Construction Environmental Management Plan
Project Ivanhoe C2 Building – Community Centre and Village Green

Application Number: SSD 15822622- DA Condition B35
Site: Ivanhoe Estate, Macquarie Park

Project: Midtown C2
Project Number: 6410

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Document Control

Version	Date Approved	Brief Description	Approved By
1	9/07/24	Project Commencement	PW

This Plan is uncontrolled when printed

Review

This Plan including emergency procedures will be reviewed at a minimum every six (6) months, where there is a significant change to the project requiring immediate documenting and in the event of a significant incident.

Distribution

This Plan is available via the Project's Construction Management Software (CMS). When a new version of the Plan is published, required personnel will be notified. Upon request and subsequent approval, a copy will be available via the Project Team.

Condition B35 – CEMP Table of Contents

Condition No	Condition Requirement	Location Addressed in Plan
B35	Prior to the commencement of any works, the Applicant shall prepare and implement a Construction Environmental Management Plan (CEMP) for the development and be submitted to the Certifier. The CEMP must be prepared in consultation with, and address the relevant requirements of, Council.	All Contents of Plan
B35 (a)	describe the relevant stages and phases of construction including work program outlining relevant timeframes for each stage/phase;	Section 1.2
B35 (b)	describe all activities to be undertaken on the site during site establishment and construction of the development;	Section 1.2
B35 (c)	include a Dust Management Plan	Section 6.1.1 Appendix 4 Appendix 9
B35 (d)	clearly outline the stages/phases of construction that require ongoing environmental management monitoring and reporting	Section 8.1
B35 (e)	detail statutory and other obligations that the Applicant is required to fulfil during site establishment and construction, including approvals, consultations and agreements required from authorities and other stakeholders, and key legislation and policies	Section 3
B35 (f)	describe the roles and responsibilities for all relevant employees involved in the site establishment and construction of the works	Section 4

B35 (g)	detail how the environmental performance of the site preparation and construction works will be monitored, and what actions will be taken to address identified potential environmental impacts, including but not limited to noise, traffic and air impacts	Section 6
B35 (h)	include measures to ensure adequate groundwater entitlement is sourced in order to account for groundwater flows into the construction excavations, unless any exemption applies	6.1.7
B35 (i)	management of groundwater during construction;	6.1.7
B35 (j)	document and incorporate all relevant sub environmental management plans (Sub-Plans), control plans, studies and monitoring programs required under this part of the consent; and	Appendix 2-9
B35 (k)	include arrangements for community consultation and complaints handling procedures during construction.	Appendix 8

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1. General

1.1. Introduction

This Construction Environmental Management Plan (CEMP) has been prepared by Grindley Construction Pty Ltd for the Midtown C2 Development This CEMP and its sub-plans will be developed in accordance with the SSD-15822622 Conditions of Consent,

Grindley Construction environmental management systems, the relevant project approval documentation. The purpose of this Construction Environmental Management Plan is to:
Identify the environmental issues (aspects and impacts) for this project;

- Maintain Compliance with the SSDA;
- Establish, communicate & implement environmental operational controls to reduce any adverse impacts on the environment from Grindley activities, products and services.
- implement and Monitor compliance by Grindley and its suppliers & subcontractors with the requirements of all relevant environmental legislation, conditions of any applicable licence, approval and permit, regulatory requirements and this EMP.
- Action any outcomes from incidents or accidents, project audits or other identified non-conformances to continually improve the Grindley environmental management system.

Grindley Construction is committed to being an environmentally and socially responsible organisation while meeting the needs of our clients without hindering future generations. To achieve this goal we require all persons involved in any way with this project to comply with the requirements of this EMP. Any person found to be in breach of these requirements will be subject to appropriate action which may include expulsion from the Site.

We encourage all persons to be actively involved in limiting our impact on the environment, including reporting and resolving environmental related issues. If you identify any problems while on the Site, you must report them immediately to your supervisor or Site Management.

This EMP is to be read in conjunction with the Grindley Management System (GMS), documents referenced in this EMP unless indicated otherwise form part of the GMS.

1.2. Description of Project

Client: Frasers Property

Scope:
The project involves the Design and construction of a three-level community centre (Midtown Ivanhoe building C2) for Frasers Property at Macquarie Park, NSW. This project is a 5 Star Green Star Project within the precinct that is targeting a 6 Star Green Star communities rating. This project comprises construction of:

- A café (Shell Only)
- A Gym (Shell Only)
- A 25m swimming pool and change room facilities
- Village Green and Playground Equipment
- Hard and soft Landscaping to village Green and Community Centre

This CEMP will apply to all construction activities relating to the project, including:

- Site establishment and installation of fencing and gates
- Earthworks and piling
- Erection of scaffolding and hoarding
- Construction of the C2 Building
- Construction of the Village Green
- Installation of new services and internal finishes
- Completion of all external works

Indicative plant and equipment to be utilised:

- Excavators
- Piling machines
- Rollers
- Mobile cranes
- Trucks
- Concrete pumps
- Concrete trucks

The project will be delivered in a single stage and delivered over an 18-month period.

Environmental Policy

Grindley's Environmental Policy outlines the company's commitment to sustainability, while recognising our responsibility to do so, providing a clear strategy of direction and communicative leadership, continuous review of the effectiveness of, emphasising the need of appropriate resourcing and the vision and action required by management to achieve our objective and targets.

The Policy is included at Appendix 1 and displayed via the Site's noticeboard.

1.3. Activities Undertaken

The project involves the following activities:

Basement:

- Demolition of existing temporary C1 Building carpark exhaust
- Riser
- Tie in of building C2 to existing building
- C1 including services.
- New carpark exhaust
- Pool plant room
- COMMS, storage and MSB.

Lower Ground Floor:

- Cold shell gym for future fit out including
- services to achieve OC
- Construction of indoor pool
- Amenities
- Reception area
- Lift and stairs
- Landscaping.

Upper Ground Floor:

- Community rooms 1 to 3

- Kitchen and café
- Storage and back of house
- Stairs, ramps and lift
- Amenities
- Landscaping
- Through site Link.

Public Domain – Upper Ground Village Green:

- Landscaping
- Pathways and steps
- Play equipment
- Lighting.

Roof:

- Plant areas
- Roof plant and pool heat pump room
- Lift and stairs
- Aluminium pergola.

1.4. Environmental Management System

The Environmental Management System is integrated with the GMS, the GMS is based on the plan, do, check, act concept. It is intended to meet the requirements of ISO 14001 Environmental Management Systems and it is currently assessed as complying with those requirements.

The Environment Management System is assessed and subject to regular audits by Best Practice Certification (JAS-ANZ Accreditation #: M4381109AF), Certificate Number: 42003586687E.

2. Objectives and Targets

Each year Environmental objectives and targets are set to define the Environmental priorities, monitor the Environmental performance of the company and to facilitate continual improvement. These targets apply to the business as a whole and to each individual project.

The Project's performance is reported via the Project Report.

- Minimise Environmental incidents while striving for zero (0) incidents
- Achieve compliance with all environmental legislative, regulative and any other requirements to which we subscribe, incur zero (0) environmental related notices and fines
- Conduct one (1) per week Environmental Inspection by Site Management
- Reduce the amount of waste generated by the Project and therefore directed to landfill, where possible redirect any to recycling

3. Legal Requirements

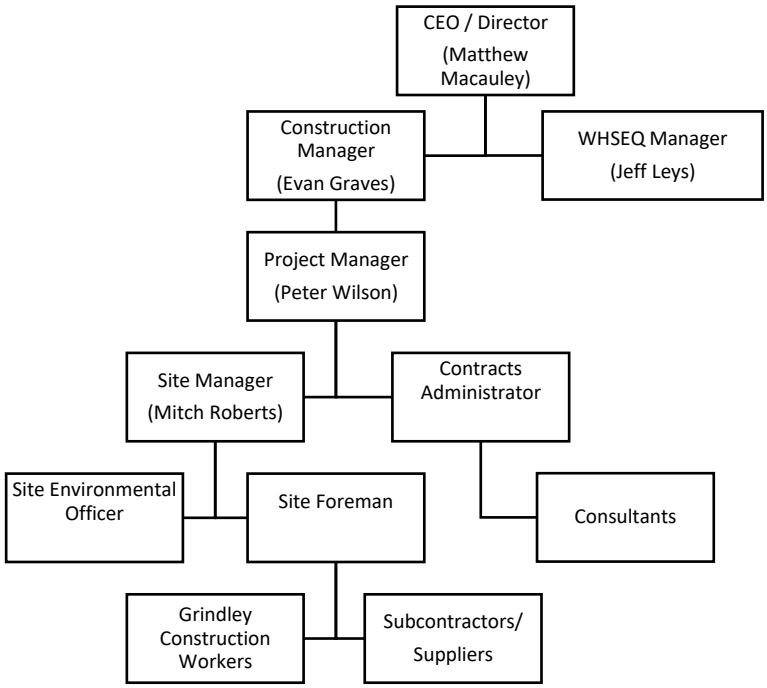
There will be Legislation, Codes of Practice and Standards that apply to each job and they will be identified through completion of the 146 - Project Hazard Assessment and review of the 814 Legal and Other Requirements Register and then ticked below as applicable to the project.

Name of Document	Type of Document	Applicable
Protection of the Environment Operations Act 1997	Legislation	☒
Waste Avoidance and Resource Recovery Act 2001	Legislation	☒
Environmental Planning and Assessment Act 1979	Legislation	☒
Environment Protection and Biodiversity Conservation Act 1999	Legislation	☒
Environmental Hazardous Chemicals Act 1985	Legislation	☒
Soil Conservation Act 1938	Legislation	☒
Contaminated Land Management Act 1997	Legislation	☒
SSD Development Consent 15822622	Planning	☒

SSD Development Consent is available via the CMS.

4. Roles and Responsibilities

4.1. Project Organisation Chart



4.2. Responsibilities

4.2.1. Peter Wilson - Project Manager

- Control of system compliance
- Supervision of head office process control
- Oversee site process control
- Internal monthly reporting
- Sub-contract administration and payment
- Review all incident/non-conformance records, accident & incident reports and audit reports
- Authorise subcontract tendering and subcontract procedures, and establish an administrative system to monitor the subcontracts and the payment of subcontractors in relation to their environmental responsibilities

4.2.2. Mitch Roberts - Site Manager

- Implement and ensure adherence to Project Plan and all associated sub-plans
- Implement all environmental plans and procedures as required
- Co-ordination of all on site activities including trade interface
- Organisation of all deliveries and managing materials handling
- Establish and maintain site environmental measures
- Review all Subcontractor Management Plans and waste management plans submitted and obtain approval from Project Manager before allowing work to commence on site
- Implementation of all inspection and testing requirements
- Liaison and co-ordination with testing and inspection authorities

- Preparation of check sheets and supervision of remedial works
- Liaise with Project Manager to co-ordinate the works and resources required

4.2.3. Site Environmental Officer

- Ensure compliance with environmental plans and regulations
- Isolate and report any environmental spills/events to site manager and Environmental Manager
- Conduct weekly site inspections
- Conduct inspections after intense or prolonged inclement weather
- Ensure all environmental protection equipment is in place
- Advise the Site Manager / Foreman on areas of concern
- Quarantine unsafe work areas, materials, plant and equipment
- Identify and report potential environmental impacts and risks
- Assume the role of company Representative for the Environment on site

4.2.4. Subcontractors

- Ensure compliance with environmental plans and regulations
- Ensure all required paperwork is presented on submission of progress claims

5. Project Planning

5.1. Systems and Procedures

The Project Manager is responsible for the implementation of the management system for the project in accordance with the Project Environmental Management Plan.

The Project Manager and their nominees shall review weekly the effectiveness of the system and will consider project safety and environmental issues.

Preparation of project programs and monitoring of progress shall be carried out from time to time as required. The Project Manager shall address any changes required by the client or by virtue of latent conditions, safety considerations or environmental considerations and update the program accordingly.

When a non-conformance or incident is detected, it shall be addressed according to the Grindley Construction Environmental Management Manual. When it is necessary to seek concession, the Project Manager shall act according to the requirements of this procedure. The corrective action and improvement to prevent the reoccurrence of non-conformance/incident is also covered in the Grindley Construction Environmental Management Manual.

5.2. Strategy

Construction of Midtown Ivanhoe Building C2 will be via a Design and Construct Contract and the other Project/Site Specific Management Plans.

The Project management team will be responsible for:

- Site establishment
- Temporary fencing of compound to ensure security
- Hoarding off to any existing facilities
- Environmental protection apparatus being correctly installed and or maintained ready for use in case of emergency
- Site inductions, environmental & safety meetings
- Production, review and approval of work method statements and Waste Management plans
- Monitoring adherence to Waste Management plans
- Monitoring inspection and testing methods and records
- Implementing Project Quality, Environmental and Safety plans
- Monthly reporting of progress

5.3. Project Designers and Consultants

Contact details for project designers and consultants are established and distributed by the superintendent on initiation of the project. Some of these are displayed on the wall of the site office, as well as filed in the appropriate folder.

Project Disciplines	**Consultant Company and Name**
Council	City of Ryde Council
Client	Frasers Property
Client Superintendent	Frasers Property
Project Architect	Chrofi
Head Contractor	Grindley Construction
Landscape Architect	Site Design and Studios
BCA Certifier	AED Consulting

5.4. Neighbour Notification

Managing Neighbour interfaces with the construction process is an important part of the process of environment interaction. The following processes will be undertaken by Grindley to inform neighbours of the work as well as provide a contact point:

- Site Sign will be erected giving contact details of the site manager to be contacted for any concerns/queries regarding the construction works
- Letters will be issued to all immediate neighbours also with Grindley contact details as well as an indicative start and duration of construction activities (If required).

5.5. Community Consultation and Complaints

The Community Communication Strategy developed by Frasers Property has been developed in response to conditions B12 and B13 of Development Consent SSD 15822622 and is included in Appendix 8.

6. Environmental Impact Issues

6.1.1. Air Quality and Dust Management

Air quality and dust management is the responsibility of the site manager. As per Impact Mitigation Plan 006 (IMP006 – Appendix 9) dust minimisation techniques are to be employed as needed during construction, including the use of water carts as necessary. Air quality is to be managed through the proper maintenance of all machinery on site as per plant maintenance declaration form (form 129) (refer to Grindley Construction Safety Management Plan). Any incidents where poor air quality becomes an issue is to be assessed on a case by case basis and managed according to all relevant legislation.

In addition to the mitigation measures outlined above an Air Quality and Odour Management Plan is included in Appendix 4 prepared by EDP Consultants.

The measures in the below table are required to be implemented and maintained to demonstrate compliance with the conditions listed to reduce the impact, if any, on surrounding neighbours and workers.

Table 1 – Management of Dust Impacts

Potential source	Potential impacts	Mitigation	Responsibility	Performance measures
Excavation/Demolition	Neighbourhood Complains, Worker Exposure	Water Suppression during dry conditions. Daily water suppression during earthworks activities. Site shade cloth installed to fence.	Principal Contractor, Subcontractor	Onsite Observation of Dust and visual monitoring.
Asbestos Dust (Unexpected Finds)	Neighbourhood Complains, Worker Exposure	Air Monitoring for air quality, Suppression with water.	Principal Contractor, Subcontractor	Onsite Observation, Implementation of AMP and compliance.
Dirt Stockpiles	Wind Driven Dust to Neighbourhood,	Covering of stockpiles with tarps/fabric and water suppression. Site shade cloth installed to fence.	Principal Contractor, Subcontractor	Visual Evidence, or replacement of fabric
Truck Loads	Neighbourhood Complains, Worker Exposure	Ensure Trucks entering and leaving site have loads covered.	Principal Contractor, Subcontractor	Surveillance of trucks entering and exiting site.

6.1.2. Contaminated Water and Soil

Contaminated water and soil is to be treated as per section 4.1 above 'Spills and or Discovery of Contaminated Material on Site'. Any contamination that is contained on site is to be assessed and dealt with as per all relevant legislation.

6.1.3. Flora and Fauna

Flora and Fauna on the site will be managed through the recommendations of the Flora and Fauna conditions detailed in the SSD approval and any subsequent conditions will be complied with as detailed.

6.1.4. Noise

Noise impacts from construction are an ongoing concern for all construction projects. Construction noise management will be in accordance with the Acoustic Assessment Report (Construction Noise and Vibration Management Plan for the purpose of Development Consent SSD 15822622 included in Appendix 3) and will be the responsibility of the Principal Contractor to enforce.

6.1.5. Traffic

Traffic management will be in accordance with the Construction Traffic Management Plan (Construction Pedestrian and Traffic Management Plan for purpose of Development Consent SSD 15822622 included in Appendix 2) and will be the responsibility of the Principal Contractor to enforce.

The effectiveness of the TMP control measures will be monitored regularly, in particular the Environmental Inspection conducted weekly will formally prompt the inspection of the effectiveness of the control measures in addition to the informal observations made by Site Management in their day to day operations.

6.1.6. Waste Management

Waste Management will be in accordance with the Waste Management Plan (Construction Waste Management Plan for purpose of Development Consent SSD 15822622 included in Appendix 5) and Impact Mitigation Plan 004 (IMP004) included in Appendix 9. A waste management plan will be developed in conjunction with the selected waste contractor for the project and will be audited at random intervals throughout the course of the project.

6.1.7. Groundwater

This CEMP is to include a groundwater management plan including measures to prevent groundwater contamination. The site history recorded the proposed basement floor levels are above the measured groundwater levels, within bedrock.

In addition, given that the (upslope) C1 site will have a similar basement level, it is expected that most groundwater seepage from elevated groundwater levels would be intercepted by that basement. Therefore, no permanent groundwater inflows are anticipated, although some ephemeral seepage may still occur through defects within the rock and allowance should be made for drainage of these inflows.

From a practical perspective, the anticipated ephemeral groundwater seepage into the basement excavation is likely to be readily managed using ‘sump-and-pump’ methods, in the temporary and long-term case.

In the unlikely event groundwater is encountered works will cease and the principal contractor will consult with relevant consultants to assess and implement applicable measures. This would be in addition to the ground water measures listed below.

Table 1: - Management of Groundwater Contamination

Potential source	Potential impacts	Mitigation	Responsibility	Performance measures
Industrial	Groundwater contamination	Dilute any chemical with water washed into the soil, use of spill kits.	Principal Contractor, Subcontractor	Monitoring Site Observations and

Sediment and Erosion Control
This section identifies sediment control systems to be implemented on the project. The sediment control systems are designed to minimise erosion on-site and retain sediment eroded by water and wind.

Sediment and erosion control will be as per the sediment and erosion control plan. These plans have been prepared in accordance with Landcom's guide on Managing Urban Stormwater (the "Blue Book")

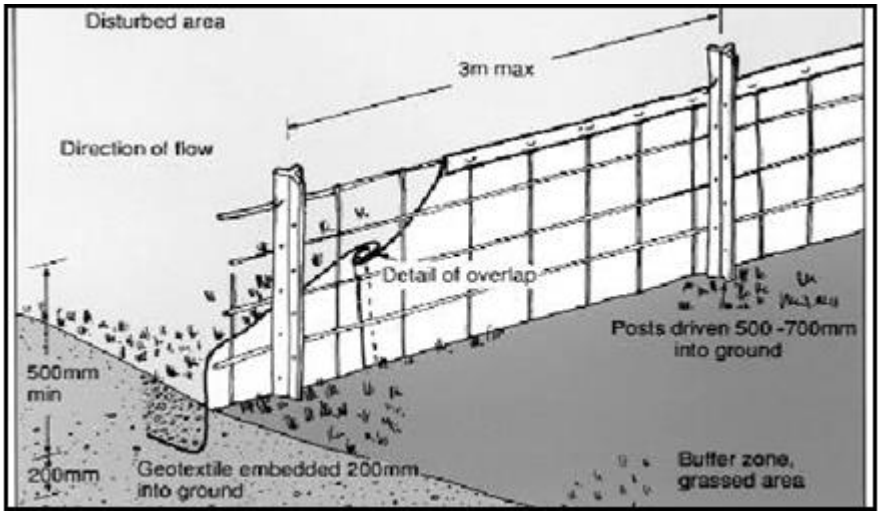
The erosion and sediment control devices described will be installed during site preparation works along with the site fences and sheds. These devices will be in place throughout all construction phases, especially excavation. Refer Appendix 6

6.2. Sediment and Erosion Control Devices

Unnecessary disturbance of the site shall not occur and all cuts are to be stabilised as soon as possible after the completion of site earthworks. Extra care will be taken to prevent sediment run off into all neighbouring lots and stormwater. Any collected silt will be disposed of in accordance with all other relevant codes and standards.

6.2.1. Silt Fences

Silt fences are to be installed to all site boundaries. Geotextile fabric will be fixed to the temporary construction fencing to the 'downhill' boundaries of the site. The fabric will be turned down under the existing ground line and secured at regular intervals not exceeding 3m in accordance with the following diagram.

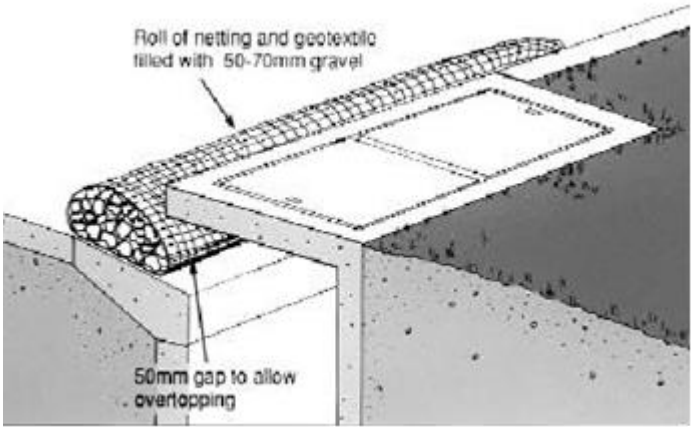


6.2.2. Vehicle Access

Vehicular access will be controlled to prevent sediment being tracked. This will be done by maintaining an all weather access/driveway composed of an approved course aggregate surface. Also if the need arises a shaker grid will be installed to the main access by Grindley Construction during the construction works. Any sediment that is tracked onto the surrounding roads will be cleaned off in a timely manner.

6.2.3. Stormwater Inlets

All stormwater inlets are to be covered with geotextile fabric in a roll or other format to ensure that no sediment enters into the stormwater system. This will be the responsibility of the Site Manager to enforce. The rolls will not only be placed directly at the inlets as shown below, they will also be placed at regular intervals in the gutters 'upstream' from the inlets creating multiple barriers.



6.2.4. Stockpiles

If appropriate topsoil is to be stockpiled on site then the following measures will be put in place. If stockpiling is required, stockpiles shall be stored at least 2 meters clear of drainage lines, natural watercourse and established trees.

Stockpiles will have temporary silt fences in place around the stockpiles to create an enclosure and if necessary they will be covered will shade cloth or tarpaulin to retain the materials on the stock pile. The location of stock piles will be determined on site.

6.2.5. Waste Enclosures

Dedicated building waste enclosures will be set up around the site to enclose building waste where required. No waste enclosures will be set up outside of the site boundary.

6.2.6. Dust Control

The shade cloth to the boundary fences will be maintained throughout all stage of construction to assist in dust control. Also if the need arises due to excessive dust being created, the site will be watered down by a water truck where possible, and/or sprinklers and hoses. Also all stockpiled soils will be covered during periods of high wind to reduce the dust created from on site storage.

6.2.7. Monitoring

In order to maintain the various erosion and sediment control devices, regular inspections, repairs and cleaning will be carried out on the silt fences to the boundaries, stockpiles, waste enclosures, and to the stockpile covers in accordance with the Construction Soil and Water Management Plan included in Appendix 6.

Inspections of the site erosion and sediment control devices will be carried out in accordance with CMS, Environmental Inspection, conducted weekly pending tasks being executed.

7. Performance Evaluation

Grindley evaluates its performance to assist with achieving our core value of commitment. It's evaluated against a number of objectives, notably those included in our Environmental Policy, the Objectives and Targets of this Plan along with those included elsewhere within GMS. With the outcome being used to improve our performance from both a failure to an opportunity to improve perspective.

7.1. Inspections and Monitoring

Regular compliance activities, such as inspections, observations and monitoring will be undertaken throughout construction of the Project.

The following inspections will typically be conducted at the documented frequencies pending tasks being executed:

Phase of Construction	Item	Responsibility	Frequency
Al Phase of Construction	Environmental Inspection	Site Management	Weekly, post intense/prolonged inclement weather, UFP triggered
Al Phase of Construction	Site Shutdown Mitigation Inspection	Site Management	Prior to specific extended periods of site closure
Al Phase of Construction	Project Managers WHSEQ Project Inspection	Project Team	Quarterly
Al Phase of Construction	WHSEQ Monthly Project Inspection	WHSEQ Manager	Monthly
Al Phase of Construction	WHSEQ Quarterly Project Inspection	WHSEQ Manager	Quarterly

Inspections are conducted using the Inspection tool and action items (non-compliance) and opportunities for improvement are managed using the Observations tool of the CMS. Action items (non-compliance) and opportunities for improvement are to be documented as Observation(s) identifying the non-compliance, detail what is required to ensure compliance and assign to the applicable person who is responsible for rectifying the failure or opportunity for improvement. Upon satisfactory action being taken to rectify the non-compliance, the Observation's status is to be changed to Closed.

The Project Team are responsible for the management of Observations to ensure they are actioned and closed. The Project Team are responsible for reporting any suspected System breakdown to the WHSEQ Manager.

8. Incident Management

All incidents no matter how minor must be reported to Site Management as soon as practical. The incident scene is not to be disturbed until directed otherwise by Site Management and or as required to make the scene safe to assist an injured person or prevent immediate further damage to the environment or property.

In the event of an incident, first priority is the health and safety of persons involved and secondly the protection of the environment and property.

In the event of an incident, the applicable Emergency Response Plan is to be implemented, typically the following is to immediately occur:

- Grindley become aware of incident
- Scene isolated
- Situation evaluated, if required evacuation procedure activated
- Scene made safe to prevent further injury and or damage
- First aid provided
- Further environment and property damage prevented and or minimised

As soon as practical all significant/critical incidents such as a fatality, serious injury, permanent or serious environmental and or property impact/damage or a near miss with the potential to have been any of those, the WHSEQ Manager is to be immediately notified.

Upon the incident being controlled and the scene made safe, Incident/Accident Reporting and Investigation Procedure 791 and 757 Environmental Emergency Response, is to be actioned.

8.1. Emergency Contacts

Site Emergency Contact Details (Form 117) details the key contacts that may be required in the event of an emergency. The details are included below and displayed via the Site's noticeboard.

Position	Name	Contact	Alt Contact
Site Manager	Mitch Roberts	0425 216 446	
Project Manager	Peter Wilson	0414 914 514	
First Aider	Mitch Roberts	0425 216 446	
Safety Officer	Mitch Roberts	0425 216 446	
Environmental Officer	Mitch Roberts	0425 216 446	
WHSEQ Manager Rehab Co-ordinator	Jeff Leys	(02) 9988 3811	

8.2. Emergency Response Plans

Potential Emergency	What to Do	Relevant Authorities and Persons
Injury caused by: • Fire • Explosion • Machinery accidents • Minor injuries	• For serious injuries call an ambulance. You should also have the contact details of the nearest doctor, Medical Centre and Hospital. • Immediately inform the site First Aid Officer. • Follow the procedures as detailed in the Site Safety plan. • For major injuries contact the Site Manager or Project Manager	• Emergency Services • Nearest Doctor • Medical Centre • Site Manager • Project Manager
Fire • Fire at the diesel tank • Fire at any of the machineries • Fire caused by vandalism	• Evacuate all personnel to a safe area immediately. • Call the Fire Brigade (Emergency Services). • If the fire is likely to damage neighboring property inform the adjacent residents. • Follow the procedures as detailed in the Site Safety plan. • For major fire emergencies, contact the Site Manager or Project Manager	• Emergency Services • Site Manager • Project Manager • Adjacent residents
Explosion (e.g. rupture in a gas line)	• Evacuate all personnel to a safe area immediately. • Call the Emergency Services immediately. • Contact the neighbouring residents. • If service related, call the relevant service provider (e.g. AGL) • Follow the procedures as detailed in the Site Safety Plan • Contact the Site Manager or Project Manager	• Emergency Services • AGL • Site Manager • Project Manager • Adjacent residents
Spills • Major spill when filling the diesel tank • Major spill from the diesel tank stored on-site • Spill or release of other hazardous chemicals of material	• For major spills, immediately call the Fire Brigade. • Identify the source of the spill. • Refer to the Material Safety Data Sheet (MSDS) and quickly evaluate the hazards of the material. • If the material is dangerous, evacuate the site immediately and notify the neighbours. • If it is safe, stop the source of the spill immediately. • Contain the spill and control its flow. • Block storm water drains downstream of the spill. • EPA and local council must be notified about any spills that are likely to threaten the environment. • If the spill is likely to impact on the catchments, contact Department of Natural Resources (DNR) immediately. • Clean up small spills promptly to prevent run-off into the storm water system. • Contact the Site Manager or Project Manager	• Emergency Services (fire brigade) • DEC • Council Officer • Site Manager • Project Manager • DNR
Heavy rainstorm and flood – beyond the capacity of the	• Contain/minimise the flow. • Contact Council immediately.	• Council • Site Manager

Potential Emergency	What to Do	Relevant Authorities and Persons
sediment and erosion controls on-site. Or, failure of the sedimentation control measures.	• Investigate reasons for failure and prepare an incident report including details of five-day rainfall figures. • Contact the Project Manager	• Project Manager
Discovery of items of conservation value (e.g. flora & fauna, heritage)	• Fence off the area as "no go" zone and contact the Site Manager or Project manager immediately for further action.	• Site Manager • Project Manager
Discovery of contaminated material on-site (e.g. underground fuel storage tanks)	• Fence off the area as "no go" zone and contact the Site Manager or Project manager immediately for further action.	• Site Manager • Project Manager
Rupture of Authority pipelines (water pipes, sewerage pipes)	• Contain/minimise the flow • Ensure all spilled materials are contained on site or if running off site are directed through sediment control measures • Block storm water drains downstream of the spill. • Contact relevant authority as soon as possible • EPA and local council must be notified about any spills that are likely to threaten the environment. • If the spill is likely to impact on the catchments, contact Department of Natural Resources (DNR) immediately.	• Relevant Authority • DEC • Council Officer • Site Manager • Project Manager • DNR
Waste contractor not submitting waste dockets and illegally disposing of waste in an unauthorized facility	• Immediate contact with contractor to establish reasons • Hold all payments to contractor • Request waste dockets for approved facility • Notify local council where waste is being deposited (section 148 POEO Act 1997)	• Site Manager • Project Manager • Environment Manager • Council Officer

Appendix 1: Environmental Policy

Grindley

Environmental Policy

Grindley Construction was established in 1988 and has built a reputation based on our core value of Commitment. Commitment to be an environmentally and socially responsible organisation while meeting the needs of our clients without hindering future generations.

To achieve this, we will:

- Demonstrate leadership at all levels of the organisation, committed to sustainability
- Maintain a management system that allows for the protection of the environment including the prevention of pollution
- Incorporate into the management system legislative, regulative, and any other requirements to which we subscribe that relate to environment to ensure minimum compliance
- Set measurable objectives at relevant functions and levels of the organisation
- Plan and implement procedures to achieve objectives
- Monitor performance
- Maintain and continually improve our management system
- Provide education and training to facilitate knowledge and experience
- Allocation of appropriate resources to achieve our objectives
- Continually strive to achieve greater environmental sustainability where our activities preserve natural resources for future generations

We acknowledge that the organisation operates in an environment where we have a responsibility to all and are committed to continual improvement of sustainability and prevention of pollution.

Our policy documents how we will achieve our commitment to being environmentally and socially responsible. It governs how we manage the environmental impacts of our activities and it will be communicated to all those applicable in our operations. The policy will be reviewed regularly to maintain relevance and appropriateness to our organisation's objectives.

