Potentially impacted seepage/ surface runoff | Commercial worker | - | C | C | C | Considered low risk: Current heavy metals concentrations are within the range of urban background levels and would likely be no higher than those levels currently present in the Parramatta River. Chlorinated hydrocarbons concentrations have decreased to a level below the site adopted criteria. (JBS&G 2022). |
| | | Maintenance Worker (underground) | - | C | C | C | |

Notes: - = Pathway not valid C = potentially complete exposure pathway N = exposure pathway not complete

1. Pathway is only considered potentially complete where the surface of the site is unsealed at the surface.

# 5. Remediation Options

With respect to options for remediation Section 1.5 of the NSW EPA (2020) '*Contaminated Land Guidelines: Consultants Reporting on Contaminated Land*' states that a RAP must:

*"…• assess options and remedial technologies to achieve the remediation objectives and select and justify a preferred approach, which must include the consideration of the principles of ecologically sustainable development"*; and also

*"…• ensure remediation is consistent with relevant laws, policies (including planning instruments and policies) and guidelines and reference these in the remedial action plan."*

The discussion presented in **Sections 5.1 to 5.3** has been based on these guiding statements.

## 5.1 Remedial Goal

The goal for the remediation and/or management of environmental impact is to:

- Remove unacceptable risks to human populations living at/working on/visiting the site posed by impacted site media; and
- Complete remediation work in accordance with the principles of ecologically sustainable development (ESD).

## 5.2 Extent of Remediation

Based on the CSM, the results of previous investigations have indicated that impacts remain relating to the presence of asbestos in buried fill materials. The impacted materials require remediation and/or management to reduce the risks to human health and the environment and permit future redevelopment and continued commercial and industrial land use.

In determining the extent of remediation, management measures to be adopted as part of the site redevelopment have first been identified. The proposed management measures are required as part of the development consent (**Section 2.9**) for the new commercial premises:

- Continued implementation of an LTEMP at the site to control potential human exposures to sub-surface contaminants on completions of the remediation works. This will specifically address potential free asbestos fibres and ACM in soil;
- Sealed surfaces installed over the majority of the site as per the current design plans (**Appendix A**). The sealed surface would have the added benefit of precluding potential direct exposure to site soils for all above-ground site users. The LTEMP will ensure the retention of the surface cover in good condition and/or reinstatement as required; and
- Importation of material to increase site levels and/or used in the proposed landscaped areas of the site. These imported materials will need to be delineated from underlying potentially impacted soils by a concrete slab or demarcation layer / mesh which will be noted and controlled as per **Sections 6.7** and **6.8**.

## 5.3 Guidance Framework

The Contaminated Land Management (CLM) Act 1997 is the primary legislation associated with management of contaminated land in NSW. Section 105 of the Act allows the EPA to make or endorse guidelines connected with the objectives of the Act. These guidelines form the basis for making decisions in relation to the investigation, remediation, validation and documentation of contaminated land management within NSW.

As such, this RAP and future activities associated with assessment, remediation and validation will address the requirements of those guidelines. The current list of relevant NSW EPA endorsed guidelines comprises:

- *Sampling Design Guidelines*, NSW EPA August 2022;
- *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*, ANZECC 2000;
- *Guidelines for Consultants Reporting on Contaminated Sites*, NSW EPA (reprinted) 2011;
- *Guidelines for the NSW Site Auditor Scheme*, 3rd Ed, EPA 2017;
- *Guidelines for the Assessment and Management of Groundwater Contamination*, NSW Department of Environment, Climate Change and Water (DECCW), March 2007;
- *Environmental Health Risk Assessment: Guidelines for Assessing Human Health Risks from Environmental Hazards*, Dept. of Health and Ageing and EnHealth Council, CoA 2012;
- *National Environment Protection (Assessment of Site Contamination) Measure 1999, Amendment No.1*, NEPC 2013; and
- *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act*, 1997, NSW EPA 2015.

In addition, consideration is also required to guidelines made or endorsed by the EPA under the Protection of the Environment Operations (POEO) Act 1997 and associated regulations, including:

- *Guidelines for Implementing the POEO (Underground Petroleum Storage Systems) Regulation 2008*;
- *Waste Classification Guidelines, Part 1 - Classifying Waste*. NSW EPA 2014;
- *Waste Classification Guidelines, Part 2 – Immobilising Waste*. NSW EPA 2014; and
- *Waste Classification Guidelines, Part 3 - Waste Containing Radioactive Material*. NSW EPA 2014.
- *Waste Classification Guidelines, Part 4 – Acid Sulfate Soils*. NSW EPA 2014.

Other guidance that should also be considered in relation to site conditions includes:

- *Guidelines for the Assessment and Management of Sites Impacted by Hazardous Ground Gases,* NSW EPA (2012); and
- *Acid Sulfate Soil Manual*, Acid Sulfate Soil Management Advisory Committee 1998.

## 5.4 Assessment of Remedial Options

The Contaminated Land Management: Guideline for the NSW Auditor Scheme (EPA 2017) lists the following order of preference for soil remediation and management:

- On-site treatment of the soil so that the contaminant is either destroyed or the associated hazard is reduced to an acceptable level;
- Off-site treatment of excavated soil so that the contaminant is either destroyed or the associated hazard is reduced to an acceptable level, after which the soil is returned to the site;
- Removal of contaminated soil to an approved site or facility, followed where necessary by replacement with clean fill; and
- Consolidation and isolation of the soil on-site by containment within a properly designed barrier.

In addition, it is also a requirement that remediation should not proceed in the event that it is likely to cause a greater adverse effect than leaving the site undisturbed. And, where there are large quantities of soil with low levels of contamination, alternative strategies are required to be considered or developed (EPA 2017).

Remedial options have been assessed for the site as detailed in **Table 5.1** following.

## 5.5 Proposed Remedial Approach

As shown in **Table 5.1**, with consideration to EPA (2017) hierarchy for remediation and the principles of ecologically sustainable development the remediation strategy for the proposed development is presented below.

- Completion of the required pre-remediation plans by the Principal Contractor. These documents will need to be finalised prior to the commencement of remediation;
- Removal of the existing above ground structures (if any, unless agreement has been reached to retain elements). Survey and pegging of the lateral extent of the site;
- For areas where the site surface is to be finished with a sealed surface then on-site management of any ACM impacts that remain in-situ within soil by installation of a physical separation layer as follows:
    - Sealed surfaces to be retained onsite have the added benefit of precluding potential direct exposure to the site soils for all above-ground users. It is understood that as per the current design plans (**Appendix A**), there are areas with existing concrete slab to be retained as per the redevelopment. It is preferable for these areas to remain undisturbed, to reduce the exposure of impacted soils to site users. Therefore, in these areas the concrete slab will act as the marker layer. The LTEMP will ensure the retention of the surface cover in good condition and/or reinstatement as required.
    - In areas where concrete does not cover the surface then placement of a visual marker layer above the surface to visually distinguish between the materials below the current site ground level and imported materials to be placed higher than this level. Survey / photograph marker layer once installed;
    - Placement of imported (and validated) material across areas of the site requiring filling to reach the proposed construction level in accordance with the geotechnical specifications with a minimum of 0.5 m of clean imported fill (Ramboll 2020b). The imported material will be placed above the existing slab (where present), above the marker layer (where present);
    - Construction of the building, including services, retaining wall and ground slabs as per the design plans once the required construction level has been achieved; and

**Table 5.1: Remediation Options Assessment Matrix**

| Remedial Option | Applicability | Assessment |
|---|---|---|
| 1. On-site treatment so that the contaminants are either destroyed or the associated hazards are reduced to an acceptable level. | Asbestos Impacts in Soil<br>Not viable option for asbestos impacts in soil. | Asbestos Impacts in Soil<br>Not a suitable option. |
| 2. Off-site treatment so that the contaminants are either destroyed or the associated hazards are reduced to an acceptable level, after which the soil is returned to the site. | Asbestos Impacts in Soil<br>Not viable option for asbestos impacts in soil. | Asbestos Impacts in Soil<br>Not a suitable option. |
| 3. Excavation and off-site removal of the impacted soils. | Asbestos Impacts in Soil<br>Viable option - there are currently suitably licensed waste facilities in the Greater Sydney Metropolitan area capable of accepting soil impacted by asbestos. | Asbestos Impacts in Soil<br>A viable option but not the preferred option given the environmental impact of the transport of materials, waste generation and resource use in sourcing materials to re-instate the site to development levels being inconsistent with the principles of ESD. |
| 4. On-site in-situ management of the soil by physical separation, and ongoing management. | Asbestos Impacts in Soil<br>The proposed continued commercial use of the site means this approach is a possible option. | Asbestos Impacts in Soil<br>The preferred option. The most suitable option and superior to Option 3 where viable as it will result in much lower resource consumption and waste generation. This is the most preferred remedial option available for land that will be used solely for commercial purposes in an established industrial area. |

- For areas where the site surface is to be finished landscaping/vegetation the plan to remediate these areas will be presented in a separate Landscape Area Capping Plan which will be determined in conjunction with the project landscaper to either:
    - Install a physical separation layer comprising a marker layer overlain by at least 0.5m of imported (and validated) fill. The required vegetation will then be planted in the layer of validated fill; or
    - Excavate all fill material across the extent of the proposed landscaped area. Dependent on the required finished level, vegetation can be planted at the base of the excavation, or reinstatement can occur with imported (and validated) fill to the required finished level before planting; or
- The preparation of a long-term EMP to maintain the integrity of the capping layers.

The preferred remediation approach listed above for the site is to retain materials in-situ by providing physical separation between impacted fill/soil materials and receptors (e.g. site users). The combination of the existing concrete slab (or proposed marker layer), imported (and validated) fill layers and new ground slabs/landscaping areas at the raised site level will act as a physical separation layer at the site. The management approach prevents direct contact via these permanent sealed surfaces or minimum clean soil thicknesses and implementation of a long-term EMP to maintain the physical separation arrangements.

# 6. Remediation Plan

**Sections 6.1 to 6.7** discuss the scope of the preferred remedial approach.

## 6.1 Approvals, licences and notifications

Approvals, licences and notifications required for the works are detailed in **Section 12**.

## 6.2 Roles and Responsibilities

**Site Owner** and **Development Manager (the client)**: Responsible for appointing relevant organisations to undertake remediation of the site and stakeholder engagement (if required) and obtaining any appropriate approvals.

**Principal Contractors (TBC):** Responsible for undertaking the remediation works, waste management, licences, approvals (as requested by the site owner) establishment and maintenance of health, safety and environmental management controls to protect workers, public health and the environment during remediation of the Site.

**Environmental Consultant (JBS&G):** The environmental professional appointed by the Site Owner who will work with the Principal Contractor and be responsible for observing and monitoring of remediation field works, validation activities required under this RAP, and preparation of the validation reports upon completion of the remediation works.

**Site Auditor:** The Auditor has been appointed to this project by the Site owner to prepare a Site Audit Statement (SAS) on completion of the remediation works confirming the suitability of the site for commercial land use subject to implementation of the LTEMP.

## 6.3 General Remediation Overview

The proposed remediation strategy is intended to be implemented as per **Table 6.1**.

**Table 6.1: Indicative Staging of Remediation Works**

| Task | Description | Details Provided In |
|---|---|---|
| 1 | Documentation and Auditor Approval of RAP<br>*HOLD POINT 1: Auditor approval of RAP in writing to be obtained prior to completion of tasks 2 and beyond* | - |
| 2 | Preliminary Works – Stakeholder Consultation as required, including community consultation if necessary, preparation of plans for completion of remediation by the Principal Contractor | **Section 6.4 and 10.15** |
| 3 | Order/planning for capping materials and establishment of remediation works area on site including environment controls and security controls | **Sections 6.8 and 7.5** |
| 4 | Clearance of site surface in preparation ready for placement of marker layer. Completion of this stage will require:<br>- Striping of vegetation and removal of above ground structures, if required;<br>- Markup of proposed pile foundation locations; and<br>- Survey of ground levels across cleared site and position of pile foundations. | **Section 6.5** |
| 5 | Controlled cutting of existing surface slab and installation of slab on ground foundations.<br>HOLD POINT 2: *Auditor approval of Landscape Area Capping Plan in writing to be obtained prior to completion of tasks 6 and beyond* | **Sections 6.6 and 6.7** |
| 6 | The placement of a visual marker layer in other areas of the site (where required) to visually distinguish between fill materials currently in-situ and imported soils used to raise site levels for the proposed remediation. Completion of this stage will require:<br>- Completion of a survey of the lateral extents of the marker layer, and surface levels. | **Sections 6.7 and 6.8 & Section 7.3.2** |
| 7 | The importation of material validated as suitable[1] for placement above the concrete capping layer, or marker layer, to raise site levels as required by the development plan. Completion of this stage will require:<br>- Validation of VENM material at the source site prior to receipt at the site;<br>- Confirmation by JBS&G that the material received at site is consistent with VENM sampled at the source site; and<br>- Survey of ground levels at the site once the construction level has been reached.<br>Note: Any new services required to be placed underground on the redeveloped site should be placed above the existing concrete slab/ marker layer wherever possible. | **Sections 6.7, 6.8 and 7.3** |
| 8 | Construction of the building foundations, ground slabs, retaining wall and peripheral landscaping areas as per design plans. | **Section 6.9** |
| 9 | Reporting of Validation Assessment and LTEMP by JBS&G. | **Section 7.6** |
| 10 | Obtain written Auditor endorsement of final Validation Assessment and LTEMP. | - |

Notes:

1. This may include: imported virgin excavated natural material (VENM), excavated natural material (ENM) or similar material certified in accordance with an exemption issued by the NSW EPA that also meets site suitability criteria; or imported road making materials comprising fresh quarried material or material covered by a beneficial reuse exemption issued by the NSW EPA.

## 6.4 Preliminary Planning

The Principal Contractor, or their nominated representative, shall prepare all required documentation in accordance with the requirements of this RAP, including, but not limited to:

- A Work, Health and Safety Plan (WHSP) consistent with the requirements of **Section 11** and construction environmental management plan (CEMP) consistent with the requirements of **Section 10.** The proposed remediation works cannot commence until the above preliminary requirements have been met; and
- A capping plan for areas of the site that will not be finished with a sealed surface i.e. all landscaped areas. While the proposed remediation works may commence, no validated fill material shall be imported onto the site to raise ground levels prior to the Auditor approving the landscaped area capping plan.

## 6.5 Site Establishment

The site is a secured commercial property where safety and environmental controls are currently being implemented. However, to ensure the area affected by the remediation works is contained, remediation establishment measures will be required. These will include, but not be limited to:

- Tree removal as required, comprising the cutting of tree stumps flush with the existing ground surface.
- Location and isolation of all required utilities in the proximity of the works;
- Assess need for and implement any necessary traffic controls;
- Sediment fencing (attached to security fencing) where necessary; and
- Stormwater runoff and sediment controls (e.g. silt fences and hay bales) where necessary.

## 6.6 Capping of Site – In Areas of the Site where a Sealed Surface is Proposed

The extent of the site where sealed surfaces are proposed for the final surface are to be covered in the following capping layers (listed in order of placement i.e. from bottom to top):

- Use of the existing concrete ground slab (where present) as the base of the capping layer.
- In areas where concrete does not currently cover the surface, a marker mesh layer will be placed directly on top of the existing ground slab or grass cover. The marker layer must:
  - Be easily recognisable within soils (e.g., bright orange in colour, or otherwise contrasting with the surrounding soil colour);
  - Be durable as a long-term marker layer (i.e. > 150 grams per square metre); and
  - Maintain integrity during the remaining remedial/civil works such as placement of capping soils.
- A layer of imported virgin excavated natural material (VENM), or other suitable material[2] that has been validated, placed directly above the marker mesh layer with a minimum thickness of 0.5 m, or more if required to achieve the required construction level (Ramboll 2020b). The requirements for validation of VENM, or other suitable material, prior to receipt on are provided in **Section 7.5**.
- Construction of underground services, retaining wall and ground slabs as per the design plans and placement of the new site surface in the form of concrete slabs or vegetation.

The planned site redevelopment design is considered to provide a sufficient thickness of soil that is unlikely to be penetrated by future users of the site, and will incorporate use of a marker mesh layer (where required) to act as visual signal that potentially impacted fill material is present beneath. The configuration is consistent with the requirements of ANZECC (1999) '*Guidelines for the Assessment of On-Site Containment of Contaminated Soil'* for on-site containment being used to provide a physical separation layer.

JBS&G as the environmental consultant shall inspect and document the installation of the marker mesh layer at the time of these works. A set of survey plans produced by a registered surveyor will be used at a later stage to confirm the capping layers have been installed in accordance with the requirements of this RAP. Further details relating to the required survey plans are provided in **Section 7.3.2.**

[2] This may include: imported virgin excavated natural material (VENM), excavated natural material (ENM) or similar material certified in accordance with an exemption issued by the NSW EPA that also meets site suitability criteria; or imported road making materials comprising fresh quarried material or material covered by a beneficial reuse exemption issued by the NSW EPA.

## 6.7 Capping of Site – In Areas of the Site where No Sealed Surface is Proposed

The following guidance should be used to formulate the capping requirements in the proposed landscaping area:

- In areas of proposed turfed / grassed surface – installation of the marker layer at a minimum depth of 500 mm below final finished site levels, with a capping layer consisting of environmentally suitable materials for potential human and/or ecological exposure.
- In areas of shallow landscaping areas – installation of the marker layer at a minimum depth of 500 mm below the final finished site levels, with a capping layer consisting of environmentally suitable materials for potential human and/or ecological exposure.
- New tree pit zones / deep landscaping zones – installation of the marker layer at a minimum depth of 1500 mm below the final finished site levels, with a capping layer consisting of environmentally suitable materials for potential human and/or ecological exposure, noting that the maker layer should extend the depth required for installation of the new tree's existing root ball or otherwise consistent with the anticipated root zone of the deep landscaping area.
- Existing tree zones – installation of the marker layer consistent with immediately adjacent marker layer depths (e.g., 500 mm in turfed areas and 500 mm in mass planting areas) to the extent practicable, with a capping layer consisting of environmentally suitable materials for potential human and/or ecological exposure.

Material above the marker layer extending to the final finished ground level will be required to be an environmentally suitable material for human and/or ecological exposure (as appropriate). This may include: imported virgin excavated natural material (VENM), excavated natural material (ENM) or similar material certified in accordance with an exemption issued by the NSW EPA that also meets site suitability criteria; or imported road making materials comprising fresh quarried material or material covered by a beneficial reuse exemption issued by the NSW EPA.

The capping plan for areas to be landscaped will need to detail validation requirements including inspections by the Remediation Consultant, and survey plans prepared by a registered surveyor showing the level and lateral extent of the impacted soils, marker layer, and capping in relation to the site boundaries.

## 6.8 Building Construction

Following the placement of imported (and validated) VENM, or other suitable material, to achieve the required design level, construction works can begin on the foundations, retaining wall, ground slabs and services for the new buildings proposed for the site. Works on the landscaping areas may also take place provided Auditor approval has been obtained for the capping plan for these areas.
It is understood that the underground services to be installed for the new development will be placed within the layer of imported VENM (or other suitable material) used to raise the site level and will remain above the ground slab that exists on the site at present. The installation and maintenance of these above slab services can take place without restriction provided that they do not disturb the existing ground slab. In the event, that the existing ground slab is disturbed, with works extending below the sealed surface, a marker layer is required to be installed as per requirements stated in **Section 6.6**.

# 7. Validation Plan

## 7.1 Overview

The effectiveness of the remedial works needs to be validated to confirm the actions required by this RAP have been successfully completed.

The following sections establish the Data Quality Objectives (DQOs) to be adopted during capping and validation of the site.

## 7.2 Data Quality Objectives

Data Quality Objectives (DQO's) have been developed for the site validation and are discussed in the following sections.

### 7.2.1 State the Problem

Previous investigations have identified the presence of ACM in fill material beneath the existing ground surface and elevated levels of chlorinated hydrocarbons and heavy metals in the groundwater. While the offsite sources associated with the chlorinated hydrocarbons have been remediated, and heavy metal results were determined to be indicative of urban background concentrations, asbestos in fill remains beneath the site. The presence of ACM in fill underlying the site requires remediation to enable redevelopment for continued commercial land use.