Alan Carstens Owner	Matthew Macauley Chief Executive Officer	John Little Company Secretary

[illegible] Environmental Policy
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Appendix 2: Construction Traffic and Pedestrian Management Sub-Plan

TRAFFIX
TRAFFIC AND TRANSPORT PLANNERS



CONSTRUCTION TRAFFIC AND PEDESTRIAN MANAGEMENT PLAN

Approved Residential Development
Building C2, Ivanhoe Estate Macquarie Park

Reference: 24.277r01v02
Date: July 2024

Suite 2.08, 50 Holt St
Surry Hills, NSW 2010

t: (02) 8324 8700
w: www.traffix.com.au

DOCUMENT VERIFICATION

Job Number	24.277			
Project	Building C2 Ivanhoe Estate Macquarie Park			
Client	Grindley			
Revision	**Date**	**Prepared By**	**Checked By**	**Signed**
v02	11/07/2024	Stephan Hoang	Thomas Yang	

TRAFFIC CONTROL PLAN CERTIFICATES

Prepare a Work Zone Traffic Management Plan			
Name	Thomas Yang	**Card No.**	TCT0028714

TRAFFIX

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1. INTRODUCTION

TRAFFIX has been commissioned by Grindley to prepare a Construction Traffic and Pedestrian Management Plan (CTPMP) report for the approved construction of Building C2 of the Ivanhoe Estate, located at the western corner of Epping Road and Herring Road. The development forms part of Stage 2 of the approved State Significant Development (SSD-15822622), which was granted by the Minister for Planning and Public Spaces on 28 November 2022.

This report documents the construction traffic and pedestrian management arrangements and methodology relating to the approved works and should be read in conjunction with any other construction documentation prepared by the applicant.

The report is structured as follows:

- Section 2: Outlines the CTPMP requirements.
- Section 3: Documents the existing traffic conditions.
- Section 4: Describes the overall construction program.
- Section 5: Describes the proposed traffic management arrangements.
- Section 6: Concludes the report.

2. CTPMP REQUIREMENTS

2.1 Traffic Guidance Schemes

The Traffic Guidance Schemes (TGSs) that are included in this report, should be implemented taking due account of on-site conditions as will occur over the construction period. Accordingly, construction crew are expected to respond in a pro-active manner to ensure that this plan is implemented to maximum effect and with no obvious safety issues being overlooked. In particular, the following matters are considered noteworthy:

- All signs are to be placed where clear visibility is available;
- Installations should be checked intermittently during the course of the day/s; and
- SafeWork NSW certified Traffic Controllers shall be on-site during work hours to supervise vehicle, cyclist, and pedestrian movements.

To improve sign visibility, signs should be positioned utilising existing power poles and signage stems where possible, covered where not applicable, and not positioned between parked cars where possible (to avoid hazard to cyclists and improve visibility for vehicles).

It is noted that TRAFFIX is responsible for the preparation of this CTPMP only and not for its implementation, which is the responsibility of the builder.

2.2 Development Consent CTPMP Requirements

In addition to the above, it is noted that the Notice of Determination (NoD) for SSD-15822622 outlines a requirement for the preparation of a Construction Traffic Management Plan. Specifically, Condition B36 states the following:

B36. *Prior to the commencement of any works, a* ***Construction Pedestrian and Traffic Management Plan*** *(CPTMP) prepared by a suitably qualified person shall be endorsed by TfNSW (Sydney Coordination Office) and submitted to the Certifying Authority. The CPTMP must be prepared in consultation with Council, TfNSW (Sydney Coordination Office), and TfNSW (RMS).*

The CPTMP shall address (but not be limited to):

(a) location of the proposed work zone;

(b) haulage routes;

(c) construction vehicle access and traffic control arrangements;

(d) proposed construction hours;

(e) estimated number of construction vehicle movements (including cumulative impacts from Stage 1);

(f) any changes required to on-street parking;

(g) construction program;

(h) any potential impacts to general traffic, cyclists, pedestrians and bus services within the vicinity of the site from construction vehicles during the construction;

(i) cumulative construction impacts of projects considering any traffic and pedestrian management plans prepare for these projects to ensure that work activities are coordinated and managed to minimise impacts on the road network. Information relating to cumulative construction impacts to be sourced from TfNSW (Sydney Coordination Office);

(j) measures to ensure construction vehicles do not arrive at the site or surrounding areas outside approved hours;

(k) measures proposed to mitigate any associated general traffic, public transport, pedestrian access and cyclist impacts/conflicts;

(l) measures to encourage public transport use and other non-car travel options by construction workers.

Prior to the commencement of works, a copy of the CPTMP demonstrating compliance with the above must be submitted to TfNSW and the Planning Secretary.

2.3 Previous Consent

The subject works form a component of a multi-stage masterplan development of Ivanhoe Estate approved under SSD-8707 and SSD-8903. Stage 1 of the approved masterplan have been completed.

2.4 Location and Site

The subject site is located at western corner of Epping Road and Herring Road. The site is approximately 605 metres south of the Macquarie University Metro Station, approximately 1.1 kilometres west of Macquarie Park Metro Station and approximately 12.7 kilometres northwest of the Sydney Central Business District.

The site is approximately 8.2 hectares and is currently an active construction site. It has a north-west frontage of approximately 210 metres to Herring Road and neighbouring residential developments, and a south-west frontage of approximately 400 metres to Epping Road. It has a north-east boundary to neighbouring residential developments and a south-east boundary to commercial developments.

A Location Plan is presented in **Figure 1** and a Site Plan presented in **Figure 2** which provide an appreciation of the generally character of roads and other key attributes in proximity to the site.

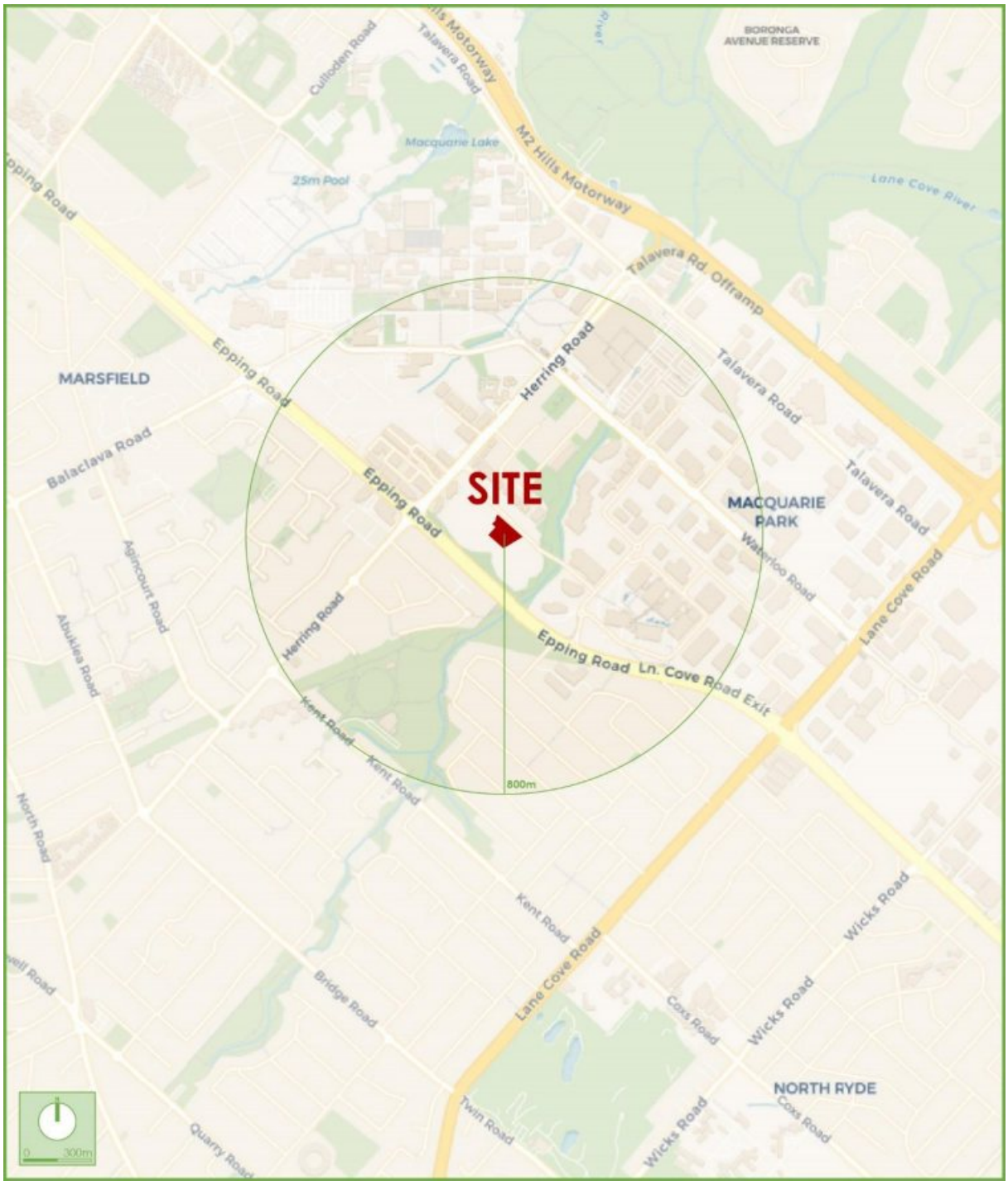


Figure 1: Location Plan



Figure 2: Site Plan

2.5 Road Network

The road hierarchy in the vicinity of the site is shown in **Figure 3** with the following roads of particular interest:

- M2 Motorway: a TfNSW classified State Road (MR 6002) that traverses in an east-west direction between Lane Cove in the east and the Baulkham Hills in the west. Within the vicinity of the site, it is subject to 100km/h speed zoning and accommodates two (2) to three (3) lanes of traffic in each direction.
- Epping Road: a TfNSW classified State Road (MR 373) that generally traverses in an east-west direction between Longueville Road in the east and Beecroft Road in the west. Within the vicinity of the site, it is subject to 70km/h speed zoning and accommodates three (3) lanes of traffic in each direction. Kerbside parking is not permitted in either direction.
- Herring Road: an Unclassified Regional Road (UR 7486) that traverses in a north-south direction between Talevera Road and the M2 Motorway in the north and Bridge Road in the south. Within the vicinity of the site, it is subject to 50km/h speed zoning and accommodates two (2) lanes of traffic in each direction. Kerbside parking is not permitted in either direction.
- Lyonpark Road: a local road that traverses in a north-south direction between Griffnock Avenue in the north and Epping Road in the south. It is subject to a 50km/h speed zoning and accommodates a single lane of traffic in each direction with restricted on-street parking along both sides.

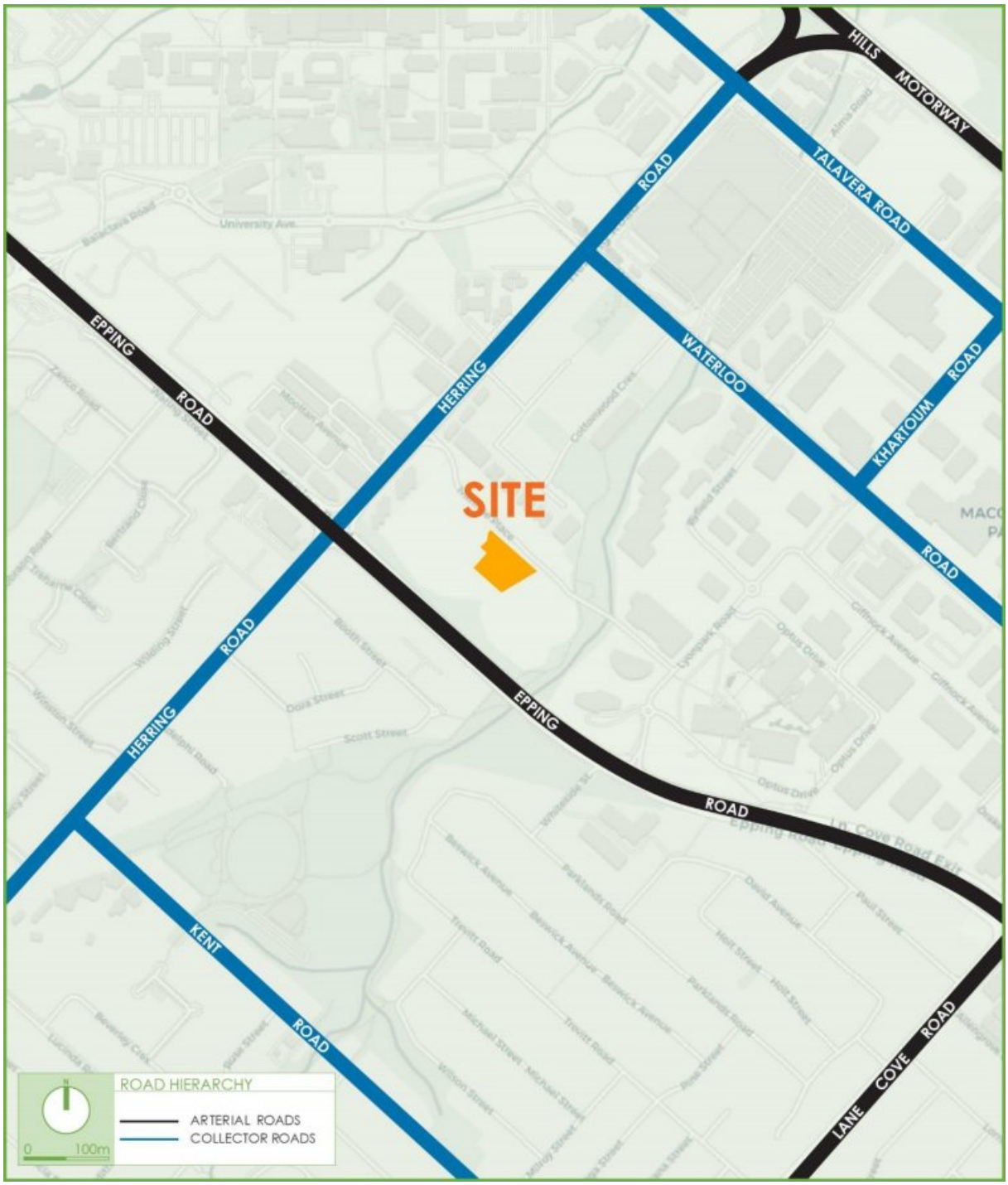


Figure 3: Road Hierarchy

2.6 Public Transport

The site is well located to take advantage of the numerous public transport services that serve the local area. The existing bus services that operate in the locality are shown in **Figure 4** and are summarised as follows:

- 288 – Epping to City Erskine Street
- 290 – Epping to City Erskine St (Night Service)
- 291 – Epping to McMahon Point
- 293 – Marsfield to City Wynyard
- 517 – Macquarie Centre to Ryde
- 518 – Macquarie University to Meadowbank Wharf
- 544 – Macquarie Centre to Auburn

Additionally, the site is located approximately 605 metres south of the Macquarie University Metro Station. This stations provide services along the Metro North West Line, which provide services to Tallawong, Epping, and Chatswood and to be extended into the CBD in 2024 (as per Sydney Metro's November 2023 update).



Figure 4: Public Transport

3. OVERVIEW OF CONSTRUCTION PROGRAM

3.1 Hours of Work and Noise

Construction is expected to occur over approximately 24 months, however further clarification will be provided by the builder. The standard hours of construction are to be in accordance with NoD SSD-15822622 summarised below:

C.1 Construction, including the delivery of materials to and from the site, may only be carried out between the following hours:

(a) between 7.00 am and 7.00 pm, Mondays to Fridays inclusive; and

(b) between 8.00 am and 4.00 pm, Saturdays.

C2. No work may be carried out on Sundays or public holidays.

C3. Activities may be undertaken outside of these hours if required:

(a) by the Police or a public authority for the delivery of vehicles, plant or materials; or

(b) in an emergency to avoid the loss of life, damage to property or to prevent environmental harm.

C4. Notification of such activities must be given to affected residents before undertaking the activities or as soon as is practical afterwards.

C5. Rock breaking, rock hammering, sheet piling, pile driving and similar activities may only be carried out between the following hours:

(a) 9.00 am to 12.00 pm, Monday to Friday;

(b) 2.00 pm to 5.00 pm Monday to Friday; and

(c) 9.00 am to 12.00 pm, Saturday.

3.2 Construction Site Establishment Plan

The construction site establishment plan has been provided in **Appendix A**, indicating the location of the access points to the site, locations of onsite equipment such as cranes, hoists, scaffolding and hoarding to be installed around the perimeter of the site.

3.3 Builder Contact

The below contact information including afterhours contact must be prominently displayed on site and provided to nearby buildings:

- Name: Peter Wilson
- Position: Senior Project Manager
- Email: pwilson@grindley.com.au
- Telephone: (02) 9988 3811
- Mobile: 0414 914 514

Further to the above, Council is generally available to resolve issues relating to traffic, public transport, freight, servicing and pedestrian access during construction in real time if required.

3.4 Excavation Works

This stage will commence in September 2024 with an approximate duration of 14 weeks. The stage will involve a maximum workforce of 12 people on-site at any one time with an average of 10 people. The maximum sized truck to be utilised during this stage will be 20.0m Avs and truck and dog vehicles. It is proposed that excavation works will occur within the site at all times.

This stage will have an average of 30 truck arrivals per day (30 in, 30 out), with a peak of approximately five (5) truck arrivals during the peak hour. This is considered a minor volume and would mirror the vehicle movements of the Stage 1 construction works and hence, the impact on the performance of key intersections in the locality will be negligible.

3.5 Structure Works

This stage will commence over a 50-week period after bulk excavation works and will involve a maximum workforce of 65 people on-site at any one time with an average of 50 people. The maximum sized truck to be utilised during this stage will be 20.0m AVs. It is proposed that structure works will occur within the site at all times.

This stage will have an average of 15 truck arrivals per day (15 in, 15 out), equating to approximately 2 truck arrivals during the peak hour. This is considered a minor volume and would mirror the vehicle movements of the Stage 1 construction works and hence, the impact on the performance of key intersections in the locality will be negligible.

3.6 Fitout & Finishes Works

This stage will commence over a 34-week period after structure works and will involve a maximum workforce of 85 people on-site at any one time with an average of 70 people. The maximum sized truck to be utilised during this stage will be 8.8m MRVs. It is proposed that fitout & finishes works will occur within the site at all times.

This stage will have an average of 15 truck arrivals per day (15 in, 15 out), with a peak of approximately 5 truck arrivals during the peak hour. This is considered a minor volume and would mirror the vehicle movements of the Stage 1 construction works and hence, the impact on the performance of key intersections in the locality will be negligible.

3.7 Public Domain Works

It is noteworthy to mention that any public domain works along the frontage of the development will be subject to a separate submission to Council. This submission will be arranged by the construction contractor.

4. TRAFFIC AND PEDESTRIAN MANAGEMENT ARRANGEMENTS

4.1 Construction Vehicles

It is expected that the maximum sized vehicle to be utilised during the aforementioned construction stages be a 20.0 metre articulated vehicle (AV), which will access and egress the site via Herring Road.

Additionally, 6.4 metre small rigid vehicles (SRV), 8.8 metre medium rigid vehicles (MRV) and 12.5m heavy rigid vehicles (HRV) will be used throughout the construction process and will access and egress the site via Herring Road and Lyonpark Road.

4.2 Vehicular Access

It is proposed all construction vehicles will access and egress the site via the signalised intersection of Herring Road and the site access throughout the construction period as per current construction activities. Additionally, construction vehicles will be advised to use the future access along Lyonpark Road once the access is fully operation. All construction vehicles will access and egress the site in a forward direction.

Swept path analysis has also been undertaken for 20m AVs accessing / egressing the site via Herring Road and 12.5m HRVs accessing / egressing the site via Lyonpark Road during construction demonstrating satisfactory inbound and outbound movements. The swept path analysis is provided in **Appendix B**.

In addition to the above, the following items are noteworthy:

- All loading and unloading activities are to be contained wholly within the site;
- All adjacent property accesses will be maintained at all times;
- All vehicles are not to obstruct any pedestrian crossings or footpaths; and

4.3 Truck Routes

The proposed truck routes make use of Transport for NSW (TfNSW) classified State Roads, where possible. All drivers will be required to radio in prior to arriving onsite, to avoid queuing on surrounding roads. Drivers will not be permitted to park on surrounding roads outside of the site. The proposed truck routes are recommended to allow all vehicles to access the site in a forward direction, noting that truck movements will be restricted to outside the school's morning and afternoon peak periods. A copy of the routes would be provided to all drivers prior to attending the site, with the proposed routes outlined below.

Two (2) proposed inbound and outbound truck routes are presented in **Figure 5** and **Figure 6**, summarised as follows:

4.3.1 Herring Road Access

- Routes to Site (IN):
  1. Arrive on Epping Road, eastbound/westbound.
  2. Turn left/right onto Herring Road, northbound.
  3. Turn right into site, eastbound.
- Routes from Site (Westbound):
  1. Depart the site access, westbound.
  2. Turn right onto Herring Road, northbound.
  3. Continue straight onto the M2 Motorway, westbound.
- Routes from Site (Eastbound):
  1. Depart the site access, westbound.
  2. Turn right onto Herring Road, northbound.
  3. Turn left onto Talavera Road, westbound.
  4. Turn right onto Christie Road, northbound.
  5. Turn right onto the M2 Motorway, eastbound

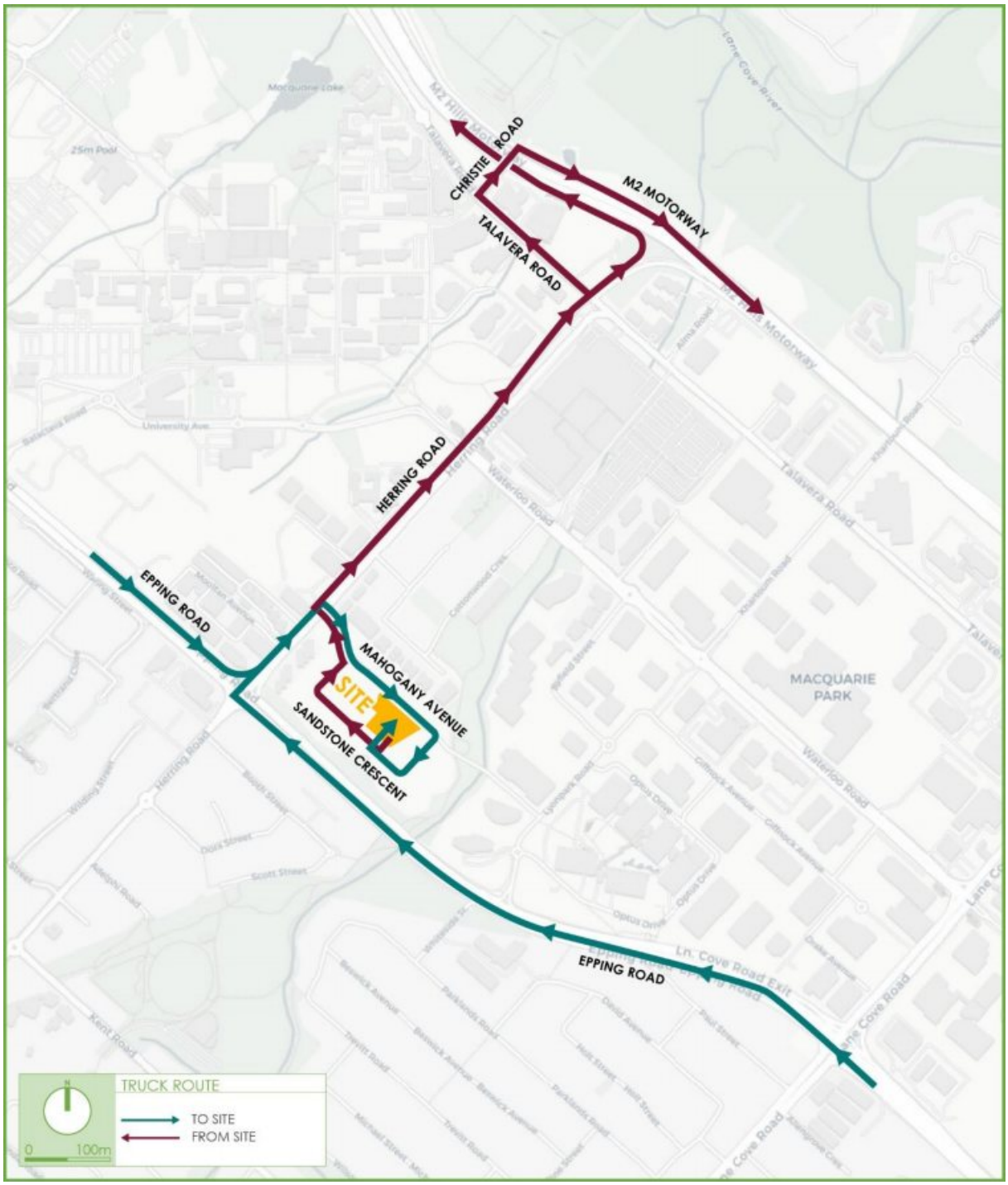


Figure 5. Inbound and Outbound Truck Routes via Herring Road

4.3.2 Lyonpark Road Access

- Routes to Site (IN):
  1. Arrive on Epping Road, eastbound.
  2. Turn left onto Lyonoark Road, northbound.
  3. Turn left into site, westbound.
- Routes from Site (Westbound):
  1. Depart the site access, eastbound.
  2. Turn right onto Lyonpark Road, southbound.
  3. Turn left onto Epping Road, eastbound.
- Routes from Site (Eastbound):
  1. Depart the site access, eastbound.
  2. Turn right onto Lyonpark Road, southbound.
  3. Turn left onto Epping Road, eastbound.
  4. Turn left onto Lane Cove Road, northbound.
  5. Turn left onto the M2 Motorway, westbound.



Figure 6. Inbound and Outbound Truck Routes via Lyonpark Road

4.4 Trucks Arrivals

All trucks will be linked via CB radio and/or hands-free mobile and will only be called to the site when required and when there is sufficient capacity to accommodate the proposed trucks. This management of loading / unloading or deliveries is envisaged to be the same throughout all stages of construction and will ensure no trucks would be required to queue or park on-street.

4.5 Traffic Controllers

SafeWork NSW accredited traffic controllers will be utilised at the site vehicle access points/works zone to assist construction vehicles and pedestrians during work hours. It is noted that traffic controllers are not to stop or slow traffic at any time on public roads to allow trucks to enter or exit the site. Additionally, pedestrians may be held only for very short periods to ensure their safety when trucks are leaving or entering the site, but they are not to be stopped in anticipation – i.e. pedestrians have right of way on the footpath at all times.

4.6 Permits

Permits including out of hours permits, road/lane closure permits, crane permits etc. will be submitted to Council in a separate application.

4.7 Concrete Pumping Activities

All concrete pumping activities will be conducted within the site from the internal loading zones in the site. It should be noted the above activities will be completed using line pumps and/or static lines.

4.8 Crane Requirements

A mobile crane will be utilised throughout the construction of Building C2. The crane will be located within the site and will facilitate loading / unloading of material, machinery plant, etc. from within the site storage area and adjacent loading zones.

It is also noted that the tower crane installation will not impact any of the nearby public trafficable roads (Epping Road and Herring Road).

4.9 Pedestrian Control

Pedestrian access surrounding the work site will be managed safely during all construction stages. In order to maintain pedestrian safety, A-Class hoarding will be installed along the Epping Road and Herring Road frontage to maintain pedestrian thoroughfare. The A-Class hoarding will be maintained from Stage 1 of the Ivanhoe Estate through the construction of Building C2. Additionally, temporary chain mesh fencing will be installed along the perimeter of the C2 building site within the Ivanhoe Estate.

In addition to the above, all material, plant and spoil bin storage is to be accommodated within the site at all times during all stages of construction. No building materials shall be placed, dumped or left on any Council road or footpath area at any time, with footpaths to remain in a safe condition for use by pedestrians at all times. Should the builder require any place of any plant/equipment on Council road or land, an application for relevant approvals will be required.

These pedestrian control arrangements are therefore considered acceptable and will ensure that pedestrian safety is maintained at all times.

4.10 Emergency Vehicle Access

Emergency vehicle access adjacent to the work site will be maintained at all times.

4.11 Access to Neighbouring Properties

All neighbouring properties are to have their vehicular and pedestrian accesses maintained at all times over the course of construction. If at any time, the accesses to the neighbouring properties are obstructed, temporary access arrangements will be provided to the satisfaction of the occupants and Council.

4.12 Worker Vehicles

As the site has ample cleared space for informal parking, workers will have plenty of opportunities to park on-site. However, workers will be encouraged during inductions to utilise the excellent range of public transport services available in the locality. Information relating to the available public transport options will be provided within induction material provided to contractors by the builder.

4.13 Monitoring

A monitoring and review process for the CTPMP will be set out by the Construction Project Manager to ensure that the CTPMP is implemented correctly, in compliance with all regulations and policies and also adapted to reflect any changes or variations during the actual construction process.

4.14 Community Consultation

The Construction Project Manager will be the main point of contact for all enquiries, complaints, feedback, and compliments regarding the issues arising from the traffic management arrangements put in place. This may involve distributing notification letters notifying nearby residents and the community of the proposed traffic management arrangements, their potential impact, the Construction Manager's phone and email contact. Specifically, the disruption to existing travel routes will need to be explicitly made known to community members, parents, students, staff so that their safety is not compromised. The details and direct contact number of the Site Construction/Project Manager shall be provided on all notification letters to the residents and to the community and on a prominent sign displayed on-site.

4.15 Traffic Guidance Schemes

The Traffic Guidance Schemes (TGSs) included in **Appendix C** demonstrates the proposed signage / traffic management measures to be adopted for all stages of construction. The TGSs included will ensure that vehicle and pedestrian movements are managed safely and efficiently:

- TGS No. 1 – Truck Entry via Herring Road
- TGS No. 2 – Truck Entry via Lyonpark Road

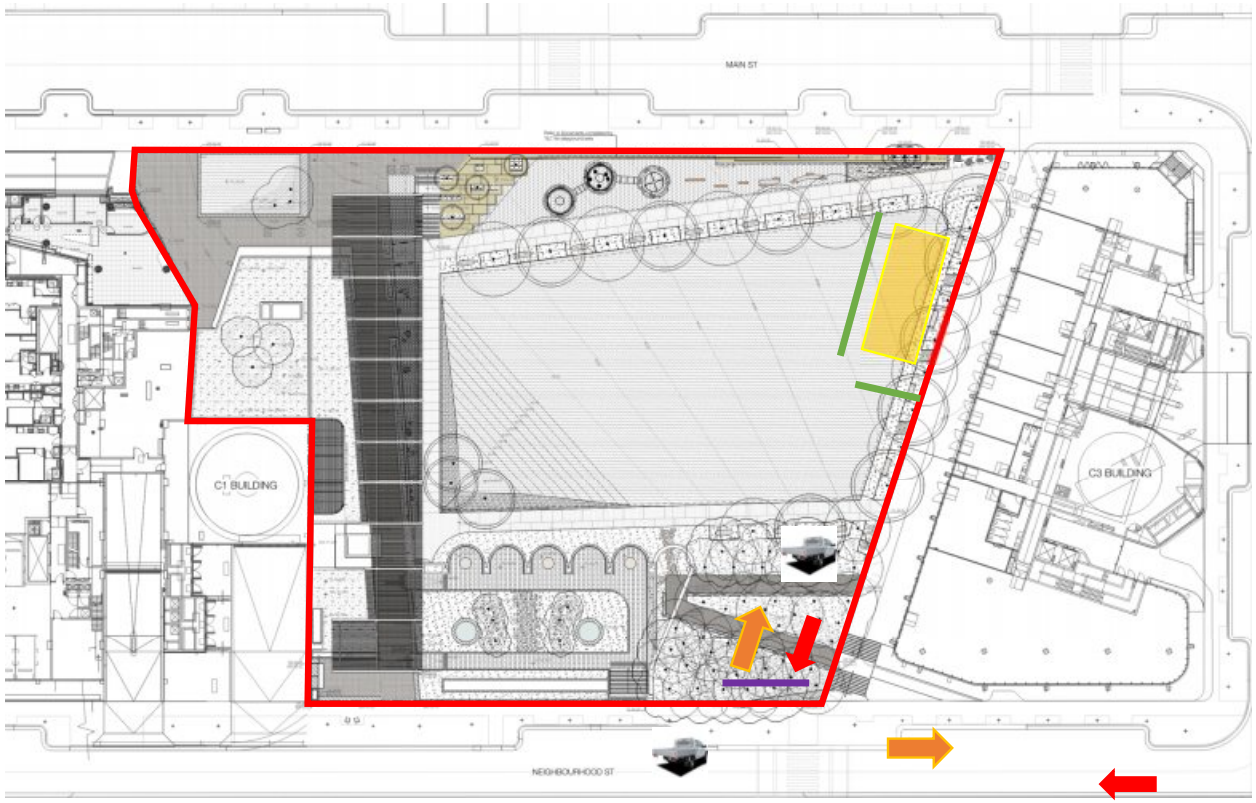
The proposed TGS will ensure that all traffic and pedestrians are managed safely during truck movements. This TGS has been designed in accordance with the requirements of the TfNSW Traffic Control at Work Sites Technical Manual, with copies of the TGSs to be kept on-site at all times.