### 7.2.2 Identify the Decision

The following decisions are required to be made during the validation works:

- Is the existing surface of the site absent of visible asbestos?
- Has a visual marker layer been placed over the existing site surface?
- Has the visual marker layer been capped with at least 0.5m of imported material classified as VENM?
- Has the surface of the capping layer been finished with an impermeable surface or landscaping?
- Has a Long Term Environmental Management Plan been prepared?

### 7.2.3 Identify Inputs to the Decision

The inputs to the decision are:

- Field observations, sampling and analytical data from excavation and relocation works;
- Observation and photographic log of encapsulation works to excavation areas;
- Survey data of site levels recorded prior to and post placement of capping layers;
- Field observations, sampling and analytical data of any unexpected finds;
- Documentation of appropriate classification of imported materials, if any; and
- Environmental monitoring data to demonstrate that potential airborne asbestos contamination as generated by the handling of asbestos impacted materials on the site has not impacted off-site locations.

### 7.2.4 Define the Study Boundary

The study boundaries of the site are defined as follows:

- The lateral extent of the site, as shown on **Figure 2,** and to be confirmed in a survey plan prepared by a registered Surveyor; and
- The vertical extent of remediation works is considered to be highest point of the proposed raised site level.

### 7.2.5 Develop a Decision Rule

Analytical data will be assessed against EPA published / endorsed criteria for constituents of concern:

- NSW EPA (2017), Guidelines for the NSW Site Auditor Scheme 3rd Edition, October 2017; and
- NEPC (2013), National Environment Protection (Assessment of Site Contamination) Measure, National Environment Protection Council, 1999.

However as the decision rules adopted in **Section 7.2.2** require consideration of factors other analytical data the decision rules to be adopted for each are discussed below.

Is the existing surface of the site absent of visible asbestos?

A visual clearance of the existing surface shall be undertaken by a LAA to confirm the absence of visible ACM.

Has a visual marker layer been placed over areas where a concrete slab is not currently present?

Site inspections shall be conducted to confirm the marker layer has been placed across the areas of the site that are not currently covered in concrete, with photographs to be taken as evidence. The lateral extent of the marker layer shall also be surveyed by the Registered Surveyor to demonstrate placement of the marker layer consistent with requirements this RAP.

Has the visual marker layer been capped with at least 0.5m of imported material classified as VENM, or other equally suitable material?

Survey plans, as prepared by a Registered Surveyor, of the surface levels across the site prior to remediation works shall be compared to the surface levels following placement of all capping layers to confirm that the site has been covered in at least 0.5m of VENM, or other suitable materials (validated as per **Section 7.5**).

Has the surface of the capping layer been finished with an impermeable surface or landscaping?

Site inspections shall be conducted to confirm the surfaces have been finished with an impermeable surface or appropriate landscaping, with photographs to be taken as evidence.

Has a Long Term Environmental Management Plan been prepared?

A suitable LTEMP shall be prepared for the site to address the presence of asbestos within inaccessible soils. The LTEMP will detail the management strategies required to ensure the residual asbestos contamination at the site continues to not pose a health risk to future site users.

### 7.2.6 Specify Limits of Decision Error

A qualitative assessment shall be undertaken of potential decision errors associated with the data, in accordance with the provisions in NEPC 2013.

### 7.2.7 Optimize the Design for Obtaining Data

The validation sampling design for each specific type of validation works anticipated is discussed in detail in **Section 7.3**. The general sampling methodologies are discussed below.

### 7.2.8 Soil Sampling Methodology

No soil sampling is proposed however JBS&G as the remediation consultant will be required to complete soil sampling at other premises to enable to importation of VENM, or other suitable material. In these instances,

the soil sampling method, if required, shall be determined by JBS&G at the time, as consistent with the observations of subject materials appropriate to generate representative samples.

#### 7.2.8.1 Soil Sample Containers

During the collection of soil samples, features such as seepage, discolouration, staining, odours and other indications of contamination shall be noted on field reporting sheets / field logs.

Collected soil samples shall be immediately transferred to sample containers of appropriate composition (glass jars) fitted with Teflon sealed lids for chemical analysis.

Minimum 500 mL samples shall be collected and placed in new zip lock bags where asbestos analysis is required.

Sample labels shall record sample identification number and date and time of sampling. Sample containers shall be transferred to a chilled ice box for sample preservation prior to and during shipment to the testing laboratory. A chain-of-custody form shall be completed and forwarded with the samples to the testing laboratory.

## 7.3 Validation Inspections

### 7.3.1 Existing Surface Clearance and Marker Layer Placement

Visual inspection will be undertaken by JBS&G to verify that the marker layer is placed across areas of the site that are not currently covered in concrete.

Photographic records of the marker layer installation and details to the vertical and lateral extents of remediation, will be retained for inclusion in the LTEMP.

### 7.3.2 Capping Layer Validation

The following set of survey plans are required to validate placement of the capping layer:

- A 'pre-remediation site level survey' – on completion of the visual ACM clearance, the site levels and proposed pile foundation locations areas shall be surveyed and photographed prior to the commencement of remediation, with the lateral extent of the concrete slab included in the survey;
- A 'post-marker layer placement survey' – with levels across the site surveyed and photographed following placement of the marker layer (where required);
- The 'post-capping soil placement survey' – with levels surveyed across the site and photographed following placement of the VENM[3] layer to the required construction level; and
- The 'post-surfacing' survey - with site levels surveyed and photographed following completion of the finished ground surface for the new development.

The capping layer thickness for the site can be confirmed through comparison of surface levels recorded before and after placement of VENM[4] layer, and will form part of the validation of remediation works. The specific details of the capping layer also require inclusion in the LTEMP (**Section 7.6.3**).

Photographic records of the capping layer installation and details regarding approximate lateral and vertical extents, will be retained for inclusion in the LTEMP.

[3] Or other suitable material that has been validated as per the requirements of **Section 7.5**.
[4] Or other suitable material that has been validated as per the requirements of **Section 7.5**.

## 7.4 Waste Disposal Off-site

No off-site disposal of waste is proposed as part of the capping layer installation. However should off-site waste disposal become necessary this will be managed as an unexpected find in accordance with **Section 9**.

## 7.5 Validation of Imported Materials

As discussed in **Section 7.2** where possible any fill material to be imported onto site will meet the definition of VENM, ENM or other suitable material. The sampling requirements for these materials, prior to receipt on site is as follows:

- Sampling of VENM to be imported will be undertaken at the source site at a minimum rate of one sample per 500 $m^3$, with a minimum of 3 and a maximum of 10 samples. Soil samples will be analysed prior to arrival on site for a range of source-specific analytes, including, but not limited to, total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene and xylenes (BTEX), polycyclic aromatic hydrocarbons (PAHs), heavy metals, organochlorine pesticides (OCPs), polychlorinated biphenyls (PCBs) and asbestos (NEPM 500 mL). Analytical results should be in accordance with site suitability criteria.
- Sampling ENM to be imported will be undertake at the source site in accordance with the NSW EPA (2014) excavated natural material order, with the addition of asbestos (NEPM 500 mL) sampled at half the ENM order density.
- Sampling of resource recovery orders and resource recovery exempt materials to be imported will be undertake at the source site at a minimum rate of one sample per 400 tonnes, with a minimum of 3 samples. Soil samples will be analysed prior to arrival on site for a range of source-specific analytes, including, but not limited to, TRH, BTEX, PAHs, heavy metals, OCPs, PCBs and asbestos (NEPM 500 mL). Analytical results should be in accordance with site suitability criteria.

The materials tracking requirements for these materials on site is as follows:

- Appropriate product documentation shall be provided prior to arrival on site to confirm the material is likely to be suitable, and prior to placement on the site the product shall be sampled as per the above.
- The product documentation provided by the supplier must be specific to the actual stockpile/material imported and not the results of general process/batch testing. If this cannot be provided by the supplier then the Environmental Consultant shall sample the material on arrival at site (and prior to placement).
- The soil samples collected prior to placement will be analysed prior for a range of source-specific analytes, including, but not limited to, TRH, BTEX, PAHs, heavy metals, OCPs, PCBs and asbestos. Analytical results should be below the LOR or within published background levels (for heavy metals) for the material to be used at the site.
- At the time of arrival the imported material shall be tracked by record of the following details for inclusion in the final validation report:
    - Date (yyyy/mm/dd);
    - Source site details including reference to the relevant product specification sheets, and samples collected prior to placement;
    - Unique material load identification code (starting at 001);
    - Estimated volume (cubic metres);
    - Type of material;

- Confirmation that each load of the material is free from visual and olfactory indicators of contamination including anthropogenic inclusions and/or construction waste;
- Confirmation that the material is consistent with expectations based on the source site; and
- Site figure showing placement location, date of placement and likely final depth below finished ground level (approximate).

## 7.6 Reporting

### 7.6.1 Existing Surface Clearance Report

Following the successful completion of the existing surface clearance inspection, the inspecting LAA shall prepare a ground surface asbestos clearance letter for the site. The clearance shall detail:

- The date/s of the clearance;
- Details of the inspecting LAA;
- The clearance inspection methodology; and
- Results of the clearance inspection.

### 7.6.2 Remedial Works Summary Report

At the completion of the remedial works program, JBS&G shall prepare a validation assessment report. The validation assessment report shall detail, but will not be limited to:

- The completed remedial works at the site;
- LAA details;
- Details of final site condition and assessment of survey plans as described in **Section 7.3.2**;
- Details of VENM or other materials (validated as per **Section 7.5** requirements) that were imported onto site to achieve the required ground levels for the new development; and
- A statement discussing whether the requirements of this RAP were successfully implemented.

### 7.6.3 Long Term Environmental Management Plan (LTEMP)

On completion of the validation report an LTEMP will be required for the site. The information required in the LTEMP is discussed in **Section 8**.

# 8. Long Term Site Management

While the proposed remediation works will render all asbestos at the site to be inaccessible, long term management of the capping layers will be required to ensure the residual asbestos continues to not pose a health risk to future site users. An LTEMP is required to document these management measures, and is required to document the following elements:

- A statement of the objectives of the LTEMP – i.e., to manage the remediated form of the site and to ensure no disturbance of the capping layer occurs.
- Identification of residual asbestos presence at the site that require ongoing management/monitoring to meet the LTEMP objectives, including the type of contamination and location within the site.
- Identification where foundations have penetrated the capping layers as part of new building construction.
- Documentation of asbestos management measures which have been implemented to address the identified asbestos issues at the site.
- Description of management controls to limit the exposure of site users to known areas of asbestos contamination to acceptable levels.
- Description of responsibilities for implementing various elements of the provisions contained in the LTEMP.
- Timeframes for implementing the various control/monitoring, etc. elements outlined in the LTEMP.
- Asbestos management, monitoring and reporting requirements (if required) for the future disturbance of asbestos impact underlying the marker layer including:
    - Appropriate monitoring locations relating to any residual contamination;
    - Relevant assessment criteria to be used in evaluating monitoring results;
    - Frequency of monitoring and reporting;
    - Process for reviewing monitoring data and how decisions will be made regarding the ongoing management strategy;
    - The length of time for which monitoring is expected to continue; and
    - Reinstatement requirements to maintain the integrity of the capping layers.
- Health and safety requirements for particular activities.
- A program of review and audits.
- The provisions in the LTEMP are feasible (i.e., able to be implemented) and able to be legally enforceable (i.e., a mechanism exists, such as a public positive covenant registered under section 88E of the Conveyancing Act 1919 on the title of the site, to give the plan a basis in law).
- Corrective action procedures to be implemented where LTEMP requirements are breached.

# 9. Contingency Plan

A review of remediation works has been undertaken to identify potential risks to meeting the required site conditions following remediation and management of the identified asbestos hazards. A number of potential risks have been identified. These are listed in the sections following with contingencies that will be implemented to ensure that validation criteria are met.

## 9.1 Unexpected Finds Protocol

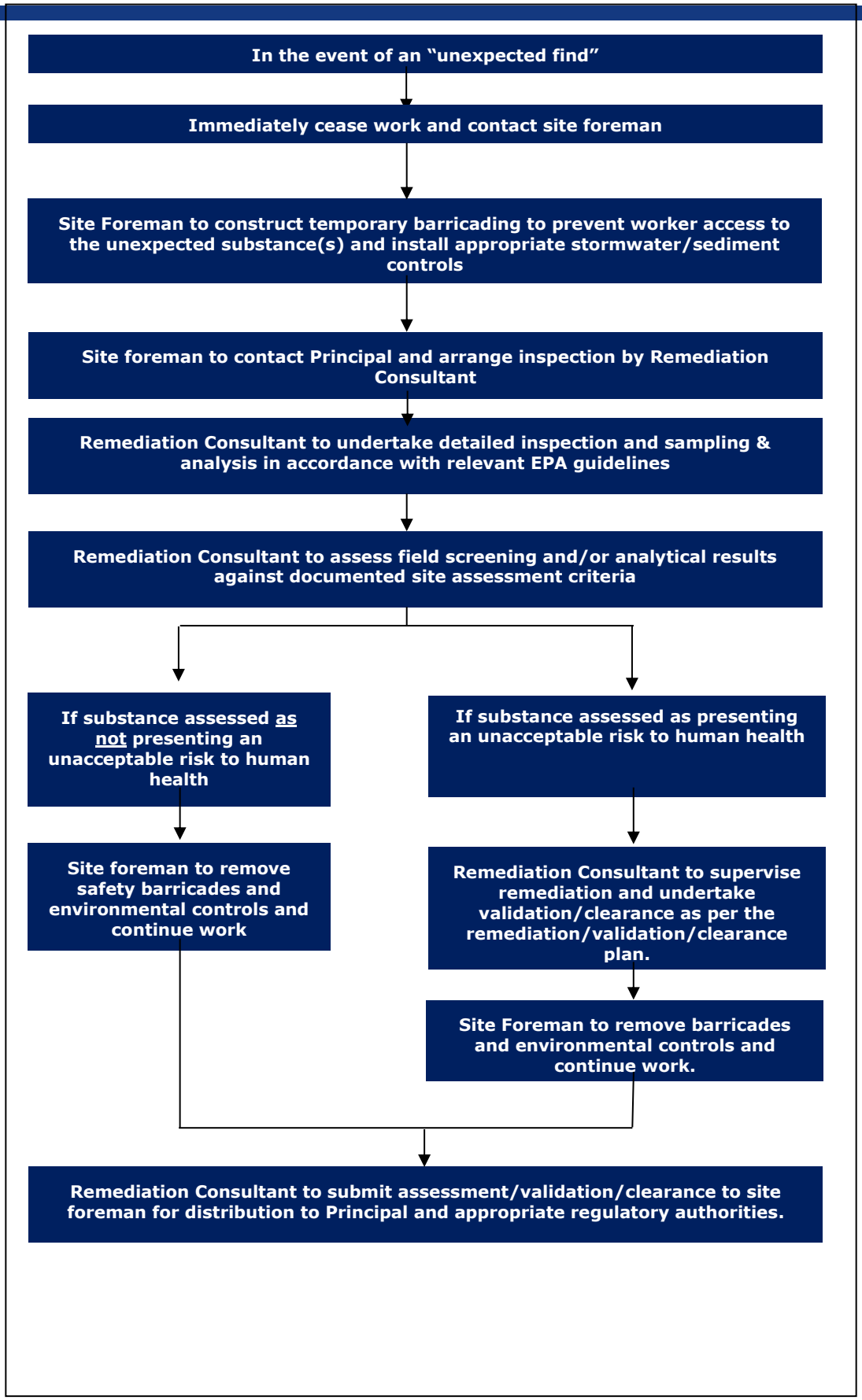
It is acknowledged that previous investigations of the site have been undertaken to assess the presence of asbestos hazards in at the site. However, ground conditions between sampling points may vary, and further hazards may arise from unexpected sources and/or in unexpected locations during remediation. The nature of any residual hazards which may be present at the site are likely to be detectable through visual or olfactory means and may include:

- Large quantities of ACM fragments encountered in the subsurface fill that was previously unidentified;
- Friable asbestos such as lagging (visible) encountered in the subsurface fill that was previously unidentified;
- bottles / containers of chemicals (visible);
- construction / demolition waste (visible);
- ash and/or slag contaminated soils / fill materials (visible);
- petroleum contaminated soils (odorous, staining / discolouration visible) beyond the identified impact, or at levels that prevent off-site disposal without treatment; and
- volatile organic compound contaminated soils (odorous).

As a precautionary measure to ensure the protection of the workforce and surrounding community, should any of the abovementioned substances be identified (or any other unexpected potentially hazardous substance), the procedure summarised in **Flowchart 9.1** is to be followed.

An enlarged version of the unexpected finds protocol, suitable for use on-site, should be posted in the Site Office and referred to during the daily tool box meetings as required.

**Flowchart 9.1 – Unexpected Finds Protocol**



## 9.2 Contingency Scenarios

## 9.3 Remedial Strategy Constraints

In the event that the proposed remedial works are found not to appropriately remove the identified asbestos hazards from accessible soil locations, or if the selected remedial strategy is not able to proceed, the following actions will be considered to ensure, firstly, the safety and health of people and the environment and, secondly, that the overall project objective of successfully implementing RAP is achieved.

### 9.3.1 Material Storage Breach

In the event any capped materials escape (or have the potential to escape), then the management controls shall be rectified and investigations undertaken to review the adequacy of the controls and any improvements implemented. Given the current approach is to contain only asbestos-impacted material, which is immobile in the subsurface, a breach of containment is considered unlikely.

### 9.3.2 Lack of Available Space

It is unlikely that the proposed remedial works would be hindered by available temporary storage space for excavated materials. However, in the event that temporary storage of excavated materials becomes difficult, works should cease until an appropriate management plan can be developed to appropriately manage and store excavated materials safely until such time as they can be appropriately disposed off site.

Any wastes requiring off-site disposal must be classified in accordance with *Waste Classification Guidelines* (NSW EPA 2014). The Site Owner or party completing the works is responsible for the lawful disposal of the classified waste to a licensed waste disposal facility lawfully able to accept the waste.

Disposal dockets for each individual off-site waste disposal load must be provided to the Validation Consultant by the Principal Contractor to demonstrate appropriate off-site disposal of waste occurred. The Site Owner or party completing the works must advise the Consultant of the disposal facilities for all waste loads prior to removal.

### 9.3.3 Severe Weather

Weather will be monitored on a daily basis via checking an internet based weather service provider. Should severe weather be forecast, especially strong winds, works will stop until safe to re-commence. All site management controls will be implemented to the extent practicable as outlined in **Section 10** prior to any severe weather events.

### 9.3.4 Odours from Works

Based on the nature of the identified contaminants, off-site odour complaints are considered unlikely. Where complaints occur, the following will be undertaken:

- Installation of an odour screening / masking system at the remediation area boundaries; and/or
- Disturbance of soils during meteorologically favourable periods only; and/or
- The use of odour suppressant additives to water used to keep impact soils/ stockpiles moist; and/or
- Covering of impacted soils.

# 10. Site Management Plan

The site management plan is largely based on the City of Parramatta Council's *Contaminated Land Policy* and other relevant policies and guidelines. This section contains procedures and requirements that are to be implemented as a minimum requirement during the remedial works at the site.

## 10.1 Hours of Operation

City of Parramatta Council permits remediation works to be conducted at the following times:

- Monday to Saturday: 7am to 6pm; and
- Sunday and public holidays: No work permitted.

## 10.2 Soil and Water Management

The NSW Department of Housing Blue Book *Managing Urban Stormwater - Soil and Conservation- August 1998* outlines the general requirements for the preparation of a soil and water management plan. All remediation works shall be conducted in accordance with a soil and water management plan. A copy of the plan shall be kept on-site and made available to Council Officers on request. All erosion and sediment measures must be maintained in a functional condition throughout the remediation works.

Additional soil and sediment controls for development sites are found in the Parramatta Development Control Plan (2011)[5].

## 10.3 Stockpile Management

All materials stockpiled on-site will be managed by the Principal Contractor for the duration of the remediation works. The following procedures will be implemented by the Site Owner or party completing the works:

- No stockpiles of soil or other materials shall be placed on footpaths or nature strips unless prior Council approval has been obtained.
- All stockpiles of soil or other materials shall be placed away from drainage lines, gutters or stormwater pits or inlets.
- All stockpiles of soil or other materials likely to generate dust or odours shall be covered (where practical).
- All stockpiles of contaminated soil shall be stored in a secure area and be covered if remaining more than 24 hours (where practical).

## 10.4 Site Access

Vehicle access to the site shall be stabilised to prevent the tracking of sediment onto the roads and footpath. Soil, earth, mud or similar materials must be removed from the roadway by sweeping, shovelling, or a means other than washing, on a daily basis or as required. Soil washings from wheels shall be collected and disposed of in a manner that does not pollute waters

[5] *Parramatta Development Control Plan,* City of Parramatta Council, October 2011 (City of Parramatta Council 2011).

## 10.5 Excavation Pump-out

As all proposed remediation works will take place above the existing ground level no excavation pump is anticipated as part of the proposed remediation.

## 10.6 Landscaping / Rehabilitation

Once sufficient imported VENM has been placed to achieve the required design levels then all exposed soil on the site surface shall be progressively covered in the appropriate surface finishes approved in the project development consent. Primarily this will be in the form of concrete slabs, however some small areas will also be finished with landscaped vegetation at the surface.

## 10.7 Noise

Category 2 remediation work shall comply with the Department of Environment & Climate Change (now NSW EPA) *Interim Construction Noise Guideline* (2009) for the management and control of construction site noise.

## 10.8 Vibration

The use of plant and machinery for the remediation works shall not cause vibrations to be felt or capable to be measured at any premises in proximity of the site.

## 10.9 Air Quality

During remedial works, dust emissions and any odours will be confined within the site boundary, and mitigation of dust and odour emissions should be attempted. This will require as a minimum:

- Wetting down of stockpiled VENM using a water spray to minimise the potential for dust to be generated.
- Meteorological conditions will be monitored by the Principal Contractor. Remedial work will be stopped or modified where meteorological conditions are adverse (i.e. dry conditions and strong winds towards sensitive receptors).
- No odours should be detectable at the site boundary and volatile emissions of other potentially volatile substances shall be controlled. Appropriate actions will be taken by the Principal Contractor to reduce the odours, which may include: increasing the amount of covering of stockpiles; mist sprays; odour suppressants; and maintenance of equipment.
- Records of volatile emissions and odours shall be kept by the Principal Contractor. Equipment and machinery will be adequately maintained to minimise exhaust emissions. No materials shall be burnt on the site.

As remediation works have the potential to generate dust emissions and given that proposed remediation works will generally take place above the existing sealed site surface, there is low potential for asbestos impacted dust. However, if site soils are disturbed, airborne asbestos fibre monitoring is required. The CEMP should include parameters that would trigger the requirement to undertaken airborne asbestos fibre monitoring and:

- Appropriate monitoring locations;
- Relevant assessment criteria to be used in evaluating monitoring results;
- Frequency of monitoring and reporting; and
- Process for reviewing monitoring data and how decisions will be made regarding the duration of monitoring required.

Airborne asbestos fibre monitoring will need to be conducted by the remediation consultant that is also a SafeWork NSW (or equivalent) 'Competent Person' in accordance with the requirements of the National Occupational Health and Safety Commission (NOHSC*) Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres – 2nd Edition* [NOHSC 3002:2005].

## 10.10 Transport of Material Offsite

Trucks will be unloaded in designated areas. The Contractor shall ensure that there is no material tracked out onto the street and that the load is securely covered. In addition, all site vehicles must leave the site in a forward direction.

The Contractor shall also log truck movements and approximate volume, via registration number and consignment number (where applicable), into and out of the site.

All appropriate road rules shall be observed and state roads will be selected as far as practicable over local roads when deciding on the transport route to the off-site material disposal location.

Deliveries of soil, materials, equipment or machinery must occur during the hours of remediation work identified in **Section 10.1**.

Plant and vehicles should limit their speed when working within asbestos exclusion zones and only traverse wetted haul roads.

## 10.11 Hazardous Materials

Hazardous and / or intractable wastes are not anticipated to be generated from the remediation works, however should this circumstance arise it will be treated as an unexpected find (**Section 9.1**) and shall be removed and disposed of in accordance with the requirements of NSW EPA, SafeWork NSW and the relevant regulations by the Party Responsible for completing the works. In particular, any hazardous wastes will be transported by a NSW EPA licensed transporter.

## 10.12 Imported Fill

Any materials imported on site by the Contractor to re-establish ground levels or to be applied as a capping layer must be validated as environmentally suitable material (i.e., VENM, ENM or other, as described in **Section 7.3**). Additionally, the imported fill should also be compatible with required geotechnical constraints and the existing soils characteristic for site drainage purposes.

## 10.13 Groundwater

It is anticipated no dewatering will be required for the remediation works given the stockpiled waste sits above ground level, however, should dewatering become necessary as part of the remediation works, a licence shall be applied for from the Department of Primary Industries for approval to extract groundwater.

## 10.14 Site Signage and Contact Numbers

A sign/s shall be displayed adjacent to the site access point/s throughout the duration of the works with the contact details of the remediation contractor and project manager as provided and maintained by the remediation contractor.

## 10.15 Site Security

The remedial areas shall be secured against unauthorised access by means of an appropriate fence or barricade by the remediation contractor. All persons working in asbestos remedial areas must be inducted, have undertaken required training and have on appropriate PPE. The access gates will be locked at all times when remedial works are not occurring.

## 10.16 Community Consultation

The client will be responsible for any community consultation that may be required in relation to the remediation works.

# 11. Health and Safety Management Plan

## 11.1 Overview

This health and safety plan contains procedures and requirements that are to be implemented as a minimum during the remediation works.

The objectives of the health and safety plan are:

- To apply standard procedures that reduce risks to acceptable levels resulting from the remedial works.
- To ensure all employees are provided with appropriate training, equipment and support to consistently perform their duties in a safe manner; and
- To have procedures to protect other site workers and the general public.

These objectives will be achieved by:

- Assignment of responsibilities;
- An evaluation of hazards;
- Establishment of personal protection standards and mandatory safety practices and procedures; and
- Provision for contingencies that may arise while operations are being conducted at the site.

This health and safety plan does not provide safety information specific to construction and other demolition or excavation activities carried out by contractors, such as the safe operation, maintenance and inspection of plant, etc. Contractors will be required to prepare their own Safe Work Method Statements for their work activities. All parties working on the site shall comply with all applicable Health and Safety legislation, regulations, codes and guidelines.

## 11.2 Responsibilities

Further to the definitions of remediation roles and responsibilities presented in Section 6.2 the following responsibilities will apply with respect to Health and Safety Management during remediation works.

Principal Contractor

The Principal Contractor is responsible for ensuring that the work is carried out in accordance with the health and safety plan. This will include:

- Ensuring a copy of the health and safety plan is available at the site during the remediation/validation activities;
- Confirming individuals are competent in performing allotted tasks;
- Liaison with the contractor representatives, as appropriate, regarding safety matters; and
- Investigation and reporting of incidents and accidents.

Other Members of the Site Workforce

Every individual worker is responsible for conducting their allocated tasks in a safe manner and in accordance with their training and experience. They must give due consideration to the safety of all others in their proximity and cooperate in matters of health and safety. All workers must leave their work areas in such a condition that the location will not be hazardous to others at any time.

## 11.3 Hazards

The known or potential hazards associated with the remedial work activities are listed below:

- inhalation hazards associated with the presence of asbestos.
- physical hazards, including:
    - work in or near excavations;
    - operating machinery;
    - heat stress and UV exposure;
    - underground or overhead services;
    - manual handling;
    - fauna; and
    - noise.

In the event of the discovery of any condition that would suggest the existence of a situation more hazardous than anticipated, or of any new hazard that could potentially cause serious harm to personnel or the environment, work will be suspended until the client, Principal Contractor and Environmental Consultant have been notified and appropriate instructions have been provided to field personnel.

### 11.3.1 Inhalation Hazards

The main inhalation hazards from the remediation and management works are consequent of the presence of asbestos, however these are essentially mitigated by the presence of an existing sealed surface. As such the Health and Safety Plan will only require the inclusions of measures to be put in place in the event that the existing surface cover is breached as described in the environmental controls for the works. Where there is a breach of the site surface and potential exists for airborne emissions to be generated, PPE shall be required to be worn to prevent potential exposure, as described in **Section 11.4.2.**

### 11.3.2 Physical Hazards

Operating Machinery

Heavy plant and equipment operating in the vicinity of field personnel presents a risk of physical injury. Personnel should be cognisant of their position in relation to operating machinery at all times.

Never walk behind or to the side of any operating equipment without the operator's knowledge. Do not assume that the operator knows your position. Personnel should stay at least 1 m from the operational area of heavy equipment and should not stand directly below any load or piece of equipment (e.g. excavators).

All persons on-site are to wear high-visibility upper body clothing at all times.

Work In or Near Excavations

No deep excavations are anticipated for the remedial works. All excavations greater than 1.5m in depth shall be shored, sloped or otherwise constructed so as to minimise the potential for collapse.

Cuts and Abrasions

The manual work associated with the remediation works may give rise to the risk of cuts and abrasions to personnel working in the area. As well as the direct consequences of any cut or abrasion, such injuries can lead to the possibility of exposure to contaminants through the wound as well as diseases such as tetanus. To minimise the risk of direct or indirect injury, personnel will wear the personal protective equipment (PPE) described in **Section 11.4.1**.

Heat Stress and UV Exposure

Site personnel may experience heat stress due to a combination of elevated ambient temperatures and the concurrent use of personal protection equipment; this depends in part on the type of work and the time of year.

In addition to heat stress, overexposure to UV radiation in sunlight can result in sunburn to exposed skin. The use of a high protection sunscreen (SPF30+ or greater) on all exposed skin is recommended. Sunscreen should be applied at least 20 minutes prior to the commencement of work and re-applied at least every two hours or more frequently if perspiring.

Hats (including hard hats in specified areas) will also provide additional sun protection during the peak (i.e. 10:00 am to 3:00 PM) sun period. Sunglasses should be worn (where appropriate) to protect eyes from effects of UV exposure.

Underground Services

There is the potential for underground services (electricity, natural gas lines, water, telephone, sewer, and stormwater) to be present beneath the work area. The remediation contractor shall ensure that appropriate procedures will be taken to minimise the risk associated with excavation near services.

Aboveground Electrical Hazards

All electrical plant and equipment must comply with the requirements of Australian Standard AS 3000. Hand held portable tools shall comply with *AS/NZS 3160 "hand-held portable electric tools"* and shall be double insulated. Cord connected portable hand lamps shall comply with AS/NZS 3118. A Residual Current Device (RCD) shall protect plug-in portable equipment, which is connected to a supply above Extra Low Voltage - 12-24volts (including equipment supplied from a generator or welding set). RCD protection shall be provided during maintenance of portable electrical equipment at all times while the equipment is connected to a power supply above Extra Low Voltage, irrespective of whether power is switched ON or OFF. RCD's shall comply with AS 3190 and shall be type II units, rated to trip at or below 30 milliamps within 40 milliseconds.

No excavator, drill rig or crane may work within 6 m of overhead distribution power lines.

Manual Handling

When lifting or handling heavy objects, use correct lifting techniques, bending the knees not the back. If the item to be lifted is too heavy or awkward for one person to lift, seek assistance from other company employees or use mechanical help.

Fauna

The remedial works are within an area of land with trees and grasses, and it is likely that there will be potentially hazardous invertebrate and vertebrate fauna, including but not limited to snakes, lizards, birds, spiders, bees, wasps and ants. Long sleeve shirts, pants and boots should be worn at all times on the site. If snakes are identified on the site during remedial works, an appropriate snake removal service should be contacted to relocate the animal away from the work area.

## 11.4 Personal Protective Equipment (PPE)

### 11.4.1 General Site Works PPE

All workers who may come into direct contact with contaminated soil will wear the following personal protective equipment:

- High visibility long sleeved collared shirt;
- Long pants;
- Heavy duty outer gloves (e.g. leather) where there is a risk of cuts or abrasions, otherwise PVC outer gloves if in direct contact with contaminated soil;

- Steel capped boots;
- Safety glasses;
- High visibility vest or jacket (not required if shirt is high-visibility); and
- Hard hat when working near mechanical plant.

### 11.4.2 PPE During Cutting of Existing Slab and Installation of Pile Foundations

Asbestos-containing materials are present, and friable asbestos is potentially also present, in soil underlying the pavement. As such the works undertaken to cut the existing ground slab and install pile foundations will need to be undertaken as per the requirements of the CEMP for the site, as follows:

- Work involving any breaches of the pavement or capping and temporary marker layer, (i.e. deep intrusive works exceeding a depth of 0.3 m) will require supervision by a Class A licensed asbestos contractor. The works will be undertaken using the procedures described in the SafeWork NSW *Code of Practice How To Safely Remove Asbestos (SafeWork NSW 2022a)* and site-specific procedures.
- All site workers shall be inducted to the site and made aware of the procedures outlined in the project CAMP and CEMP.
- Workers and visitors to the site area will be made aware of the friable asbestos contamination during site inductions and tool box meetings and only authorised people shall enter the work area, which must contain a perimeter barrier to restrict entry.
- An asbestos work area shall be defined and clearly marked for the full extent of the concrete cutting / pile installation works.
- All personnel working within the asbestos work area shall wear P2 (or higher) class half face respirators, disposable gloves and coveralls made from materials which provide adequate protection against fibre penetration whilst completing works and whilst within the asbestos work area.
- A 5 m wide exclusion zone shall be established around the perimeter of the asbestos work area. The dimensions of the exclusion zone may be varied by the person/s with management or control of the workplace, or by the Class A licensed asbestos contractor.
- Asbestos warning signs shall be placed surrounding the asbestos work area and at entry/egress points.
- A decontamination area shall be marked out within the asbestos work area for the removal and disposal of PPE before site workers leave the asbestos work area. Personal decontamination must be undertaken each time a site worker leaves the asbestos works area and at the completion of the works. All disposable PPE shall be disposed of as asbestos waste.
- Static air monitoring at a minimum of four locations surrounding each asbestos work area and with consideration to neighbouring receptors shall be undertaken in accordance with the *Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres 2nd Edition* [NOHSC: 3003(2005)] for the duration of the work. The monitoring locations shall be assigned by a Licensed Asbestos Assessor (LAA).
- At the completion of the works the capping and marker layer are to be re-instated in accordance with the requirements of this RAP. The changes should be detailed in the register of site works.

### 11.4.3 PPE in Other Areas of Asbestos Disturbance (If Required)

During any other asbestos remediation/management works, excavation, transport or placement asbestos impacted materials, the following items of PPE are required in addition to any standard PPE required for the specific task, and applies for any ground workers within the asbestos work zone:

- Disposable coveralls must be worn (Type 5, Category 3 or better);
- Disposable gloves – non disposable gloves must be cleaned within the decontamination unit in accordance with SafeWork NSW (2022a);
- P2 class respirator or higher – non disposable respirators must be cleaned in the decontamination area in accordance with SafeWork NSW (2022a); and
- Steel capped rubber soled work shoes (covered with booties) or gumboots.

Plant operators undertaking sub-surface intrusive works must close cabin doors and windows and set air conditioning to re circulate when operating within the asbestos work zone or wear PPE as listed above.

Further information on PPE requirements for asbestos removal works is provided in SafeWork NSW (2022a).

The contractor shall supply and keep in good order, two complete sets of protective clothing and respirators for authorised inspection personnel. These will remain the property of the contractor at the end of the contract.

Employees must receive instruction in the correct method of using the respirator and on the importance of correct facial fit and maintenance. No person with a beard shall be allowed within the asbestos work area except using an approved positive pressure continuous airflow hood.

It is further noted that, as part of the WorkCover permitting process, additional PPE may be required. If this occurs, then the above PPE requirements will be upgraded to reflect SafeWork NSW requirements.

## 11.5 Emergency Response

The remediation contractor will be responsible for preparing an emergency response plan, which will provide details on appropriate action and evacuation procedures in the event of an emergency.

In the event of an emergency arising on the site, appropriate action should be taken. Site evacuation procedures should be followed, as necessary.

In the event of an accident:

- evaluate the seriousness of the injury, and contact emergency services, if necessary;
- provide first aid, as appropriate;
- if working within a Decontamination Zone and it is safe to do so, evacuate the injured person via the Decontamination Zone; and
- make the area as safe as possible without jeopardising safety.

If a serious accident occurs, do not disturb the scene, except to make safe and prevent further injury or damage, and keep all unauthorised people out, and report all accidents to the Project Manager and relevant emergency services and authorities.

# 12. Regulatory Approvals / Licensing

## 12.1 SEPP (Resilience and Hazards) 2021

The requirements of SEPP (Resilience and Hazards) 2021 were considered in the EIS for the approved development and as a result the remediation works do not require specific consent beyond that already received from the NSW Department of Planning (**Section 2.3**).

## 12.2 Protection of the Environment Operations Act 1997

The proposed asbestos remediation/management activities are not required to be licensed under the *Protection of the Environment Operation Act 1997* since the works do not involve:

- treatment otherwise than by incineration and storage of more than 30 000 cubic metres of contaminated soil originating exclusively from the site; or
- disturbance of more than an aggregate area of 3 hectares of contaminated soil originating exclusively from the site.

## 12.3 Protection of The Environment Operations (Waste) Regulation 2014

The regulations make requirements relating to non-licensed waste activities and waste transporting. The proposed works on the site will not require to be licensed.

It is noted that Section 42 of the Regulation stipulates special transportation, reporting, re-use and recycling requirements relating to asbestos waste and must be complied with regardless whether the activity is licensed. However given that transport of waste is not proposed as part of the remediation works the requirements of Section 42 of the Regulation do not apply.

## 12.4 Waste Classification Guidelines (NSW EPA 2014)

All wastes generated and proposed to be disposed off-site shall be assessed, classified and managed in accordance with this guideline. However given that off-site disposal of waste is not proposed as part of the remediation works the requirements of NSW EPA (2014) do not apply.

## 12.5 Asbestos Removal Regulations and Code of Practice

The relocation and/or capping works proposed shall be managed in accordance with the Work Health and Safety Act (2011) and Work Health and Safety Regulation (2017), *How to Manage and Control Asbestos in the Workplace: Code of Practice* (SafeWork NSW 2022a), "*How to Safely Remove Asbestos: Code of Practice* (SafeWork NSW 2022b), *Managing Asbestos in or on Soil* (WorkCover 2014). However no special precautions or requirements are considered necessary for compliance given that the detected asbestos (in **Section 3.4**) and will remain under a cap or sealed surface on the redeveloped site.

# 13. Conclusions and Recommendations

## 13.1 Conclusions

Overall, it is considered that the proposed actions outlined in this RAP conform to the requirements of the *Contaminated Sites Guidelines for the NSW Site Auditor Scheme (3rd Edition)* (NSW EPA 2017) because they are: technically feasible; environmentally justifiable; and consistent with relevant laws, policies and guidelines endorsed by NSW EPA.

Subject to the successful implementation of the measures described in this RAP and the limitations in **Section 14**, it is concluded that the identified asbestos contamination at the site can be remediated / managed in such a way to be appropriately protective of human health and the environment, such that the site can be made suitable for commercial land use.

## 13.2 Recommendations

It is recommended that the processes outlined in this RAP be implemented and that the following documentation be developed and implemented to ensure the risks and impacts during remediation works are controlled in an appropriate manner:

- An ASSMP is to be developed to manage identified PASS/ASS during construction/excavation activities;
- A construction environmental management plan (CEMP) and asbestos management plan (AMP), to document the monitoring and management measures required to control the environmental impacts of the works and ensure the validation protocols are being addressed; and
- An LTEMP for long-term site management of in situ asbestos.

Upon completion of the remediation works, the Validation Report is required to be prepared to verify remedial works were completed in accordance with the RAP.

# 14. Limitations

This report has been prepared for use by the client who has commissioned the works in accordance with the project brief only and has been based in part on information obtained from the client and other parties.

The advice herein relates only to this project and all results conclusions and recommendations made should be reviewed by a competent person with experience in environmental investigations, before being used for any other purpose.

JBS&G accepts no liability for use or interpretation by any person or body other than the client who commissioned the works. This report should not be reproduced without prior approval by the client or amended in any way without prior approval by JBS&G, and should not be relied upon by other parties, who should make their own enquiries.

Sampling and chemical analysis of environmental media is based on appropriate guidance documents made and approved by the relevant regulatory authorities. Conclusions arising from the review and assessment of environmental data are based on the sampling and analysis considered appropriate based on the regulatory requirements.