5. CONCLUSION

This report should be read in conjunction with other documentation prepared by the builder relating to the internal construction activities. The plan outlined above is considered satisfactory and will minimise any disruptions to residents / tenants of neighbouring developments, and pedestrians in the area. This plan meets all requirements of the TfNSW *Traffic Control at Work Sites Manual* and is recommended for adoption.

APPENDIX A

Construction Site Establishment Plan



Site Establishment	Description
	Main site fencing, shade cloth. Erosion & sediment control
	Two sliding gates to allow heavy vehicle entry to site
	Site shedding & amenities
	Vehicle entry – entry & exit
	Protection concrete jersey kerbs













Grindley

Site establishment

APPENDIX B

Swept Path Analysis



Notes:

This drawing is prepared for information purposes only. It is not to be used for construction.

TRAFFIX is responsible for vehicle swept path diagrams and/or drawing mark-ups only. Base drawing prepared by others.

Vehicle swept path diagrams prepared using computer generated turning path software and associated CAD drawing platforms. Vehicle data based upon relevant Australian Standards *(AS/NZS 2890.1:2004 Parking facilities - Off-street car parking,* and/or *AS2890.2:2002 Parking facilities - Off-street commercial vehicle facilities*). These standards embody a degree of tolerance, however the vehicle characteristics in these standards represent a suitable design vehicle and do not account for all variations in vehicle dimensions / specifications and/or driver ability or behaviour.

Rev.	Revision Note	By.	Date
A	Swepth Path Analysis	SH	10-07-24

Swept Path Legend

- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

Architect

-

Client

Grindley

Scale / Plan Orientation

0 2 4 6 8m

1:200 @ A3

Project Description

Ivanhoe Estate Building C2

Drawing Prepared By

TRAFFIX
TRAFFIC AND TRANSPORT PLANNERS

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Drawing Title

12.5m Heavy Rigid Vehicle
Lyonpark Road Entry

Drawn:	Checked:	Date:
SH	TY	10-07-24

24.277d01v02 TRAFFIX [Aerial] Design Review.dwg

Project No.	Drawing Phase	Drawing No.	Rev.
24.277	CTMP	TX.01	A



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A	Swepth Path Analysis	SH	10-07-24

Swept Path Legend

- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

Architect

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Client

Grindley

Scale / Plan Orientation

0 2 4 6 8m

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w: www.traffix.com.au

Drawing Title

12.5m Heavy Rigid Vehicle
Lyonpark Road Exit

Drawn:	Checked:	Date:
SH	TY	10-07-24

24.277d01v02 TRAFFIX [Aerial] Design Review.dwg

Project No.	Drawing Phase	Drawing No.	Rev.
24.277	CTMP	TX.01a	A



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Rev.	Revision Note	By.	Date
A	Swepth Path Analysis	SH	10-07-24

Swept Path Legend

- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

Architect

-

Client

Grindley

Scale / Plan Orientation

0 2 4 6 8m

1:200 @ A3

Project Description

Ivanhoe Estate Building C2

Drawing Prepared By

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w: www.traffix.com.au

Drawing Title

12.5m Heavy Rigid Vehicle
Sandstone Crescent Entry

Drawn:	Checked:	Date:
SH	TY	10-07-24

24.277d01v02 TRAFFIX [Aerial] Design Review.dwg

Project No.	Drawing Phase	Drawing No.	Rev.
24.277	CTMP	TX.02	A



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Rev.	Revision Note	By.	Date
A	Swepth Path Analysis	SH	10-07-24

Swept Path Legend

- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

Architect

-

Client

Grindley

Scale / Plan Orientation

0 2 4 6 8m

1:200 @ A3

Project Description

Ivanhoe Estate Building C2

Drawing Prepared By

TRAFFIX
TRAFFIC AND TRANSPORT PLANNERS

Suite 2.08, 50 Holt Street
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PO Box 1124
Strawberry Hills, NSW 2012

t: +61 2 8324 8700
f: +61 2 9830 4481
w: www.traffix.com.au

Drawing Title

12.5m Heavy Rigid Vehicle
Sandstone Crescent Exit

Drawn:	Checked:	Date:
SH	TY	10-07-24

24.277d01v02 TRAFFIX [Aerial] Design Review.dwg

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Rev.	Revision Note	By.	Date
A	Swepth Path Analysis	SH	10-07-24
B	Swepth Path Analysis	SH	11-07-24

Swept Path Legend

- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

Architect

-

Client

Grindley

Scale / Plan Orientation

0 2 4 6 8m

1:200 @ A3

Project Description

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Drawing Prepared By

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Surry Hills, NSW 2010
PO Box 1124
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Drawing Title

20.0m Articulated Vehicle
Site Entry

Drawn:	Checked:	Date:
SH	TY	10-07-24

24.277d01v02 TRAFFIX [Aerial] Design Review.dwg

Project No.	Drawing Phase	Drawing No.	Rev.
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Rev.	Revision Note	By.	Date
A	Swepth Path Analysis	SH	10-07-24
B	Swepth Path Analysis	SH	11-07-24

Swept Path Legend

- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

Architect

-

Client

Grindley

Scale / Plan Orientation

0 2 4 6 8m

1:200 @ A3

Project Description

Ivanhoe Estate Building C2

Drawing Prepared By

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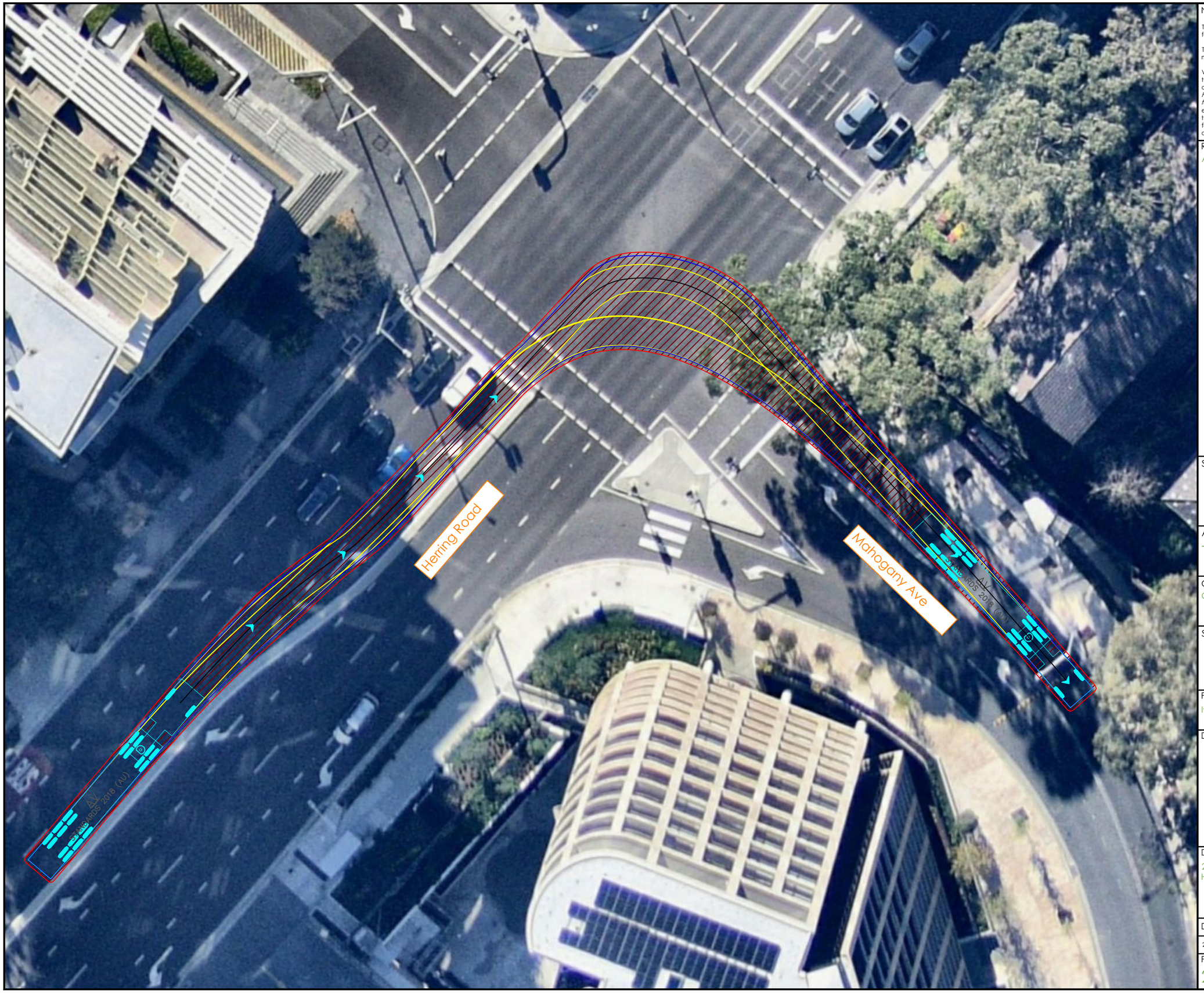
Drawing Title

20.0m Articulated Vehicle
Site Exit

Drawn:	Checked:	Date:
SH	TY	10-07-24

24.277d01v02 TRAFFIX [Aerial] Design Review.dwg

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Rev.	Revision Note	By.	Date
A	Swepth Path Analysis	SH	10-07-24

Swept Path Legend

- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

Architect

-

Client

Grindley

Scale / Plan Orientation

0 2 4 6 8m

1:200 @ A3

Project Description

Ivanhoe Estate Building C2

Drawing Prepared By

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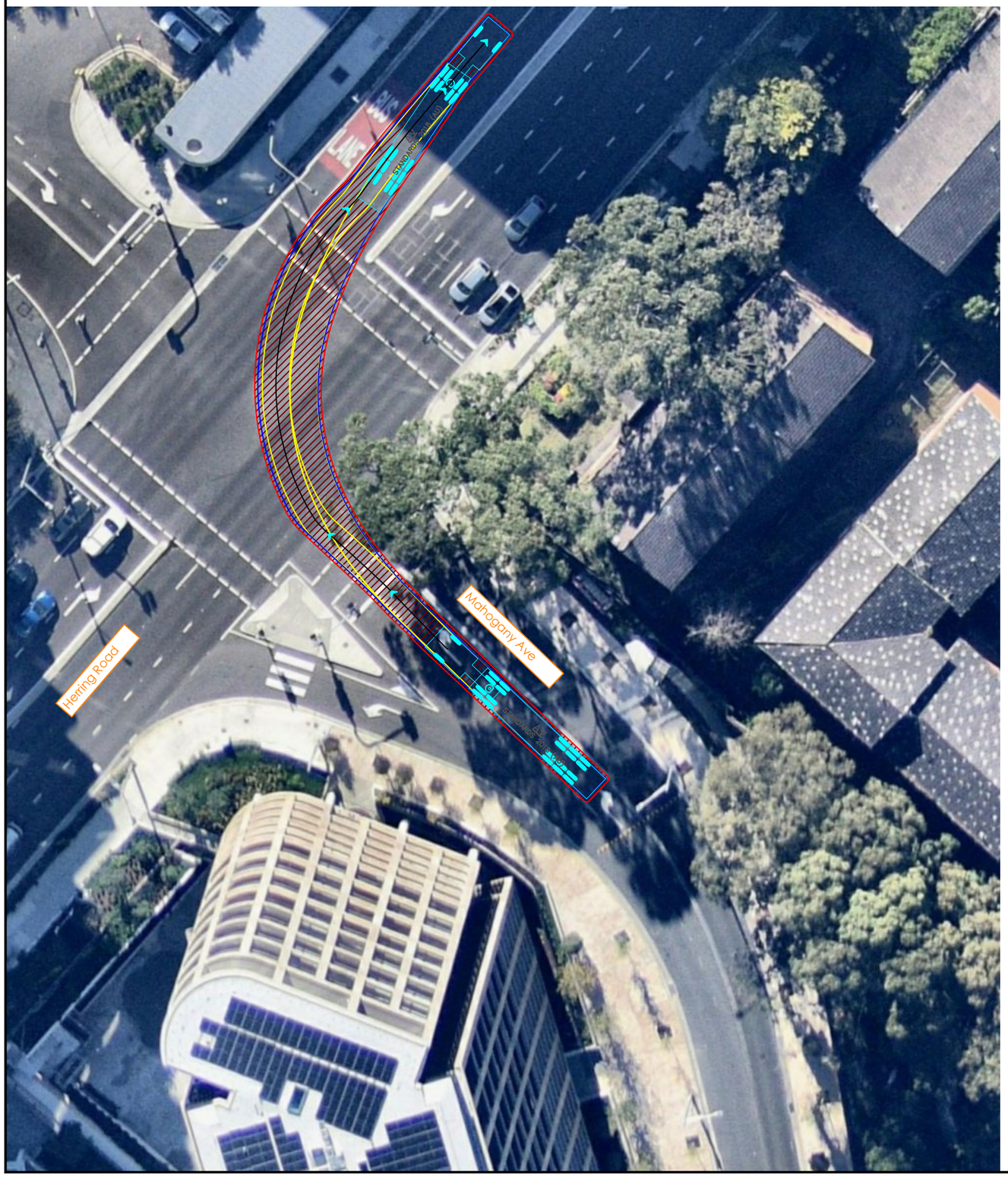
Drawing Title

20.0m Articulated Vehicle
Herring Road Entry

Drawn:	Checked:	Date:
SH	TY	10-07-24

24.277d01v02 TRAFFIX [Aerial] Design Review.dwg

Project No.	Drawing Phase	Drawing No.	Rev.
24.277	CTMP	TX.04	A



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Rev.	Revision Note	By.	Date
A	Swepth Path Analysis	SH	10-07-24

Swept Path Legend

- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

Architect

-

Client

Grindley

Scale / Plan Orientation

0 2 4 6 8m

1:200 @ A3

Project Description

Ivanhoe Estate Building C2

Drawing Prepared By

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w: www.traffix.com.au

Drawing Title

20.0m Articulated Vehicle
Herring Road Exit

Drawn:	Checked:	Date:
SH	TY	10-07-24

24.277d01v02 TRAFFIX [Aerial] Design Review.dwg

Project No.	Drawing Phase	Drawing No.	Rev.
24.277	CTMP	TX.04a	A

APPENDIX C

Traffic Guidance Schemes



VALUE OF DIMENSION "D"

Speed of Traffic (km/h)	Dimension "D" (m)
50	50

Note:
Herring Road - 50 km/h

Time Period:
Sep 24 - 26 2024

TRAFFIX
TRAFFIC AND TRANSPORT PLANNERS

Suite 2.08, 50 Holt Street
Surry Hills, NSW 2010
(02) 8324 8700
info@traffix.com.au

LEGEND Site Access

GENERAL NOTES
- Plan not to scale.
- All signage dimension D shall comply with the minimum requirements of TfNSW TCAWS Technical Manual.
- Qualified personnel to undertake a site inspection prior to implementation.
- It must be noted that TRAFFIX is not responsible for the implementation of this TGS, which is the responsibility of the on-site qualified traffic controller.

PROJECT
BLDG C2 IVANHOE ESTATE MACQUARIE PARK

PROJECT NUMBER
24.277

DATE
09.07.2024

CLIENT
PARKVIEW CONSTRUCTIONS PTY LTD

TGS
TGS 01:
TRUCK ACCESS VIA HERRING ROAD

PREPARED BY
STEPHAN HOANG

APPROVED BY
THOMAS YANG

SAFEWORK NSW CARD NUMBER
TCT1026821

SIGNATURE



TRAFFIX
TRAFFIC AND TRANSPORT PLANNERS

Suite 2.08, 50 Holt Street
Surry Hills, NSW 2010
(02) 8324 8700
info@traffix.com.au

LEGEND Truck Access

GENERAL NOTES
- Plan not to scale.
- All signage dimension D shall comply with the minimum requirements of TfNSW TCAWS Technical Manual.
- Qualified personnel to undertake a site inspection prior to implementation.
- It must be noted that TRAFFIX is not responsible for the implementation of this TGS, which is the responsibility of the on-site qualified traffic controller.

PROJECT
BLDG C2 IVANHOE ESTATE MACQUARIE PARK

PROJECT NUMBER
24.277

DATE
09.07.2024

CLIENT
PARKVIEW CONSTRUCTIONS PTY LTD

TGS
TGS 02: TRUCK ACCESS VIA LYONPARK ROAD

PREPARED BY
STEPHAN HOANG

APPROVED BY
THOMAS YANG

SAFEWORK NSW CARD NUMBER
TCT1026821

SIGNATURE

Appendix 3: Construction Noise and Vibration Management Sub-Plan

Ivanhoe Green & Community Centre (C2 Building)

Construction Noise and Vibration Management Plan

Ivanhoe Precinct – Midtown Macquarie Park

Grindley

Report number: 240360-Ivanhoe BC2 Community-CNVMSP_BW_R0
Date: 1 July 2024
Version: For Information

Project Number: 240360

PULSE WHITE NOISE ACOUSTICS Suite 601, L6, 32 Walker St, North Sydney NSW 2060
P 1800 4 PULSE (1800 478 573) **E** info@pwna.com.au **pwna.com.au** ABN 95 642 886 306

DOCUMENT CONTROL

Project Name	Ivanhoe Green & Community Centre
Project Number	240360
Report Reference	240360-Ivanhoe BC2 Community-CNVMSP_BW_R0
Client:	Grindley

Revision	Description	Reference	Date	Prepared	Checked	Authorised
0	For Information	240360-Ivanhoe BC2 Community-CNVMSP_BW_R0	24 June 2024	Ben White	Matt Furlong	Ben White

PREPARED BY:

Pulse White Noise Acoustics Pty Ltd
ABN 95 642 886 306
Suite 601, Level 6, 32 Walker Street, North Sydney, 2060
1800 4 PULSE

This report has been prepared by Pulse White Noise Acoustics Pty Ltd with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with the Grindley. 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 Grindley
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 Pulse White Noise Acoustics.

This report remains the property of Pulse White Noise Acoustics Pty Ltd until paid for in full by the client, Grindley.

Pulse White Noise Acoustics 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 INTRODUCTION

Pulse White Noise Acoustics (PWNA) has been engaged to prepare a Construction Noise and Vibration Management Plan (CNVMP) for the construction activities to be undertaken as part of the Ivanhoe Precinct, Macquarie Park, Ivanhoe Village Green & Community Centre project including item B37 of the SSD-15822622.

Onsite unattended and attended noise levels have previously been determined for the project and included in the Acoustic Logic *Proposed Residential Development, Ivanhoe Stage 2, Macquarie Park – Development Application Environmental Noise Impact Assessment* with reference 20210325.1/1607/A/R7/GW and dated 16/7/2021 and referenced in the projects SSD consent. The details of the acoustic survey included in the Acoustic Logic report have been used in this assessment.

A glossary of acoustic terminology used throughout this report is included in Appendix A.

The author of this report is a director of Pulse White Noise Acoustics who is a member of the Australian Acoustic Society, details including Ben's CV and membership of the AAS are included in Appendix B.

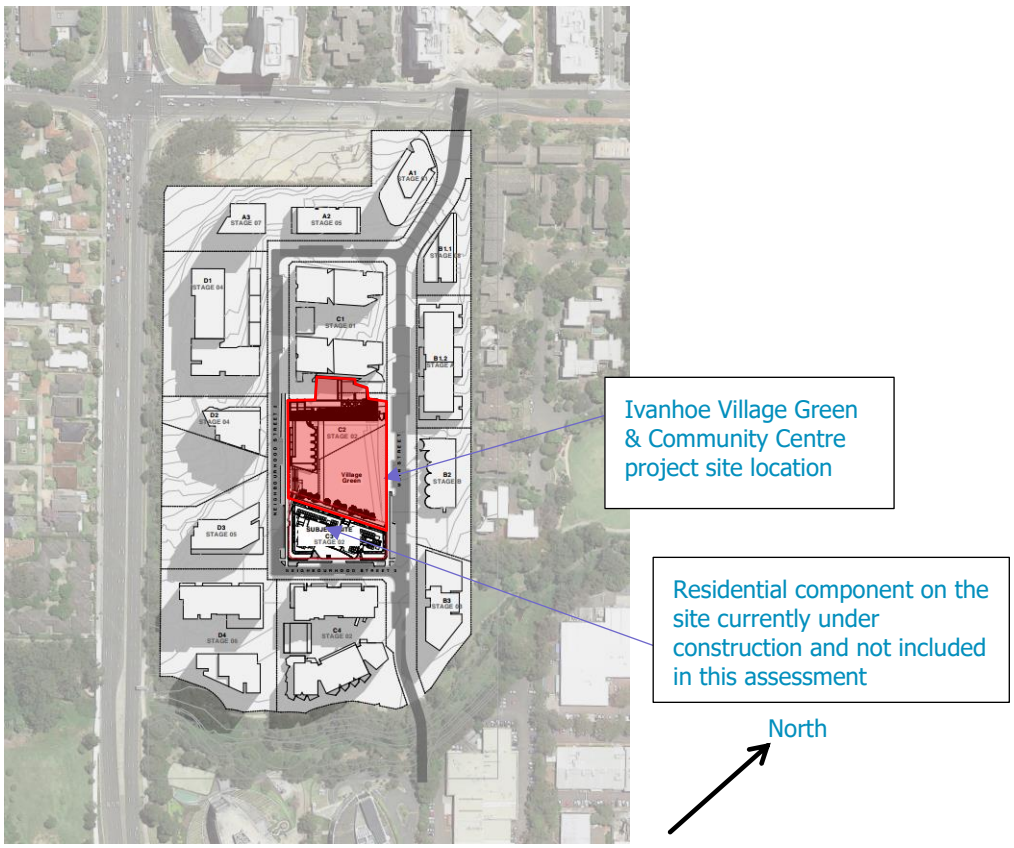
1.1 Site Layout and Development Overview

The project includes the Ivanhoe Precinct, Macquarie Park, Ivanhoe Village Green & Community Centre project

The project is included within the SSD-15822622 approval.

The site is located within the Ivanhoe Estate, Epping Road, Macquarie Park site. The location of Ivanhoe Village Green & Community Centre is detailed in the Figure below.

Figure 1 Location of the Ivanhoe Village Green & Community Centre



Existing receivers within proximity of the site, which are included in this construction noise and vibration management plan, include both residential and a commercial properties within proximity of the project.

Details of the nearest sensitive receivers to the site have been identified below.

Receiver 1: Existing residential dwellings located within Building C1 of Stage 1 of the Ivanhoe Estate.

Receiver 2: Existing residential receivers located to the north of the site.

Receiver 3: Commercial receivers located within the building to the north east of the site.

Receiver 4: Commercial receivers located within the building to the east of the site.

Receiver 5: Existing residential dwellings located to the south of the site, located to the southern side of Epping Road.

It is noted that the residential component of the site is currently under construction and is therefore not included in this assessment.

Details of the site location and surrounding receivers is included in the following figure.

Figure 2 Site Map, Measurement Locations and Surrounding Receivers



1.2 SSD Compliance

This report has been undertaken in accordance with the requirements of Item B37 of the project's conditions of consent.

Details of conditions of consent and sections of the report which include the required items required by the consent are included in the table below.

Table 1 SSD Compliance Table

SSD Condition number	Requirement	Report Reference for Satisfaction
B37	*Prior to the commencement of any works, a Construction Noise and Vibration Management Plan (CNVMP) prepared by a suitably qualified person shall be submitted to the Certifying Authority. The CNVMP must be prepared in consultation with, and address the relevant requirements of the EPA. The CNVMP shall address (but not be limited to):*	-
(a)	*be prepared in accordance with the EPA's Interim Construction Noise Guideline*	Sections 4.1
(b)	*identify nearby sensitive receivers and land uses;*	Sections 1.1
(c)	*identify the noise management levels for the project;*	Section 4.1.1
(d)	*identify the construction methodology and equipment to be used and the key sources of noise and vibration;*	Section 6
(e)	*details of all reasonable and feasible management and mitigation measures to be implemented to minimise construction noise and vibration;*	Section 6.1.1 and 6.1.2
(f)	*be consistent with and incorporate all relevant recommendations and noise and vibration mitigation measures outlined in the Stage 2 DA Acoustic Assessment, prepared by Acoustic Logic, dated July 2021*	Section 6

(g)	*ensure all potentially impacted sensitive receivers are informed by letterbox drops prior to the commencement of construction of the nature of works to be carried out, the expected noise levels and duration, as well as contact details for a construction community liaison officer; and*	Section 6.5.2
(h)	*include a suitable proactive construction noise and vibration monitoring program which aims to ensure the construction noise and vibration criteria in this consent are not exceeded.*	Section 6.4

2 EXISTING ACOUSTIC ENVIRONMENT

Measured noise levels from the attended noise survey undertaken as part of the Acoustic Logic *Proposed Residential Development, Ivanhoe Stage 2, Macquarie Park – Development Application Environmental Noise Impact Assessment* with reference 20210325.1/1607/A/R7/GW and dated 16/7/2021 and referenced in the projects SSD consent have been used in this assessment.

As part of the Acoustic Logic *Proposed Residential Development, Ivanhoe Stage 2, Macquarie Park – Development Application Environmental Noise Impact Assessment* background noise levels within the vicinity of the site has been undertaken in accordance with the NSW EPA's *Noise Policy for Industry.*

The Rating Background Noise Level (RBL) is the background noise level used for assessment purposes and includes the 90th percentile of the daily background noise levels during each assessment period, being day, evening and night. The RBL $L_{A90\ (15minute)}$ and L_{Aeq} noise levels presented within the Acoustic Logic *Proposed Residential Development, Ivanhoe Stage 2, Macquarie Park – Development Application Environmental Noise Impact Assessment* are summarised in Table 2.

Table 2 Measured Ambient Noise Levels corresponding to the NPI's Assessment Time Periods

Measurement Location	Daytime[1] 7:00 am to 6:00 pm	Evening[1] 6:00 pm to 10:00 pm	Night-time[1] 10:00 pm to 7:00 am
	L_{A90}[2] (dBA)	L_{A90}[2] (dBA)	L_{A90}[2] (dBA)
Measurement Location 1	54	52	41
Measurement Location 2	48	43	34
Measurement Location 3	56	49	37
Measurement Location 4	45	43	37
Measurement Location 5	43	41	39
Measurement Location 6	50	48	36

Note 1: For Monday to Saturday, Daytime 7:00 am – 6:00 pm; Evening 6:00 pm – 10:00 pm; Night-time 10:00 pm – 7:00 am. On Sundays and Public Holidays, Daytime 8:00 am – 6:00 pm; Evening 6:00 pm – 10:00 pm; Night-time 10:00 pm – 8:00 am

Note 2: The L_{A90} noise level is representative of the "average minimum background sound level" (in the absence of the source under consideration), or simply the background level.

Measured noise levels in accordance with the time periods defined by the NSW EPA RNP 2011 are presented below.

Table 3 Measured Ambient Noise Levels corresponding to the "RNP" Assessment Time Periods

Receiver Location	Daytime [1] 7:00 am to 10:00 pm	Night-time [1] 10:00 pm to 7:00 am
	L_{Aeq} (whole period) [2] (dBA)	L_{Aeq} (whole period) [2] (dBA)
Receiver Location 1	48	34
Receiver Location 2	45	37
Receiver Location 3	43	39
Receiver Location 4	43	39
Receiver Location 5	50	36

Note 1: For Monday to Sunday, Daytime 7:00 am – 10:00 pm; Night-time 10:00 pm – 7:00 am.

Note 2: The L_{Aeq} is the energy average sound level. It is defined as the steady sound level that contains the same amount of acoustical energy as a given time-varying sound.

3 PROJECT SSD REQUIREMENTS

This CNVSP has been prepared in accordance with the SSDA 15822622 consent condition B37 which includes the following:

CONSTRUCTION NOISE AND VIBRATION MANAGEMENT PLAN

B37. Prior to the commencement of any works, a **Construction Noise and Vibration Management Plan** (CNVMP) prepared by a suitably qualified person shall be submitted to the Certifying Authority. The CNVMP must be prepared in consultation with, and address the relevant requirements of the EPA. The CNVMP shall address (but not be limited to):

(a) be prepared in accordance with the EPA's *Interim Construction Noise Guideline*

(b) identify nearby sensitive receivers and land uses;

(c) identify the noise management levels for the project;

(d) identify the construction methodology and equipment to be used and the key sources of noise and vibration;

(e) details of all reasonable and feasible management and mitigation measures to be implemented to minimise construction noise and vibration;

(f) be consistent with and incorporate all relevant recommendations and noise and vibration mitigation measures outlined in the Stage 2 DA Acoustic Assessment, prepared by Acoustic Logic, dated July 2021

(g) ensure all potentially impacted sensitive receivers are informed by letterbox drops prior to the commencement of construction of the nature of works to be carried out, the expected noise levels and duration, as well as contact details for a construction community liaison officer; and

(h) include a suitable proactive construction noise and vibration monitoring program which aims to ensure the construction noise and vibration criteria in this consent are not exceeded.

Prior to the commencement of works, a copy of the **CNVMP** demonstrating compliance with the above must be submitted to the Planning Secretary.

4 NOISE AND VIBRATION CRITERIA

Relevant noise and vibration criteria for construction activities are detailed below.

4.1 Construction Noise Objectives

Relevant construction noise objectives applicable to this project are outlined below.

4.1.1 NSW EPA (Former DECC) Interim Construction Noise Guideline (ICNG) 2009

Noise objective for construction and demolition activities are discussed in the *Interim Construction Noise Guideline* (ICNG). The ICNG also recommends procedures to address potential impacts of construction noise on residences and other sensitive land uses. The main objectives of the ICNG are summarised as follows:

- Promote a clear understanding of ways to identify and minimise noise from construction works;
- Focus on applying all "feasible" and "reasonable" work practices to minimise construction noise impacts;
- Encourage construction to be undertaken only during the recommended standard hours unless approval is given for works that cannot be undertaken during these hours;
- Streamline the assessment and approval stages and reduce time spent dealing with complaints at the project implementation stage; and
- Provide flexibility in selecting site-specific feasible and reasonable work practices in order to minimise noise impacts.

The ICNG contains a quantitative assessment method which is applicable to this project. Guidance levels are given for airborne noise at residences and other sensitive land uses.

The quantitative assessment method involves predicting noise levels at sensitive receivers and comparing them with the Noise Management Levels (NMLs). The NML affectation categories for residential receivers have been reproduced from the guideline and are listed in the Table 4 below.