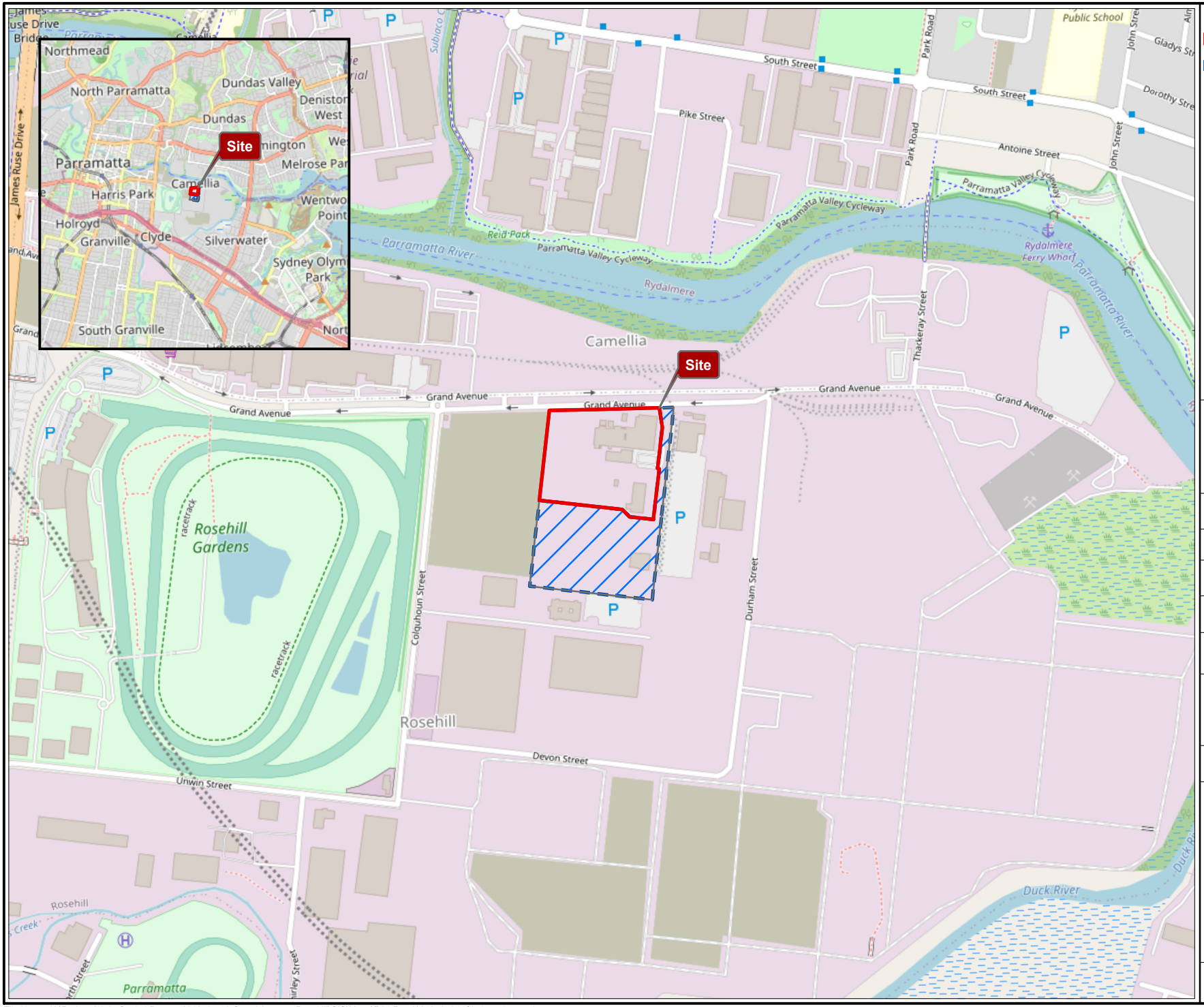
Limited sampling and laboratory analyses were undertaken as part of the investigations undertaken, as described herein. Ground conditions between sampling locations and media may vary, and this should be considered when extrapolating between sampling points. Chemical analytes are based on the information detailed in the site history. Further chemicals or categories of chemicals may exist at the site, which were not identified in the site history and which may not be expected at the site.

Changes to the subsurface conditions may occur subsequent to the investigations described herein, through natural processes or through the intentional or accidental addition of contaminants. The conclusions and recommendations reached in this report are based on the information obtained at the time of the investigations.

This report does not provide a complete assessment of the environmental status of the site, and it is limited to the scope defined herein. Should information become available regarding conditions at the site including previously unknown sources of contamination, JBS&G reserves the right to review the report in the context of the additional information.

# Figures

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**Legend**

- Approximate Site Boundary - Stage 2
- Stage 1 – Not Part of Current Investigation

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|---|---|
| Job No: 61873 | |
| Client: Hale Capital Partners | |
| Version; R02 Rev A | Date 22/10/2021 |
| Drawn By: JA | Checked By: JZ |
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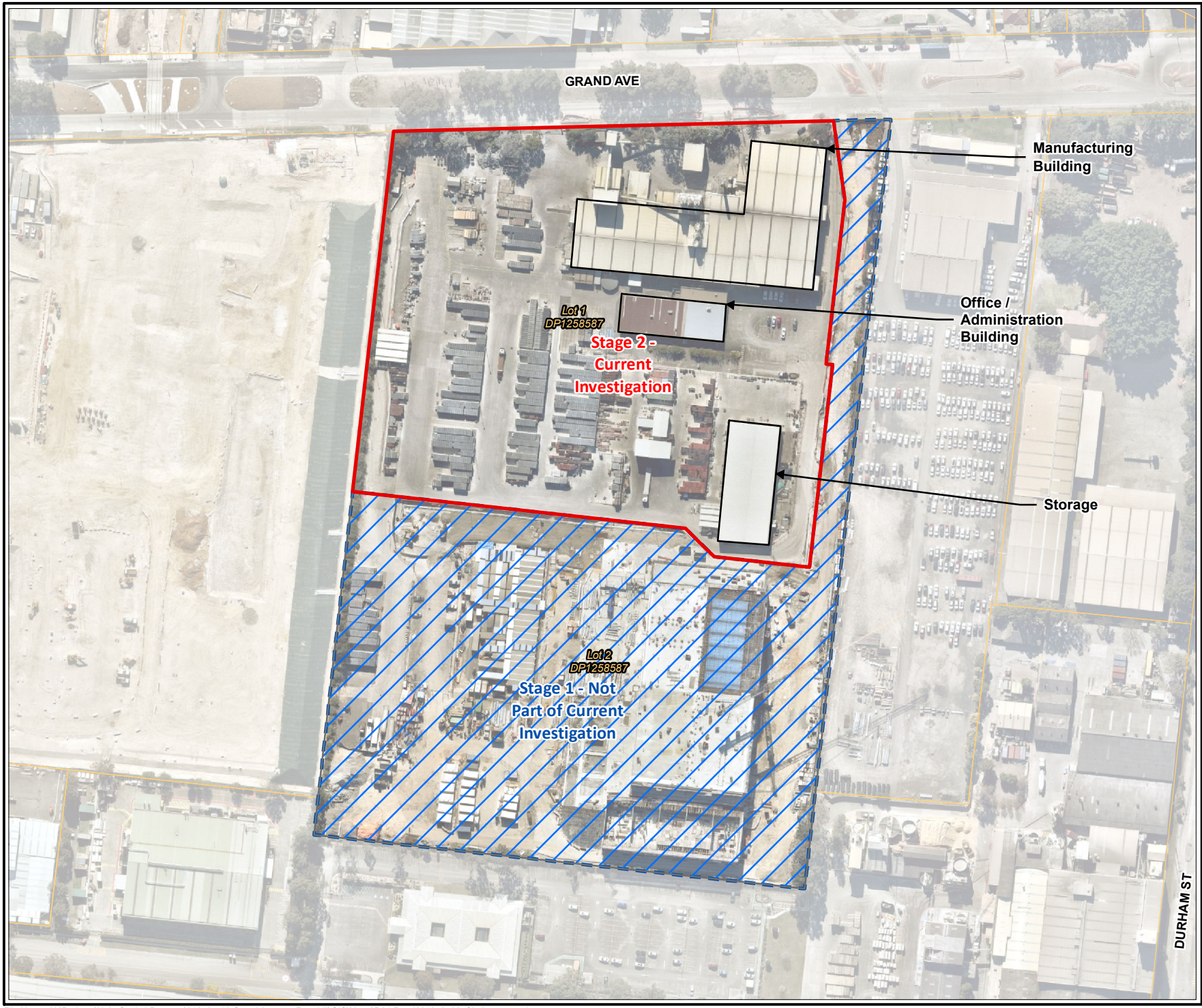
Coord. Sys. GDA 1994 MGA Zone 56

**6 Grand Avenue, Rosehill, NSW**

**SITE LOCATION**

**FIGURE 1**

File Name: N:\Projects\Hale Capital Partners\61873 - 10 Grand Avenue, Rosehill\GIS\Maps\R01 Rev A\61873_01_SiteLocation.mxd
Reference: © OpenStreetMap (and) contributors, CC-BY-SA




**Legend**

- Approximate Site Boundary - Stage 2
- Stage 1 – Not Part of Current Investigation
- NSW Cadastre (DFSI, 2021)
- Site Features

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| | |
|---|---|
| Job No: 61873 | |
| Client: Hale Capital Partners | |
| Version: R02 Rev A | Date 22/10/2021 |
| Drawn By: JA | Checked By: JZ |
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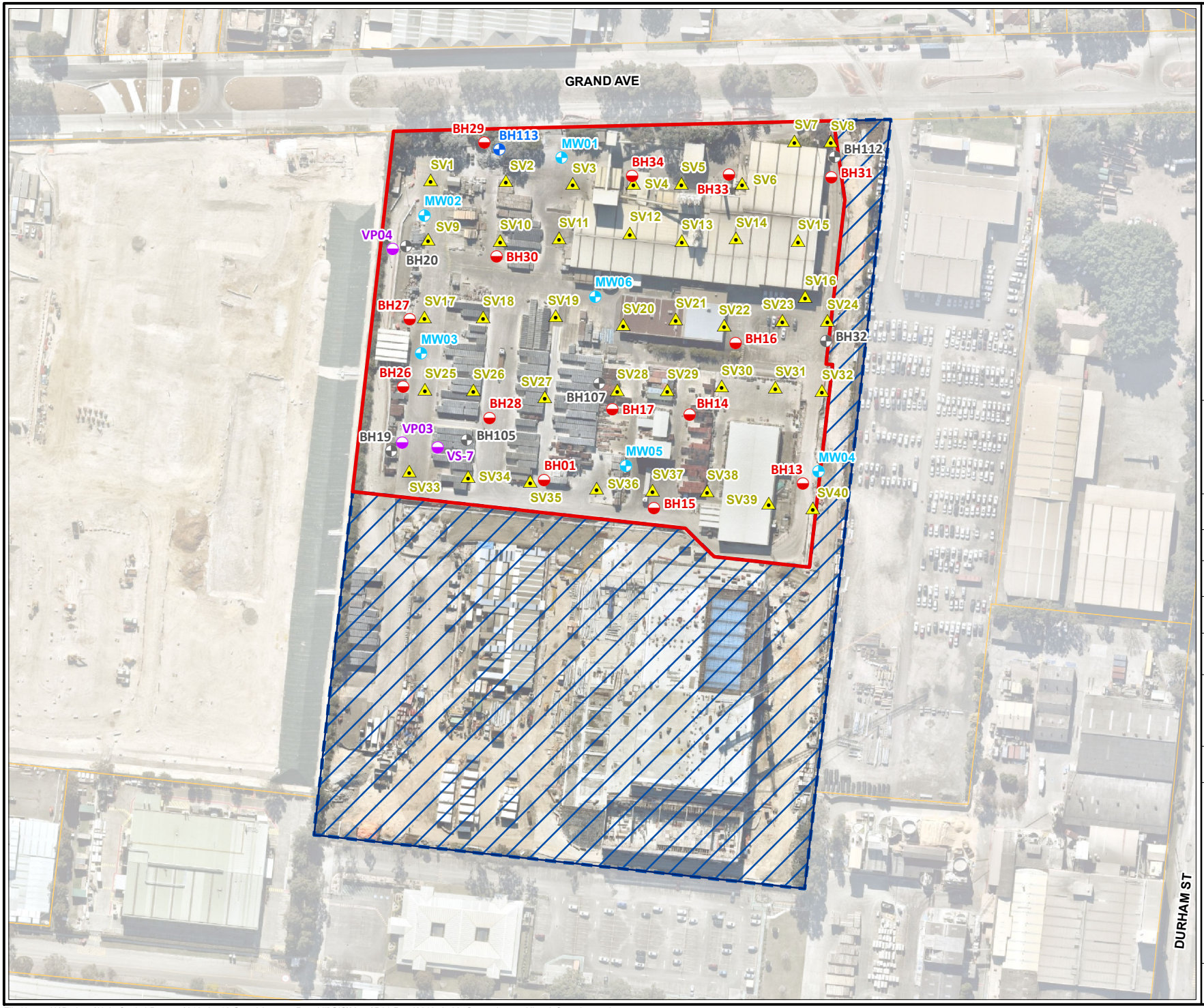
Coord. Sys. GDA 1994 MGA Zone 56

**6 Grand Avenue, Rosehill, NSW**

**SITE LAYOUT**

**FIGURE 2**

File Name: N:\Projects\Hale Capital Partners\61873 - 10 Grand Avenue, Rosehill\GIS\Maps\R01 Rev A\61873_02_SiteLayout.mxd
Reference: Nearmap - www.nearmap.com.au (Capture Date: 07/08/2021)




## Legend

- Approximate Site Boundary - Stage 2
- Stage 1 – Not Part of Current Investigation
- NSW Cadastre (DFSI, 2021)

**Historical Sample Locations - KPMG SGC (2016)**

- Monitoring Well
- Monitoring Well - Lost
- Soil Borehole Location
- Soil Vapour Port Location

**Sample Locations (JBS&G 2021)**

- Monitoring Well
- Vapour Sampling Locations

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| | |
|---|---|
| Job No: 61873 | |
| Client: Hale Capital Partners | |
| Version: R01 Rev A | Date 22/10/2021 |
| Drawn By: JA | Checked By: JZ |
| Scale 1:2,500 | |

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metres

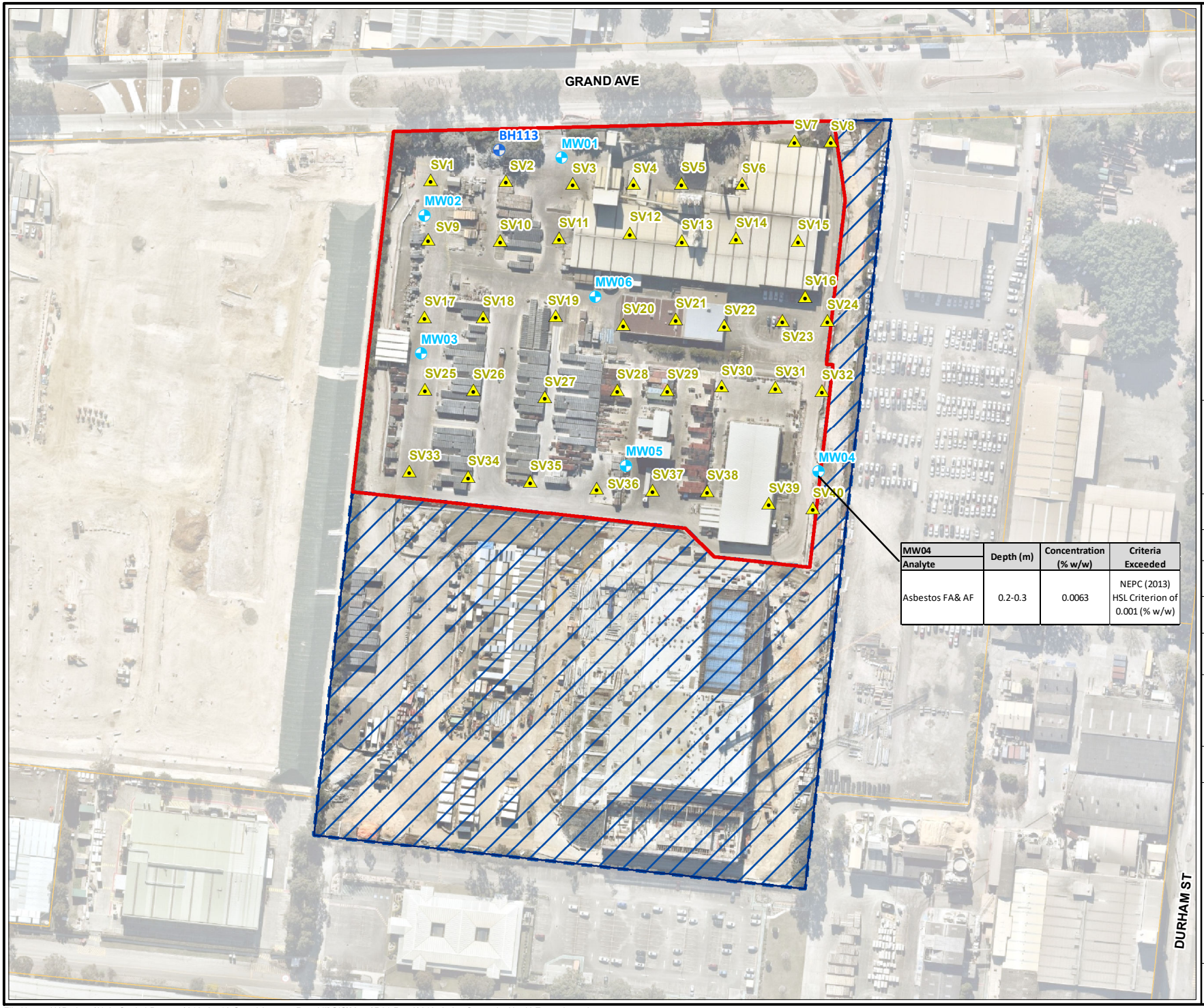
Coord. Sys. GDA 1994 MGA Zone 56

**6 Grand Avenue, Rosehill, NSW**

**CURRENT INVESTIGATION AND HISTORICAL SAMPLE LOCATIONS**

**FIGURE 3**

File Name: N:\Projects\Hale Capital Partners\61873 - 10 Grand Avenue, Rosehill\GIS\Maps\R01 Rev A\61873_03_CurrentInvest_HistoricSamples.mxd
Reference: Nearmap - www.nearmap.com.au (Capture Date: 07/08/2021)




| MW04 Analyte | Depth (m) | Concentration (% w/w) | Criteria Exceeded |
|---|---|---|---|
| Asbestos FA& AF | 0.2-0.3 | 0.0063 | NEPC (2013) HSL Criterion of 0.001 (% w/w) |

**Legend**

- Approximate Site Boundary - Stage 2
- Stage 1 – Not Part of Current Investigation
- NSW Cadastre (DFSI, 2021)

**Sample Locations (JBS&G 2021)**

- Monitoring Well (Existing)
- Monitoring Well (New)
- Vapour Sampling Locations

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Job No: 61873

Client: Hale Capital Partners

Version: R01 Rev A | Date 22/10/2021

Drawn By: JA/RH | Checked By: JZ

Scale 1:2,500

0 25 50
metres

Coord. Sys. GDA 1994 MGA Zone 56

**6 Grand Avenue, Rosehill, NSW**

**CURRENT INVESTIGATION HEALTH EXCEEDANCES**

**FIGURE 4**

File Name: N:\Projects\Hale Capital Partners\61873 - 10 Grand Avenue, Rosehill\GIS\Maps\R01 Rev A\61873_05_CurrentInvHealthExceeds.mxd
Reference: Nearmap - www.nearmap.com.au (Capture Date: 07/08/2021)

# Appendix A Redevelopment Plans

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1 WAREHOUSE - GROUND FLOOR 1 : 500

GENERAL LEGEND:

B1 - BOLLARD TYPE 1
COL-C - CONCRETE COLUMN
COL-S - STEEL COLUMN
RSD - ROLLER SHUTTER DOOR
FCC - FIRE CONTROL CENTRE
FNC-1 - PALISADE
FNC-2 - CHAIN WIRE
DP - DOWNPIPES
RW - RETAINING WALL
GEF - GROUND EXHAUST FAN
SEF - SMOKE EXHAUST FAN
SD/FD - SMOKE / FIRE DAMPER
TG1 - TELESCOPIC GATE
TYP - (TYPICAL)
SG1 - SLIDING GATE
SG2 - SWING GATE
SG3 - SWING GATE - PEDESTRIAN