Table 4 NMLs for quantitative assessment at residences

Time of Day	Noise Management Level $L_{Aeq(15minute)}$ [1,2]	How to Apply
Recommended standard hours: During Approved working hours	Noise affected RBL + 10 dB	The noise affected level represents the point above which there may be some community reaction to noise. • Where the predicted or measured LAeq(15minute) is greater than the noise affected level, the proponent should apply all feasible and reasonable work practices to meet the noise affected level. • The proponent should also inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details.
	Highly noise affected 75 dBA	The highly noise affected level represents the point above which there may be strong community reaction to noise. • Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restricting the hours that the very noisy activities can occur, taking into account: 1. Times identified by the community when they are less sensitive to noise (such as before and after school for works near schools, or mid-morning or mid-afternoon for works near residences. 2. If the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.
Outside the recommended standard hours above	Noise affected RBL + 5 dB	• A strong justification would typically be required for works outside the recommended standard hours. • The proponent should apply all feasible and reasonable work practices to meet the noise affected level. • Where all feasible and reasonable practices have been applied and noise is more than 5 dB above the noise affected level, the proponent should notify the community.
offices, retail outlets: external	$L_{Aeq\ (15\ min)}$ 70 dB(A)	• When in use • During construction, the proponent should regularly update the occupants of the commercial and industrial premises regarding noise levels and hours of work.

Note 1 Noise levels apply at the property boundary that is most exposed to construction noise, and at a height of 1.5 m above ground level. If the property boundary is more than 30 m from the residence, the location for measuring or predicting noise levels is at the most noise-affected point within 30 m of the residence. Noise levels may be higher at upper floors of the noise affected residence.

Note 2 The RBL is the overall single-figure background noise level measured in each relevant assessment period (during or outside the recommended standard hours). The term RBL is described in detail in the NSW Industrial Noise Policy (EPA 2000).

Construction noise levels at other noise receivers are outlined below:

- Construction noise levels within classrooms other educational institutions is not recommended to exceed 45dBA $L_{Aeq,15minute}$, when measured internally.
- Construction noise levels at offices and retail outlets are not recommended to exceed 70dBA LAeq,15minute, when measured externally.

Based on the measured background noise levels summarised in Section 1.2, and the NMLs outlined above, the construction noise criteria to be used in this assessment are listed in Table 5.

Table 5 NMLs as basis for the acoustic assessment

Receiver Types	NML, dB $L_{Aeq(15minute)}$		
	Standard Hours During Approved working hours		**Outside Standard Hours** All hours not listed in the adjacent column.
Receiver 1 – Residential	**NAFL: 58** (RBL (48) + 10dB)	**HNAL: 75**	RBL + 5dB
Receiver 2 – Residential	**NAFL: 55** (RBL (45) + 10dB)		
Receiver 3 – Commercial	**NAFL: 70**		
Receiver 4 – Commercial	**NAFL: 70**		
Receiver 5 – Residential	**NAFL: 60** (RBL (50) + 10dB)		

4.2 Vibration Criteria

Effects of ground borne vibration on buildings may be segregated into the following three categories:

- Human comfort – vibration in which the occupants or users of the building are inconvenienced or possibly disturbed.
- Effects on building contents – where vibration can cause damage to fixtures, fittings and other non-building related objects.
- Effects on building structures – where vibration can compromise the integrity of the building or structure itself.

4.2.1 Vibration Criteria – Human Comfort

Vibration effects relating specifically to the human comfort aspects of the project are taken from AV-TG. This type of impact can be further categorised and assessed using the appropriate criterion as follows:

- Continuous vibration – from uninterrupted sources.
- Impulsive vibration – up to three instances of sudden impact e.g., dropping heavy items, per monitoring period.
- Intermittent vibration – such as from drilling, compacting or activities that would result in continuous vibration if operated continuously.

Table 6 Continuous vibration acceleration criteria (m/s^2) 1 Hz-80 Hz

Location	Assessment period	Preferred Values		Maximum Values	
		z-axis	x- and y-axis	z-axis	x- and y-axis
Critical working areas (e.g. hospital operating theatres, precision laboratories)	Day or night-time	0.0050	0.010	0.10	0.20
Residences	Daytime	0.010	0.0071	0.020	0.014
	Night-time	0.007	0.005	0.014	0.010
Offices, schools, educational institutions and places of worship	Day or night-time	0.020	0.014	0.040	0.028
		0.04	0.029	0.080	0.058
Workshops	Day or night-time	0.04	0.029	0.080	0.058

Table 7 Impulsive vibration acceleration criteria (m/s^2) 1 Hz-80 Hz

Location	Assessment period	Preferred Values		Maximum Values	
		z-axis	x- and y-axis	z-axis	x- and y-axis
Critical working areas (e.g. hospital operating theatres, precision laboratories)	Day or night-time	0.0050	0.010	0.10	0.20
Residences	Daytime	0.30	0.21	0.60	0.42
	Night-time	0.10	0.071	0.20	0.14
Offices, schools, educational institutions and places of worship	Day or night-time	0.64	0.46	1.28	0.92
Workshops	Day or night-time	0.64	0.46	1.28	0.92

Table 8 Intermittent vibration impacts criteria ($m/s^{1.75}$) 1 Hz-80 Hz

Location	Daytime		Night-time	
	Preferred Values	Maximum Values	Preferred Values	Maximum Values
Critical working areas (e.g. hospital operating theatres, precision laboratories)	0.10	0.20	0.10	0.20
Residences	0.20	0.40	0.13	0.26
Offices, schools, educational institutions and places of worship	0.40	0.80	0.40	0.80
Workshops	0.80	1.60	0.80	1.60

4.2.2 Vibration Criteria – Building Contents and Structure

The vibration effects on the building itself are assessed against international standards as follows:

- For transient vibration: British Standard BS 7385: Part 2-1993 *"Evaluation and measurement for vibration in buildings Part 2: Guide to damage levels from ground borne vibration"* (BSI 1993); and
- For continuous or repetitive vibration: German DIN 4150: Part 3 – 1999 *"Effects of Vibration on Structure"* (DIN 1999).

4.2.3 Standard BS 7385 Part 2 - 1993

For transient vibration, as discussed in standard BS 7385 Part 2-1993, the criteria are based on peak particle velocity (mm/s) which is to be measured at the base of the building. These are summarised below.

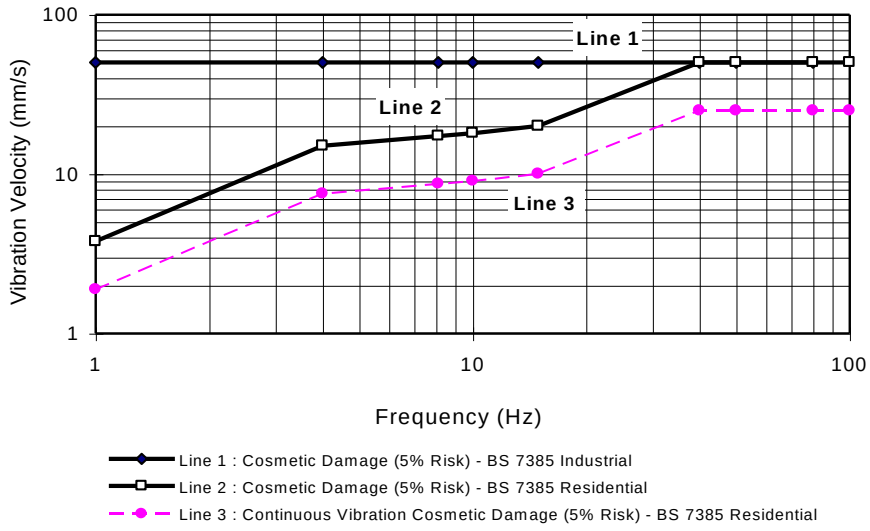
Table 9 Transient vibration criteria as per standard BS 7385 Part 2 - 1993

Line in Figure 3	Type of Building	Peak Component Particle Velocity in Frequency Range of Predominant Pulse	
		4 Hz to 15 Hz	15 Hz and Above
1	Reinforced or framed structures Industrial and heavy commercial buildings.	50 mm/s at 4 Hz and above	
2	Unreinforced or light framed structures Residential or light commercial type buildings	15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz	20 mm/s at 15 Hz increasing to 50 mm/s at 40 Hz and above

Standard BS 7385 Part 2 – 1993 states that the values in Table 9 relate to transient vibration which does not cause resonant responses in buildings.

Where the dynamic loading caused by continuous vibration events is such that it results in dynamic magnification due to resonance (especially at the lower frequencies where lower guide values apply), then the values in Table 9 may need to be reduced by up to 50% (refer to Line 3 in Figure 3).

Figure 3 BS 7385 Part 2 – 1993, graph of transient vibration values for cosmetic damage



In the lower frequency region where strains associated with a given vibration velocity magnitude are higher, the recommended values corresponding to Line 2 are reduced. Below a frequency of 4 Hz, where a high displacement is associated with the relatively low peak component particle velocity value, a maximum displacement of 0.6 mm (zero to peak) is recommended. This displacement is equivalent to a vibration velocity of 3.7 mm/s at 1 Hz.

The standard also states that minor damage is possible at vibration magnitudes which are greater than twice those given in Table 9, and major damage to a building structure may occur at values greater than four times the tabulated values.

Fatigue considerations are also addressed in the standard and it is concluded that unless the calculation indicates that the magnitude and number of load reversals is significant (in respect of the fatigue life of building materials) then the values in Table 9 should not be reduced for fatigue considerations.

4.2.4 Standard DIN 4150 Part 3 - 1999

For continuous or repetitive vibration, standard DIN 4150 Part 3-1999 provides criteria based on values for peak particle velocity (mm/s) measured at the foundation of the building; these are summarised in Table 10. The criteria are frequency dependent and specific to particular categories of structures.

Table 10 Structural damage criteria as per standard DIN 4150 Part 3 - 1999

Type of Structure	Peak Component Particle Velocity, mm/s			
	Vibration at the foundation at a frequency of			Vibration of horizontal plane of highest floor at all frequencies
	1 Hz to 10 Hz	10 Hz to 50 Hz	50 Hz to 100 Hz[1]	
Buildings used for commercial purposes, industrial buildings and buildings of similar design	20	20 to 40	40 to 50	40
Dwellings and buildings of similar design and/or use	5	5 to 15	15 to 20	15
Structures that, because of their sensitivity to vibration, do not correspond to those listed in lines 1 and 2 and are of great intrinsic value (e.g. buildings that are under a preservation order)	3	3 to 8	8 to 10	8

Note 1: For frequencies above 100Hz, at least the values specified in this column shall be applied.

4.3 Construction Vibration Criteria

Based on the details included in the sections above the project specific vibration criteria to protect the surrounding residential receivers from structural or architectural damage includes the following:

1. Project construction vibration criteria at all surrounding building structures – 7 mm/s

5 NOISE AND VIBRATION ASSESSMENT

5.1 Construction Noise Assessment

Sound power levels have been predicted for the construction tasks identified in the project program. The equipment anticipated for use in each task is based on previous project experience. The sound power levels for the equipment likely to be used for each of the listed tasks are provided in Table 11 below.

Table 11 Summary of predicted sound power levels

Tasks	Equipment	Sound Power Levels (dBA re 1pW)	Aggregate Sound Power Level per Task (dBA re 1pW)
Site Establishment Works	Mobile crane	110	113
	Power hand tools	109	
	Semi Rigid Vehicle [1]	105	
Ground Works	Excavator	112	119
	Hand held jack hammer [1]	111	
	Dump truck [1]	104	
	Concrete saw [1]	114	
	Skid steer	110	
	Power hand tools	109	
Structure	Hand held jack hammer [1]	106	117
	Concrete saw [1]	114	
	Power hand tools	109	
	Welder	101	
	Concrete pump truck	110	
	Concrete agitator truck	108	
Internal Works	Power hand tools	109	109
Common and External Works (including landscaping)	Concrete agitator truck	108	117
	Saw cutter [1]	104	
	Dump truck [1]	104	
	Concrete saw [1]	114	
	Power hand tools	109	

Note 1: An assumed time correction has been applied, this being 5 minutes of operation in any 15-minute interval.

5.2 Predicted Construction Noise Levels

Predicted construction noise levels are presented below for each of the surrounding receivers in accordance with the NSW EPA ICNG.

Note:

- Predicted noise levels presented below are given in a range, this includes the expected minimums as well as the maximums.
- With regards to the maximum noise levels in the range, these are typically experienced when plant/works are within close proximity to a boundary. In our experience whilst these levels above NML's and considered intrusive they will only occur for a short time and is not a representation of noise levels during the entire construction period.

Table 12 Receiver 1 – Summary of preliminary predicted construction noise levels – Residence to the north west of the site

Phase	Activity	Aggregate Sound Power Level (dBA re 1pW)	Predicted Individual Noise Level at Receiver dBA $L_{Aeq\ 15\ minutes}$	Predicted Combined Noise Level at Receiver dBA $L_{Aeq\ 15\ minutes}$	Noise Management Levels dBA $L_{Aeq\ 15\ minutes}$	Summary of Result
Site Establishment Works	Mobile crane	113	55 to 61	62 to 76	**Standard Construction Hours** **58 dB(A) $L_{Aeq\ 15\ min}$**	Works indicatively predicted to have the potential to exceed the noise management level when working near a receiver.
	Power hand tools		54 to 60			
	Semi Rigid Vehicle		51 to 57			
Ground Works and Demolition	Excavator	119	57 to 63	67 to 81	**Highly Noise Affected Level** Standard Construction Hours **75 dB(A) $L_{Aeq\ 15\ min}$**	Mitigations of construction noise required to be undertaken including measures detailed in Section 6 of this report.
	Handheld jack hammer		52 to 58			
	Dump truck		50 to 56			
	Concrete saw		60 to 66			
	Skid steer		55 to 61			
	Power hand tools		54 to 60			
Structure	Handheld jack hammer	117	52 to 58	66 to 80		
	Concrete saw		60 to 66			
	Power hand tools		54 to 60			
	Welder		46 to 52			
	Concrete pump truck		55 to 61			
	Concrete agitator truck		53 to 59			
Internal Works	Power hand tools	109	54 to 60	58 to 72		
Common and External Works	Concrete agitator truck	117	53 to 59	66 to 80		
	Saw cutter		50 to 56			
	Dump truck		50 to 56			
	Concrete saw		60 to 66			
	Power hand tools		54 to 60			

Table 13 Receiver 2 – Summary of predicted construction noise levels – Residence to the north of the site

Phase	Activity	Aggregate Sound Power Level (dBA re 1pW)	Predicted Individual Noise Level at Receiver dBA $L_{Aeq\ 15\ minutes}$	Predicted Combined Noise Level at Receiver dBA $L_{Aeq\ 15\ minutes}$	Noise Management Levels dBA $L_{Aeq\ 15\ minutes}$	Summary of Result
Site Establishment Works	Mobile crane	113	58 to 76	61 to 79	**Standard Construction Hours** **55 dB(A) $L_{Aeq\ 15\ min}$** **Highly Noise Affected Level** Standard Construction Hours **75 dB(A) $L_{Aeq\ 15\ min}$**	Works indicatively predicted to have the potential to exceed the noise management level when working near a receiver. Mitigations of construction noise required to be undertaken including measures detailed in Section 6 of this report.
	Power hand tools		57 to 75			
	Semi Rigid Vehicle		53 to 71			
Ground Works and Demolition	Excavator	119	60 to 78	66 to 84		
	Handheld jack hammer		54 to 72			
	Dump truck		52 to 70			
	Concrete saw		62 to 80			
	Skid steer		58 to 76			
	Power hand tools		57 to 75			
Structure	Handheld jack hammer	117	54 to 72	65 to 83		
	Concrete saw		62 to 80			
	Power hand tools		57 to 75			
	Welder		49 to 67			
	Concrete pump truck		58 to 76			
	Concrete agitator truck		56 to 74			
Internal Works	Power hand tools	109	57 to 75	57 to 75		
Common and External Works	Concrete agitator truck	117	56 to 74	65 to 83		
	Saw cutter		52 to 70			
	Dump truck		52 to 70			
	Concrete saw		62 to 80			
	Power hand tools		57 to 75			

Table 14 Receiver 3 - Summary of predicted construction noise levels – Commercial Receivers to the northeast

Phase	Activity	Aggregate Sound Power Level (dBA re 1pW)	Predicted Individual Noise Level at Receiver dBA $L_{Aeq\ 15\ minutes}$	Predicted Combined Noise Level at Receiver dBA $L_{Aeq\ 15\ minutes}$	Noise Management Levels dBA $L_{Aeq\ 15\ minutes}$	Summary of Result
Site Establishment Works	Mobile crane	113	48 to 54	55 to 69	**Standard Construction Hours** **70 dB(A) $L_{Aeq\ 15\ min}$** **Highly Noise Affected Level** Standard Construction Hours **75 dB(A) $L_{Aeq\ 15\ min}$**	Works indicatively predicted to have the potential to exceed the noise management level when working near a receiver. Mitigations of construction noise required to be undertaken including measures detailed in Section 6 of this report.
	Power hand tools		47 to 53			
	Semi Rigid Vehicle		44 to 50			
Ground Works and Demolition	Excavator	119	50 to 56	60 to 74		
	Handheld jack hammer		45 to 51			
	Dump truck		43 to 49			
	Concrete saw		53 to 59			
	Skid steer		48 to 54			
	Power hand tools		47 to 53			
Structure	Handheld jack hammer	117	45 to 51	59 to 73		
	Concrete saw		53 to 59			
	Power hand tools		47 to 53			
	Welder		39 to 45			
	Concrete pump truck		48 to 54			
	Concrete agitator truck		46 to 52			
Internal Works	Power hand tools	109	47 to 53	51 to 65		
Common and External Works	Concrete agitator truck	117	46 to 52	59 to 73		
	Saw cutter		43 to 49			
	Dump truck		43 to 49			
	Concrete saw		53 to 59			
	Power hand tools		47 to 53			

Table 15 Receiver 4 - Summary of predicted construction noise levels – Commercial Receivers to the southeast

Phase	Activity	Aggregate Sound Power Level (dBA re 1pW)	Predicted Individual Noise Level at Receiver dBA $L_{Aeq\ 15\ minutes}$	Predicted Combined Noise Level at Receiver dBA $L_{Aeq\ 15\ minutes}$	Noise Management Levels dBA $L_{Aeq\ 15\ minutes}$	Summary of Result
Site Establishment Works	Mobile crane	113	52 to 58	56 to 61	**Standard Construction Hours** **70 dB(A) $L_{Aeq\ 15\ min}$** **Highly Noise Affected Level** Standard Construction Hours **75 dB(A) $L_{Aeq\ 15\ min}$**	Works indicatively predicted to have the potential to exceed the noise management level when working near a receiver. Mitigations of construction noise required to be undertaken including measures detailed in Section 6 of this report.
	Power hand tools		51 to 57			
	Semi Rigid Vehicle		48 to 54			
Ground Works and Demolition	Excavator	119	54 to 60	61 to 66		
	Handheld jack hammer		49 to 55			
	Dump truck		47 to 53			
	Concrete saw		57 to 63			
	Skid steer		52 to 58			
	Power hand tools		51 to 57			
Structure	Handheld jack hammer	117	49 to 55	61 to 66		
	Concrete saw		57 to 63			
	Power hand tools		51 to 57			
	Welder		43 to 49			
	Concrete pump truck		52 to 58			
	Concrete agitator truck		50 to 56			
Internal Works	Power hand tools	109	51 to 57	52 to 57		
Common and External Works	Concrete agitator truck	117	50 to 56	60 to 65		
	Saw cutter		47 to 53			
	Dump truck		47 to 53			
	Concrete saw		57 to 63			
	Power hand tools		51 to 57			

Table 16 Receiver 5 - Summary of predicted construction noise levels – Residence located to the southwest

Phase	Activity	Aggregate Sound Power Level (dBA re 1pW)	Predicted Individual Noise Level at Receiver dBA $L_{Aeq\ 15\ minutes}$	Predicted Combined Noise Level at Receiver dBA $L_{Aeq\ 15\ minutes}$	Noise Management Levels dBA $L_{Aeq\ 15\ minutes}$	Summary of Result
Site Establishment Works	Mobile crane	113	52 to 58	56 to 61	**Standard Construction Hours** **60 dB(A) $L_{Aeq\ 15\ min}$** **Highly Noise Affected Level** Standard Construction Hours **75 dB(A) $L_{Aeq\ 15\ min}$**	Works indicatively predicted to have the potential to exceed the noise management level when working near a receiver. Mitigations of construction noise required to be undertaken including measures detailed in Section 6 of this report.
	Power hand tools		51 to 57			
	Semi Rigid Vehicle		48 to 54			
Ground Works and Demolition	Excavator	119	54 to 60	61 to 66		
	Handheld jack hammer		49 to 55			
	Dump truck		47 to 53			
	Concrete saw		57 to 63			
	Skid steer		52 to 58			
	Power hand tools		51 to 57			
Structure	Handheld jack hammer	117	49 to 55	61 to 66		
	Concrete saw		57 to 63			
	Power hand tools		51 to 57			
	Welder		43 to 49			
	Concrete pump truck		52 to 58			
	Concrete agitator truck		50 to 56			
Internal Works	Power hand tools	109	51 to 57	52 to 57		
Common and External Works	Concrete agitator truck	117	50 to 56	60 to 65		
	Saw cutter		47 to 53			
	Dump truck		47 to 53			
	Concrete saw		57 to 63			
	Power hand tools		51 to 57			

5.3 Construction Traffic Noise Assessment

For existing residences and other sensitive land uses affected by additional traffic on existing roads, the NSW *Road Noise Policy (RNP)* states that for noise associated with increased road traffic generated by land use developments, any increase in the total traffic noise level should be limited to 2 dB during both day and night-time periods. An increase of 2 dB represents a minor impact that is considered barely perceptible to the average person.

It is proposed that the construction traffic would access the site via Binalong Road to the east of the site. All construction traffic will access the site and use the surrounding roadways in accordance with the site Construction Management plan.

5.4 Vibration Assessment

In order to maintain compliance with the human comfort vibration criteria discussed in Section 4.2, it is recommended that the indicative safe distances listed in table below should be maintained. These indicative safe distances should be validated prior to the start of construction works by undertaking measurements of vibration levels generated by construction and demolition equipment by the contractor.

Additionally, any vibration levels should be assessed in accordance with the criteria discussed in Section 4.2.

Table 17 Recommended indicative safe working distances for vibration intensive plant

Plant	Rating / Description	Safe Working Distances (m)	
		Cosmetic Damage (BS 7385: Part 2 DIN 4150: Part 3)	Human Comfort (AVTG)
Vibratory roller	< 50 kN (Typically 1 – 2 tonnes)	5	15 – 20
	< 100 kN (Typically 2 – 4 tonnes)	6	20
	< 200 kN (Typically 4 – 6 tonnes)	12	40
	< 300 kN (Typically 7 – 13 tonnes)	15	100
	> 300 kN (Typically more than 13 tonnes)	20	100
Small hydraulic hammer	300 kg, typically 5 – 12 tonnes excavator	2	7
Medium hydraulic hammer	900 kg, typically 12 – 18 tonnes excavator	7	23
Large hydraulic hammer	1600 kg, typically 18 – 34 tonnes excavator	22	73
Vibratory pile driver	Sheet piles	2 – 20	20
Jackhammer	Hand held	1	Avoid contact with structure and steel reinforcements

6 NOISE AND VIBRATION MANAGEMENT PLAN

6.1 Acoustic Management Procedures

Table 18 below summarises the management procedures recommended for airborne noise and vibration impact. These procedures are also further discussed in the report as well as recommended mitigation measures. Hence, where applicable, links to further references are provided in Table 18.

Table 18 Summary of mitigation procedures

Procedure	Abbreviation	Description	Further Reference
General Management Measures	GMM	Introduce best-practice general mitigation measures in the workplace which are aimed at reducing the acoustic impact onto the nearest affected receivers.	Refer to Section 6 For noise impact, also refer to Section 6.1 For vibration impact, also refer to Section 6.3.1
Project Notification	PN	Issue project updates to stakeholders, discussing overviews of current and upcoming works. Advanced warning of potential disruptions can be included. Content and length to be determined on a project-by-project basis.	Refer to Section 6.
Verification Monitoring	V	Monitoring to comprise attended or unattended acoustic surveys. The purpose of the monitoring is to confirm measured levels are consistent with the predictions in the acoustic assessment, and to verify that the mitigation procedures are appropriate for the affected receivers. If the measured levels are higher than those predicted, then the measures will need to be reviewed and the management plan will need to be amended.	For noise impact, refer to Section 6 and Section 6.2.3. For vibration impact, refer to Section 6.3.2
Complaints Management System	CMS	Implement a management system which includes procedures for receiving and addressing complaints from affected stakeholders	Refer to Section 6.6
Specific Notification	SN	Individual letters or phone calls to notify stakeholders that noise levels are likely to exceed noise objectives. Alternatively, contractor could visit stakeholders individually in order to brief them in regards to the noise impact and the mitigation measures that will be implemented.	Refer to Section 6.
Respite Offer	RO	Offer provided to stakeholders subjected to an ongoing impact.	-
Alternative Construction Methodology	AC	Contractor to consider alternative construction options that achieve compliance with relevant criteria. Alternative option to be determined on a case-by-case basis. It is recommended that the selection of the alternative option should also be determined by considering the assessment of on-site measurements (refer to Verification Monitoring above).	-

The application of these procedures is in relation to the exceedances over the relevant criteria. For airborne noise, the criteria are based on NMLs. The allocation of these procedures is discussed in Section 6.1.1

For vibration, the criteria either correspond to human comfort, building damage or scientific and medical equipment. The application of these procedures is discussed in Section 6.1.2.

6.1.1 Allocation of Noise Management Procedures

For residences, the management procedures have been allocated based on noise level exceedances at the affected properties, which occur over the designated NMLs (refer to section 3). The allocation of these procedures is summarised in Table 19 below.

Table 19 Allocation of noise management procedures – residential receivers

Construction Hours	Exceedance over NML (dB)	Management Procedures (see definition above)
Approved Construction Hours Mon – Fri: 7:00 am to 7:00 pm Sat: 8:00 am – 1:00 pm	0 - 3	GMM
	4 - 10	GMM, PN, V [1], CMS, AC
	> 10	GMM, PN, V, CMS, SN, AC
Outside Standard Hours Mon – Fri: 7:00 am to 8:00 am Sat: 7:00 am to 8:00 am	0 - 10	GMM, AC
	11 - 20	GMM, PN, V [1], CMS, AC
	> 20	GMM, PN, V, CMS, SN, RO, AC

Notes

1. Verification monitoring to be undertaken upon complaints received from affected receivers

Please note the following regarding the allocation of these procedures:

- In addition to the above the projects *Conditions of Consent, item C5,* require works to include the following:
    - Rock Breaking, rock hammering, sheet piling and similar activities may only be carried out between the following hours:
        - 9am to 12 midday – Monday to Friday.
        - 2 pm to 5pm – Monday to Friday.
        - 9am to 12 midday – Saturday's.
- The exceedances have been estimated as part of the acoustic assessment, and these are summarised in Section 5.2.
- The allocation of procedures is based on the assumptions used for noise level predictions (refer to Section 5.1). Consequently, these allocations can be further refined once additional details of the construction program become available.

6.1.2 Allocation of Vibration Management Procedures

Table 20 below summarises the vibration management procedures to be adopted based on exceedance scenarios (i.e., whether the exceedance occurs over human comfort criteria, building damage criteria, or criteria for scientific and medical equipment). Please note these management procedures apply for any type of affected receiver (i.e., for residences as well as non-residential receivers).

Table 20 Allocation of vibration management procedures

Construction Hours	Exceedance Scenario	Management Procedures
Approved Construction Hours	Over human comfort criteria (refer to Section 3)	GMM, PN, V, RO
	Over building damage criteria (refer to Section 3)	GMM, V, AC
Outside Standard Hours	Over human comfort criteria (refer to Section 3)	GMM, SN, V, RO, CMS
	Over building damage criteria (refer to Section 3)	GMM, V, AC

6.2 Site Specific Noise Mitigation Measures (including High Noise Affected Levels)

Predicted noise levels outlined in section 5.1 indicate exceedances above the Noise Management Levels (NMLs) as well as the Highly Noise Affected Level (HNAL) when in proximity to a boundary. To militate against any exceedances, the site will need to introduce periods of respite for activities which are creating noise levels above the HNAL and including activities such as piling, hydraulic hammering and the like (i.e. greater than 75dBA). See below.

Table 21 Recommended Respite Periods

Monday to Friday	Saturday
7:00am to 9:00am – No noisy works (Respite Period)	8:00am to 9:00am – No noisy works (Respite Period)
9:00am to 12:00am – Works	9:00am to 12:00pm – Works
12:00pm to 2:00pm – No noisy works (Respite Period)	12:00pm to 1:00pm – No noisy works (Respite Period)
2:00pm to 5:00pm – Works	
5:30pm to 7:00pm – No noisy works (Respite Period)	

The requirements of the above include those required by Condition C5 of the SSD, which includes the following:

C5. Rock breaking, rock hammering, sheet piling, pile driving and similar activities may only be carried out between the following hours:

(a) 9.00 am to 12.00 pm, Monday to Friday;

(b) 2.00 pm to 5.00 pm Monday to Friday; and

(c) 9.00 am to 12.00 pm, Saturday.

6.2.1 General Mitigation Measures

The contractor will, where reasonable and feasible, apply best practice noise mitigation measures. These measures shall include the following:

- Maximising the offset distance between plant items and nearby noise sensitive receivers.
- Preventing noisy plant working simultaneously and adjacent to sensitive receivers.
- Minimising consecutive works in the same site area.
- Orienting equipment away from noise sensitive areas.
- Carrying out loading and unloading away from noise sensitive areas.

In order to minimise noise impacts during the works, the contractor will take all reasonable and feasible measures to mitigate noise effects.

The contractor will also take reasonable steps to control noise from all plant and equipment. Examples of appropriate noise control include efficient silencers and low noise mufflers.

The contractor should apply all feasible and reasonable work practices to meet the NMLs and inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels, duration of noise generating construction works, and the contact details for the proposal. Works will be undertaken in conjunction with the Community Communication Strategy, as required by Item B7 of the Conditions of Consent.

All construction vehicles (including concrete agitator trucks) do not arrive at the site or surrounding residential precincts outside of the construction hours of works outlined in the consent conditions, including item C1, which includes the following:

- 7am to 7pm Monday to Friday
- 8am to 4pm Saturdays

6.2.2 Noise Monitoring

Noise monitoring will be performed by an acoustical consultant directly engaged by the contractor.

Noise monitoring is recommended to be undertaken by attended noise measurements at the start of any new phase of works (i.e. demolition, excavation or remediation works etc.). The statistical parameters to be measured should include the following noise descriptors: L_{Amin}, L_{A90}, L_{A10}, L_{A1}, L_{Amax} and L_{Aeq}. Unattended noise measurements should be conducted over consecutive 15 minute periods at the commencement of demolition and ground works on the site.

This monitoring should also be complemented by undertaking attended noise measurements in order to:

- Differentiate between construction noise sources and other extraneous noise events (such as road traffic and aircraft noise)
- Note and identify any excessive noise emitting machinery or operation.

In addition to the above detailed measurements, should any complaints be received which have not been determined previously, it should be confirmed by conducting additional attended noise measurements.

The survey methodology and any equipment should comply with the requirements discussed in Standard AS 1055.1-1997.

6.2.3 Noise Mitigation Measures for Non-Residential Receivers

Where exceedances have been identified in Section 3, the following mitigation measures are recommended:

- Undertake general mitigation measures as discussed in Section 6.
- Issue project updates to tenants in affected premises. The updates can include overview of current and upcoming works, as well as advanced warning of potential disruptions. These updates can also be issued through an email distribution list or via social media and in accordance with consent condition B7 requiring a Community Communication Strategy.
- Signage to be posted in order to provide stakeholders information regarding project details, emergency contacts and enquiry contact information in accordance with consent condition C1 requiring a site notice.

6.2.4 Alternate Equipment or Process

Exceedance of the site's NMLs should result in an investigation as to whether alternate equipment could be used, or a difference process could be undertaken. The assessment is required to be undertaken in coordination with the contractors undertaking the works to be conducted.

6.2.5 Acoustic Enclosures/Screening

Typically, on a construction site there are three different types of plant that will be used: mobile plant (i.e., excavators, skid steers, etc.), semi mobile plant (i.e., hand tools generally) or static plant i.e. (diesel generators).