SITE BOUNDARY
LOT BOUNDARY
BUILDING SETBACK
TO BE DEMOLISHED

EXISTING TREE TO BE RETAINED - REFER TO ARBORIST REPORT

S# SIGNAGE - REFER TO SIGNAGE DETAILS

FIRE SERVICES
LANDSCAPE AREA
WASTE AREA

**PRELIMINARY**


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| ISSUE | DESCRIPTION | DATE |
|---|---|---|
| 6 | ISSUE FOR COORDINATION | 08.05.2023 |
| 5 | ISSUE FOR PRELIMINARY DA SET | 20.04.2023 |
| 4 | ISSUE FOR COORDINATION | 17.04.2023 |
| 3 | ISSUE FOR COORDINATION | 13.04.2023 |
| 2 | ISSUE FOR COORDINATION | 24.03.2023 |
| 1 | PRELIMINARY DA SET | 06.03.2023 |

CLIENT: HALE CAPITAL DEVELOPMENT MANAGEMENT

# GRAND AVENUE MULTI-LEVEL WAREHOUSE, ROSEHILL

6 GRAND AVENUE, ROSEHILL NSW 2142

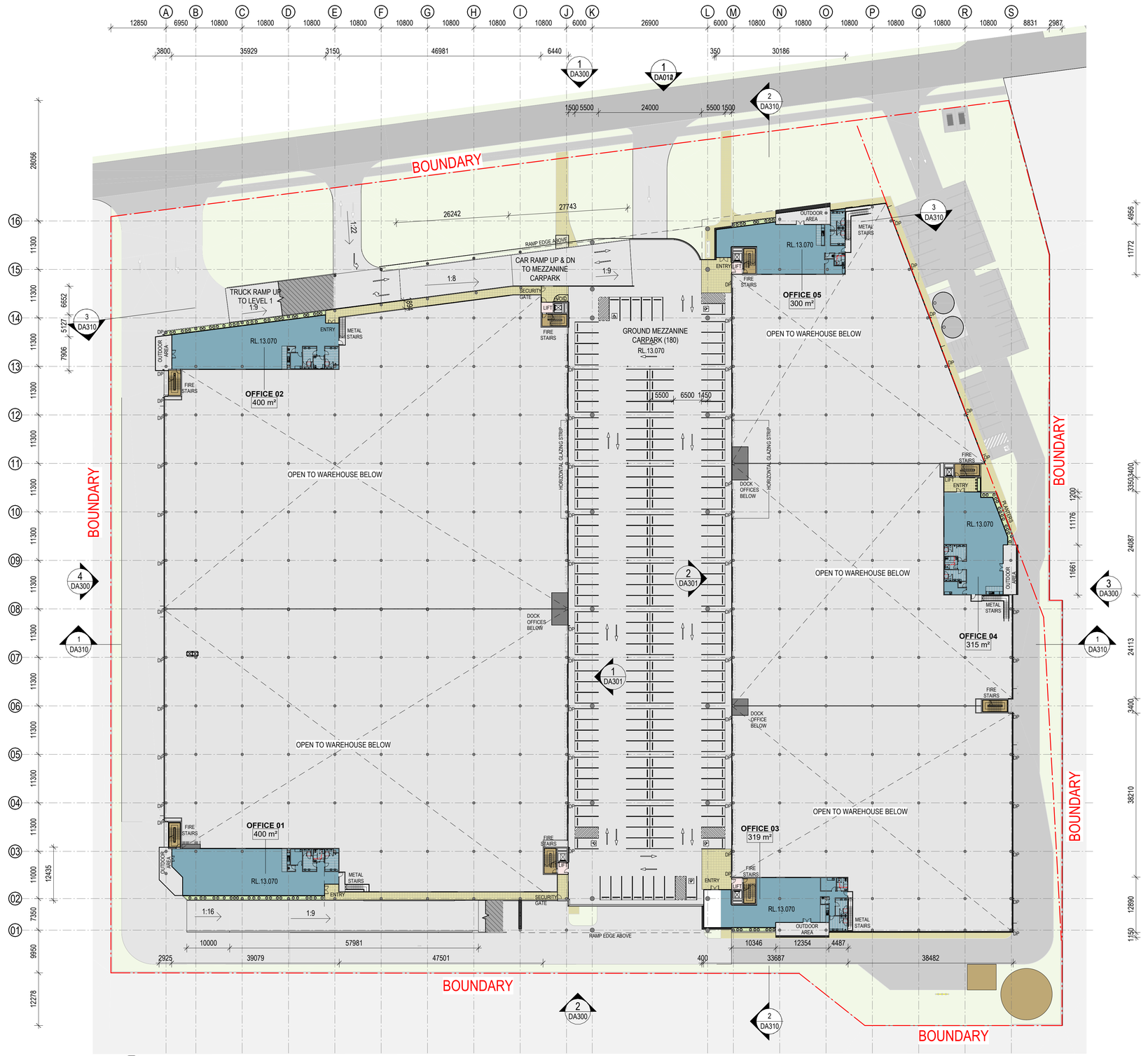
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Hale




1 MEZZANINE OFFICE - GROUND 1 : 500

GENERAL LEGEND:

B1 - BOLLARD TYPE 1
COL-C - CONCRETE COLUMN
COL-S - STEEL COLUMN
RSD - ROLLER SHUTTER DOOR
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| 1 | PRELIMINARY DA SET | 06.03.2023 |

CLIENT:
HALE CAPITAL DEVELOPMENT MANAGEMENT

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6 GRAND AVENUE, ROSEHILL NSW 2142

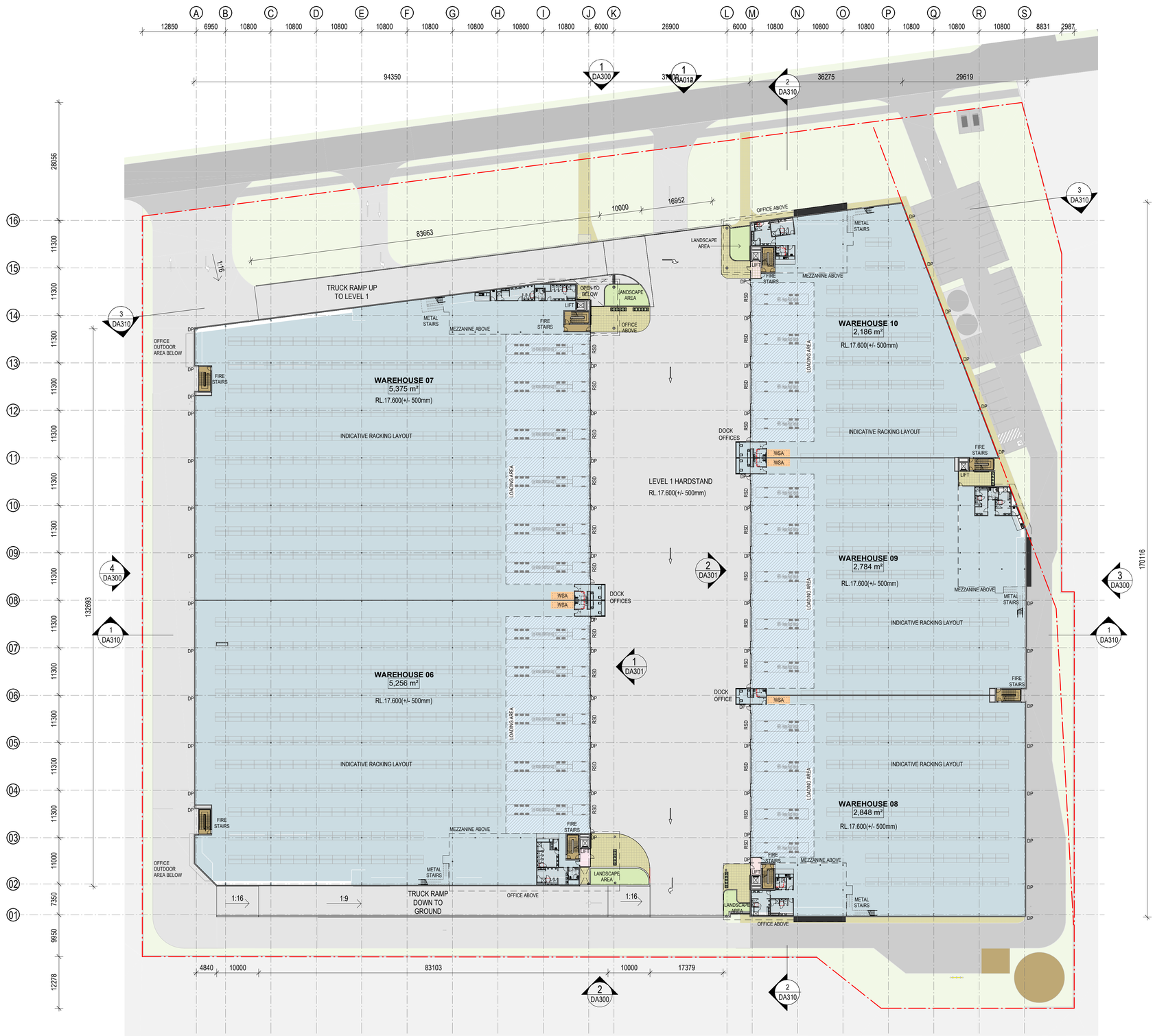
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1 WAREHOUSE - LEVEL 1 1 : 500

## GENERAL LEGEND:

B1 - BOLLARD TYPE 1
COL-C - CONCRETE COLUMN
COL-S - STEEL COLUMN
RSD - ROLLER SHUTTER DOOR
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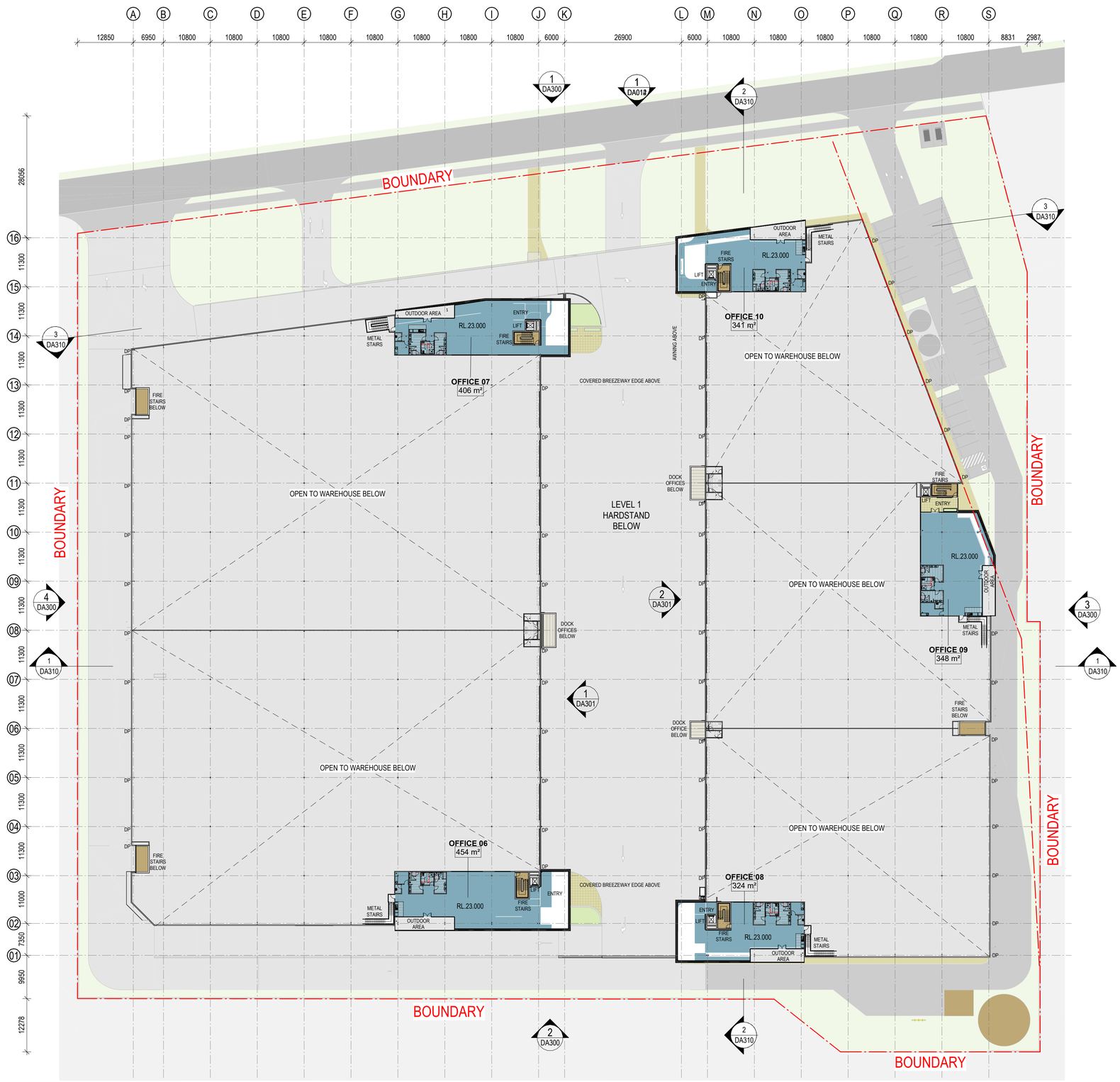
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Hale




1 MEZZANINE OFFICE - LEVEL 1 1 : 500

## GENERAL LEGEND:

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| 2 | ISSUE FOR COORDINATION | 24.03.2023 |
| 1 | PRELIMINARY DA SET | 06.03.2023 |

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CLIENT:
HALE CAPITAL DEVELOPMENT MANAGEMENT

# GRAND AVENUE MULTI-LEVEL WAREHOUSE, ROSEHILL

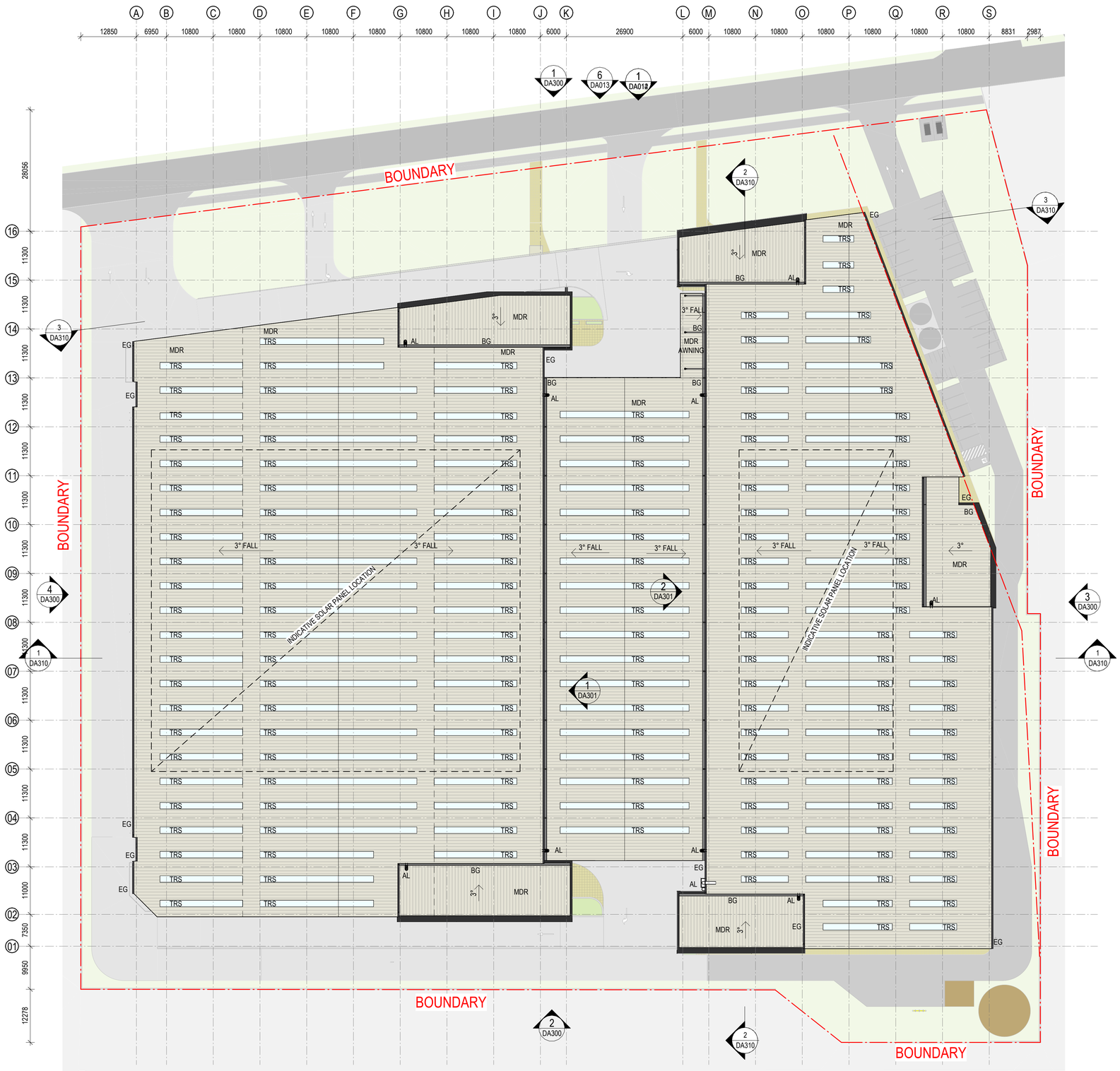
6 GRAND AVENUE, ROSEHILL NSW 2142

NORTH

TITLE
WAREHOUSE L1 MEZZ FLOOR PLAN

DATE 08.05.2023 | SCALE As indicated @ A1 | JOB NO. 22277 | DWG NO. DA103 | REVISION 6

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1 ROOF PLAN 1 : 500

ROOF LEGEND:

MDR - METAL ROOF SHEET
TRS - TRANSLUCENT ROOF SHEET
BG - BOX GUTTER
EG - EAVES GUTTER
DP - DOWNPIPE
CU - OFFICE AIR CONDITIONING UNIT
GEF- GROUND EXHAUST FAN
SEF - SMOKE EXHAUST FAN
AL - ACCESS LADDER
[ ] - SOLAR PANELS DEDICATED AREA

**PRELIMINARY**

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| ISSUE | DESCRIPTION | DATE |
|---|---|---|
| 4 | ISSUE FOR COORDINATION | 08.05.2023 |
| 3 | ISSUE FOR PRELIMINARY DA SET | 20.04.2023 |
| 2 | ISSUE FOR COORDINATION | 24.03.2023 |
| 1 | PRELIMINARY DA SET | 06.03.2023 |

CLIENT:
HALE CAPITAL DEVELOPMENT MANAGEMENT

# GRAND AVENUE MULTI-LEVEL WAREHOUSE, ROSEHILL

6 GRAND AVENUE, ROSEHILL NSW 2142

NORTH

TITLE
WAREHOUSE ROOF PLAN

DATE 08.05.2023 | SCALE As indicated @ A1 | JOB NO. 22277 | DWG NO. DA104 | REVISION 4

8/05/2023 4:51:58 PM C:\Users\MarkOrr\Drive - SBA Architects\Documents\22277 - HALE - ROSEHILL_R22_DA-1_markm5JTIC.rvt

# Appendix B Historical Investigations – Summary Tables of Soil and Vapour Analytical Results

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**Table A1: Soil Analytical Results**
Project Number: 61873
Project Name: HaleCP Rosehill

| | Heavy Metal | | | | | | | | | TPH | | | | | TRH | | | | | | | BTEXN | | | | | | | PAH | | | | | | | | |