For plant items which are static it is recommended that, in the event exceedances are being measured due to operation of the plant item, an acoustic enclosure/screen is constructed to reduce impacts. These systems can be constructed from Fibre Cement (FC) sheeting or, if airflow is required, acoustic attenuators or louvres.

For semi mobile plant, relocation of plant should be investigated to either be operated in an enclosed space or at locations away from a receiver.

With mobile plant it is generally not possible to treat these sources. However, investigations into the machine itself may result in a reduction of noise (i.e., mufflers/attenuators etc) and proactive mechanical maintenance.

6.3 Vibration Mitigation Measures

6.3.1 General Mitigation Measures

As part of the CNVMP, the following vibration mitigation measures should be implemented:

- Any vibration generating plant and equipment is to be in areas within the site in order to lower the vibration impacts to surrounding receivers.
- Investigate the feasibility of rescheduling the hours of operation of major vibration generating plant and equipment to within the allowable time set within the consent conditions which include rock breaking, rock hammering, sheet piling, pile driving and similar activities may only be carried out between the following hours:
  - (a) 9am to 12pm, Monday to Friday;
  - (b) 2pm to 5pm Monday to Friday; and
  - (c) 9am to 12pm, Saturday.
- Use lower vibration generating items of construction plant and equipment; that is, smaller capacity plant.
- Minimise conducting vibration generating works consecutively in the same area (if applicable).
- Schedule a minimum respite period of at least 30 minutes after a period of continuous 2 hours of work.
- Use only dampened rock breakers and/or "city" rock breakers to minimise the impacts associated with rock breaking works.
- Conduct attended measurements of vibration generating plant at commencement of works in order to validate the indicative safe working distances advised in Table 17 and, consequently, to establish safe working distances suitable to the project. Measurements should be conducted at the nearest affected property boundary. These safe working distances should be defined by considering the vibration criteria discussed in Section 4 (i.e., criteria for structural damage, human comfort and impact to scientific or medical equipment).

6.3.2 Vibration Monitoring

Vibration monitoring should be undertaken continuously at the nearest most affected structures.

The monitoring location would be on a stiff part of the structure (at the foundation) on the side of the structure adjacent to the subject demolition and construction works.

The vibration monitoring system will be configured to record the peak vibration levels and to trigger an alarm when predetermined vibration thresholds are exceeded. The thresholds correspond to an "Operator Warning Level" and an "Operator Halt Level", where the Warning Level is 75% of the Halt Level. The Halt Level should be determined based on the vibration criteria for building contents and structure (detailed in section 4.2).

Exceedance of the "Operator Warning Level" would not require excavation or demolition work to cease, but rather, alerts the site manager to proceed with caution at a reduced force or load.

An exceedance of the "Operator Halt Level" would require the contractor to implement an alternative excavation technique pending further analysis of the vibration frequency content in order to determine any potential exceedance of the criteria.

The vibration monitoring equipment would be downloaded and analysed by the acoustical consultant monthly including reporting of the collected data.

Reports of the measured vibration levels and their likely impacts would be prepared by the acoustical consultant and issued to the contractor monthly.

Vibration monitoring should be undertaken including the following:

1. Vibration Monitoring to include long term continuous vibration logging.
2. Monitors set to record maximum vibration levels including Peak Particle Velocity (PPV) magnitudes.
3. Monitors are required to be SMS enabled such that any events recorded above 'alert levels can be instantaneously sent to suitable builder, acoustic consultant and contractor representatives.
4. In the event results re received above 'alert levels the following response to events are required as detailed in the table below.
5. Vibration monitoring should be undertaken for the periods including demolition, exaction and construction of the building structure including installation of concrete to ground floor as a minimum or on agreement with neighbouring stake holders in the event monitoring details no negative impacts during the construction of the project.

Table 22 Required Response to Vibration Events

Location/ Receiver Type	Event Type		
	Trigger	Alert	Alarm, Stop Work
Surrounding Residential Dwellings	6 mm/s	7 mm/s	8 mm/s
See Section below for response to Event Types			

The required response to recorded event types detailed in the table above are included in the following table.

Table 23 Required Response to Vibration Events

Event Type	Required Response
Trigger level	All events above the trigger level are required to be recorded by the vibration monitors.
Alert	Temporarily cease the vibration generating activity and assess the reason for vibration exceedances. Modify the related construction practice to prevent future exceedances. Keep records of subsequent breaches to demonstrate that vibrations for modified activity do not reach Alert Level. All *Alert* events are to be SMS messaged to the building contractor site manager, subcontractor and acoustic consultant.
Alarm	**Stop Work Event** All *Alarm* events are to be SMS messaged to a relevant Richard Crookes, subcontractor and acoustic consultant. The activity generating the vibration levels is to be stopped immediately. Suitable representatives of the building contractor, the relevant Subcontractor, Heritage Consultant and acoustic consultant. Vibration monitoring report to be completed. Visual assessment of affected property will be conducted to assess whether damage is evident. The item/s of work generating the vibration events is not be recommenced until an action plan is agreed and implemented.

6.4 Noise and Vibration Monitoring

As part of the management of noise from the proposed construction activities to be undertaken on the site the following noise and vibration monitoring is to be undertaken:

1. Noise Monitoring– Attended noise monitoring of excavation and construction activities is to be undertaken during the following periods:
    a. Commencement of any rock breaking or sawing on the site.
    b. In response to any ongoing complaints received from neighbours.

2. Vibration – Based on the proximity of the surrounding receivers to the works magnitudes of vibration resulting from construction activities required to be undertaken on the site are not expected to approach vibration limits detailed in Section 4.2 of this report, therefore permanent continuous vibration monitoring is not recommended.

    Attended vibration monitoring is to be undertaken at the following periods:
    a. Commencement of any high vibration generating activities including hydrail hammering, rock breaking or vibration rolling on the site.
    b. receiver location in the event complaints resulting from construction activities resulting from the perception of vibration are experienced by the occupants of buildings within the vicinity of the site.

6.5 Complaints Management Process and Community Communication

A complaints management process and community communications strategy is required to be included for the project, including those developed in compliance with the project Conditions of Consent, including items B11, B12, B13 and B14 which include the following:

COMPLAINTS AND ENQUIRIES PROCEDURE

B11. Prior to the commencement of construction works for each building, or as otherwise agreed by the Planning Secretary, the following must be made available for community enquiries and complaints for the duration of construction:
- (a) a toll-free 24-hour telephone number(s) on which complaints and enquiries about the carrying out of any works may be registered;
- (b) a postal address to which written complaints and enquiries may be sent; and
- (c) an email address to which electronic complaints and enquiries may be transmitted.

COMMUNITY COMMUNICATION STRATEGY

B12. A community Communication Strategy must be prepared to provide mechanisms to facilitate communication between the Applicant, the relevant Council and the community (including adjoining affected landowners and businesses, and others directly impacted by the development), during the design and construction of the development and for a minimum of 12 months following the completion of construction.

B13. The Community Communication Strategy must:
- (a) identify people to be consulted during the design and construction phases;
- (b) include the telephone number, postal address and email required in **Condition B11**
- (c) set out procedures and mechanisms for the regular distribution of accessible information about or relevant to the development;
- (d) provide for the formation of community-based forums, if required, that focus on key environmental management issues for the development;
- (e) set out procedures and mechanisms:
    - (i) through which the community can discuss or provide feedback to the Applicant;
    - (ii) through which the Applicant will respond to enquiries or feedback from the community; and

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Department of Planning and Environment *(SSD 15822622)*

- (iii) to resolve any issues and mediate any disputes that may arise in relation to construction and operation of the development, including disputes regarding rectification or compensation.

B14. Details demonstrating compliance with **Condition B11** and **Condition B12** must be submitted to the Certifying Authority and the Planning Secretary no later than one month before the commencement of any work.

6.5.1 Enquiries and complaints management

Community enquires and complaints will be undertaken and managed by the building contractor in accordance with the requirements of item B11 and detailed above.

6.5.2 Community Notifications

Prior to the works onsite being undertaken, it is recommended that community consultation with the neighbouring affected parties be undertaken. These include the locations detailed in the figure below.

Figure 4 Required Community Notification Area



Communication notification, should not be limited to the beginning of the onsite works but throughout, providing the community with constant updates on the progress and upcoming works. In our experience these could include:

- Project website.
- Email notifications; and
- Letterbox drops.

6.5.3 Community Engagement

It is proposed that throughout the duration of the project, continued meetings with both the school principals will be undertaken on a regular basis to monitor and mitigate any impacts of construction noise and vibration on the school community.

Community engagement has been undertaken during the design and approvals basis of the project and detailed in the Community Communication Strategy in accordance with condition B12.

6.6 Complaints Management System

Should complaints arise they must be dealt with in a responsible and uniform manner, therefore, a management system to deal with complaints is detailed above. Complaints will be undertaken in compliance with Condition B11 of the consent.

6.7 Contingency Plans

Contingency plans are required to address noise or vibration problems if excessive levels are measured at surrounding sensitive receivers and/or if justified complaints occur. Such plans include:

- Stop the onsite works.
- Identify the source of the main equipment within specific areas of the site which is producing the most construction noise and vibration at the sensitive receivers; and
- Review the identified equipment and determine if an alternate piece of equipment can be used or the process can be altered.
- In the event an alternate piece of equipment or process can be used, works can re-commence.
- In the event an alternate piece of equipment or process cannot be determined implement a construction assessment to be performed by a suitably qualified acoustic consultant.

The building contractor shall have access to view the Contractor's noise measurement records on request. The Superintendent may undertake noise monitoring if and when required.

6.8 General Mitigation Measures (Australia Standard 2436-2010)

As well as the above project specific noise mitigation controls, AS 2436-2010 "*Guide to Noise and Vibration Control on Construction, Demolition and Maintenance Sites*" sets out numerous practical recommendations to assist in mitigating construction noise emissions. Examples of strategies that could be implemented on the subject project are listed below, including the typical noise reduction achieved, where applicable.

6.8.1 Additional Recommendations

- Regular reinforcement (such as at toolbox talks) of the need to minimise noise and vibration.
- Regular identification of noisy activities and adoption of improvement techniques.
- Avoiding the use of portable radios, public address systems or other methods of site communication that may unnecessarily impact upon nearby sensitive receivers.
- Where possible, avoiding the use of equipment that generates impulsive noise.
- Minimising the need for vehicle reversing for example (particularly at night), by arranging for one-way site traffic routes.
- Use of broadband audible alarms on vehicles and elevating work platforms used on site.

- Minimising the movement of materials and plant and unnecessary metal-on-metal contact.
- Minimising truck movements.

6.8.2 Plant and Equipment

- Choosing quieter plant and equipment based on the optimal power and size to most efficiently perform the required tasks.
- Selecting plant and equipment with low vibration generation characteristics.
- Operating plant and equipment in the quietest and most efficient manner.

6.8.3 On Site Noise Mitigation

- Maximising the distance between noise activities and noise sensitive land uses.
- Installing purpose-built noise barriers, acoustic sheds and enclosures.

6.8.4 Work Scheduling

- Providing respite periods which could include restricting very noisy activities to time periods that least affect the nearby noise sensitive locations, restricting the number of nights that after-hours work is conducted near residences or by determining any specific requirements.
- Scheduling work to coincide with non-sensitive periods.
- Planning deliveries and access to the site to occur quietly and efficiently and organising parking only within designated areas located away from the sensitive receivers.
- Optimising the number of deliveries to the site by amalgamating loads where possible and scheduling arrivals within designated hours.
- Including contract conditions that include penalties for non-compliance with reasonable instructions by the principal to minimise noise or arrange suitable scheduling.

6.8.5 Source Noise Control Strategies

Some ways of controlling noise at the source are:

- Where reasonably practical, noisy plant or processes should be replaced by less noisy alternatives.
- Modify existing equipment: Engines and exhausts are typically the dominant noise sources on mobile plant such as cranes, graders, excavators, trucks, etc. In order to minimise noise emissions, residential grade mufflers should be fitted on all mobile plant utilised on site.
- Siting of equipment: locating noisy equipment behind structures that act as barriers, or at the greatest distance from the noise-sensitive area; or orienting the equipment so that noise emissions are directed away from any sensitive areas, to achieve the maximum attenuation of noise.
- Regular and effective maintenance.

6.8.6 Miscellaneous Recommendations

Deliveries should be undertaken, where possible, during standard construction hours.

Maximise hammer penetration (and reduce blows) by using sharp hammer tips. Keep stocks of sharp profiles at site and monitor the profiles in use.

It is advised that mobile plant and trucks operating on site for a significant portion of the project are to have reversing alarm noise emissions minimised. This is to be implemented subject to recognising the need to maintain occupational safety standards without compromising the safety of construction staff and members of the public.

No public address system should be used on site (except for emergency purposes).

7 CONCLUSION

This report details the Construction Noise and Vibration Management Plan for the construction of the Ivanhoe Precinct, Macquarie Park, Ivanhoe Village Green & Community Centre project including item B37 of the SSD-15822622.

An assessment of noise and vibration impacts from the required processes to be undertaken during the construction period of the project (including ground works and construction) has been undertaken and suitable treatments, management controls, perioding measurements and community engagement has been detailed in this report.

Providing the recommendations in this report are included in the construction of the site, compliance with the projects SSD Conditions and the relevant EPA's *Interim Construction Noise Guideline* and the projects *Consent* will be achieved.

For any additional information please do not hesitate to contact the person below.

Regards



Ben White
Director

Pulse White Noise Acoustics

APPENDIX A: ACOUSTIC GLOSSARY

The following is a brief description of the acoustic terminology used in this report:

Ambient Sound	The totally encompassing sound in a given situation at a given time, usually composed of sound from all sources near and far.
Audible Range	The limits of frequency which are audible or heard as sound. The normal ear in young adults detects sound having frequencies in the region 20 Hz to 20 kHz, although it is possible for some people to detect frequencies outside these limits.
Character, acoustic	The total of the qualities making up the individuality of the noise. The pitch or shape of a sound's frequency content (spectrum) dictate a sound's character.
Decibel [dB]	The level of noise is measured objectively using a Sound Level Meter. The following are examples of the decibel readings of every day sounds; 0dB the faintest sound we can hear 30dB a quiet library or in a quiet location in the country 45dB typical office space. Ambience in the city at night 60dB Martin Place at lunch time 70dB the sound of a car passing on the street 80dB loud music played at home 90dB the sound of a truck passing on the street 100dB the sound of a rock band 115dB limit of sound permitted in industry 120dB deafening
dB(A)	*A-weighted decibels* The ear is not as effective in hearing low frequency sounds as it is hearing high frequency sounds. That is, low frequency sounds of the same dB level are not heard as loud as high frequency sounds. The sound level meter replicates the human response of the ear by using an electronic filter which is called the "A" filter. A sound level measured with this filter switched on is denoted as dB(A). Practically all noise is measured using the A filter. The sound pressure level in dB(A) gives a close indication of the subjective loudness of the noise.
Frequency	Frequency is synonymous to *pitch*. Sounds have a pitch which is peculiar to the nature of the sound generator. For example, the sound of a tiny bell has a high pitch and the sound of a bass drum has a low pitch. Frequency or pitch can be measured on a scale in units of Hertz or Hz.
Loudness	A rise of 10 dB in sound level corresponds approximately to a doubling of subjective loudness. That is, a sound of 85 dB is twice as loud as a sound of 75 dB which is twice as loud as a sound of 65 dB and so on
LMax	The maximum sound pressure level measured over a given period.
LMin	The minimum sound pressure level measured over a given period.
L1	The sound pressure level that is exceeded for 1% of the time for which the given sound is measured.
L10	The sound pressure level that is exceeded for 10% of the time for which the given sound is measured.
L90	The level of noise exceeded for 90% of the time. The bottom 10% of the sample is the L_{90} noise level expressed in units of dB(A).
Leq	The "equivalent noise level" is the summation of noise events and integrated over a selected period of time.
dB (A)	'A' Weighted overall sound pressure level
Sound Pressure Level, LP dB	A measurement obtained directly using a microphone and sound level meter. Sound pressure level varies with distance from a source and with changes to the measuring environment. Sound pressure level equals 20 times the logarithm to the base 10 of the ratio of the rms sound pressure to the reference sound pressure of 20 micro Pascals.
Sound Power Level, Lw dB	Sound power level is a measure of the sound energy emitted by a source, does not change with distance, and cannot be directly measured. Sound power level of a machine may vary depending on the actual operating load and is calculated from sound pressure level measurements with appropriate corrections for distance and/or environmental conditions. Sound power levels is equal to 10 times the logarithm to the base 10 of the ratio of the sound power of the source to the reference sound power of 1 picoWatt

NAFL	Noise Affected Level - As referred to in the EPA's *Interim Construction Noise Guideline* as the affected noise level for the trigger of construction noise mitigation requirements.
HNAL	High Noise Affected Level – As referred to in the EPA's *Interim Construction Noise Guideline.*
AV-TG	NSW EPA *Assessing Vibration Technical Guideline.*

APPENDIX B – BEN WHITE CV AND AAS MEMBERSHIP

Curriculum Vitae – Benjamin White



Employment Experience:

Director – Pule White Noise Acoustics November 2020 – Present

Director - White Noise Acoustics: March 2019 – Present

Director/Engineer - Acoustic Logic Consultancy: March 2001 – July 2018

Experience:

Ben White the Director of White Noise has over 17 years of experience in acoustic.

Ben has significant experience in providing acoustic services and expert advice in the following areas:

- Residential acoustic reports including aircraft noise (AS2021) assessments, traffic noise, train noise and vibration assessments.
- Noise emission assessments for various projects including assessments with planning requirements using EPA, Department of Planning, Council DCP's and similar regulatory requirements.
- Planning approvals including Development Applications for multi dwelling residential developments, commercial developments, hotels and boarding houses, places of entertainment, carparks, mixed use developments, shopping centres and the like.
- Expert court witness including Land and Environment Court and other expert witness work.
- Project planning and specifications for types of projects including residential, commercial, retail, hotel accommodation, warehouses and industrial developments and mixed-use projects.
- Project delivery for all types of projects including, design advice and project delivery requirements at all stages of projects during design and construction.
- Certification works including on site testing for the provision of certification of all types of projects including items required to comply with Part F5 of the BCA as well as project specific acoustic requirements.
- Mechanical design and advice for the treatments of mechanical services with project requirements.
- External façade design and specification.
- Specialised acoustic design advice including areas of projects.
- Issues with existing building include site surveys and audits as well as advice regarding rectification if required.



AUSTRALIAN ACOUSTICAL SOCIETY

This is to certify that

BENJAMIN WHITE

was admitted to the grade of

MEMBER

of the Australian Acoustical Society

on 27th October 2020

and is entitled to use the letters

M.A.A.S.

issued on 26th November 2020

S. Moore

President

General Secretary

AUSTRALIAN ACOUSTICAL SOCIETY A.C.N. 000 712 658 The Common Seal Of

This certificate remains the property of the Australian Acoustical Society

Appendix 4 – Air Quality and Odour Management Plan

Grindley Construction

Air Quality and Odour Management Plan

Ivanhoe Village Green & Community Centre - 1 Ivanhoe Place, Macquarie Park NSW 2113

Purpose:

A plan to monitor and mitigate potential air quality and odour impacts related to site operations.

Prepared for:

Grindley Construction

Document Date:

26 July 2024

Reference:

S-07641.AQOMP.001

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DOCUMENT CONTROL

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Client Name:	Grindley Constructions
EDP Reference:	S-07206.AQOMP.001
Prepared By:	Gonzalo Serna Diaz
Reviewed By:	Robert Gauthier

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GLOSSARY

Term	Definition
ACM	Asbestos Containing Materials
AS	Australian Standard
AST	Above-ground Storage Tank
Control Measures	The actions to be undertaken to achieve the stated environmental objectives, including any necessary approval, application, consultation or monitoring.
Contractors	Individuals or companies employed to carry out works or services that could potentially have an environmental impact if control measures are not implemented.
Corrective Actions	Nomination of the action being implemented if the stated objectives are not being met or maintained, including responsibility for implementation.
EMP	Environmental Management Plan
ENM	Excavated Natural Material
EPA	Environment Protection Authority
EPL	Environment Protection License
JSEA	Job Safety Environmental Analysis
Monitoring	The process of measuring actual environmental performance.
OEMP	Operational Environmental Management Plan
Receptor	Environment, property, humans, animals or anything else that could be affected by a hazard
Reporting	Description of the required reporting arrangement
SSD	State Significant Development
SWMS	Safe Work Method Statement
Vapour	Refers to a gas phase at a temperature where the same substance can also exist in the liquid or solid state
VENM	Virgin Excavated Natural Material
VOCs	Volatile organic compounds

1. AQOMP CONTEXT AND OBJECTIVES

1.1 Context

This Air Quality and Odour Management Plan (AQOMP) applies to the proposed construction operations undertaken as part of the development of the Ivanhoe Village Green & Community Centre, also known as the Midtown C2 project located at 1 Ivanhoe Place, Macquarie Park NSW 2113 ('Site').

The Midtown C2 project is part of Stage 2 of the greater Ivanhoe Estate Project. The Site is in lot C2 of the greater Ivanhoe Estate site at the former Ivanhoe Estate Social Housing precinct.

The AQOMP describes management and mitigation measures to control operations and excavation works that may hold the potential to generate fugitive impacts to air quality during construction works associated with the Midtown C2 project.

This document has been structured to meet industry-standard requirements for an AQOMP and to enable compliance with the obligations under condition B38 of the State Significant Development (SSD)

1.2 Objectives

The objectives of this AQOMP are to minimise potential impacts associated with odours and air quality (specifically as general/undefined dust), including:

- Adverse impacts of transport of soil/rock from the excavation and materials movement areas, storage, and transport of excavated soil/rock material on site;
- Should an incident occur, effective response and management procedures are achieved;
- Should an odour complaint be received, it is appropriately investigated and responded to
- Provide methods and controls to enable workers to effectively observe, identify, document and manage potential air quality impacts and appropriately control risks

The AQOMP will also include proactive and reactive management strategies, key performance indicators, monitoring measures, record keeping, response mechanisms, and contingency and compliance reporting measures.

Additionally, this AQOMP will address the obligations under condition B38 of the SSD. **Table 1** outlines all the obligations and addressing sections.

Table 1 - SSD obligations and addressing sections

Obligation	Addressing Section
(a) Staged excavation to limit the surface area of exposed odours material	6.5
(b) Application of odours suppressant	6.9
(c) Effective covering of stockpiles and truckloads of excavation spoil	6.5, 6.6
(d) Expedited removal of odours material from the development to a facility legally able to accept those wastes	6.12

2. PROPOSED DEVELOPMENT

The development proposes the following:

- Approximately 3,300m² of open green space between C1 and C3 towers;
- A community centre and social enterprise café located on the upper ground floor, with a total area of 700m²;
- A pool and gym facility on the ground floor that overlooks the park, with a total area of 1,122 m²; and

- Integration with the surrounding landscape, consisting of a community plaza, community terrace and garden, playground, central lawn and community veranda.

To achieve the scope of the proposed development, excavation, pilling, and detailed earthworks will be undertaken.

3. SITE DETAILS

3.1 Site Information

This Site is located at 1 Ivanhoe Place, Macquarie Park NSW 2113. Site location figure is included as **Appendix A**.

Table 2 - Site identification details

Address	1 Ivanhoe Place, Macquarie Park NSW 2113
Title identification	Lot 10 in DP 1262209
Local Government Area	City of Ryde
Area	Ivanhoe Estate Site 82,00 m^2
Zoning	MU1 – Mixed Use
Current land use	The site is under an eight-stage development project to provide over 3000 dwellings with a mix of market, social and affordable housing. Age care facilities, childcare centres, schools, neighbourhood parks, town plazas and the Village Green and Community Centre will be constructed.
Surrounding land uses	North – Herring Road, followed by residential buildings South – Shrimptons Creek, followed by residential buildings East – Ivanhoe Place, followed by residential dwellings West – Epping Road, followed by residential dwellings

3.2 Environmental Considerations

The potential for the construction works to encounter or generate odorous materials is a key consideration of identifying risk areas of the project. Previous investigations across the site were undertaken in accordance with the Secretary's Environmental Assessment Requirements (SEARs) Condition 11: Contamination for Stage 2 development at Ivanhoe Estate, Macquarie Park, NSW:

Consultants Environmental Earth Science NSW (2021) undertook a review of existing data and conducted additional sampling to provide a summary of potential contamination (and potentially odourous materials on site

3.2.1 Fill Material

Following the Douglas Partners (DP, 2017), DLA (DLA, 2018a) and Environmental Earth Sciences (2021a) investigations, an estimated 23,676 cubic metres (m^3) of in situ material was classified as General Solid Waste (GSW) in accordance with the Waste Guidelines, should the material be removed from the site.

A further soil assessment was conducted by Environmental Earth Sciences (2021e) in the area south and southeast of the Midtown sales office whereby an estimated 1,000 m3 of in situ material was classified as GSW in accordance with the Waste Guidelines.

3.2.2 Unconsolidated Natural Layer

Approximately 3,023 m3 (~4,837 tonnes (t)) of unconsolidated soil material was chemically and physically assessed and considered suitable for offsite beneficial reuse as virgin excavated natural material (VENM), as per the definition of VENM documented in Schedule 1 of the POEO Act. Refer to Environmental Earth Sciences (2021b, 2021d and 2021e).

3.2.3 *Bedrock Layer*

Approximately 59,576 m3 (~154,898 t) of bedrock material was subject to assessment as natural material as per the definition of VENM documented in Schedule 1 of the POEO Act. Assessment also included ascertaining the chemical and physical attributes of the material in accordance with chemical testing requirements of the Resource Recovery Order under Part 9, Clause 93 of the Protection of the Environment Operations (POEO) (Waste) Regulation 2014 - the excavated natural material order 2014 (the "ENM Order"), ENM Order.

Based upon results and findings from this assessment it was concluded that material in this layer met the definition of VENM. This was supported by results of chemical and physical attributes testing which reported concentrations of all samples within acceptable threshold criteria of the ENM Order. Refer to Environmental Earth Sciences (2021b) for further information.

The reviewed data as above provides a reasonable basis to indicate it is unlikely that odorous, anthropogenic material is expected to be encountered during construction activities, and the air quality and odour objectives in this Plan should be designed to manage risk potentially associated with generation of dust or other fugitive impacts as appropriate.

4. LEGISLATIVE OBLIGATIONS AND OTHER REQUIREMENTS

4.1 Environmental Planning and Assessment Act 1979

The air, water and noise pollution legislation administered by the DEC (Department of Environment and Conservation) complements the environmental planning control system in the Environmental Planning & Assessment Act (EP&A Act) by imposing requirements on new projects. Pollution is permitted up to certain levels under a system of work approvals and licences.

This Act enables the Minister for Planning to set Approval Conditions as well as require the assessment of environmental impacts in accordance with Schedule 3 of the Environmental Planning and Assessment Regulation 2000 before approval can be obtained for the proposal to proceed.

4.2 Protection of the Environment Operations Act 1997

This Act is the primary NSW environment protection legislation that covers air, noise, water, land and waste management. It provides a framework to regulate and enforce pollution control in NSW. The Act identifies mechanisms for preventing environmental degradation including, pollution prevention, cleaner production, reduction in discharge levels likely to cause harm to the environment, recycling and progressive environmental improvement.

Under Section 148 of the Protection of the Environment Operations Act (PoEO) Act, there is a duty to notify pollution incidents causing or threatening material harm to the appropriate regulatory authority (ARA). Harm to the environment is defined (s147) as material if it involves actual or potential harm to the health or safety of human beings that is not trivial, or it results in actual or potential loss or property damage exceeding $10,000 (includes clean-up costs). The ARA for this project is the DEC.

Part 5.4 of the PoEO Act prescribes the requirements in relation to air emissions. The occupier of any premises is guilty of an offence if plant is being operated in a way to cause air pollution if that air pollution is caused by the occupier's failure (a) to maintain the plant in an efficient condition, or (b) to operate the plant in a proper or efficient manner (s124).

A similar prohibition exists in relation to causing air pollution by failing to deal with materials in a proper and efficient manner (s126). Materials include raw materials, materials in the process of manufacture, manufactured materials, by-products or waste materials.

4.3 Guidelines

NSW EPA Approved methods for the sampling and analysis of air pollutants. This guideline outlines the methods used for sampling and analysing air pollutants in New South Wales for statutory purposes. The document covers pollutants in emissions from stationary sources, including:

- Continuous monitoring of such emissions;
- Pollutant emissions from motor vehicles;
- Components in, and properties of, petroleum products; and
- Pollutants in ambient air.

This AQOMP aims to minimise the risk of construction activities associated with the Midtown C2 Project, which could result in potential adverse air quality impacts, whereby criteria may be exceeded.

5. ROLES AND RESPONSIBILITIES

This AQOMP is designed to be managed under the responsibilities outlined below in **Table 3.** As such, the principal contractor (Grindley Construction) is responsible for the overall implementation and maintenance of the AQOMP and for ensuring that staff members and sub-contractors have been informed of the requirements of the AQOMP. The responsibilities may be delegated where appropriate (such as contractors during site preparation, development and bulk earthworks) but this must be done in writing and notified to all affected parties.

The supervisor or person-in-charge of any intrusive works that impact the site is responsible for implementing the requirements of the AQOMP during works and must ensure that all occupants of the site and contractors working on the site have been informed of the requirements of the AQOMP prior to commencement of any works.

Table 3 outlines the main parties that may be involved in implementing this AQOMP and their respective roles and responsibilities. This table does not intend to list all responsibilities under relevant legislation but is a brief clarification of the roles and responsibilities in implementing this AQOMP.

Table 3 - Roles and Responsibilities

Roles and Responsibilities
Grindley Construction / Any future Person Conducting and Business or Undertaking (PCBU):
▪ Approve the AQOMP and hold overall responsibility for the implementation and maintenance of the AQOMP; ▪ Advise persons working or operating on the site of the requirements of the AQOMP; ▪ Ensure appropriate consents and licences (as required) are obtained for the works; ▪ Provide training and induction of employees and contractors before and during the works, as appropriate; ▪ Appoint a site manager or Management Plan Controller; ▪ Incorporate this AQOMP into relevant policies and procedures, including the owner's management system and subcontractor agreements; ▪ Be responsible for promoting good environmental and WHS Management; ▪ Provide a copy of the AQOMP to the supervisor or person-in-charge of the works being undertaken; ▪ Engage a suitably qualified environmental consultant to update the AQOMP if the conditions at the site change, and, if necessary, inform other parties of the changes; ▪ Ensure contractors and personnel involved in the works comply with the requirements of the AQOMP; ▪ Ensure construction staff and contractors clearly understand the requirements of the AQOMP and ensure that compliance with the AQOMP is a condition of any agreement with these parties; ▪ Ensure the conditions of the AQOMP are implemented and supplemented, if necessary, by any conditions of development or works approvals; ▪ Ensure the site and site records are maintained in accordance with the AQOMP; ▪ Ensure all non-conformances and/or complaints are recorded and appended to this AQOMP; ▪ Monitor and act to ensure management requirements are implemented throughout the life of the workplace; and ▪ Conduct site inspections for conformance to the AQOMP under normal site use conditions.