**Table A1: Soil Analytical Results**
Project Number: 61873
Project Name: HaleCP Rosehill

| | | | OCP | | | | | | | | | | | | | | | | | | | | | | | | | | | PCB | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Pyrene | PAHs (Sum of total) | Hexachlorobenzene | 4,4-DDE | a-BHC | b-BHC | d-BHC | g-BHC (Lindane) | Aldrin | Dieldrin | Aldrin + Dieldrin | chlordane | chlordane (cis) | chlordane (trans) | DDT | DDD | DDT+DDE+DDD | Endosulfan I | Endosulfan II | Endosulfan sulphate | Endrin | Endrin aldehyde | Endrin ketone | Heptachlor | Heptachlor epoxide | Methoxychlor | Toxaphene | Organochlorine pesticides EPAVic | Other organochlorine pesticides EPAVic | Aroclor 1016 | Aroclor 1221 | Aroclor 1232 | Aroclor 1242 | Aroclor 1248 | Aroclor 1254 | Aroclor 1260 | PCBs (Sum of total) |
| | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| EQL | 0.5 | 0.5 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.1 | 0.1 | 0.1 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.5 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil | | 4000 | 80 | | | | | | | | 45 | 530 | 530 | 530 | | | 3600 | | | | 100 | | | 50 | | 2500 | 160 | | | | | | | | | | 7 |
| NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0-1m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-2m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-4m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| >4m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0-1m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1-2m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-4m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| >4m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Table 1B(1-5) Generic EIL - Comm/Ind | | | | | | | | | | | | | | | 640 | | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Coarse Soil | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Sample ID | Sample Date | Lab Report | Soil Type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW01_4.0-4.1 | 8/10/2021 | 830982 | Nat: Clay | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MW01_4.9-5.0 | 8/10/2021 | 830982 | Nat: Clay | <0.5 | <0.5 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.1 | - | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.5 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| MW01_AQ_0.2-1.2 | 8/10/2021 | 830982 | Fill: Reworked Clay | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MW02_0.2-0.3 | 7/10/2021 | 830982 | Fill: Roadbase Gravel | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MW02_1.0-1.1 | 7/10/2021 | 830982 | Nat: Clay | <0.5 | <0.5 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.1 | - | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.5 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| MW02_AQ_0.2-0.8 | 7/10/2021 | 830982 | Fill: Roadbase Gravel | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MW03_4.0-4.1 | 7/10/2021 | 830982 | Nat: Clay | <0.5 | <0.5 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.1 | - | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.5 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| MW03_AQ_0.2-0.3 | 7/10/2021 | 830982 | Fill: Roadbase Gravel | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MW04_0.2-0.3 | 7/10/2021 | 830982 | Fill: Roadbase Gravel | <0.5 | <0.5 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.1 | - | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.5 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| MW05_2.0-2.1 | 7/10/2021 | 830982 | Nat: Clay | <0.5 | <0.5 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.1 | - | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.5 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| MW05_AQ_0.45-0.65 | 7/10/2021 | 830982 | Fill: Silty Sand | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MW06_0.2-0.3 | 7/10/2021 | 830982 | Fill: Reworked Gravelly Clay | **1.5** | **7.5** | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.1 | - | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.5 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| QA01 | 7/10/2021 | 280097 | - | **0.4** | **2.2** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | - | - | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | - | <0.1 | <0.1 | <0.1 | - | - | - | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| QC01 | 7/10/2021 | 830982 | - | **3** | **15.8** | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.1 | - | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.5 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| MW06_AQ_0.2-0.8 | 7/10/2021 | 830982 | Fill: Reworked Gravelly Clay | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Table A2: Soil PFAS Results**
Project Number: 61873
Project Name: HaleCP Rosehill

| | PFAS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Perfluorobutanoic acid (PFBA) | Perfluoropentanoic acid (PFPeA) | Perfluorohexanoic acid (PFHxA) | Perfluoroheptanoic acid (PFHpA) | Perfluorooctanoic acid (PFOA) | Perfluorononanoic acid (PFNA) | Perfluorodecanoic acid (PFDA) | Perfluoroundecanoic acid (PFUnDA) | Perfluorododecanoic acid (PFDoDA) | Perfluorotridecanoic acid (PFTrDA) | Perfluorotetradecanoic acid (PFTeDA) | Perfluorooctane sulfonamide (FOSA) | N-Methyl perfluorooctane sulfonamide (NMeFOSA) | N-Ethyl perfluorooctane sulfonamide (NEtFOSA) | N-Methylperfluorooctanesulfonamidoethanol (N-MeFOSE) | N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE) | N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA) | N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA) | Perfluoropropanesulfonic acid (PFPrS) | Perfluorobutanesulfonic acid (PFBS) | Perfluoropentanesulfonic acid (PFPeS) | Perfluorohexanesulfonic acid (PFHxS) | Perfluoroheptane sulfonic acid (PFHpS) | Perfluorooctanesulfonic acid (PFOS) | Perfluorononanesulfonic acid (PFNS) | Perfluorodecanesulfonic acid (PFDS) | 1H-1H-2H-2H-perfluorohexanesulfonic acid (4:2 FTSA) | 1H-1H-2H-2H-perfluorooctanesulfonic acid (6:2 FTSA) | 1H-1H-2H-2H-perfluorodecanesulfonic acid (8:2 FTSA) | 1H-1H-2H-2H-perfluorododecanesulfonic acid (10:2 FTSA) | Sum of PFHxS and PFOS | Sum of enHealth PFAS (PFHxS + PFOS + PFOA)* | Sum of US EPA PFAS (PFOS + PFOA)* | Sum of PFAS (WA DER List) | Sum of PFAS |
| | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| EQL | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.01 | 0.01 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.01 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.01 | 0.05 |
| PFAS NEMP 2020 Table 2 Health Industrial/Commercial | | | | | 50 | | | | | | | | | | | | | | | | | 20 | | 20 | | | | | | | | | | | | |

| Sample ID | Sample Date | Lab Report | Soil Type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW01_4.0-4.1 | 8/10/2021 | 830982 | Nat: Clay | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.01 | <0.01 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.01 | <0.005 | <0.005 | <0.005 | <0.005 | <0.05 |
| MW01_4.9-5.0 | 8/10/2021 | 830982 | Nat: Clay | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MW01_AQ_0.2-1.2 | 8/10/2021 | 830982 | Fill: Reworked Clay | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MW02_0.2-0.3 | 7/10/2021 | 830982 | Fill: Roadbase Gravel | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.01 | <0.01 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.01 | <0.005 | <0.005 | <0.005 | <0.005 | <0.05 |
| MW02_1.0-1.1 | 7/10/2021 | 830982 | Nat: Clay | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MW02_AQ_0.2-0.8 | 7/10/2021 | 830982 | Fill: Roadbase Gravel | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MW03_4.0-4.1 | 7/10/2021 | 830982 | Nat: Clay | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.01 | <0.01 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.01 | <0.005 | <0.005 | <0.005 | <0.005 | <0.05 |
| MW03_AQ_0.2-0.3 | 7/10/2021 | 830982 | Fill: Roadbase Gravel | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MW04_0.2-0.3 | 7/10/2021 | 830982 | Fill: Roadbase Gravel | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.01 | <0.01 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.01 | <0.005 | <0.005 | <0.005 | <0.005 | <0.05 |
| MW05_2.0-2.1 | 7/10/2021 | 830982 | Nat: Clay | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.01 | <0.01 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.01 | <0.005 | <0.005 | <0.005 | <0.005 | <0.05 |
| MW05_AQ_0.45-0.65 | 7/10/2021 | 830982 | Fill: Silty Sand | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MW06_0.2-0.3 | 7/10/2021 | 830982 | Fill: Reworked Gravelly Clay | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| QA01 | 7/10/2021 | 280097 | - | <0.0002 | <0.0002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.005 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | <0.0002 | <0.0002 | - | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | - | <0.0002 | <0.0001 | <0.0001 | <0.0002 | <0.0002 | <0.0001 | - | <0.0001 | - | <0.0001 |
| QC01 | 7/10/2021 | 830982 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MW06_AQ_0.2-0.8 | 7/10/2021 | 830982 | Fill: Reworked Gravelly Clay | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Table A3: Soil Asbesots Results**

Project Number: 61873

| | | | | Asbestos | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Approximate Sample Mass | Mass ACM | Mass Asbestos in ACM | Asbestos from ACM in Soil | Mass FA | Mass Asbestos in FA | Mass AF | Mass asbestos in AF | Asbestos from FA & AF in Soil | Mass Asbestos in FA & AF | Comment |
| | g | g | g | % (w/w) | g | g | g | g | % (w/w) | g | Comment |
| EQL | | | | | | | | | | | |
| NEPM 2013 Table 7 Comm/Ind D Soil HSL for Asbestos in Soil | | | | 0.05 | | | | | 0.001 | | |

| Sample ID | Sample Date | Lab Report | Soil Type | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW01_4.0-4.1 | 8/10/2021 | 830982 | Nat: Clay | - | - | - | - | - | - | - | - | - | - |
| MW01_4.9-5.0 | 8/10/2021 | 830982 | Nat: Clay | - | - | - | - | - | - | - | - | - | - |
| MW01_AQ_0.2-1.2 | 8/10/2021 | 830982 | Fill: Reworked Clay | 811 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | No asbestos or trace asbestos detected. Organic fibre detected. |
| MW02_0.2-0.3 | 7/10/2021 | 830982 | Fill: Roadbase Gravel | - | - | - | - | - | - | - | - | - | - | - |
| MW02_1.0-1.1 | 7/10/2021 | 830982 | Nat: Clay | - | - | - | - | - | - | - | - | - | - | - |
| MW02_AQ_0.2-0.8 | 7/10/2021 | 830982 | Fill: Roadbase Gravel | 913 | 0 | 0 | 0 | 0 | 0 | 0.0051 | 0.0046 | 0.0005 | 0.0046 | **Asbestos fines (chrysotile) detected as loose fibre bundle. No trace asbestos. Organic fibre detected.** |
| MW03_4.0-4.1 | 7/10/2021 | 830982 | Nat: Clay | - | - | - | - | - | - | - | - | - | - | - |
| MW03_AQ_0.2-0.3 | 7/10/2021 | 830982 | Fill: Roadbase Gravel | 803 | 0 | 0 | 0 | 0 | 0 | 0.003 | 0.0029 | 0.0004 | 0.0029 | **Asbestos fines (chrysotile) detected as loose fibre bundle. No trace asbestos. Organic fibre detected.** |
| MW04_0.2-0.3 | 7/10/2021 | 830982 | Fill: Roadbase Gravel | 916 | 0 | 0 | 0 | 0 | 0 | 0.5798 | 0.058 | 0.0063 | 0.058 | **Friable asbestos cement (chrysotile and amosite) fragments detected. No trace asbestos. Organic fibre detected.** |
| MW05_2.0-2.1 | 7/10/2021 | 830982 | Nat: Clay | - | - | - | - | - | - | - | - | - | - | - |
| MW05_AQ_0.45-0.65 | 7/10/2021 | 830982 | Fill: Silty Sand | 699 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | No asbestos or trace asbestos detected. Organic fibre detected. |
| MW06_0.2-0.3 | 7/10/2021 | 830982 | Fill:  Reworked Gravelly Clay | - | - | - | - | - | - | - | - | - | - | - |
| QA01 | 7/10/2021 | 280097 | - | - | - | - | - | - | - | - | - | - | - | - |
| QC01 | 7/10/2021 | 830982 | - | - | - | - | - | - | - | - | - | - | - | - |
| MW06_AQ_0.2-0.8 | 7/10/2021 | 830982 | Fill: Reworked Gravelly Clay | 701 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | No asbestos or trace asbestos detected. Organic fibre detected. |

**Table C1: Field Measured Vapour Parameters - October 2021**
Project Number: 61873
Project Name: 10 Grand Ave Rosehill

| Sample Location | Sample Type | Date | Oxygen | CO2 | PID | Methane | LEL |
|---|---|---|---|---|---|---|---|
| | | | % | % | ppm | % | % |
| SV01 | Soil Vapour Pin | 08-Oct-21 | 16.2 | 1.1 | 1.3 | 0 | 0 |
| SV02 | Soil Vapour Pin | 08-Oct-21 | 16.7 | 0.0 | 1.3 | 0 | 0 |
| SV03 | Soil Vapour Pin | 08-Oct-21 | 15.9 | 0.0 | 0 | 0 | 0 |
| SV04 | Soil Vapour Pin | 08-Oct-21 | 15.8 | 0.0 | 0 | 0 | 0 |
| SV05 | Soil Vapour Pin | 08-Oct-21 | 15.2 | 0.0 | 3.6 | 0 | 0 |
| SV06 | Soil Vapour Pin | 08-Oct-21 | 16.3 | 0.0 | 2.1 | 0 | 0 |
| SV07 | Soil Vapour Pin | 08-Oct-21 | 3.7 | 0.0 | 0.2 | 0 | 0 |
| SV08 | Soil Vapour Pin | 08-Oct-21 | 2.3 | 0.0 | 0.3 | 0 | 0 |
| SV09 | Soil Vapour Pin | 08-Oct-21 | 19.0 | 0.0 | 3 | 0 | 0 |
| SV10 | Soil Vapour Pin | 08-Oct-21 | 16.0 | 0.0 | 3.1 | 0 | 0 |
| SV11 | Soil Vapour Pin | 08-Oct-21 | 8.8 | 0.0 | 1.5 | 0 | 0 |
| SV12 | Soil Vapour Pin | 08-Oct-21 | 16.7 | 0.0 | 0 | 0 | 0 |
| SV13 | Soil Vapour Pin | 08-Oct-21 | 7.3 | 0.0 | 0 | 0 | 0 |
| SV14 | Soil Vapour Pin | 08-Oct-21 | 9.6 | 0.4 | 2 | 0 | 0 |
| SV15 | Soil Vapour Pin | 08-Oct-21 | 9.7 | 0.4 | 0 | 0 | 0 |
| SV16 | Soil Vapour Pin | 06-Oct-21 | 0.3 | 15.0 | 1.5 | 0 | 0 |
| SV17 | Soil Vapour Pin | 08-Oct-21 | 20.8 | 0.0 | 0.2 | 0 | 0 |
| SV18 | Soil Vapour Pin | 08-Oct-21 | 16.3 | 0.0 | 9.2 | 0 | 0 |
| SV19 | Soil Vapour Pin | 08-Oct-21 | 7.6 | 0.0 | 0 | 0 | 0 |
| SV20 | Soil Vapour Pin | 08-Oct-21 | 13.5 | 0.0 | 0 | 0 | 0 |
| SV21 | Soil Vapour Pin | 08-Oct-21 | 19.1 | 0.0 | 0 | 0 | 0 |
| SV22 | Soil Vapour Pin | 06-Oct-21 | 18.2 | 2.1 | 3.2 | 0 | 0 |
| SV23 | Soil Vapour Pin | 06-Oct-21 | 14.6 | 4.5 | 0.7 | 0 | 0 |
| SV24 | Soil Vapour Pin | 06-Oct-21 | 6.2 | 13.3 | 1.4 | 0 | 0 |
| SV25 | Soil Vapour Pin | 06-Oct-21 | 13.1 | 0.1 | 2.1 | 0 | 0 |
| SV26 | Soil Vapour Pin | 06-Oct-21 | 16.6 | 2.5 | 5.5 | 0 | 0 |
| SV27 | Soil Vapour Pin | 06-Oct-21 | 17.1 | 0.0 | 6.5 | 0 | 0 |
| SV28 | Soil Vapour Pin | 06-Oct-21 | 20.9 | 0.0 | 0.7 | 0 | 0 |
| SV29 | Soil Vapour Pin | 06-Oct-21 | 15.2 | 0.0 | 5.9 | 0 | 0 |
| SV30 | Soil Vapour Pin | 06-Oct-21 | 8.6 | 0.0 | 14.7 | 0 | 0 |
| SV31 | Soil Vapour Pin | 06-Oct-21 | 2.1 | 0.0 | 17.6 | 0 | 0 |
| SV32 | Soil Vapour Pin | 06-Oct-21 | 20.2 | 0.5 | 0.7 | 0 | 0 |
| SV33 | Soil Vapour Pin | 06-Oct-21 | 19.9 | 0.0 | 0.1 | 0 | 0 |
| SV34 | Soil Vapour Pin | 06-Oct-21 | 19.5 | 0.3 | 6.3 | 0 | 0 |
| SV35 | Soil Vapour Pin | 06-Oct-21 | 15.7 | 0.0 | 6.5 | 0 | 0 |
| SV36 | Soil Vapour Pin | 06-Oct-21 | 7.5 | 0.0 | 9.9 | 0 | 0 |
| SV37 | Soil Vapour Pin | 06-Oct-21 | 21.5 | 0.0 | 0.5 | 0 | 0 |
| SV38 | Soil Vapour Pin | 06-Oct-21 | 19.3 | 0.0 | 16.7 | 0 | 0 |
| SV39 | Soil Vapour Pin | 06-Oct-21 | 19.5 | 0.0 | 1.2 | 0 | 0 |
| SV40 | Soil Vapour Pin | 06-Oct-21 | 20.6 | 0.3 | 0.9 | 0 | 0 |

**Table C2: Soil Vapour Analytical Results**

Project Number: 61873

| | | | Volatile Organic Compounds | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 2-Propanol | Benzene | Toluene | Ethylbenzene | Xylene Total | Naphthalene | 1,2,4-trimethylbenzene | 1,3,5-trimethylbenzene | n-butylbenzene | n-propylbenzene | p-isopropyltoluene | sec-butylbenzene | Styrene | tert-butylbenzene | 1,1,1,2-tetrachloroethane | 1,1,1-trichloroethane | 1,1,2,2-tetrachloroethane | 1,1,2-trichloroethane | 1,1-dichloroethane | 1,2,3-trichloropropane | 1,2-dibromo-3-chloropropane | 1,2-dichloroethane | 1,2-dichloropropane | 1,3-dichloropropane | 2,2-dichloropropane | Bromochloromethane | Carbon tetrachloride |
| | | | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 |
| EQL | | | 1.66 | 0.08 | 0.08 | 0.08 | 0.25 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| NEPM 2013 Table 1A(2) Comm/Ind D Soil Vap VOCC HILs | | | | | | | | | | | | | | | | | | 230 | | | | | | | | | | |
| NEPM 2013 Table 1A(5) Comm/Ind D Soil Vapour HSL for Vapour Intrusion, Clay | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0-1m | | | | 5 | 6500 | 1800 | 1200 | 4 | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Table 1A(5) Comm/Ind D Soil Vapour HSL for Vapour Intrusion, Sand | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0-1m | | | | 4 | 4800 | 1300 | 840 | 3 | | | | | | | | | | | | | | | | | | | | |
| US EPA (2017) Composite Worker Air | | | | | | | | | | | | | | | | | | | | | | | | | | | | 20 |
| **Sample ID** | **Sampled Date** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SV01 | 10/6/2021 | 0 | <0.08 | <0.08 | <0.08 | <0.08 | <0.25 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV02 | 10/6/2021 | - | <0.08 | <0.08 | <0.08 | <0.08 | <0.25 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV03 | 10/6/2021 | 0 | <0.08 | <0.08 | <0.08 | <0.08 | <0.25 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV04 | 10/6/2021 | - | <0.08 | <0.08 | <0.08 | <0.08 | <0.25 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV05 | 10/6/2021 | 0 | <0.08 | <0.08 | <0.08 | <0.08 | <0.25 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV06 | 10/6/2021 | - | <0.08 | <0.08 | <0.08 | <0.08 | <0.25 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV07 | 10/6/2021 | 0 | <0.08 | <0.08 | <0.08 | <0.08 | <0.25 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV08 | 10/6/2021 | - | <0.08 | <0.08 | <0.08 | <0.08 | <0.25 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV09 | 10/6/2021 | 0 | <0.08 | <0.08 | <0.08 | <0.08 | <0.25 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV10 | 10/6/2021 | - | <0.08 | <0.08 | <0.08 | <0.08 | <0.25 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV11 | 10/6/2021 | 0 | <0.08 | <0.08 | <0.08 | <0.08 | <0.25 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| QSV02 (Duplicate of SV11) | 10/8/2021 | - | <0.08 | <0.08 | <0.08 | <0.08 | <0.25 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV12 | 10/6/2021 | - | <0.08 | <0.08 | <0.08 | <0.08 | <0.25 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV13 | 10/6/2021 | 0 | <0.08 | <0.08 | <0.08 | <0.08 | <0.25 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV14 | 10/6/2021 | - | <0.08 | <0.08 | <0.08 | <0.08 | <0.25 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV15 | 10/6/2021 | 0 | <0.08 | <0.08 | <0.08 | <0.08 | <0.25 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV16 | 10/6/2021 | - | <0.08 | <0.08 | <0.08 | <0.08 | <0.25 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV17 | 10/6/2021 | 0 | <0.08 | <0.08 | <0.08 | <0.08 | <0.25 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV18 | 10/6/2021 | - | <0.08 | <0.08 | <0.08 | <0.08 | <0.25 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV19 | 10/6/2021 | 0 | <0.08 | <0.08 | <0.08 | <0.08 | <0.25 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV20 | 10/7/2021 | - | <0.08 | <0.08 | <0.08 | <0.08 | <0.25 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV21 | 10/7/2021 | 0 | <0.08 | <0.08 | <0.08 | <0.08 | <0.25 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV22 | 10/7/2021 | - | <0.08 | <0.08 | <0.08 | <0.08 | <0.25 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV23 | 10/7/2021 | 0 | <0.08 | <0.08 | <0.08 | <0.08 | <0.25 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV24 | 10/7/2021 | - | <0.08 | <0.08 | <0.08 | <0.08 | <0.25 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV25 | 10/7/2021 | 0 | <0.08 | <0.08 | <0.08 | <0.08 | <0.25 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV26 | 10/7/2021 | - | <0.08 | <0.08 | <0.08 | <0.08 | <0.25 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV27 | 10/7/2021 | 0 | <0.08 | <0.08 | <0.08 | <0.08 | <0.25 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV28 | 10/7/2021 | - | <0.08 | <0.08 | <0.08 | <0.08 | <0.25 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV29 | 10/7/2021 | 0 | <0.08 | <0.08 | <0.08 | <0.08 | <0.25 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV30 | 10/7/2021 | - | <0.08 | <0.08 | <0.08 | <0.08 | <0.25 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV31 | 10/7/2021 | 0 | <0.08 | <0.08 | <0.08 | <0.08 | <0.25 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV32 | 10/7/2021 | - | <0.08 | <0.08 | <0.08 | <0.08 | <0.25 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV33 | 10/7/2021 | 0 | <0.08 | <0.08 | <0.08 | <0.08 | <0.25 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV34 | 10/7/2021 | - | <0.08 | <0.08 | <0.08 | <0.08 | <0.25 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV35 | 10/7/2021 | 0 | <0.08 | <0.08 | <0.08 | <0.08 | <0.25 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV36 | 10/7/2021 | - | <0.08 | <0.08 | <0.08 | <0.08 | <0.25 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV37 | 10/7/2021 | 0 | <0.08 | <0.08 | <0.08 | <0.08 | <0.25 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV38 | 10/7/2021 | - | <0.08 | <0.08 | <0.08 | <0.08 | <0.25 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| QSV01 (Duplicate of SV38) | 10/8/2021 | - | <0.08 | <0.08 | <0.08 | <0.08 | <0.25 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV39 | 10/8/2021 | - | <0.08 | <0.08 | <0.08 | <0.08 | <0.25 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV40 | 10/8/2021 | 0 | <0.08 | <0.08 | <0.08 | <0.08 | <0.25 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |

**Table C2: Soil Vapour Analytical Results**

Project Number: 61873

| | Trichlorofluoromethane | 1,1-dichloroethene | 1,1-dichloropropene | 2-chlorotoluene | 4-chlorotoluene | cis-1,2-dichloroethene | cis-1,3-dichloropropene | Tetrachloroethene | trans-1,3-dichloropropene | Trichloroethene | Vinyl Chloride | 1,2,3-trichlorobenzene | 1,2,4-trichlorobenzene | 1,2-Dichlorobenzene | 1,3-dichlorobenzene | 1,4-dichlorobenzene | Chlorobenzene | Dibromochloromethane | Chloroform | Tribromomethane | Bromodichloromethane | 1,2-dibromoethane | Dibromomethane | Hexachlorobutadiene | Isopropylbenzene |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 | mg/m3 |
| EQL | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| NEPM 2013 Table 1A(2) Comm/Ind D Soil Vap VOCC HILs | | | | | | 0.3 | | 8 | | 0.08 | 0.1 | | | | | | | | | | | | | | |
| NEPM 2013 Table 1A(5) Comm/Ind D Soil Vapour HSL for Vapour Intrusion, Clay | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0-1m | | | | | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Table 1A(5) Comm/Ind D Soil Vapour HSL for Vapour Intrusion, Sand | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0-1m | | | | | | | | | | | | | | | | | | | | | | | | | |
| US EPA (2017) Composite Worker Air | | | | | | | | | | | | | | | | | | | 0.00053 | | | | | | |

| Sample ID | Sampled Date | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SV01 | 10/6/2021 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV02 | 10/6/2021 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | - |
| SV03 | 10/6/2021 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV04 | 10/6/2021 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | - |
| SV05 | 10/6/2021 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV06 | 10/6/2021 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | - |
| SV07 | 10/6/2021 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV08 | 10/6/2021 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | - |
| SV09 | 10/6/2021 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV10 | 10/6/2021 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | - |
| SV11 | 10/6/2021 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| QSV02 (Duplicate of SV11) | 10/8/2021 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | - |
| SV12 | 10/6/2021 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | - |
| SV13 | 10/6/2021 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV14 | 10/6/2021 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | - |
| SV15 | 10/6/2021 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV16 | 10/6/2021 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | - |
| SV17 | 10/6/2021 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV18 | 10/6/2021 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | - |
| SV19 | 10/6/2021 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV20 | 10/7/2021 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | - |
| SV21 | 10/7/2021 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV22 | 10/7/2021 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | - |
| SV23 | 10/7/2021 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV24 | 10/7/2021 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | - |
| SV25 | 10/7/2021 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV26 | 10/7/2021 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | - |
| SV27 | 10/7/2021 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV28 | 10/7/2021 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | - |
| SV29 | 10/7/2021 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV30 | 10/7/2021 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | - |
| SV31 | 10/7/2021 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV32 | 10/7/2021 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | - |
| SV33 | 10/7/2021 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV34 | 10/7/2021 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | - |
| SV35 | 10/7/2021 | **0.2** | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV36 | 10/7/2021 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | - |
| SV37 | 10/7/2021 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV38 | 10/7/2021 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | - |
| QSV01 (Duplicate of SV38) | 10/8/2021 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | - |
| SV39 | 10/8/2021 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| SV40 | 10/8/2021 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | - |

# Appendix C Historical Investigations – Summary Tables of Groundwater Analytical Results

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**Table B: Groundwater Analytical Results**
Project Number: 61873
Project Name: HaleCP Rosehill

| | Heavy Metal | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Arsenic (Filtered) | Cadmium (Filtered) | Chromium (III+VI) (Filtered) | Chromium (hexavalent) (Filtered) | Copper (Filtered) | Lead (Filtered) | Mercury (Filtered) | Nickel (Filtered) | Zinc (Filtered) | Perfluorobutanoic acid (PFBA) | Perfluoropentanoic acid (PFPeA) | Perfluorohexanoic acid (PFHxA) | Perfluoroheptanoic acid (PFHpA) | Perfluorooctanoic acid (PFOA) | Perfluorononanoic acid (PFNA) | Perfluorodecanoic acid (PFDA) | Perfluoroundecanoic acid (PFUnDA) | Perfluorododecanoic acid (PFDoDA) | Perfluorotridecanoic acid (PFTrDA) | Perfluorotetradecanoic acid (PFTeDA) | Perfluorooctane sulfonamide (FOSA) | N-Methyl perfluorooctane sulfonamide (NMeFOSA) | N-Ethyl perfluorooctane sulfonamide (NEtFOSA) | N-Methylperfluorooctanesulfonamidoethanol (N-MeFOSE) | N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE) | N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA) |
| | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L |
| EQL | 0.001 | 0.0002 | 0.001 | 0.005 | 0.001 | 0.001 | 0.0001 | 0.001 | 0.005 | 0.00005 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00005 | 0.00005 | 0.00005 | 0.00005 | 0.00005 | 0.00005 | 0.00005 | 0.00005 |
| ADWG (2011) Health x 10 (Recreational) - Updated March-2021 | 0.1 | 0.02 | 0.5 | 0.5 | 20 | 0.1 | 0.01 | 0.2 | | | | | | | | | | | | | | | | | | | | |
| ANZG (2018) Marine water 95% toxicant DGVs | | 0.0055 | 0.0044 | 0.0044 | 0.0013 | 0.0044 | 0.0004 | 0.07 | 0.008 | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-4m | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4-8m | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| >8m | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PFAS NEMP 2020 Table 1 Health Recreational Water | | | | | | | | | | | | | | 0.01 | | | | | | | | | | | | | | |
| PFAS NEMP 2020 Table 5 Interim marine 95% | | | | | | | | | | | | | | 0.22 | | | | | | | | | | | | | | |
| **Sample ID** | **Sample Date** | **Lab Report** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BH113 | 10/11/2021 | 831217 | <0.001 | <0.0002 | <0.001 | - | **0.006** | 0.001 | <0.0001 | **0.012** | **0.024** | <0.00005 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| MW01 | 10/11/2021 | 831217 | <0.001 | <0.0002 | <0.001 | - | **0.011** | **0.005** | <0.0001 | **0.004** | **0.016** | <0.00005 | **0.00004** | **0.00002** | <0.00001 | 0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| MW02 | 10/11/2021 | 831217 | **0.002** | <0.0002 | <0.001 | - | **0.004** | <0.001 | <0.0001 | **0.033** | **0.048** | <0.00005 | **0.00003** | **0.00004** | **0.00001** | **0.00002** | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| MW03 | 10/11/2021 | 831217 | <0.001 | <0.0002 | <0.001 | - | **0.002** | <0.001 | <0.0001 | **0.013** | **0.084** | <0.00005 | **0.00003** | **0.00002** | **0.00001** | **0.00002** | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| MW04 | 10/11/2021 | 831217 | **0.002** | <0.0002 | <0.001 | - | **0.006** | **0.003** | 0.0002 | **0.005** | **0.005** | <0.00005 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| MW05 | 10/11/2021 | 831217 | <0.001 | <0.0002 | <0.001 | - | **0.006** | **0.001** | <0.0001 | **0.016** | **0.065** | <0.00005 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| MW06 | 10/11/2021 | 831217 | <0.001 | <0.0002 | <0.001 | - | <0.001 | <0.001 | <0.0001 | **0.008** | **0.039** | <0.00005 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| QAW01 | 10/11/2021 | 280121 | <0.001 | <0.0001 | <0.001 | <0.005 | <0.001 | <0.001 | <0.00005 | **0.009** | **0.054** | <0.00002 | <0.00002 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00002 | <0.00002 | <0.00005 | <0.0001 | <0.0005 | <0.0001 | <0.00005 | <0.0001 | <0.00005 | <0.0005 | <0.00002 |
| QCW01 | 10/11/2021 | 831217 | <0.001 | <0.0002 | <0.001 | - | **0.003** | <0.001 | <0.0001 | **0.008** | **0.05** | <0.00005 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |

**Table B: Groundwater Analytical Results**
Project Number: 61873
Project Name: HaleCP Rosehill

| | PFAS | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA) | Perfluoropropanesulfonic acid (PFPrS) | Perfluorobutanesulfonic acid (PFBS) | Perfluoropentanesulfonic acid (PFPeS) | Perfluorohexanesulfonic acid (PFHxS) | Perfluoroheptane sulfonic acid (PFHpS) | Perfluorooctanesulfonic acid (PFOS) | Perfluorononanesulfonic acid (PFNS) | Perfluorodecanesulfonic acid (PFDS) | 1H,1H,2H,2H-perfluorohexanesulfonic acid (4:2 FTSA) | 1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2 FTSA) | 1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2 FTSA) | 1H,1H,2H,2H-perfluorododecanesulfonic acid (10:2 FTSA) | Sum of PFHxS and PFOS | Sum of enHealth PFAS (PFHxS + PFOS + PFOA)* | Sum of US EPA PFAS (PFOS + PFOA)* | Sum of PFAS (WA DER List) | Sum of PFAS | 1-Chloronaphthalene | 2-chloronaphthalene | 2-methylnaphthalene | 3-methylcholanthrene | 7,12-dimethylbenz(a)anthracene | Acenaphthene | Acenaphthylene | Anthracene |
| | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L |
| EQL | 0.00005 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00005 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00005 | 0.0001 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.001 | 0.001 | 0.001 |
| ADWG (2011) Health x 10 (Recreational) - Updated March-2021 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ANZG (2018) Marine water 95% toxicant DGVs | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0.0004 |
| NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-4m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4-8m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| >8m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PFAS NEMP 2020 Table 1 Health Recreational Water | | | | | | | | | | | | | | | 0.002 | | | | | | | | | | | | | | |
| PFAS NEMP 2020 Table 5 Interim marine 95% | | | | | | | 0.00013 | | | | | | | | | | | | | | | | | | | | | | |

| Sample ID | Sample Date | Lab Report | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BH113 | 10/11/2021 | 831217 | <0.00005 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00005 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00005 | <0.0001 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.001 | <0.001 | <0.001 |
| MW01 | 10/11/2021 | 831217 | <0.00005 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00005 | <0.00001 | <0.00001 | <0.00001 | **0.00001** | **0.00001** | **0.00007** | <0.0001 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.001 | <0.001 | <0.001 |
| MW02 | 10/11/2021 | 831217 | <0.00005 | <0.00001 | **0.00003** | **0.00003** | **0.00017** | <0.00001 | **0.00011** | <0.00001 | <0.00001 | <0.00001 | <0.00005 | <0.00001 | <0.00001 | **0.00028** | **0.0003** | **0.00013** | **0.00041** | **0.00044** | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.001 | <0.001 | <0.001 |
| MW03 | 10/11/2021 | 831217 | <0.00005 | <0.00001 | <0.00001 | <0.00001 | 0.00003 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00005 | <0.00001 | <0.00001 | **0.00003** | **0.0005** | **0.00002** | **0.00011** | **0.00011** | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.001 | <0.001 | <0.001 |
| MW04 | 10/11/2021 | 831217 | <0.00005 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00005 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00005 | <0.0001 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.001 | <0.001 | <0.001 |
| MW05 | 10/11/2021 | 831217 | <0.00005 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00005 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00005 | <0.0001 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.001 | <0.001 | <0.001 |
| MW06 | 10/11/2021 | 831217 | <0.00005 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00005 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00005 | <0.0001 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.001 | <0.001 | <0.001 |
| QAW01 | 10/11/2021 | 280121 | <0.00002 | - | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | - | <0.00002 | <0.00001 | <0.00001 | <0.00002 | <0.00002 | <0.00001 | - | <0.00001 | - | <0.00001 | - | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 |
| QCW01 | 10/11/2021 | 831217 | <0.00005 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00005 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00005 | <0.0001 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.001 | <0.001 | <0.001 |

**Table B: Groundwater Analytical Results**
Project Number: 61873
Project Name: HaleCP Rosehill

| | Benz(a)anthracene | Benzo(a)pyrene | Benzo(b+j)fluoranthene | Benzo(b+j+k)fluoranthene | Benzo(g,h,i)perylene | Benzo(k)fluoranthene | Chrysene | Dibenz(a,h)anthracene | Fluoranthene | Fluorene | Indeno(1,2,3-c,d)pyrene | Naphthalene - PAH | Phenanthrene | Pyrene | 2,3,4,6-Tetrachlorophenol | 2,4,5-Trichlorophenol | 2,4,6-Trichlorophenol | 2,4-Dichlorophenol | 2,4-Dimethylphenol | 2,4-Dinitrophenol | 2,6-Dichlorophenol | 2-Chlorophenol | 2-Methylphenol | 2-Nitrophenol | 3&4-Methylphenol (m&p-cresol) | 4,6-Dinitro-2-methylphenol | 4-chloro-3-methylphenol | 4-Nitrophenol | Pentachlorophenol | Phenol | Bis(2-chloroethoxy) methane | Hexachloroethane |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | |
| EQL | 0.001 | 0.001 | 0.001 | 0.004 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.01 | 0.01 | 0.01 | 0.003 | 0.003 | 0.03 | 0.003 | 0.003 | 0.003 | 0.01 | 0.006 | 0.03 | 0.01 | 0.03 | 0.01 | 0.003 | 0.005 | 0.005 |
| ADWG (2011) Health x 10 (Recreational) - Updated March-2021 | | 0.0001 | | | | | | | | | | | | | | | 0.2 | 2 | | | | 3 | | | | | | | | 0.1 | | | |
| ANZG (2018) Marine water 95% toxicant DGVs | | 0.0002 | | | | | | | 0.0014 | | | 0.07 | 0.002 | | | | | | | | | | | | | | | | | 0.022 | 0.4 | | |
| NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-4m | | | | | | | | | | | | NL | | | | | | | | | | | | | | | | | | | | | |
| 4-8m | | | | | | | | | | | | NL | | | | | | | | | | | | | | | | | | | | | |
| >8m | | | | | | | | | | | | NL | | | | | | | | | | | | | | | | | | | | | |
| PFAS NEMP 2020 Table 1 Health Recreational Water | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PFAS NEMP 2020 Table 5 Interim marine 95% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Sample ID** | **Sample Date** | **Lab Report** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BH113 | 10/11/2021 | 831217 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.01 | <0.01 | <0.01 | <0.003 | <0.003 | <0.03 | <0.003 | <0.003 | <0.003 | <0.01 | <0.006 | <0.03 | <0.01 | <0.03 | <0.01 | <0.003 | <0.005 | <0.005 |
| MW01 | 10/11/2021 | 831217 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.01 | <0.01 | <0.01 | <0.003 | <0.003 | <0.03 | <0.003 | <0.003 | <0.003 | <0.01 | <0.006 | <0.03 | <0.01 | <0.03 | <0.01 | <0.003 | <0.005 | <0.005 |
| MW02 | 10/11/2021 | 831217 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.01 | <0.01 | <0.01 | <0.003 | <0.003 | <0.03 | <0.003 | <0.003 | <0.003 | <0.01 | <0.006 | <0.03 | <0.01 | <0.03 | <0.01 | <0.003 | <0.005 | <0.005 |
| MW03 | 10/11/2021 | 831217 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.01 | <0.01 | <0.01 | <0.003 | <0.003 | <0.03 | <0.003 | <0.003 | <0.003 | <0.01 | <0.006 | <0.03 | <0.01 | <0.03 | <0.01 | <0.003 | <0.005 | <0.005 |
| MW04 | 10/11/2021 | 831217 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.01 | <0.01 | <0.01 | <0.003 | <0.003 | <0.03 | <0.003 | <0.003 | <0.003 | <0.01 | <0.006 | <0.03 | <0.01 | <0.03 | <0.01 | <0.003 | <0.005 | <0.005 |
| MW05 | 10/11/2021 | 831217 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.01 | <0.01 | <0.01 | <0.003 | <0.003 | <0.03 | <0.003 | <0.003 | <0.003 | <0.01 | <0.006 | <0.03 | <0.01 | <0.03 | <0.01 | <0.003 | <0.005 | <0.005 |
| MW06 | 10/11/2021 | 831217 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.01 | <0.01 | <0.01 | <0.003 | <0.003 | <0.03 | <0.003 | <0.003 | <0.003 | <0.01 | <0.006 | <0.03 | <0.01 | <0.03 | <0.01 | <0.003 | <0.005 | <0.005 |
| QAW01 | 10/11/2021 | 280121 | <0.002 | <0.002 | - | <0.004 | <0.002 | - | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.02 | <0.002 | <0.002 | - | <0.002 | <0.004 | <0.02 | <0.01 | <0.02 | <0.01 | <0.002 | <0.005 | <0.002 |
| QCW01 | 10/11/2021 | 831217 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.01 | <0.01 | <0.01 | <0.003 | <0.003 | <0.03 | <0.003 | <0.003 | <0.003 | <0.01 | <0.006 | <0.03 | <0.01 | <0.03 | <0.01 | <0.003 | <0.005 | <0.005 |