AQOMP **Controller :**
▪ Develop protocols and procedures to ensure that the AQOMP is enforced; ▪ Approve all intrusive works via the PCBU; ▪ Ensure risk assessments of ground disturbance activities are carried out by a competent person (i.e. a suitably trained employee, qualified Environmental Consultant) on a regular basis as outlined in this AQOMP, appropriate management procedures are developed and safe work method statements; ▪ Provide inductions to all relevant site personnel as detailed in this AQOMP; ▪ Provide or delegate supervision as required to ensure that the procedures documented in this AQOMP are implemented; ▪ Establish a platform for consultation for all relevant site personnel to ensure responsibilities are understood and feedback can be provided; ▪ Ensure related records are maintained. Records such as the training records, incident reports, contractor licences, SWMS, air monitoring reports and any investigation outcomes are also to be included**;** ▪ Ensure a copy of the AQOMP is made readily accessible for all relevant personnel.
Employees and Sub-Contractors:
▪ Not placing themselves or others at risk of exposure to potential poor air quality or odours; ▪ Understanding and following the procedures outlined in this AQOMP; ▪ Follow instruction from the site manager or controllers regarding the implementation of this AQOMP; ▪ Competency in the identification of unexpected odorous or excessively dusty conditions or similar and the control measures to be adopted when undertaking works at the site; ▪ Reporting hazards, including incidents and unsafe work practices to the AQOMP Controller.
Environmental Consultant (if appointed):
▪ Assess the risk involved with any proposed works prior to commencing proposed works; ▪ Undertake routine inspections and monitoring to assess compliance with this AQOMP. Provide recommendations for updates and enhancements to the AQOMP, as required; ▪ Provide Health, Safety and Environmental advice for proposed changes to site layout, operations or site-specific activities, as required; ▪ Support AQOMP Induction Training, as required; and ▪ Develop documentation for unexpected findings and/or maintenance works.

6. ENVIRONMENTAL MANAGEMENT AND CONTROLS

6.1 Introduction

The air quality and odour management processes and controls outlined in this section have been developed with reference to condition B38 of the State Significant Development (SSD) dated 28th November 2022. Any non-conformance shall be documented and followed-up accordingly, allowing the process to be continually reviewed and potentially refined if necessary.

6.2 Housekeeping and General Requirements

The following general environmental work practices shall apply to all activities at the Site:

- On noticing or becoming aware of any environmental hazard, an employee or contractor shall remove it as soon as practicable, or if this is not possible, shall alert nearby workers to the hazard and report it immediately to the Site Manager.
- Employees and contractors, where relevant, shall take an active part in environmental monitoring meetings, training, and emergency drills.

- Keep workplaces tidy. Rubbish should be cleaned away and deposited in the appropriate bins/containers/receptacles.
- Undertake all work in a sustainable manner, seeking to minimise dust or odour generation to the extent practicable.
- Obey all signs. These signs are located and displayed to advise you of hazards in particular areas.
- If you do not know what something is, do not touch/disturb it. Report it to the Site Manager.
- No employee or contractor shall wilfully or deliberately damage the environment or alter its conditions.
- Employees and contractors shall use the designated equipment and/or wear the designated personal protective equipment required for each task.

6.3 Work Permits

The permit to work system is a formal written system used to control certain types of potentially hazardous work being conducted by contractors. It also is a way of establishing communication and understanding between the principal contractor and the personnel or sub-contractors who are going to execute the work.

Work permits should be issued in accordance with the Grindley Management System for all contractor scopes of work, potentially including:

- Handling
- Pilling;
- Excavation;
- Stockpiling; and
- Transport and disposal works.

Sub-contractors must provide a person on-site who is trained and accredited in accepting and authorising work permits. Responsibilities of the person(s) undertaking the work include the following:

- Be skilled, qualified, trained and competent to perform the work, use any personal protective equipment or equipment required.
- Satisfy themselves that they understand the requirements of the permit.
- Be aware of the hazards that could exist and have the necessary controls in place.
- Adhere to the permit to work requirements.
- Ensure the job is performed in a manner that minimises potential air quality and odour impacts.
- Make equipment and area safe on completion of the task.
- Seek immediate advice if in doubt or if circumstances or conditions change within the work area.
- At the completion of the job, returning the permit to the Issuer for closure.

6.4 Storage and Handling of Hazardous Chemicals

All hazardous chemicals will be stored in a manner to avoid risks of pollution of air and generation of unacceptable odours. All flammable and combustible liquids are stored and handled on-site in accordance with relevant standards such as AS1940-2004 *The storage and handling of flammable and combustible liquids*.

All hazardous chemicals will be stored in such a way as to avoid risks of pollution.

It is anticipated that the chemicals to be on-site may include fuels, oils, and lubricants.

The following procedures shall be implemented for storage and use of hazardous chemicals:

- Where practicable, all chemicals will be removed and safely stored off-site at the end of each workday;
- Chemicals to be stored on-site shall be in labelled sealed containers within a leak proof spill tray and covered with a tarpaulin;
- Chemicals storage area shall be within a designated bunded area;
- Clean-up must not involve the over-use of disinfectants, or the use of environmentally damaging disinfectants;

- Copies of Safety Data Sheet (SDS) for all chemicals are available on-site (site office);
- All herbicides are to be applied in accordance with the manufacturers' recommendations; and
- Disposal of any surplus hazardous substances shall be in accordance with the requirements of the material safety data sheets, environmental authorities and statutory requirements.

6.5 Excavation and Off-site Disposal

Prior to any intrusive works or other disruptive activities carried out on site, consideration must be given to how the work or activity can be undertaken with minimal dust generation. All works should be undertaken with control of dust as a priority. The dust control or avoidance measures should be documented in a SWMS, or similar, prepared for the proposed works.

Should any unexpected hazards arise, the site manager should be contacted immediately so that the risks (health or safety) can be re-evaluated and the appropriate level of management and/or protection can be implemented prior to the recommencement of any works.

The following procedures and techniques mayl aid in controlling dust generation:

- Erection of dust screens around the perimeter of the site;
- A tarpaulin (or equivalent) maybe used to securely cover all loads of soil material entering or leaving the site (if applicable);
- Water sprays may be used across the site over unsealed or bare surfaces;
- HDPE sheeting can be used by to cover excavation faces and stockpiles where necessary; and
- Materials at the site should be processed, handled, moved and stored in a proper and efficient manner in order to minimise exposure.

If the above procedures and techniques are not sufficient to control dust, then further contingency measures may include:

- Reducing the area of disturbed surfaces;
- Installation of perimeter sprays on the remediation site boundary fencing;
- Conducting work in more favourable weather conditions;
- Modifying the manner in which excavation work is conducted at the site;
- Using different equipment which generates less dust; and
- Using equipment in more favourable weather conditions.

6.6 Stockpile Management

The following recommended for soil stockpiled during the works:

- Stockpiles be established on hardstand, HDPE sheeting or geofabric on the ground surface (as required);
- Dust suppression measures will be in place;
- Stockpiles should be limited to 2 m in height where possible and should be of the lowest height practicable;
- Stockpiles may be wetted down with water, subject to considerations for stormwater and surface water management;
- Stockpiles can be covered with weighted HDPE or geofabric if likely to generate fugitive dust;
- Stockpiles can be suitably barricaded or otherwise fenced off to prevent access;
- Stockpiles of soil or other materials should be placed away from drainage lines, gutters or stormwater pits or inlets;
- Stockpiles of soil or other materials likely to generate dust or odours should be covered, if required; and
- Stockpiles should be stored in a secure area and be covered with weighted geofabric or HDPE sheeting if remaining more than 24 hours.

6.7 Wind Speed Work Stoppage

The application of a wind speed work stoppage requirement is designed to control fugitive emissions due to increased air velocity. In the event of high wind speeds, excavation work must be stopped at the site until wind speeds are reduced to a speed that shall not generate visible emissions from the site. For the purposes of this site, work must be stopped when:

- Wind speeds reach a sustained 40 km/h; or
- Any wind speed at which particulates are observed by site personnel to be entrained in the air stream.

If site-specific weather creates conditions that may result in fugitive emissions, work stoppage may occur at wind speeds less than specified above based on decisions of the site supervisor. The site supervisor shall make the decision as to when it is appropriate to restart.

6.8 Unexpected Finds (Asbestos)

In the event that suspected asbestos is encountered during excavation works, and to promote healthy air quality for all the site occupants, the Unexpected Finds Protocol should be followed.

6.9 Odour Generation

Odour should be controlled so that no unacceptable odours are detected at the boundaries of the site during development works. The following procedures may be employed to comply with this requirement such as:

- Use of appropriate covering techniques;
- Use of plastic sheeting to cover excavation faces or stockpiles;
- Use of fine mist sprays;
- Use of a mitigating agent on the impacted areas/materials; and
- Adequate maintenance of equipment and machinery to minimise exhaust emissions.

6.10 Refuelling and Maintenance

Hydrocarbon can generate strong and unpleasant odours The following control measures shall be implemented to manage potential fuel spill risk associated with refuelling and maintenance:

- Only undertaken on hardstand or designed refuelling areas;
- Only to be undertaken by those skilled and trained;
- Refuelling to be undertaken in accordance with documented procedure and manufacturers recommendations;
- Documented procedures shall be kept on-site and be updated if required;
- On-site maintenance to be limited to the extent practicable;
- Spill kits to be present and available during any refuelling or maintenance activities; and
- Immediate clean-up of any incidents, with appropriate reporting.

6.11 On-Site Vehicles and Plant

Dust and exhaust emissions at the Site from on-site vehicles and plants could represent a risk to air quality and odour objectives if not appropriately managed. The following general measures should be implemented as part of routine site activities:

- Ensure that all vehicles, plant and equipment are maintained in good working condition and operated in accordance with manufacturer's recommendations;
- Motorised equipment should be turned off when not in use;
- Ensure that trucks are loaded in accordance with weight restrictions and other relevant compliance requirements;
- Scheduling, to spread traffic volumes throughout the day where possible; and

- Support and promote policy initiatives and technologies to improve fuel efficiency and reduce emissions, provided they are feasible and commercially viable.

6.12 Waste Management

To help minimise odours, routine waste generated at the Site should be managed in accordance with the following principles:

- Dedicated waste receptacles with adequate volume should be provided in various locations across the Site, to ensure waste is appropriately contained prior to off-site disposal;
- Waste bins should be emptied regularly to avoid overflowing;
- Waste minimisation should be be undertaken according to the hierarchy of avoidance, reuse, recycle and disposal. Where possible, recyclable waste should be segregated and sent to appropriate facilities for recycling;
- All waste should be disposed off-site to licenced receivers; and
- Sewerage infrastructure should also be maintained in proper and efficient condition to ensure system integrity and minimise overflows.

7. INDUCTION AND TRAINING

All staff and contractors should be made aware of the AQOMP, its general contents and the following responsibilities as part of standard onboarding and induction protocols:

- Housekeeping and general requirements (Section 6.2);
- Responsibility to ensure Site activities do not cause contamination or pollution, or result in a breach of the environmental legislation;
- Incident reporting requirements;
- Emergency response;
- Record keeping requirements; and
- Complaints procedures.

Contractors shall also be advised of their responsibility to identify potential hazards and appropriate controls for each task, as part of their Safe Work Method Statement preparation.

Specific staff and contractor training is also required for any personnel involved with:

- Excavation, trenching or pilling work;
- Refuelling and maintenance; and
- Chemical storage and handling.

Training and induction records shall be kept on Site and accessible for inspection, if required.

7.1.1 Spills

Spill kits should be readily available across the Site.

If spilling occurs during daily activities, the area should be isolated, and clean-up should occur as soon as possible. Any spilled material will either be treated onsite or disposed to an appropriate NSW EPA approved waste management facility.

NSW Fire and Rescue via its Hazmat Response Unit is the lead combat agency for any spill emergency which cannot be readily contained and managed.

7.2 Complaints and Environmental Incident Register

The receipt of complaints will be handled and responded to according to Grindley Construction policy. The telephone number of the site manager will be displayed on the front gate signage along with the other signage. This person will be the primary contact for complaints.

The purpose of the Complaints and Environmental Incident Register is to maintain a register of complaints from local residents or concerned parties, which will include a record of any action taken with respect to the complaints.

The Complaints and Environmental Incident Register is required to be completed immediately following the receipt of any complaints associated with works undertaken at the Site. Written complaints should be addressed or acknowledged within five days of the complaint being received. Complaints made by telephone or in person should be addressed or acknowledged within two days of receipt..

8. SITE MONITORING AND AQOMP REVIEW

The AQOMP is to be a dynamic document that is revised where necessary to reflect any changes to the site that may result in a change to the exposure risk factors and associated controls. As soon as reasonably practicable, after such a change is identified, the AQOMP shall be revised by a suitably experienced and qualified Environmental Consultant as nominated by the PCBU of the Site. Whenever the AQOMP is amended, all site personnel including contractors shall be inducted to the revisions of the AQOMP and any associated revisions relating to their responsibilities. The AQOMP shall be maintained by the PCBU of the site.

8.1 Site Inspections

In order to monitor the effectiveness of any existing controls protecting against potential poor air quality and odour generation, it is essential that regular inspections are conducted by a suitably trained person appointed by the PCBU. Visual inspections of the Site shall be carried out to ensure that the Site is in good condition and all recommended controls are in place. Examples of when routine inspections should be carried out include:

- Whenever an incident or complaint has been reported; and
- Prior to and following any works that involve new methodology or machinery.

A site inspection checklist shall be completed by suitably trained person appointed by the PCBU during the Site inspections and records kept within this AQOMP. Photographs from each inspection should be kept on record as part of the checklist. Detailed photos should be taken where issues are identified at the Site, such as exposed asbestos, metals or material being uncovered across the exposed ground surface, shall be documented, and recorded to help establish whether further management measures are required.

8.1.1 Daily and Weekly Inspection

Daily and weekly inspections of control measures should be undertaken by Grindley Construction and confirmed to adhere to the requirements of this AQOMP. Daily inspection should typically be undertaken at the beginning and end of the workday to ensure that systems and controls/measures are in place overnight.

Items to be inspected include but are not limited to:

- Site fencing (internal and boundary);
- Stockpiles;
- Open excavations;
- Air Quality controls;
- Waste management; and
- Dust suppression measures.

During completion of the works, where damage to or reduced capacity of, control measures is observed or reported, they should be corrected as soon as is reasonably practicable.

8.1.2 Monitoring

During any planned construction works, monitoring will be conducted to ensure compliance with legislation, as well as the objectives and targets stipulated in this AQOMP.

All regular monitoring activities should be recorded. The frequency and specific monitoring criteria will be assessed periodically throughout the works to ensure that they are consistent with the current level of risk to the environment and human health.

8.1.3 Non-Conformances and Corrective Action

In the event that a non-conformance is identified through the routine inspection, Grindley Construction shall take appropriate action to ensure it is corrected appropriately and as soon as practicable, with reference to the ISO14001 recommended procedure for corrective actions.

Any action to rectify a non-conformance will be recorded and documented.

Follow-up action may result in a requirement for additional monitoring or investigation, and these details will be further assessed.

8.2 Records

Reports are to be prepared by the Project Manager for the works and appended to this AQOMP.

Table 1 - Reporting Requirements

Report	Frequency
Daily inspection walkover registers	Daily (recorded as register)
Site inspection checklist	Weekly
Review of identified corrective actions	Weekly
Complaints management	If required

Examples of reports/records (not exhaustive) which may be required during construction works include:

- Unexpected finds protocol;
- Inspection reports undertaken by suitably qualified personnel;
- Licenses, permits, consents or conditions of approval (as relevant);
- Training and induction records;
- Environmental audits;
- Environmental event/incident and investigation reports;
- MSDS and chemical register training and induction registers;
- Environmental monitoring data and reports; and
- Environmental complaints records.

9. AQOMP REVISION

The effectiveness of this AQOMP will require review by responsible parties at the following intervals:

- Prior to the commencement of works;
- During the course of the proposed works;
- Any changes of scope of work or significant Site changes; and
- Following any incident or unexpected find throughout the works period.

In the event the review identifies amendments to the AQOMP are required (likely due to a change of scope of work, site condition or relevant legislation), the adopted control measures will be assessed and revised accordingly. Any necessary control measures will be implemented following agreement between all involves parties. Any controls identified by Grindley Construction during planned works should be incorporated into the AQOMP.

This AQOMP is required to be reviewed following identification of any change in the understood nature of the project or any significant change in the scope of works. It is the responsibility of the AQOMP Controller to ensure the AQOMP supplied to any person is the current updated or amended version.

STATEMENT OF LIMITATIONS

This document has been prepared in response to specific instructions from the client to whom the report has been addressed. The work has been undertaken with the usual care and thoroughness of the consulting profession. The work is based on generally accepted standards, practices of the time the work was undertaken. No other warranty, expressed or implied, is made as to the professional advice included in this report.

The report has been prepared for the use by the client and the use of this report by other parties may lead to misinterpretation of the issues contained in this report. To avoid misuse of this report, EDP advise that the report should only be relied upon by the client and those parties expressly referred to in the introduction of the report. The report should not be separated or reproduced in part and EDP should be retained to assist other professionals who may be affected by the issues addressed in this report to ensure the report is not misused in any way.

Reliance on Information Provided by Others

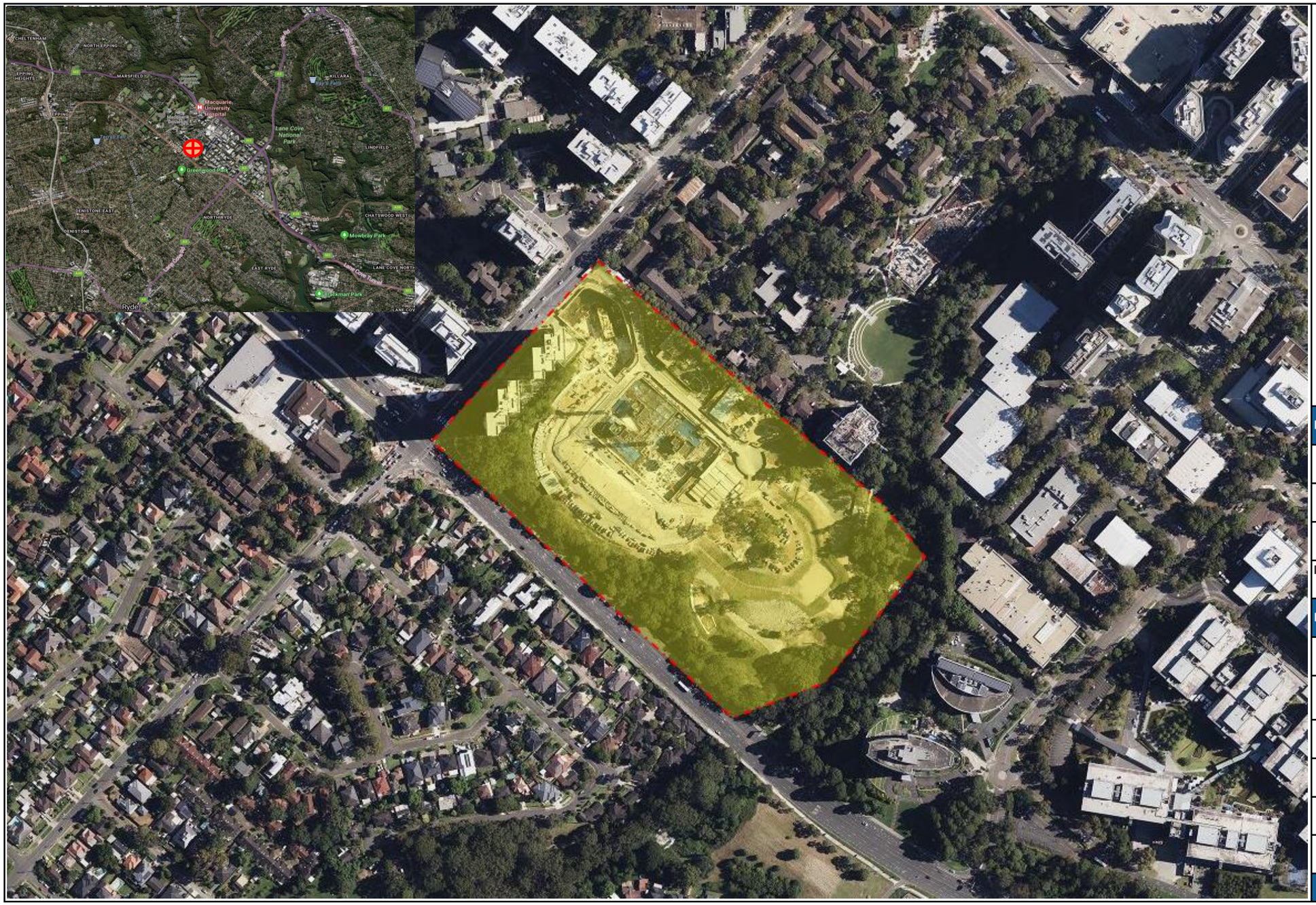
EDP notes that where information has been provided by other parties in order for the works to be undertaken, EDP cannot guarantee the accuracy or completeness of this information the client therefore waives any claim against the company and agrees to indemnify EDP for any loss, claim or liability arising from inaccuracies or omissions in information provided to EDP by third parties. No indications were found during our investigations that information contained in this report, as provided to EDP, is false.

Recommendations for Further Study

The industry recognised methods used in undertaking the works may dictate a staged approach to specific investigations. The findings therefore of this report may represent preliminary findings in accordance with these industry recognised methodologies. In accordance with these methodologies, recommendations contained in this report may include a need for further investigation or analytical analysis. The decision to accept these recommendations and incur additional costs in doing so will be at the sole discretion of the client and EDP recognises that that the client will consider their specific needs and the business risks involved. EDP does not accept any liability for losses incurred as a result of the client not accepting the recommendations made within this report.

APPENDIX A: FIGURES

FIGURE A2: SITE LOCATION



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Ivanhoe Village Green & Community Centre - 1 Ivanhoe Place, Macquarie Park NSW 2113

SITE LOCATION

LEGEND:	
	Approximate greater Ivanhoe Estate site boundary
	Approximate site location

Image from: Nearmap, 28 June 2023

DETAILS:	
Report Name:	Air Quality and Odour Management Plan
Client Name:	Grindley Construction
EDP Reference:	S-07641.AQOMP.001
Figure Number:	1
Figure Name:	Site Location
Assessment Date:	Friday, 26 July 2024

FIGURE A2: SITE LOCATION



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an RSK company

13 Bumborah Road, Port Botany NSW 2036

SITE DETAILS

LEGEND:	
	Midtown C2 project location

Image from: Nearmap, 30 May 2023

DETAILS:	
Report Name:	Air Quality and Odour Management Plan
Client Name:	Grindley Construction
EDP Reference:	S-07641.AQOMP.001
Figure Number:	2
Figure Name:	Site Features
Assessment Date:	Friday, 26 July 2024



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Appendix 5 - Construction Wase Management Sub-Plan

Consulting.™
an Elephants Foot Company

Ivanhoe Estate Midtown, Macquarie Park

Mixed Use Development

CONSTRUCTION WASTE MANAGEMENT PLAN

28/06/2024
Revision C

Client

Grindley Construction Pty Ltd.

Architect

CHROFI

ELEPHANTS FOOT

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SCOPE

A Waste Management Plan (WMP) is to be submitted with all development applications for new and change-of-use developments that will generate construction waste.

This WMP applies only to the **construction** phase of the proposed development. The requirements outlined in this WMP must be implemented on site during construction and may be subject to review upon any change to the design. Construction waste management requirements will also be subject to review as part of the Construction Management Plan.

There are no **demolition** works proposed as part of this development application.

The waste management for the **operational** phase of the development is not addressed in this report, and can be provided separately.

REVISION REFERENCE

Revision	Date	Prepared by	Reviewed by	Description
A	27-06-2024	T. McPherson	J. Parker	Draft
B	27-06-2024	T. McPherson	J. Parker	Amendment
C	28-06-2024	T. McPherson	J. Parker	Final

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1 ACKNOWLEDGEMENT OF COUNTRY

Elephants Foot Consulting acknowledges that every project we work on takes place on First Peoples Land. We recognise Aboriginal and Torres Strait Islander People as Traditional Custodians of this land. We pay respect to ancestors and Elders, past and present.

2 INTRODUCTION

2.1 Background

EFC has been tasked to prepare the following waste management plan for Grindley Construction Pty Ltd. for the management of construction waste generated by the mixed use development located at Ivanhoe Estate Midtown, Macquarie Park NSW.

Waste management strategies and auditing are a requirement on construction sites to promote strong sustainability outcomes. It is EFC's belief that a successful waste management strategy contains three key objectives:

i. ***Promote responsible source separation*** to reduce the amount of waste that goes to landfill, by implementing convenient and efficient waste management systems.

ii. ***Ensure adequate waste provisions and robust procedures*** that will cater for potential changes during the operational phase of the development.

iii. ***Comply*** with all relevant Australian Standards, council codes, policies, and guidelines.

2.2 Site Summary

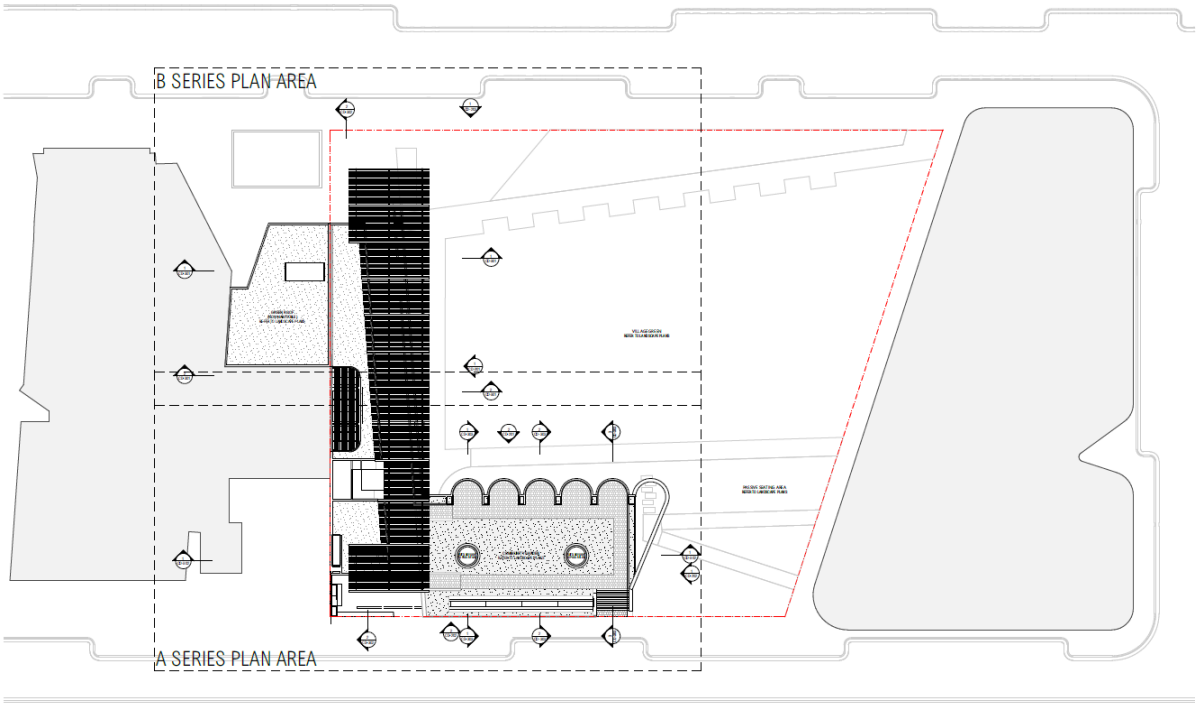
The proposed development falls under the LGA of Ryde City Council. The proposed site (Building C2/Village Green & Community Centre) is located within Frasers Property, Australia's Ivanhoe Estate (Midtown) Development, located in Macquarie Park near the corner of Epping Road and Herring Road. Building C2 is located centrally within the Ivanhoe Estate, and will be situated between Buildings C1 and C3 (per below). The proposed C2 building which forms the basis of this document includes a community centre, local café, gym and pool facilities, and a local village green park area.

All figures and calculations are based on area schedules as advised by our client and shown on architectural drawings.

2.3 Site Location

The site is located at Ivanhoe Estate Midtown, Macquarie Park NSW, as shown below.

Figure 1: Site Plan



Source: CHROFI, Drawing no. A-CD-002, Rev N: Site Plan.

2.4 Legislation and Guidance

Information provided in this WMP comes from a wide range of construction waste management guidance at the local, state, and federal levels. The primary sources of guidance include:

- Ryde Development Control Plan 2014
- Australian Government, Department of Sustainability, Environment, Water, Population and Communities. *Construction and Demolition Waste Guide – Recycling and Re-use Across the Supply Chain*. (2014, November).
- NSW Waste Avoidance and Resource Recovery (WARR) Strategy 2014-2021
- NSW Waste Classification Guidelines 2014
- Australia's National Waste Policy 2018

2.5 Waste Diversion Targets

To quantify and measure this sustainable approach to waste management, the NSW WARR Strategy 2014-2021 and green star guidelines outlines specific targets in order to clarify the state's long-term goals and priorities. These targets were supported by industry, community, state, and local governments during the Strategy's consultation phase, and include:

- Increasing construction and demolition recycling rates to 90%
- Increasing waste diverted from landfill to 90%
- Reducing litter by 40%
- Reduce illegal dumping incidents by 30%

2.6 Frasers Property Targets

The below points are representative of Frasers Property targets for the construction phases of the development:

- Materials and waste (**targets** under PDA with LAHC)
- 15-20% Supplementary Cementous Materials (SCM) average in concrete mixes across the site;
- 20% recycled asphalt pavement (RAP) warm-mix asphalt;
- ASI sustainable steel;
- Recycled concrete in place of crushed rock where available;
- Best environmental practice PVC;
- FSC certified timber across the site
- Embodied carbon reduction, and'
- Maximum 1% construction waste to landfill.

Note: the above are targets. The Contractor shall use best endeavours to achieve all above targets in construction with the WUC.

2.7 Report Objectives

Throughout this report, EFC aims to encourage where practical, having regard to the design, the nature of the material to be demolished and the site constraints, the following waste management practices for the duration of the construction stages of the development:

- Re-use of excavated material on-site and disposal of any excess to an approved site;
- Green waste mulched and re-used on-site as appropriate, or recycled off-site;
- Bricks, tiles and concrete re-used on-site as appropriate, or recycled off-site;
- Plasterboard waste returned to supplier for recycling;
- Framing timber re-used on site or recycled off-site;
- Windows, doors and joinery recycled off-site;
- All asbestos, hazardous and/or intractable wastes are to be disposed of in accordance with WorkCover Authority and EPA requirements;
- Plumbing, fittings and metal elements recycled off site;
- Ordering accurate quantities of materials and prefabrication of materials where possible;
- Re-use of formwork;
- Careful source separation of off-cuts to facilitate re-use, resale or recycling.

2.8 Limitations

This report has been prepared by EFC for the sole purpose of providing a Construction Waste Management Plan (CWMP) to support a development application. The report is provided with the following limitations:

- This report is for the sole use of Grindley Constructions Pty Ltd. (including their officers, employees and advisers) and should not be used or relied upon by any other party without prior written consent from EFC;
- Drawings, estimates and information contained in this report have been prepared by analysing information, plans and documents supplied by the client, or nominated third parties. Any assumptions based on the information contained in the report are outside the control of EFC;
- The calculations presented in the report are estimates only. The amount of waste generated will be dependent on the approach taken by site management, including the levels of training and education offered to site staff and the actions and attitudes of staff themselves.
- The site manager will make adjustments as required based on actual waste volumes (e.g. if waste volumes are greater than estimated, then waste storage capacity and collection frequencies will increase accordingly) and increase the amount of waste storage and collection frequency accordingly;
- The report has been prepared with all due care and attention; however, no assurance or representation is made that the WMP reflects the actual outcome. EFC will not be liable to for any plans or outcomes that are not suitable for purpose, whether as a result of incorrect or unsuitable information or otherwise;
- EFC offer no warranty or representation of accuracy or reliability of the WMP unless specifically stated;
- Examples of equipment provided in this report should be reviewed by the appropriate equipment supplier who will assess the correct equipment for supply. Reference to any other business or product besides EFC and EFC equipment is for information purposes only, and is not officially endorsed or recommended by EFC.

3 GENERAL WASTE MANAGEMENT PROVISIONS

3.1 Stakeholder Roles and Responsibilities

All stakeholders have a responsibility for their own environmental performance and compliance with all legislation.

The Construction Contractor will be responsible for implementing this WMP, although site staff have a responsibility to ensure their own compliance at all times. Where possible, an Environmental Management Representative (EMR) should also be appointed for the project to help ensure compliance. The following table demonstrates the primary roles and responsibilities of the respective stakeholders:

Table 1: Stakeholder Roles and Responsibilities

Roles	Responsibilities
Site Management	• Organise waste collections as required; • Organise replacement or maintenance requirements for bins; • Investigate and ensure prompt clean-up of illegally dumped waste materials; • Notify the Principal Certifying Authority (Council) of the appointment of waste removal, transport or disposal contractors for waste tracking purposes; • Ensure waste related equipment is well maintained; • Ensue accurate calculations so only the required amount of materials are ordered; • Ensure segregation of materials to maximise reuse and recycling; • Check waste sorting and storage areas routinely for cleanliness, hygiene, contamination and OH&S issues; • Ensure all monitoring and audit results are well documented and are carried out as specified in the WMP; • Ensure effective signage, communication and education is provided to site staff/contractors; • Provide staff/contractors with equipment manuals, training, health and safety procedures, risk assessments, and PPE to control hazards associated with all waste management activities; • Assess any manual handling risks and prepare a manual handling control plan for waste and bin transfers;
Site Staff/Contractors	• Ensure adequate separation and disposal of waste streams in compliance with the WMP; • Abide by all relevant OH&S legislation, regulations, and guidelines; • Attend training and inductions as required; • Clean and transport bins as required; • Carry out daily visual inspections of waste storage areas; • Organise, maintain and clean the waste storage areas;
Environmental Management Representative (EMR)	• Approach and establish the local commercial reuse of materials where reuse on-site is not practical; • Establish separate skips and recycling bins for effective waste segregation and recycling purposes; • Ensure staff and contractors are aware of site requirements; • Provision of training of the requirements of the WMP and specific waste management strategies adopted for the development; • Contaminated waste management and approval of off-site waste transport, disposal locations and check licensing requirements; • Arrange assessment of suspicious potentially contaminated materials, hazardous materials and liquid waste; • Monitor, inspect and report requirements.
Waste Collection Contractors	• Provide a reliable and appropriate waste collection service; • Provide feedback to site management regarding contamination of waste streams; • Work with site management to customise waste systems where possible.

3.2 Monitoring and Reporting

It is recommended that the following measures be taken to improve construction waste management in future and to provide more reliable waste generation figures:

- Compare projected waste quantities with actual waste quantities produced.
- Conduct waste audits of current projects (where feasible).
- Note waste generated and disposal methods.
- Look at past waste disposal receipts.
- Record this information to help in waste estimations for future waste management plans.

Records of waste volumes recycled, reused or contractor removed are to be maintained. Additionally, dockets/receipts verifying recycling/disposal in accordance with the WMP must be kept and presented to Council or the EPA if and when required.

Daily visual inspections of waste storage areas will be undertaken by site personnel and inspection checklists/logs recorded for reporting to the Site Manager on a weekly basis or as required. These inspections will be used to identify and rectify any resource and waste management issues.

Waste audits are to be carried out by the Building Contractor to gauge the effectiveness and efficiency of waste segregation procedures and recycling/reuse initiatives. Where audits show that the above procedures are not carried out effectively, additional staff training should be undertaken and signage re-examined.

All environmental incidents are to be dealt with promptly to minimise potential impacts. An incident register must be maintained on-site at all times and should include the contact details of the 24-hour EPA Pollution line. Likely incidents to occur during the construction stage of the development may involve fuel or chemical spills, seepage or mishandling of hazardous waste, or unlicensed discharge of pollutants to environment.

3.3 Opportunities for Reuse and Recycling

There are many opportunities to reduce the volume of waste generated during construction. Adaptive reuse of building materials should be encouraged, with significant consideration given to methods of reusing or recycling materials onsite as well as sourcing used or recycled materials from elsewhere to be used on site.

The site should facilitate where practical reuse and recycling by 'deconstruction', whereby various materials are carefully dismantled and sorted. Any unwanted reusable materials can be taken to a second-hand building centre, reducing waste disposal costs.

Materials that are individually wrapped should also be avoided where possible, with preference given for materials that can be delivered in returnable packaging such as timber pallets.

The table below gives examples of potential reuse and recycling options for the materials likely to be used/generated in construction at this development:

Table 2: Potential Reuse/Recycling Options for Construction Materials

Material	Reuse/Recycling Potential
Asphalt	Hot in-place recycling or reprocessed into Reclaimed Asphalt Pavement (RAP).
Bricks	Cleaned and/or rendered for reuse, crushed for fill, sold or provided to a recycled materials yard
Cardboard Packaging	Recycled at a paper/cardboard recycling facility
Carpet	Cleaned and reused for the same purpose, reused in landscaping or garages/sheds, recycled at an appropriate processing facility
Concrete, Masonry, Spoil	Reused on-site as fill, levelling or crushed for road base
Doors, Windows, Fittings	Reused in new or existing buildings or sent to second-hand supplier
Glass	Recycled at a glass recycling facility, aggregate for concrete production, crushed for termite barrier, reused as glazing
Green Waste (Organics)	Mulched, composted for reuse, trees chipped for use in landscaping or removed carefully and reused onsite or sold
Hardwood Beams	Reused as floorboards, fencing, furniture or sent to second-hand timber supplier
Insulation Material	Reprocessed to remove impurities and reused for the same purpose or as off-cuts, compressed for ceiling tile manufacture
Metal, Steel/Copper Pipe	Recycled at a metal recycling facility, melted into secondary materials for structural steel, roofing, piping etc. copper sold for re-use
Other Timber	Reused in formwork, ground into mulch for garden or sent to second-hand timber supplier
Plasterboard	Crushed for reuse in manufacture of new plasterboard, returned to supplier or used in landscaping
Plastics	Reused as secondary materials for playgrounds, park benches etc.
Roof Tiles	Cleaned and reused, crushed for reuse for landscaping and driveways or sold or provided to a recycled materials yard
Soil	Stockpiled onsite for reuse as fill
Synthetic & Recycled Rubber	Reused for the same purpose or reprocessed for use in manufacture/construction of safety barriers, speed humps
Topsoil	Stockpiled onsite for reuse in landscaped areas

3.4 Management of Hazardous Waste Materials

For the purpose of this report, hazardous waste materials include any waste that poses a hazard or potential harm to human health or the environment, particularly asbestos waste and asbestos containing material (ACM). The general advice provided in this report is superseded by any specific hazardous materials or remediation control plans prepared for the project.

During the construction phase of the development, there must be a commitment to engage qualified and certified contractors to remove all contaminated/hazardous materials (e.g. asbestos) and dispose of all contaminated/hazardous waste at an appropriately licenced facility, where applicable.

In the event that any contaminated or hazardous materials are unexpectedly uncovered during excavation works, the Site Manager is to stop work immediately in that location and contact the relevant hazardous waste contractor prior to further works being undertaken in the area.

The following general mitigation measures will apply:

- Contaminated material stockpiled on site will be minimised as far as possible and should be stored on HDPE liner, in a bunded location which is protected from inclement weather;
- Sediment fences should be installed around the base of stockpiles and the stockpiles should be covered. Where excavated material requires validations, samples should be taken for NATA laboratory testing as per the requirements of the contamination assessment prior to restoration works, backfilling exercises and disposal;
- Any trucks carrying contaminated materials should be securely and completely covered immediately after loading the materials (to prevent windblown emissions and spillage) and must be licensed by the NSW Environmental Protection Authority (EPA);
- Decontamination of all equipment prior to demobilisation from the site is important so that contaminated materials are not spread off-site.

3.5 Management of Excavation Waste

For the purpose of this report, excavation waste consists of any unwanted material generated from excavation activities such as a reduced level dig, site preparation and levelling and the excavation of foundations, basements, tunnels and service trenches. This will typically consist of soil and rock. The general advice provided in this report is superseded by any specific hazardous materials or remediation control plans prepared for the project.

All excavated material generated on this site may be re-used in the landscaping or used on other sites as fill material, provided no contamination is present. If sandstone is found to be present, this may be sold or incorporated into the building design.

The following measures and safeguards will apply to the development for excavated material:

- Wherever practical, excavation material will be reused as part of the development;
- Excavation material that is not natural (virgin) material will be transported to an approved landfill site or off-site recycling depot;
- A waste classification assessment of the fill material should be undertaken prior to it being acceptable for waste disposal purposes;
- Transportation routes for excavation material removed from site will be identified and used.

Table 3: Excavation Volumes

Material	Volume (m3)	*Tonnes (t)	**Appx. Percentage Recovered
Excavation Material	14,000	14,000	99.8%
Green waste	N/A	N/A	80%
Bricks	N/A	N/A	100%
Tiles	N/A	N/A	100%
Concrete	N/A	N/A	100%
Timber	N/A	N/A	33%
Plasterboard	N/A	N/A	50%
Metals	N/A	N/A	100%
Asbestos	N/A	N/A	0%
Other waste	N/A	N/A	50%
Totals	**14,000**	**14,000**	

**The conversion of materials from volume to tonnes is based on the information provided in a consultation paper published by WA Department of Water and Environmental Regulation <https://www.der.wa.gov.au/images/documents/our-work/consultation/current-consultation/Consultation%20Sheet%20-Approved%20method%20for%20recyclers.pdf>*

***The percentage of excavation waste is estimated by BINGO, and is based on the average quantities of materials received and recovered at their facilities.*

The table below illustrates how excavation will be managed, and estimates percentage of materials diverted from landfill.

Table 4: Excavation Management

			How Waste will be Managed			
Type of Material	**Less than 10m³**	**Estimated Tonnage**	**Reuse On-Site**	**Recycle**	**Landfill**	**Estimated Tonnage of Material Diverted from Landfill**
Excavation Material	☐	14,000	☒	☒	☒	13965.0
	Total	**14,000**		**Total**		**99.8%**
Total Diversion of Waste from Landfill (Minimum 90%)						

3.6 CONSTRUCTION WASTE VOLUMES AND MANAGEMENT

Waste generated during the construction stage of the development will be managed by the principal contractor and sub-contractors, with materials being reused and recycled wherever possible. Where neither reuse nor recycling are possible, waste will be disposed of as general waste at a licensed landfill site.

Recyclable material generated during construction will largely consist of off-cuts and discarded bricks, timber, steel, concrete, tiles, plasterboard, and piping, as well as packaging materials.

It is important to note that source separation of waste on-site may offer cost savings when compared to the disposal of mixed waste at landfill sites. Further cost savings may be achieved through the use of reusable and recycled-content materials and by reusing materials salvaged.

The table below illustrates the anticipated volumes of materials generated at this development during the construction stage. Volumes have been advised by our client.

Table 5: Construction Waste Conversion

Material	Volume (m3)	*Tonnes (t)	**Approx. Percentage Recovered
Excavation Material	N/A	N/A	99.8%
Green waste	N/A	N/A	80%
Bricks	N/A	N/A	100%
Tiles	0.74	0.7	100%
Concrete	143.64	215.5	100%
Timber	55.25	10.5	33%
Plasterboard	8.64	1.7	50%
Metals	89.85	44.9	100%
Other waste	N/A	N/A	50%
Totals	**298.1**	**273.3**	

**The conversion of materials from volume to tonnes is based on the information provided in a consultation paper published by WA Department of Water and Environmental Regulation <https://www.der.wa.gov.au/images/documents/our-work/consultation/current-consultation/Consultation%20Sheet%20-Approved%20method%20for%20recyclers.pdf>*

***The percentage of recycled waste is estimated by BINGO, and is based on the average quantities of materials received and recovered at their facilities.*

The table below illustrates how the construction materials will be managed, and estimates percentage of materials diverted from landfill.

Table 6: Construction Waste Management

			How Waste will be Managed			
Type of Material	**Less than 10m³**	**Estimated Tonnage**	**Reuse On-Site**	**Recycle**	**Landfill**	**Estimated Tonnage of Material Diverted from Landfill**
Tiles	☒	0.7	☒	☒	☐	0.7
Concrete	☐	215.5	☒	☒	☐	215.5
Timber	☐	10.5	☒	☒	☒	3.5
Plasterboard	☒	1.7	☒	☒	☒	0.9
Metals	☐	44.9	☒	☒	☐	44.9
Total		**273.3**	**Total**			**265.4**
Total Diversion of Waste from Landfill (Minimum 90%)						**97.1%**

3.7 Recycling Directory

Construction materials removed from site will need to be managed in accordance with the provisions of current legislation and may include segregation by material type classification in accordance with NSW EPA (2014) *Waste Classification Guidelines, Part 1: Classifying Waste* and disposal at facilities appropriately licensed to receive the particular materials.

Please find the below recommendations for recycling drop off locations for all materials likely to be generated at this development. Only the nearest locations are provided. See www.businessrecycling.com.au for additional locations:

Table 7: Recycling Directory

	Business Name	Suburb	Distance (km)
Excavation Material	Cleanaway Ryde Resource Recovery Centre	North Ryde	1.4
	Bingo Recycling Centre	Artarmon	4.6
	Bingo Recycling Centre	Auburn	10.6
Green waste	Bingo Recycling Centre	Artarmon	4.6
	Sydney Transwaste Industries	Homebush West	10.1
	Bingo Recycling Centre	Auburn	10.6
Bricks	Cleanaway Ryde Resource Recovery Centre	North Ryde	1.4
	Bingo Recycling Centre	Artarmon	4.6
	Concrete Recyclers (Group) Pty Ltd	Camelia	8.8
Tiles	Cleanaway Ryde Resource Recovery Centre	North Ryde	1.4
	Bingo Recycling Centre	Artarmon	4.6
	Concrete Recyclers (Group) Pty Ltd	Camelia	8.8
Concrete	Cleanaway Ryde Resource Recovery Centre	North Ryde	1.4
	Concrete Recyclers (Group) Pty Ltd	Camelia	8.8
	Sydney Transwaste Industries	Homebush West	10.1
Timber	Cleanaway Ryde Resource Recovery Centre	North Ryde	1.4
	Bingo Recycling Centre	Artarmon	4.6
	Ironwood Australia	Rozelle	8.6
Plasterboard	Bingo Recycling Centre	Artarmon	4.6
	Bingo Recycling Centre	Auburn	10.6
	AE Biggs	Oxford Falls	12.8
Metals	Cleanaway Ryde Resource Recovery Centre	North Ryde	1.4
	Bingo Recycling Centre	Artarmon	4.6
	SMS Municipal Services	Brookvale	4.9

3.8 Site-Specific Operational Measures

Training/Site Inductions

All staff employed during the construction stage of the development must undertake site-specific induction training regarding the procedures for waste management. Employees of the head contractor will undertake a specific induction outlining their duties and how they are to enforce the waste management procedures.

Induction training will include the following at a minimum:

- Legal obligations;
- Emergency response procedures on site;
- Waste storage locations and separation of waste;
- Litter management in transit and on site;
- The implications of poor waste management practices;
- Correct use of general-purpose spill kits;
- Responsibility and reporting (including identification of personnel responsible for waste management and individual responsibilities).

Materials Selection and Ordering

- Selection of all materials will be undertaken by architectural designers;
- Prefabrication of materials off-site where possible;
- Materials requirements are to be accurately calculated to minimise waste from over-ordering;
- Materials ordering process is to aim at minimisation of materials packaging;
- Material Safety Data Sheets (MSDS) are to accompany all materials delivered to site, where required, to ensure that safe handling and storage procedures are implemented.

Waste Avoidance Opportunities

- Limiting unnecessary excavation;
- Selection of construction materials taking into consideration to their long lifespan and potential for reuse;
- Ordering materials to size and ordering pre-cut and prefabricated materials;
- Reuse of formwork;
- Planned work staging;
- Use of naturally ventilating buildings to reduce ductwork;
- Reducing packaging waste on-site by returning packaging to suppliers where possible, purchasing in bulk and requesting cardboard or metal drums rather than plastics;
- Requesting metal straps rather than shrink wrap and using returnable packaging such as pallets and reels;
- Reduction of PVC use;
- Use of low VOC (volatile organic compounds) paints, floor coverings and adhesives;
- Use of fittings and furnishings that have been recycled or incorporate recycled materials;
- Use of building materials, fittings and furnishings with consideration to their longevity, adaptation, disassembly, reuse and recycling potential.

Site Procedures

- Excavated materials will be used onsite where practical;
- Green waste will be mulched and reused in landscaping either onsite or offsite;
- Concrete, tiles and bricks will be reused or recycled offsite;
- Steel will be recycled offsite; all other metals will be recycled where economically viable;
- Framing timber will be reused on-site or recycled off-site;
- Windows, doors and joinery will be recycled off-site where possible;
- Plumbing, fittings and joinery will be recycled off-site where possible;
- Plasterboard will be re-used in landscaping on-site or returned to the supplier for recycling where possible;
- All used crates will be stored for reuse unless damaged;
- All glass that can be economically recycling will be;
- All solid waste timber, brick, concrete, rock, plasterboard and other materials that cannot be reused or recycled will be taken to an appropriate facility for treatment to recover further resources or for disposal to landfill in an approved manner;
- All asbestos, hazardous and/or intractable wastes are to be disposed of in accordance with WorkCover Authority and EPA requirements;
- Provision for the collection of batteries, fluorescent tubes, smoke detectors and other recyclable resources will be provided on site;
- Beverage container recycling will be provided on-site for employee use;
- All waste and recycling will be disposed of via council approved systems.

3.9 Location and Design of Waste Management Facilities

General Requirements

All waste management facilities onsite should:

- Be conveniently located to enable easy access for on-site movement and collection;
- Be incorporated with other loading/unloading facilities;
- Have sufficient space for the quantity of waste generated and careful source separation of recyclable materials;
- Have sufficient space to contain any on-site treatment facilities, such as compaction equipment;
- Have adequate weather protection and, where required, be enclosed or undercover;
- Be secure and lockable;
- Be well-ventilated and drained to the sewer;
- Be clearly sign-marked to ensure appropriate use.

Waste and Recycling Receptacles

A sufficient quantity of skip bins should be provided for the separate storage of each type of C&D material generated on site. This will assist in maximising source separation and resource recovery, while reducing the costs and quantity of materials disposed of at landfill.

The size of the receptacles should be appropriate to the nature of waste generated and the available storage area. In general, the following options would be acceptable:

Bin Size	Access	Dimensions
2.5m	Top loading	
3m	Drop door walk-in	
4m	Drop door walk-in	
5m	Drop door walk-in	
6m	Double doors walk-in	

Source: Aussie Bins

If the developer chooses to adopt a traditional waste management strategy, whereby waste is deposited into comingled skip bins to be sorted offsite, a single skip bin would be considered sufficient for purpose. However, if the site is to pursue source separation, dedicated skips for the following materials are recommended:

- Timber;
- Plasterboard;
- Concrete;
- Bricks;
- Scrap metal;
- General waste.

Separate receptacles for the safe disposal of hazardous waste types (i.e. light bulbs, batteries, etc) will also be provided where applicable. Where possible, additional bins will be provided in common areas for the collection of commingled recyclables such as beverage containers (glass, plastic, aluminium), paper products, recyclables food containers, etc. Specialised bins for cigarette butts should also be provided.

Safety and Signage

The following safety measures should be considered for the waste storage area:

- Location should not interfere with sight lines of drivers entering or leaving the site;
- Skip bins should be clearly visible and located in well-lit areas;
- Safe paths of travel should be designated using reflective tape, barriers and cones;
- Skip bins must be secured and must not be over-filled to reduce risk of injury through bins moving and falling objects.

Standard signage will be installed in all waste areas, with all skip bins colour coded and labelled appropriately on all sides to allow clear identification of the type of waste to be deposited into each bin.

Refer to the EPA's website for standard construction waste and recycling signs:

www.epa.nsw.gov.au/wastetools/signs-posters-symbols.htm

Space and Siting Requirements

The waste storage area will be located adjacent to the entrance to the site to enable access and allow sufficient space for the required skip bins and servicing requirements. The storage area will also be flexible in order to cater for change of use throughout construction works.

Where space is restricted, dedicated stockpile areas will be allocated onsite, with regular transfers to the dedicated skip bins for sorting and collections.

The position of the designated waste holding area onsite may change according to building works and the progression of the development. Access, visual amenity and WHS will always be integral to the selection of waste storage area locations. Any stockpile locations will take into account slope and drainage factors to avoid contamination of stormwater drains during rain events.

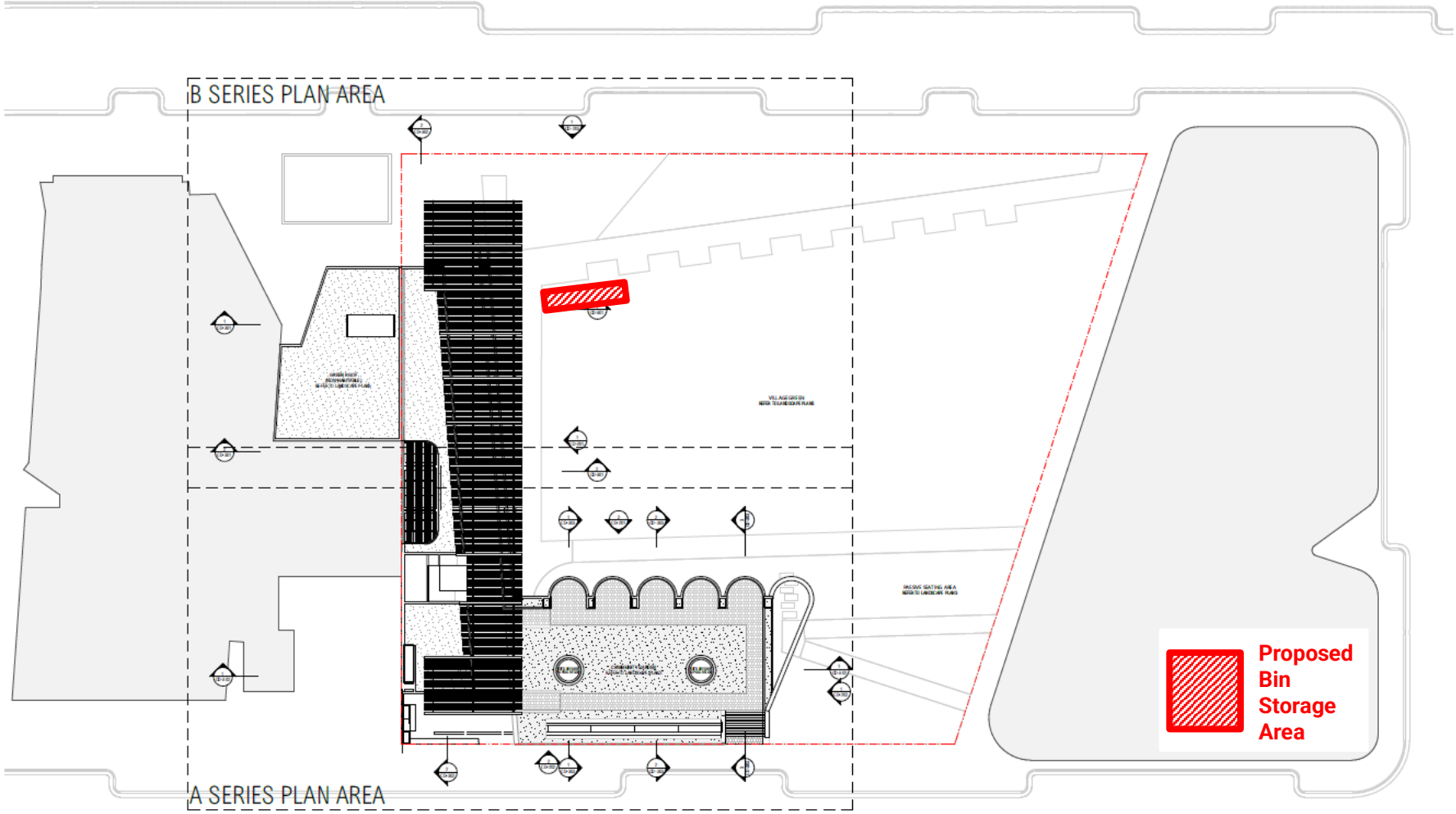
Servicing and Transport

The frequency of waste removal from site will be determined by the volume of materials deposited into the dedicated skip bins. Skip bins will be monitored on a daily basis by the Site Manager to ensure they do not overflow. If skip bins are reaching capacity, removal and replacement should be organised for within 24 hours.

All skip bins leaving the site will be covered with a suitable tarpaulin to reduce spillage of waste while in transit.

All waste collection for construction works will be conducted between approved hours as per Council requirements (typically between 7am and 7pm Monday to Friday, and between 7am and 1pm on Saturdays). All waste generated on site will be transported to an approved and appropriately licensed resource recovery facility and/or landfill site.

Proposal



Note: the proposed bin location is indicative only, this may change based on site logistics.
Source: CHROFI, Drawing no. A-CD-002, Rev N: Site Plan.

Appendix 6 - Construction Soil and Water Management Sub-Plan

CHALOUHI
• DEMOLITION • EXCAVATION • CIVIL CONSTRUCTION



INTEGRATED PROJECT MANAGEMENT PLAN

Ivanhoe Estate Midtown Building C2 Macquarie Park

Grindley

Ivanhoe Place Macquarie Park

July 2024 Revision 0

Business Name: **Square Civil Pty Ltd**

Trading Name: **Chalouhi**

Document Title: **Integrated Project Management Plan**

Document #: **MAN - 001** **Issue# 1** **Date: 18/07/2024**

Distribution List Controlled copies of this site plan have been issued to the following people

No:	Recipient	Position	Issue Date:	Signature
1	Maria Pennisi	Pre-Construction Manager (Grindley)		
2	George Khoury	Construction Manager (Chalouhi)		
3	Deen Fiaz	Project Engineer (Chalouhi)		
4				
5				
6				

Revision Record: Any revision made to this WHS plan is to be recorded below:

Revision	Date	Section	Page	Revision Details

This IMS has been approved by:

Print Name: Vanessa Johnston Dated: 18/07/2024

Signed: 

The Integrated Management Plan (IMP) is developed in conjunction with Development Consent SSD 15822622, the table below lists Development Consent clauses and references the relevant IMP sections within this document.

Development Consent Clause	IMP Ref
B40 a) location and extent of all necessary sediment and erosion control measures for the site	5.1.2
B40 b) catchment plan	5.1.2, 5.1.3
B40 c) sediment basin(s) locations including details showing how runoff from the entire site will be directed to the sediment basin(s).	5.1.2
B40 d) all relevant details and calculations of the sediment basins including sizes, depths, flocculation, outlet design, all relevant sections, pump out systems, and depths	5.1.3
B40 e) all details of basement and other excavation pump out and dewatering treatment systems including flocculation and any proposed discharge from the site from dewatering and pump out systems	5.1.4
B40 f) identification and management of any stormwater run-on to the site from adjacent sites	5.1.4
B40 g) location of any temporary stockpiles (soil, spoil, topsoil or otherwise) and accompanying sediment and erosion control measures	5.1.2
B40 h) location and details of all vehicle wash down bays and associated erosion and sediment control measures such as earthen bunds	5.1.2
B40 i) a daily and weekly site inspection checklist consistent with IECA Best Practice Erosion and Sediment Control documents	5.1.6

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ACONOMYNS & ABBREVIATIONS

AS	Australian Standard
ASS	Acid Sulphate Soils
CLM	Contaminated Land Management
DA	Development Application
EIS	Environmental Impact Statement
EMS	Environment Management System
ENM	Excavated natural materials
EPA	NSW Environment Protection Authority
HSEQ	Health, Safety, Environment & Quality
HSR	Health and Safety Representative
IMP	Integrated Management Plan
ITP	Inspection Test Plan
PASS	Potential Acid Sulphate Soils
PM	Chalouhi Project Manager
POEO Act	Protection of the Environment Operations Act 1997
PPE	Personal protective equipment
RMS	Roadsand Maritime Services
SDS	Safety Data Sheet
SOP	Standard Operating Procedures
SWEMS	Safe Work and Environmental Method Statement
TCP	Traffic Control Plan
TMC	Road and Maritime Services Traffic Management Centre
TMP	Traffic Management Plan
VMP	Vehicle Movement Plan

APPENDIX

Appendix A	Chalouhi Policies
Appendix B	Project risk register
Appendix C	Weekly site safety and environmental walk
Appendix D	Emergency Evacuation Plan
Appendix E	Chalouhi Site Safety rules

1.0 INTRODUCTION

1.1 DEVELOPMENT OVERVIEW

The Ivanhoe Estate Macquarie Park C2 project involves bulk excavation for future construction of community facilities building and landscape work. This project is part of multiple residential/commercial developments that will be constructed within the Ivanhoe Estate development. The site is bordered by Mahogany Avenue, Sandstone Crescent and C3 site.

1.2 CIVIL WORK SUB CONTRACTOR

Chalouhi, engaged by Grindley as the civil contractor for Ivanhoe Estate project to complete site establishment and civil excavation works.

1.3 HEALTH, SAFETY, ENVIRONMENT AND QUALITY CERTIFICATION

Chalouhi is certified under ISO 9001:2015 Quality Management Systems, ISO 14001 Environmental Management Systems and ISO 45001 Occupational Health and Safety Management System.

1.4 CHALOUHI POLICIES

Chalouhi have developed seven company policies to establish expectations and to provide guidance on how to consistently handle workplace situations and how employees will be treated. These policies are reviewed annually in consultation with Safety and Environmental Management and Managing Directors.

The policies are outlined in the site inductions to all site personnel and are displayed on the site notice boards, lunch rooms and site management plans, to be available to relevant interested parties, as appropriate. A copy of the Polices are available in Appendix A.

- Work Health and Safety Policy
- Injury Management Policy
- Environmental Policy
- Quality Policy
- Drugs and Alcohol Policy
- Workplace Harassment Policy
- WHSE Consultation Policy

1.5 PROCUREMENT PROCESS

The following key measures will be considered in the procurement process for all supplies, subcontractors and direct purchase of materials:

- The hierarchy of waste avoidance, reduction, reuse, and recycling will be incorporated into all aspects of the Projects (waste management measures are detailed further within the Construction Waste Management Plan - Section 5.7);
- Suppliers and subcontractors will be made aware of Chalouhi's environmental requirements and their obligations as an environmental supplier. Project specific information relating to the environmental requirements will be included in procurement and subcontract documentation through the contract and scope of works and the performance of suppliers and subcontractors measured and reported;
- Suppliers of chemicals and hazardous substances will be required to submit Safety Data Sheets (SDS) with delivery or prior to chemicals arriving at site. This may include plant and machinery hazardous chemicals such as ; diesel, oil or petrol;
- Ensure that purchase orders and agreements include environmental requirements as necessary; and
- Where practical and in consultation with the site HSEQ Manager and engineering personnel, select materials which minimise the impact on the environment.

1.6 PROJECT OBJECTIVES AND TARGETS

Chalouhi have established and will maintain objectives and targets that will be implemented on site. The company's quality, safety and environmental objectives and targets have been listed in Section 2, 3 and 4 of this Integrated Management Plan. These have been developed for construction activities associated with Ivanhoe Estate and are set out in the IMP safety and environmental management sub-plans. They are realistic, minimise any hazards and risks and ensure the facilitation of continual improvement and have been developed based on the following requirements:

- Requirements in the statutory consent/approvals;
- Ivanhoe Estate project objectives
- Contractual requirements;
- Grindley / Grindley lease conditions;
- Legal requirements; and
- Significant safety and environmental aspects and impacts.

1.7 INTEGRATED MANAGEMENT PLAN (IMP)

This Integrated Management Plan describes the strategy, methods, controls, and requirements for the execution of the project. It stands alone as the master document for site activities, and refers to company procedures for system-based activities.

The IMP is reviewed and signed-off by the HSEQ Manager and Project Manager prior to the first issue. The Project Manager who has the overall responsibility to deliver the project will induct the project team on the requirements of the Integrated Management System and relevant legal references in the Integrated Management Plan.

Site specific information from the IMP will be discussed with site workers during the site induction and documented in Safe work method statements, Tool box discussions, pre-starts, safe work procedure and on-site

training. Any changes to the IPMP which is relevant to site employees will be presented during at site tool-box discussion.