**Table B: Groundwater Analytical Results**
Project Number: 61873
Project Name: HaleCP Rosehill

| | Hexachloropropene | 1,2,3,4-tetrachlorobenzene | 1,2,3,5-tetrachlorobenzene | 1,2,3-trichlorobenzene | 1,2,4,5-tetrachlorobenzene | 1,2,4-trichlorobenzene | 1,2-Dichlorobenzene | 1,3,5-trichlorobenzene | 1,3-dichlorobenzene | 1,4-dichlorobenzene | Hexachlorobenzene | Pentachlorobenzene | Pentachloroethane | Benzyl alcohol | Dibenz[a,j]acridine | Acetophenone | Bis(2-chloroethyl)ether | Bis(2-chloroisopropyl) ether | Isophorone | 4-bromophenyl phenyl ether | 4-chlorophenyl phenyl ether | 1,3-Dinitrobenzene | 2,4-Dinitrotoluene | 2,6-dinitrotoluene | Nitrobenzene | 2-Picoline | 4-aminobiphenyl | Pentachloronitrobenzene | N-nitrosomorpholine | N-nitrosopiperidine | 2-methyl-5-nitroaniline |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L |
| EQL | 0.002 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.002 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 |
| ADWG (2011) Health x 10 (Recreational) - Updated March-2021 | | | | | | | 15 | | | 0.4 | | | | | | | | | | | | | | | | | | | 0.3 | | | |
| ANZG (2018) Marine water 95% toxicant DGVs | | 0.004 | 0.005 | | 0.005 | 0.08 | | 0.013 | | | 0.0001 | 0.002 | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-4m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4-8m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| >8m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PFAS NEMP 2020 Table 1 Health Recreational Water | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PFAS NEMP 2020 Table 5 Interim marine 95% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Sample ID** | **Sample Date** | **Lab Report** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BH113 | 10/11/2021 | 831217 | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | - | - | <0.005 | <0.005 | - | <0.005 | - | <0.005 | <0.005 | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | - | <0.005 | - |
| MW01 | 10/11/2021 | 831217 | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | - | - | <0.005 | <0.005 | - | <0.005 | - | <0.005 | <0.005 | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | - | <0.005 | - |
| MW02 | 10/11/2021 | 831217 | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | - | - | <0.005 | <0.005 | - | <0.005 | - | <0.005 | <0.005 | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | - | <0.005 | - |
| MW03 | 10/11/2021 | 831217 | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | - | - | <0.005 | <0.005 | - | <0.005 | - | <0.005 | <0.005 | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | - | <0.005 | - |
| MW04 | 10/11/2021 | 831217 | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | - | - | <0.005 | <0.005 | - | <0.005 | - | <0.005 | <0.005 | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | - | <0.005 | - |
| MW05 | 10/11/2021 | 831217 | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | - | - | <0.005 | <0.005 | - | <0.005 | - | <0.005 | <0.005 | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | - | <0.005 | - |
| MW06 | 10/11/2021 | 831217 | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | - | - | <0.005 | <0.005 | - | <0.005 | - | <0.005 | <0.005 | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | - | <0.005 | - |
| QAW01 | 10/11/2021 | 280121 | <0.002 | - | - | - | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | - | <0.002 | <0.002 | <0.002 | <0.005 | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | - | <0.005 | <0.005 | - | - | <0.005 | <0.005 | <0.005 | <0.005 |
| QCW01 | 10/11/2021 | 831217 | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | - | - | <0.005 | <0.005 | - | <0.005 | - | <0.005 | <0.005 | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | - | <0.005 | - |

**Table B: Groundwater Analytical Results**
Project Number: 61873
Project Name: HaleCP Rosehill

| | | | SVOC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 2-nitroaniline | 3-nitroaniline | Aniline | 4-chloroaniline | 4-nitroaniline | N-nitrosodi-n-butylamine | N-nitrosodi-n-propylamine | 1-naphthylamine | 2-naphthylamine | 2-(acetylamino) fluorene | 3,3-Dichlorobenzidine | 4-(dimethylamino) azobenzene | Azobenzene | Diphenylamine | 4,4-DDE | a-BHC | b-BHC | d-BHC | g-BHC (Lindane) | Aldrin | Dieldrin | Chlordane (cis) | Chlordane (trans) | DDT | DDD | Endosulfan I | Endosulfan II | Endosulfan sulphate | Endrin | Endrin aldehyde | Endrin ketone |
| | | | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L |
| EQL | | | 0.005 | 0.003 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.002 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.002 | 0.002 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 |
| ADWG (2011) Health x 10 (Recreational) - Updated March-2021 | | | | | | | | | | | | | | | | | | | | | 0.1 | 0.003 | 0.003 | | | 0.09 | | | | | | | | | | |
| ANZG (2018) Marine water 95% toxicant DGVs | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0.000008 | | | | |
| NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-4m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4-8m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| >8m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PFAS NEMP 2020 Table 1 Health Recreational Water | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PFAS NEMP 2020 Table 5 Interim marine 95% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Sample ID** | **Sample Date** | **Lab Report** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BH113 | 10/11/2021 | 831217 | <0.005 | - | <0.005 | - | - | <0.005 | <0.005 | <0.005 | <0.005 | - | <0.005 | <0.005 | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | - | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| MW01 | 10/11/2021 | 831217 | <0.005 | - | <0.005 | - | - | <0.005 | <0.005 | <0.005 | <0.005 | - | <0.005 | <0.005 | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | - | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| MW02 | 10/11/2021 | 831217 | <0.005 | - | <0.005 | - | - | <0.005 | <0.005 | <0.005 | <0.005 | - | <0.005 | <0.005 | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | - | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| MW03 | 10/11/2021 | 831217 | <0.005 | - | <0.005 | - | - | <0.005 | <0.005 | <0.005 | <0.005 | - | <0.005 | <0.005 | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | - | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| MW04 | 10/11/2021 | 831217 | <0.005 | - | <0.005 | - | - | <0.005 | <0.005 | <0.005 | <0.005 | - | <0.005 | <0.005 | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | - | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| MW05 | 10/11/2021 | 831217 | <0.005 | - | <0.005 | - | - | <0.005 | <0.005 | <0.005 | <0.005 | - | <0.005 | <0.005 | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | - | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| MW06 | 10/11/2021 | 831217 | <0.005 | - | <0.005 | - | - | <0.005 | <0.005 | <0.005 | <0.005 | - | <0.005 | <0.005 | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | - | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| QAW01 | 10/11/2021 | 280121 | <0.005 | <0.003 | <0.005 | <0.003 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.002 | - | <0.005 | <0.005 | <0.005 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 |
| QCW01 | 10/11/2021 | 831217 | <0.005 | - | <0.005 | - | - | <0.005 | <0.005 | <0.005 | <0.005 | - | <0.005 | <0.005 | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | - | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |

**Table B: Groundwater Analytical Results**
Project Number: 61873
Project Name: HaleCP Rosehill

| | Heptachlor | Heptachlor epoxide | Methoxychlor | Azinophos methyl | Bromophos-ethyl | Chlorpyrifos-methyl | Coumaphos | Diazinon | Dichlorvos | Dimethoate | Disulfoton | Ethion | Ethyl methanesulfonate | Fenitrothion | Fenthion | Malathion | Methidathion | Methyl parathion | Mevinphos (Phosdrin) | Phorate | Ronnel | Safrole | Carbazole | Fenamiphos | Parathion | Dinoseb | Dibenzofuran | Isosafrole | Methapyrilene | Phenacetin | Phosalone |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L |
| EQL | 0.005 | 0.005 | 0.005 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.005 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.005 | 0.005 | 0.002 | 0.002 | 0.01 | 0.005 | 0.005 | 0.01 | 0.005 | 0.002 |
| ADWG (2011) Health x 10 (Recreational) - Updated March-2021 | 0.003 | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ANZG (2018) Marine water 95% toxicant DGVs | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-4m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4-8m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| >8m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PFAS NEMP 2020 Table 1 Health Recreational Water | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PFAS NEMP 2020 Table 5 Interim marine 95% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Sample ID** | **Sample Date** | **Lab Report** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BH113 | 10/11/2021 | 831217 | <0.005 | <0.005 | <0.005 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MW01 | 10/11/2021 | 831217 | <0.005 | <0.005 | <0.005 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MW02 | 10/11/2021 | 831217 | <0.005 | <0.005 | <0.005 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MW03 | 10/11/2021 | 831217 | <0.005 | <0.005 | <0.005 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MW04 | 10/11/2021 | 831217 | <0.005 | <0.005 | <0.005 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MW05 | 10/11/2021 | 831217 | <0.005 | <0.005 | <0.005 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MW06 | 10/11/2021 | 831217 | <0.005 | <0.005 | <0.005 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| QAW01 | 10/11/2021 | 280121 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.005 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.005 | <0.005 | <0.002 | <0.002 | <0.01 | <0.005 | <0.005 | <0.01 | <0.005 | <0.002 |
| QCW01 | 10/11/2021 | 831217 | <0.005 | <0.005 | <0.005 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Table B: Groundwater Analytical Results**
Project Number: 61873
Project Name: HaleCP Rosehill

| | Hexachlorocyclopentadiene | Bis(2-ethylhexyl) phthalate | Butyl benzyl phthalate | Diethylphthalate | Dimethyl phthalate | Di-n-butyl phthalate | Di-n-octyl phthalate | Pronamide | Trifluralin | Dibenzofuran | Benzyl chloride | Hexachlorobutadiene | Benzene | Toluene | Ethylbenzene | Xylene (o) | Xylene (m & p) | Xylene Total | 1,2,4-trimethylbenzene | 1,3,5-trimethylbenzene | n-butylbenzene | n-propylbenzene | p-isopropyltoluene | sec-butylbenzene | Styrene | Total MAH | tert-butylbenzene | 1,1,1,2-tetrachloroethane | 1,1,1-trichloroethane | 1,1,2,2-tetrachloroethane | 1,1,2-trichloroethane |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L |
| EQL | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.001 | 0.001 | 0.001 | 0.001 | 0.002 | 0.003 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.003 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 |
| ADWG (2011) Health x 10 (Recreational) - Updated March-2021 | | 0.1 | | | | | | 0.7 | 0.9 | | | 0.007 | 0.01 | 8 | 3 | | | 6 | | | | | | | 0.3 | | | | | | | |
| ANZG (2018) Marine water 95% toxicant DGVs | | | | | | | | | | | | | 0.7 | 0.18 | 0.08 | | 0.075 | | | | | | | | | | | | 0.27 | 0.4 | 1.9 |
| NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-4m | | | | | | | | | | | | | 30 | NL | NL | | | NL | | | | | | | | | | | | | |
| 4-8m | | | | | | | | | | | | | 30 | NL | NL | | | NL | | | | | | | | | | | | | |
| >8m | | | | | | | | | | | | | 35 | NL | NL | | | NL | | | | | | | | | | | | | |
| PFAS NEMP 2020 Table 1 Health Recreational Water | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PFAS NEMP 2020 Table 5 Interim marine 95% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Sample ID | Sample Date | Lab Report | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BH113 | 10/11/2021 | 831217 | <0.005 | <0.01 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.001 | <0.001 | <0.001 | <0.001 | <0.002 | <0.003 | <0.001 | <0.001 | - | - | - | - | <0.001 | <0.003 | - | <0.001 | <0.001 | <0.001 | <0.001 |
| MW01 | 10/11/2021 | 831217 | <0.005 | <0.01 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.001 | <0.001 | <0.001 | <0.001 | <0.002 | <0.003 | <0.001 | <0.001 | - | - | - | - | <0.001 | <0.003 | - | <0.001 | <0.001 | <0.001 | <0.001 |
| MW02 | 10/11/2021 | 831217 | <0.005 | <0.01 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.001 | <0.001 | <0.001 | <0.001 | <0.002 | <0.003 | <0.001 | <0.001 | - | - | - | - | <0.001 | <0.003 | - | <0.001 | <0.001 | <0.001 | <0.001 |
| MW03 | 10/11/2021 | 831217 | <0.005 | <0.01 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.001 | <0.001 | <0.001 | <0.001 | <0.002 | <0.003 | <0.001 | <0.001 | - | - | - | - | <0.001 | <0.003 | - | <0.001 | <0.001 | <0.001 | <0.001 |
| MW04 | 10/11/2021 | 831217 | <0.005 | <0.01 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.001 | <0.001 | <0.001 | <0.001 | <0.002 | <0.003 | <0.001 | <0.001 | - | - | - | - | <0.001 | <0.003 | - | <0.001 | <0.001 | <0.001 | <0.001 |
| MW05 | 10/11/2021 | 831217 | <0.005 | <0.01 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.001 | <0.001 | <0.001 | <0.001 | <0.002 | <0.003 | <0.001 | <0.001 | - | - | - | - | <0.001 | <0.003 | - | <0.001 | <0.001 | <0.001 | <0.001 |
| MW06 | 10/11/2021 | 831217 | <0.005 | <0.01 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.001 | <0.001 | <0.001 | <0.001 | <0.002 | <0.003 | <0.001 | <0.001 | - | - | - | - | <0.001 | <0.003 | - | <0.001 | <0.001 | <0.001 | <0.001 |
| QAW01 | 10/11/2021 | 280121 | <0.005 | <0.05 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | - | - | - | <0.002 | <0.001 | <0.001 | <0.001 | <0.001 | <0.002 | - | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| QCW01 | 10/11/2021 | 831217 | <0.005 | <0.01 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.001 | <0.001 | <0.001 | <0.001 | <0.002 | <0.003 | <0.001 | <0.001 | - | - | - | - | <0.001 | <0.003 | - | <0.001 | <0.001 | <0.001 | <0.001 |

**Table B: Groundwater Analytical Results**
Project Number: 61873
Project Name: HaleCP Rosehill

| | VOC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1,1-dichloroethane | 1,2,3-trichloropropane | 1,2-dibromo-3-chloropropane | 1,2-dichloroethane | 1,2-dichloropropane | 1,3-dichloropropane | 2,2-dichloropropane | Bromochloromethane | Carbon tetrachloride | Chloroethane | Chloromethane | Dichlorodifluoromethane | Dichloromethane | Trichlorofluoromethane | 1,1-dichloroethene | 1,1-dichloropropene | 2-chlorotoluene | 3-chloropropene | 4-chlorotoluene | cis-1,2-dichloroethene | cis-1,3-dichloropropene | Tetrachloroethene | trans-1,2-dichloroethene | trans-1,3-dichloropropene | Trichloroethene | Vinyl Chloride | 1,2,3-trichlorobenzene | 1,2,4-trichlorobenzene | 1,2-Dichlorobenzene | 1,3-dichlorobenzene | 1,4-dichlorobenzene |
| | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L |
| EQL | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.005 | 0.005 | 0.001 | 0.005 | 0.005 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.005 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 |
| ADWG (2011) Health x 10 (Recreational) - Updated March-2021 | | | | 0.03 | | | | | 0.03 | | | | 0.04 | | 0.3 | | | | | | | | 0.5 | | | | 0.003 | | | 15 | | 0.4 |
| ANZG (2018) Marine water 95% toxicant DGVs | | | | 1.9 | 0.9 | 1.1 | | | 0.24 | | | | 4 | | 0.7 | | | | | | | | 0.07 | | | 0.33 | 0.1 | | 0.08 | | | |
| NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-4m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4-8m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| >8m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PFAS NEMP 2020 Table 1 Health Recreational Water | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PFAS NEMP 2020 Table 5 Interim marine 95% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Sample ID | Sample Date | Lab Report | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BH113 | 10/11/2021 | 831217 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.005 | <0.005 | <0.001 | <0.005 | <0.005 | <0.001 | - | - | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | - | - | <0.001 | <0.001 | <0.001 |
| MW01 | 10/11/2021 | 831217 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.005 | <0.005 | <0.001 | <0.005 | <0.005 | <0.001 | - | - | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | - | - | <0.001 | <0.001 | <0.001 |
| MW02 | 10/11/2021 | 831217 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.005 | <0.005 | <0.001 | <0.005 | <0.005 | <0.001 | - | - | <0.001 | <0.001 | **0.004** | <0.001 | <0.001 | <0.001 | <0.001 | **0.021** | <0.005 | - | - | <0.001 | <0.001 | <0.001 |
| MW03 | 10/11/2021 | 831217 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.005 | <0.005 | <0.001 | <0.005 | <0.005 | <0.001 | - | - | <0.001 | <0.001 | **0.27** | <0.001 | <0.001 | <0.001 | <0.001 | **0.019** | <0.005 | - | - | <0.001 | <0.001 | <0.001 |
| MW04 | 10/11/2021 | 831217 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.005 | <0.005 | <0.001 | <0.005 | <0.005 | <0.001 | - | - | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | - | - | <0.001 | <0.001 | <0.001 |
| MW05 | 10/11/2021 | 831217 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.005 | <0.005 | <0.001 | <0.005 | <0.005 | <0.001 | - | - | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | - | - | <0.001 | <0.001 | <0.001 |
| MW06 | 10/11/2021 | 831217 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.005 | <0.005 | <0.001 | <0.005 | <0.005 | <0.001 | - | - | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | - | - | <0.001 | <0.001 | <0.001 |
| QAW01 | 10/11/2021 | 280121 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.01 | <0.01 | <0.01 | - | <0.01 | <0.001 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.01 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| QCW01 | 10/11/2021 | 831217 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.005 | <0.005 | <0.001 | <0.005 | <0.005 | <0.001 | - | - | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | | | <0.001 | <0.001 | <0.001 |

**Table B: Groundwater Analytical Results**
Project Number: 61873
Project Name: HaleCP Rosehill

| | Chlorobenzene | Dibromochloromethane | Chloroform | Tribromomethane | Bromodichloromethane | 1,2-dibromoethane | Bromobenzene | Bromomethane | Cyclohexane | Dibromomethane | Iodomethane | 4-Methyl-2-pentanone | Acetone | Methyl Ethyl Ketone | Carbon disulfide | Chlorinated hydrocarbons EPAVic | Hexachlorobutadiene | Other chlorinated hydrocarbons EPAVic | Isopropylbenzene |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L |
| EQL | 0.001 | 0.001 | 0.005 | 0.001 | 0.001 | 0.001 | 0.001 | 0.005 | 0.001 | 0.001 | 0.001 | 0.005 | 0.005 | 0.005 | 0.001 | 0.005 | 0.001 | 0.005 | 0.001 |
| ADWG (2011) Health x 10 (Recreational) - Updated March-2021 | 3 | | | | | 0.01 | | 0.01 | | | | | 140 | | | | 0.007 | | |
| ANZG (2018) Marine water 95% toxicant DGVs | 0.055 | | 0.37 | | | | | | | | | | | | | | | | 0.03 |
| NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay | | | | | | | | | | | | | | | | | | | |
| 2-4m | | | | | | | | | | | | | | | | | | | |
| 4-8m | | | | | | | | | | | | | | | | | | | |
| >8m | | | | | | | | | | | | | | | | | | | |
| PFAS NEMP 2020 Table 1 Health Recreational Water | | | | | | | | | | | | | | | | | | | |
| PFAS NEMP 2020 Table 5 Interim marine 95% | | | | | | | | | | | | | | | | | | | |

| Sample ID | Sample Date | Lab Report | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BH113 | 10/11/2021 | 831217 | <0.001 | <0.001 | <0.005 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | - | <0.001 | <0.001 | <0.005 | <0.005 | <0.005 | <0.001 | <0.005 | - | <0.005 | <0.001 |
| MW01 | 10/11/2021 | 831217 | <0.001 | <0.001 | <0.005 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | - | <0.001 | <0.001 | <0.005 | <0.005 | <0.005 | <0.001 | <0.005 | - | <0.005 | <0.001 |
| MW02 | 10/11/2021 | 831217 | <0.001 | <0.001 | <0.005 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | - | <0.001 | <0.001 | <0.005 | <0.005 | <0.005 | <0.001 | **0.025** | - | **0.025** | <0.001 |
| MW03 | 10/11/2021 | 831217 | <0.001 | <0.001 | <0.005 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | - | <0.001 | <0.001 | <0.005 | <0.005 | <0.005 | <0.001 | **0.289** | - | **0.289** | <0.001 |
| MW04 | 10/11/2021 | 831217 | <0.001 | <0.001 | <0.005 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | - | <0.001 | <0.001 | <0.005 | <0.005 | <0.005 | <0.001 | <0.005 | - | <0.005 | <0.001 |
| MW05 | 10/11/2021 | 831217 | <0.001 | <0.001 | <0.005 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | - | <0.001 | <0.001 | <0.005 | <0.005 | <0.005 | <0.001 | <0.005 | - | <0.005 | <0.001 |
| MW06 | 10/11/2021 | 831217 | <0.001 | <0.001 | <0.005 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | - | <0.001 | <0.001 | <0.005 | <0.005 | <0.005 | **0.001** | <0.005 | - | <0.005 | <0.001 |
| QAW01 | 10/11/2021 | 280121 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.01 | <0.001 | <0.001 | - | | - | - | | - | <0.001 | | <0.001 |
| QCW01 | 10/11/2021 | 831217 | <0.001 | <0.001 | <0.005 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | - | <0.001 | <0.001 | <0.005 | <0.005 | <0.005 | <0.001 | <0.005 | - | <0.005 | <0.001 |

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