1.8 LEGAL AND OTHER REQUIREMENTS

Below Table 1.8 outlines some of the key legal requirements and other obligations that are applicable to Chalouhi's activities undertaken at during the Ivanhoe Estate construction activities. A soft copy of the below documents is accessible at the Chalouhi Site office. All personnel inducted into the site-specific induction will be consulted into where and how these can be accessed. A soft copy will be accessible to personnel visiting site in the Chalouhi site office.

Table 1.8 - Legal and Other Requirements

#	Title	Key Requirements
A	Commonwealth Laws	
A.1	*Work Health and Safety Act 2011 and Regulations NSW 2017*	The WHS Act and WHS Regulations provide a framework to secure the health and safety of workers and workplaces by protecting workers and other persons against harm to their health, safety and welfare through the elimination of risks arising from work, in accordance with the principle that workers and other persons
A.2	*Environment Protection and Biodiversity Conservation Act 1999* and *Regulations 2000*	Sets out the assessment and approval process for sites that have or are world or national heritage listed, threatened species or ecological communities, migratory species, commonwealth marine areas and nuclear sites.
A.3	*National Greenhouse and Energy Reporting Act 2007* and *Regulations 2008*	Describes the requirements for companies to report on energy use and emission of greenhouse gases. Chalouhi is obligated to report on energy consumption or greenhouse gas emissions.
A.4	*National Environment Protection Council (NEPC) National Environment Protection (Assessment of Site Contamination) Measure 1999 (Amended 2013)*	This Measure provides a consistent approach to the assessment of site contamination to ensure sound environment management practices by the community and stakeholders. Provides information on providing adequate protection of human health and the environment, where site contamination has occurred, through the development of an efficient and affective nation
B	National Codes of Practice	
B.1	*National Code of Practice for the Storage and Handling of Workplace Dangerous Goods*	Requirements for the storage and handling of dangerous goods and references applicable Australian Standards, e.g. AS 1940-2017 The storage and handling of flammable and combustible liquids.
B.2	*National Code of Practice for the Control of Workplace Hazardous Substances*	Provides practical guidance and advice on how to comply with the National Standard for the Control of Workplace Hazardous Substances.
B.3	*National Code of Practice: How to manage work health and safety risks*	Provides guidance how to manage work and safety risks in the workplace
B.4	*National Code of Practice: Excavation Work*	Provides guidance how to manage health and safety risks associated with excavation work
B.5	*National Code of Practice: Managing noise and preventing hearing loss at work code of practice*	Provides guidance how to manage noise and preventing hearing loss in the workplace.
B.6	*National Code of Practice: Managing the work environment and facilities*	Provides practical guidance for persons conducting a business or undertaking on how to provide and maintain a physical work environment that is without risks to health and safety

#	Title	Key Requirements
B.7	*National Code of Practice: Managing the risk of plant in the workplace*	Practical guidance on how to manage health and safety risks of plant once it is in the workplace, from plant installation, commissioning and use through to decommissioning and dismantling
B.8	*National Code of Practice: How to safely remove asbestos*	Provide practical guidance how to manage the safe removal of asbestos from workplaces.
B.9	*National Code of Practice: How to Manage and Control Asbestos in the Workplace*	Provides practical guidance for persons conducting a business r undertaking on how to manage risks associated with asbestos and asbestos contaminated material at the workplace and thereby minimise the incidence of asbestos related diseases.
B.10	*National Code of Practice: Managing the risk of falls at workplaces*	Provides a practical guidance to persons conducting a business or undertaking, on how to manage health and safety risks arising from falls, and information on a range of control measures to eliminate or minimise the risks.
B.11	*Nation Code of Practice: Managing electrical risk in the workplace*	Provides practical guidance for persons conducting a business or undertaking on managing electrical risks in the workplace.
C	NSW Legislation	
C.1	*Contaminated Land Management Act 1997*	The Contaminated Land Management (CLM) Act regulates the investigation and remediation of contaminated land and the various instruments the NSW Environmental Protection Authority (EPA) can use to investigate and order the remediation of contamination land. Section 60 imposes a duty on a person who has conducted activities on land that have resulted in contamination to inform the EPA. This duty also applies to the owner of land. Chalouhi has a contractual duty to inform the Grindley, who has a duty to inform the EPA of any contamination resulting from activities at their sites.
C.3	*Environmentally Hazardous Chemicals Act 1985*	The primary legislation for specifically regulating environmentally hazardous chemicals throughout their life cycle.
C.4	*National Environment Protection Council (NSW) Act 1985*	Provides for the establishment of a National Environment Protection Council that has power to make national environment protection measures. The NSW Government will implement national environment protection measures (NEPMs) in NSW in a variety of ways, including via legislation. NEPMs implemented using EPA legislation include those relating to: • monitoring of ambient air quality; • assessment of site contamination; • used packaging materials; • movement of controlled waste; and • National pollutant inventory.
C.5	*Protection of the Environment Operations Act 1997 (POEO Act)*	This Act is the key environmental regulatory instrument in NSW and describes requirements for air, noise, water, and waste and land pollution. The POEO Act aims to prevent pollution but also provides a two-tiered system to regulate pollution. The EPA is responsible for regulating higher environmental risk activities listed in Schedule 1 by licensing, while local authorities and other public authorities regulate the lower risk non-scheduled activities. Chapter 5 classifies offences into three tiers for water, air, noise and land pollution including waste and litter disposal. Section 148 provides details of the general duty to notify the EPA or the local Council of environmental incidents. This duty applies

#	Title	Key Requirements
		to any incidents occurring on Patrick land where 'material harm' to the environment is caused or threatened.
C.6	*Protection of the Environment Operations (Waste) Regulation 2014*	The main parts of the Waste Regulation relevant to Grindley activities include: • Proximity Principle: Offence for transport of waste; • Prescribed wastes for land pollution offence; and • Reduced licensing thresholds for waste activities. Chalouhi has a duty to ensure wastes are disposed of appropriately and records maintained.
C.7	*Sydney Water Act 1994*	This Act is applicable to the discharge of wastewater to sewer from industrial/commercial premises.
C.8	*Waste Avoidance and Resource Recovery Act 2001*	This Act promotes waste avoidance and resource recovery by developing waste avoidance and resource recovery strategies and programs, such as the extended producer responsibility scheme for industry. This Act allows the development and implementation of state-wide waste reduction strategies (Parts 3 and 4) and extended producer responsibility schemes (Section 15). Chalouhi may choose to follow the following waste hierarchy: • Avoidance of unnecessary resource consumption; then • Resource recovery (including reuse, reprocessing, recycling and energy recovery); and then • Disposal.
C.9	*NSW EPA (2014) – Waste Classification Guidelines – Part 1: Classifying Waste*	This guidelines provides a step by step procedure on classifying wastes into groups that pose similar risk to the environment and human health facilities their management and appropriate disposal.
D	NSW Codes of Practice	
D.1	*NSW Government Codes of Practice – Construction Work (2019)*	This code provided practical guidance on how to achieve the standards of work health and safety required under the WHS ACT and the Work Health Safety Regulation and effective ways to identify and manage risks.
D.2	*WorkCover NSW (2014) – Managing Asbestos in or on soil*	This guide provide general guidance on the assessment and management of asbestos in soil.
D.3	*NSW Government Code of Practice – How to Manage and Control Asbestos in the Workplace (2019)*	This Code provides practical guidance to PCBUs on how to manage risks associated with asbestos, asbestos containing material (ACM) and asbestos-contaminated dust or debris (ACD) at the workplace and thereby minimise the incidence of asbestos-related diseases such as mesothelioma, asbestosis and lung cancer.
D.4	*NSW Government Code of Practice – How to safely remove asbestos (2019)*	This Code provides practical guidance to PCBUs on how to manage health and safety risks associated with removing asbestos or asbestos-containing materials (ACM) from workplaces.
E	Other Legislation, COP & Guidelines	
E.1	*Western Australia Department of Health (WA DoH) (2009) - Guidelines for the Assessment, remediation and Management of Asbestos – Contaminated Sites in Western Australia & Summary Update (2018)*	This Document, prepared by the Western Australian (WA) Department of Health (DOH), provides guidance for the investigation, remediation and management of asbestos-contaminated sites, and it is based on both Australian and international best practices tailored to Western Australian conditions.

1.9 1.9 SCOPE OF WORKS

The scope of the IMP covers the construction activities associated with the Ivanhoe Estate construction package, including:

20 weeks construction duration

- Site Establishment – Works will involve establishing a site compound consisting of amenities for site personnel which will be utilised for the duration of the works. Perimeter temporary security fencing will be established along the works boundary to delineate construction areas and non-construction areas.
- Service Locating – Prior to any demolition and excavation works, a service locating team equipped with specialist equipment will scan the work footprint to ensure all known services are marked on the ground, surveyed and a drawing is generated. This also allows for any unknown services to be located. The site team use this information in addition to all as constructed drawings and forward onto the relevant stakeholders within the project.
- Bulk excavation – Using heavy earthmoving equipment, the existing ground formation will be excavated in accordance with the design drawings to shape for the basement. Excess material generated from these works will be transported away from site.
- Shoring piles – utilizing drill rig for shoring required to landscape area and disposal of spoils
- Treatment to excavation face – progressively the excavation face will be treated as per the design.
- Detailed excavation and back filling: detailed excavation for footings and underground services and disposal to spoils
- Landscape – Preparation of road verge involving cut and fill to nominated level. (Hard and soft landscape by others)

1.10 CONSTRUCTION STAGING AND TIME FRAME

- Chalouhi has been engaged to carry out civil work and expected construction period is 16 weeks from the date of commencement of work at site
- Scheduled commencement work – August 2024 (TBC by Grindley)
- Completion date – November 2024

1.11 CONSTRUCTION SITE LOCATION

Table 1.11– Construction Site Location

Construction site address	Ivanhoe Estate, Macquarie Park (Lot 100 DP1262209)

1.11.1 CONSTRUCTION HOURS

Restricted hours

Chalouhi will only undertake construction activities associated with the project that would generated an audible noise at any residential premises during the following hours shown in the table below:

Table 1.11 – Restriction to Work Hours

Hours of Operation – Construction	
Monday – Friday inclusive	7:00am – 7:00pm
Saturday	8:00am – 4:00pm
Sunday and Public Holidays	At no time

1.11.2 SEEKING APPROVAL TO WORK OUTSIDE THE RESTRICTED HOURS

Chalouhi through Grindley /Grindley may seek approval to conduct construction activities audible at residential premises outside the specified hours on a case-by-case basis. In seeking approval, Chalouhi will demonstrate a need for activities to be conducted during varied hours and how local acoustic amenity will be protected, as well as details of how the EPA's requirements with respect to the variation of hours have been addressed.

1.11.3 EQUIPMENT AND MACHINERY

The equipment and machinery likely to be used for construction of Ivanhoe Estate, and stored on the construction site, will include:

- Excavators
- Trucks
- Crane
- Water cart
- Concrete truck
- Concrete Pump
- Hand tools; and
- Storage containers (chemicals etc.)

1.12 KEY PERSONNEL & STAKEHOLDER CONTACT DETAILS

1.12.1 CONSTRUCTION PERSONNEL CONTACT DETAILS:

Contact names and details for key construction (and project) personnel are detailed in Table 1.12.1

Table 1.12.1 – Construction Personnel and Contact Details

Chalouhi Project Team (on site)		
Site Manager	Niall Mahon	0404 111 721
Construction Manager	George Khoury	0412 693 020
Project Engineer	Deen Fiaz	0424 829 819
Site Engineer	Jamal Merheb	0420 461 906
Chalouhi Project Team (off site)		
Director	Robin Chalouhi	0424 699 299
HSEQ Manager (Return to Work Coordinator)	Rodney Curry	0411 261 130
Grindley Project Team		
Project Manager		

1.13 ROLES, RESPONSIBILITIES & AUTHORITIES

For effective implementation of the IMP experienced members of the Chalouhi team will be assigned roles for the management of Safety, environmental and quality risks by applying controls and processes. All Managers and Site Supervisors will be responsible and accountable for the effective implementation of the project's aspects and as such the defined responsibilities are:

ON SITE:

Project / Construction Manager: George Khoury

- Monitor the implementation of the project IMP and report to the Construction Manager and HSEQ Manager on all Safety and Environmental issues;
- Allocate sufficient human and financial resources to implement the IMP;
- Conducts meetings with Project Site Team and HSEQ Manager and all other site personnel at separate but regular intervals, at which safety, environmental and quality issues are discussed on the agenda;
- With the Project Team and HSEQ Manager, undertake a risk assessment and SWEMS on each high risk activity within Chalouhi's scope of works, in relation to their safety and environmental impacts;
- Provide and maintain and physical work environment that is without risk to health, safety and environmental providing adequate facilities and equipment for workers;
- Provide copies of the IMP to the Grindley for their approval;
- Providing leadership to the Project in following and supporting the IMP in a public manner to help develop a positive environmental culture supporting environmental policy and review the performance reports and take strategic actions to continuously improve the IMP
- Monitoring and adapting to results from inspection and testing in relation to various specifications and QA methodology
- Liaison with relevant suppliers and testing authorities to record and adhere to quality

HSEQ Manager: Rodney Curry

- The overall control of the Project and the IMP.
- The site Environment, and Safety representative.
- Provide and maintain and physical work environment that is without risk to the environment providing adequate facilities and equipment for workers.
- Reviewing and approving the IMP;
- Assist the Project management team in the develop of a risk assessment and SWEMS on each high risk activity within Chalouhi's scope of works, in relation to their safety hazards and environmental impact;
- Conduct investigations into Incidents and Near Misses and assist with the completing of the Non-conformance Report;
- Action all safety and environmental rectifications as listed in either the Chalouhi Site safety and Environmental Evaluations Checklist or the HSEQ Committee Minutes;
- Identify in advance, any training required for specific tasks to be performed on site, including facilitating training for managers and employees on human resources practices and procedures as required;
- Report to the National HSEQ Manager any serious environmental issues;
- Attend annual meeting with the National HSEQ Manager, Construction Manager, Project Manager Team where environmental issues are discussed; and
- In conjunction with the Construction Manager, manage staff grievances and complaints, including conducting internal investigations as required.
- Monitoring and adapting to results from inspection and testing in relation to various specifications and QA methodology
- Responsible for issuing and following up on non-conformance reports

Project Engineer: Deen Fiaz

- Assist the Project management team in the development of risk assessment and SWEMS on each high risk activity within Chalouhi's scope of works, in relation to their environmental impact;
- Report to the Project Manager all safety and environmental issues identified on site; and
- With the Project Team and HSEQ Coordinator, undertake a risk assessment and SWEMS on each high risk activity within Chalouhi's scope of works, in relation to their safety hazards and environmental impact.
- Monitoring and adapting to results from inspection and testing in relation to various specifications and QA methodology
- Liaison with relevant suppliers and testing authorities to record and adhere to quality

Site Engineer: Jamal Merheb

- Being the primary contact point in relation to the HSEQ performance of the construction phase of the project;
- Assist the Project management team in the development of the IMP and safety and Environmental method statements;
- managing procedures and practices for receiving and responding to complaints and inquiries in relation to the environmental performance project;
- Reporting all environmental incidents and near misses to the Grindley and Chalouhi HSEQ Manager
- Facilitating an induction and training program for relevant persons involved with the construction phases;
- Requiring reasonable steps to be taken to avoid or minimize unintended or adverse environmental impacts, and failing the effectiveness of such steps, to direct that relevant actions be ceased immediately should an adverse impact on the environment is likely to occur; and
- ensuring all personnel are inducted into the Project environmental requirements prior to commencement of works on site.
- Monitoring and adapting to results from inspection and testing in relation to various specifications and QA methodology
- Responsible for producing and implementing Inspection and Test Plans (ITP's)

Site Manager: Niall Mahon

- Attend safety and environmental emergencies on site;
- Provide and maintain a physical work environment that is without risk to the environment providing adequate facilities and equipment for workers;
- With the Project Team and HSEQ Coordinator, undertake a risk assessment and SWEMS on each high risk activity within Chalouhi's scope of works, in relation to their environmental impact;
- Maintain employee awareness to environmental issues by conducting site inductions, daily pre-starts and toolbox meetings with the site personnel;
- Ensure that all activities are conducted in accordance with the established SWEMS;
- Action all environmental rectifications as identified through non-conformances, safety and environmental checklists or the HSE Site Committee Minutes; and
- Investigate hazards and ensure that corrective actions are taken to eliminate or control the associated risks.
- Monitoring and adapting to results from inspection and testing in relation to various specifications and QA methodology

<u>OFF SITE</u>

Director:

- Report to the Managing Director on any safety, environmental and quality issues;

- In conjunction with the Construction Manager, Workplace Relations and Human Resources, develop, maintain and promote HR policies and procedures in accordance with legislative requirements;
- Ensure that all personnel that are employed are competent in the tasks they are employed to perform;
- Ensuring that best practice principles are being implemented to construct a high quality finished product
- The business activities are conducted with knowledge of all known environmental risks and other risks that may be controlled through a formal reporting process; and
- Attend Contract or weekly Grindley meetings (if required) to address HSEQ matters when required.
-

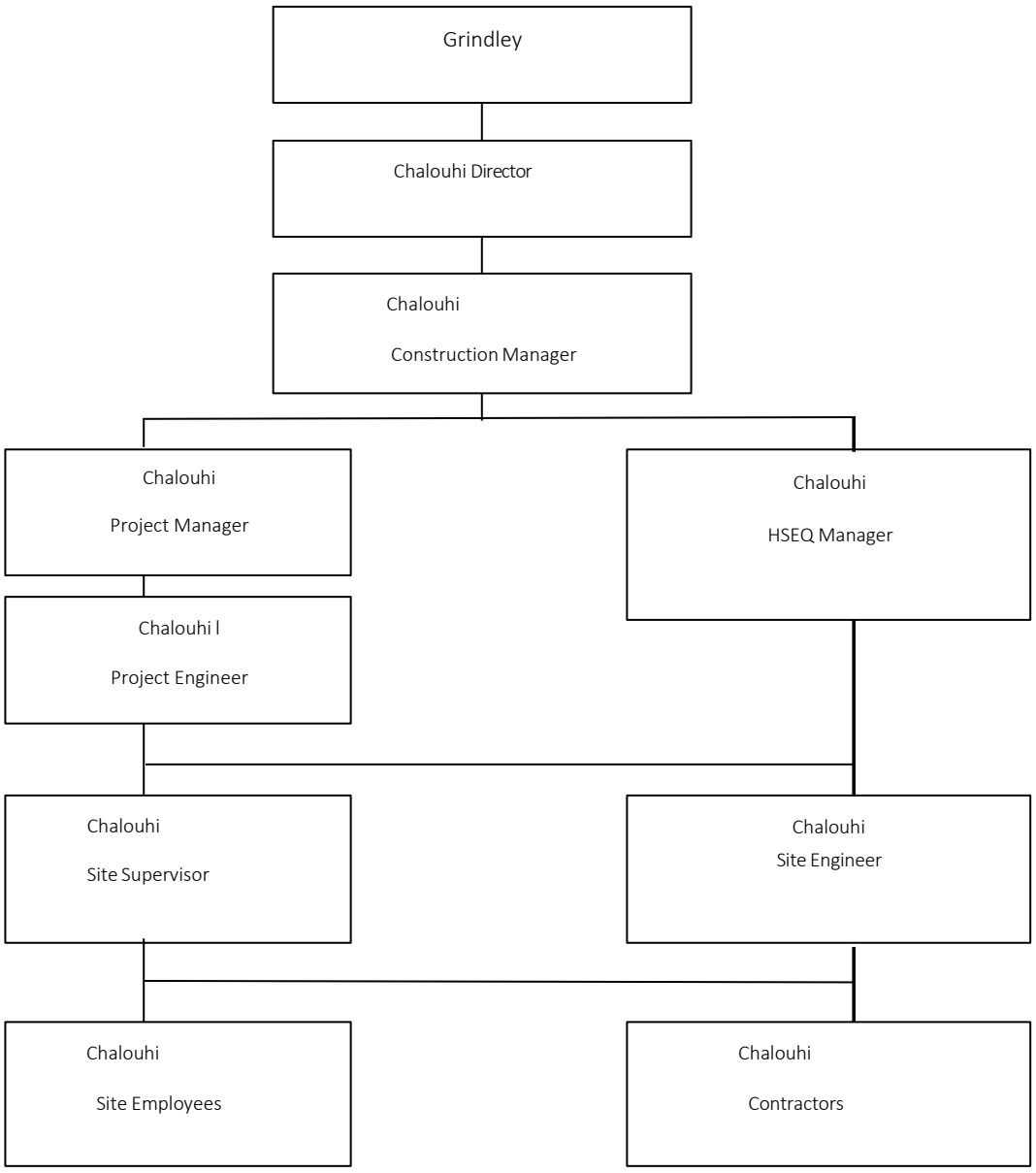
Construction Manager: George Khoury

- Engage staff and contractors to ensure they are aware of the required environmental compliance obligations to be suitably selected to perform the task either permanent or full time;
- Stimulate a high level of environmental awareness at all times and lead by example on these matters; and
- Ensuring that HSEQ practices and procedures are implemented and adhered to
- Attend Contract or weekly Grindley meetings (if required) to address HSEQ matters when required.

1.13.1 PROJECT ORGANISATIONAL CHART

The Chalouhi Organisation Chart has been prepared for the C2 Building. Refer to Figure 1.12.1 –Chalouhi Organisational Chart, which shows the direct relationship of each role on the project, including the positions responsible for environment and safety aspects for the project, and their respective reporting relationships.

Figure 1.12.1 –Chalouhi Organisational Chart



Note 1 – Certificate IV – Environmental Management; Certificate IV – Work, Health & Safety;

Note 2 – Certificate IV – Environmental Management & Sustainability; Certificate IV – Work, Health & Safety;

Note 3 – Risk Management for Supervisors;

1.13.2 SITE SECURITY

The Site Manager/Supervisor is responsible for ensuring site security is integrated with the existing services on site and back to base security requirements. This includes ensuring that the perimeter fencing, doors and gates are secured and if required security patrols organised as required to prevent unauthorised access to the construction site.

All keys issued and returned will be recorded in a key register.

Padlocks will be issued by Chalouhi.

1.14 INSURANCE

Name of Insurer	WORKERS COMPENSATION Icare Policy No: 192574301 Expiry Date: 30/06/2025
Name of Insurer	PUBLIC LIABILITY INSURANCE Lloyds Policy No: GLC 24 000001 Expiry Date: 30/06/2025

Workers Compensation and Public Liability Insurance

The Site Engineer will check the validity of certificates of currency for subcontractors, plant and machinery on hire. Certificates of currency must be received by Chalouhi prior to the subcontractor establishing on site or prior to the equipment arriving on site.

As a minimum, all subcontractors, plant and machinery on hire must have Workers Compensation and Public Liability Insurance. For Workers Compensation Insurance, the category or the tariff rate number must be applicable to the operations of the subcontractor or the operations of the plant and machinery.

The Project Manager will ensure that these certificates are kept on file and kept current by the insured for the duration of the subcontractor's time on site.

Professional Indemnity Insurance

Where components of the works involve design and construct, the Site Engineer will request and ensure that Chalouhi has current insurance certificates of currency from the consultants engaged by Chalouhi.

The Site Engineer will ensure that these certificates are kept on file and kept current for the duration of the consultants' time on site.

2.0 COMMUNICATION AND CONSULTATION

2.1 TOOL BOX MEETINGS

During the course of the works, the Site Supervisor or any other member of the Site Management Team will conduct pre-start Tool Box talks and Daily Prestart Meetings as part of keeping up the safety and environmental awareness of workers.

Specific safety and environmental issues can be addressed, accidents/near misses can be reviewed, SWEMS Statements can be presented, safety alerts discussed or any other health, safety or environmental related issues tabled. It is an open forum for discussion and will be recorded on the "Tool Box Meeting" form, which will be signed off by all those present. These documents can be made available to Grindley upon request.

As a minimum requirement, every Monday morning (or on the first working day of the week), the Site Supervisor shall conduct a Tool Box Meeting Form and a copy of this shall be given to the site HSEQ Manager. A daily Prestart Meeting and sign-in should be done at the commencement of each working day and the record should be kept onsite for the duration of the Project.

2.2 WHSE COMMITTEES AND OTHER AGREED ARRANGEMENTS

2.2.1 CHALOUHI HSR COMMITTEE

Chalouhi have developed a HSR consultation committee to enable all employees to contribute to the making of decisions affecting their health, safety and welfare, any information that the employer and/or employee has from experience, knowledge, publications or from any other source, should be shared. This is to ensure every member will be contributing to the enhancement of their work environment not only for themselves but also for the other employees. Items of discussion will include changes to safe operation procedures and SWMS, injury and illness control measures and protection of the environment.

The HSR representatives are elected by Chalouhi Employees during the annual labourers meeting. The representatives must complete the HSR course to ensure they have a sound knowledge of their responsibilities and identify the hazards and risks in the workplace. On a quarterly basis, or a duration deemed necessary depending on the type of work being carried out, the HSR representatives will meet and discuss site safety issues and any other relevant matters. Minutes will be taken of all the issues and resolutions and a copy will be retained in Chalouhi's head office.

HS&E Representatives have been established to promote health and safety in the workplace and to help resolve health, safety and welfare issues.

2.2.2 HSR COMMITTEE

The Chalouhi HSR committee representative/s for the C2 Building will be confirmed prior to commencement of works when the site team is established. Chalouhi will request each sub-contractor nominate at least one HSR member to attend the site safety and environmental inspection walks (held every Wednesday morning) and site HSR committee meetings. The site HSR representatives will be informed to site employees during the site induction and contact details posted throughout the site.

The functions of the WHS&E Representatives are:

- To consult with employees on WHS and welfare issues;
- Communicate to the employees and HSEQ Manager on issues relating to WHS and welfare;
- Promoting among the employees the reporting of hazards;
- Make recommendations on their training needs as a HSEQ Manager;
- Make recommendations on the HSEQ training of employees;
- Assist with Site Safety walks, when required.
- Be an observer during any formal in-house investigation of an accident or other occurrence at the relevant workplace that is required to be notified to Safe work (there can only be one observer);
- Accompany an employee, at the request of the employee, during an interview by the employer on any WHS&E issue;
- Be an observer when an external inspector provides any formal report to the employer in connection with WHS matters relating to the WHS&E Representative's workgroup.

For the WHS&E Representatives to be effective and successful they must:

- Have completed the Health and Safety representative training course
- Have commitment and support from the employer
- Have all employees be pro-active and inform them on WHS and environmental issues
- Be able to deal with the employer representative who has authority to make decisions
- Consult with the employees they represent
- Focus on ways of improving the systems for managing safety and the environment
- Have clearly defined roles

The Project Manager will ensure that the Site Supervisor provides a Chalouhi site employee to sit on the WHS Site Safety Committee. All safety issues correctly relating to Chalouhi or subcontractors of Chalouhi will be rectified in accordance with the WHS Site Safety Committee findings.

2.2.3 PROCEDURE FOR RESOLUTION OF WHS&E ISSUES

- The employee is to report the problem to their supervisor who will then remedy the problem or discuss it with his manager.
- If the problem is resolved then the supervisor or manager documents and retains a record of the resolution. A toolbox talk shall then be provided to relay the resolution to all employees on that particular site. The supervisor or his manager shall then give a copy of the toolbox minutes to the WHS&E Representatives.
- If the problem is not resolved, then the employee is to report the issue to their respective WHS&E Representative.
- The WHS Representative refers the problem to the WHSE Manager to consider and respond.
- When a WHS&E issue is resolved by the Systems Manager, then a formal instruction will be given to all managers and supervisors who will then conduct a toolbox talk to relay the resolution to all employees.
- If the problem is still unresolved, then the Systems Manager will consult with the Construction Manager to determine what further action will be taken.

- If agreed to by the Construction Manager, the Systems Manager may request the assistance of an external inspector. When such a request is made, the inspector will need to know if the matter had been considered by the employer and the Systems Manager and what action has been taken as a result of the consultation.
- External Inspector attends the workplace and resolves the problem.
- Where the employer wishes to raise HS&E matters, then the employer will either call a general meeting with employees to discuss the issues or issue a formal memorandum to all employees. In addition to this, during the annual meeting held with all labourers, leading hands, operators and sub-foremen, HS&E issues are tabled and discussed in an open forum for all to contribute.

2.2.4 ONSITE COMMUNICATION AND WHSE CONSULATION METHODS

Chalouhi provides avenues for consultation and communication between all levels in the organisation. Workplace consultation will be provided through:

- Daily toolboxes, safety & environmental discussions
- Facilitating elections of Workplace Health, Safety and Environment (WHSE) representatives
- Establishing a Workplace Health, Safety and Environment Committee
- Establishing systems for consultation at its projects with subcontractors and their workers

A Site Noticeboard will be established at each site in the amenities or site office. The Site Noticeboards will be maintained by the Site Supervisor. Information to be posted on boards includes:

- Emergency contacts
- Emergency evacuation plan
- WHS Representatives for the project (this will be updated as contractors change)
- WHS&E issue, complaints and dispute resolution procedure flowchart
- Environment and Safety alerts issued by HSEQ Manager
- WHS&E Committee Minutes and meeting times.

2.3 COMPLAINTS

Performance objectives

Table 2.3 - Complaints Objectives and Targets

	Objectives	Target
Complaints	To efficiently manage complaints from the community or the safety and environmental regulator (including on behalf of a local resident)	Nil complaints attributed to Chalouhi Cavil's operations

2.3.1 RESPONSIBILITY

Chalouhi HSEQ Manager are to ensure the requirements of the safety and environmental complaints handling procedures are implemented.

Chalouhi onsite personnel are to report all complaints to their supervisor immediately and implement corrective and/or preventive actions as instructed.

The onsite HSEQ Manager will oversee any complaints, the implementation of controls and ensuring the effective and appropriate corrective and preventive actions are taken to prevent the recurrence of the source of any complaint.

2.3.2 COMPLAINTS HANDLING PROCEDURE

Complaints can be received from the public or their representative, via the following means:

- In person at our head office at 192-194 Railway Parade Kogarah;
- By phone enquires 24/7 telephone number 0401 160 994 (signage on the front site entrance)
- By email via to Mitch Cole (Chalouhi HSEQ Manager) 'Contact Us' page

Workers will report any complaints received to the site Supervisor, and will be recorded by and tracked in the log sheet maintained by the onsite HSEQ Manager. All site complaints will be recorded using Chalouhi "Complaints Form" and will be filed by the HSEQ Manager into the Incident Register which will be available to Grindley upon request.

The responsible personnel shall consult with the HSEQ Manager to determine the appropriate corrective and preventive actions and to ensure the actions are implemented effectively to rectify the problem.

All environment complaints received from the public and/or regulatory agency are investigated by the site HSEQ Manager. Any changes required to the HSEQ documentation are to be communicated to all relevant staff in a site tool-box discussion. The effectiveness of corrective and preventive actions taken will be reviewed by the onsite HSEQ Manager and Construction Manager.

2.3.3 REPORTING

Records of the complaint and any action taken will be forwarded to Grindley for comment and recorded in Chalouhi's incident reporting system.

2.3.4 COMPLAINTS REGISTER

All complaints received will be recorded by the site HSEQ Manager in the Complaints Register, which will be made available to Grindley on a monthly basis

3.0 QUALITY MANAGEMENT

3.1 MANAGEMENT SYSTEM DOCUMENTATION

3.1.1 QUALITY MANAGEMENT SYSTEM

This plan defines the quality management principles, processes, procedures, systems, tools, and templates implemented for use throughout the duration of the project. This plan is subordinate to the Integrated Management Plan (IMP) which has been developed to:

- satisfy the requirements of the contract; and
- Support the Project Team in completing the requirements of the project.

3.2 PROJECT QUALITY OBJECTIVES AND TARGETS

Chalouhi's project level quality objectives and targets have been listed below.

Quality Aspects	Objectives	Target
Non-conformances	Reduction in site non-conformances	No reported site non-conformances
Customer complaints	Reduction Grindley and neighbouring complaints. 50% annual reduction Grindley and customer complaints	50% annual reduction Grindley and customer complaints
Customer reviews	Aim to receive 75% of all customer reviews	Review all completed forms at project management meetings
Internal and external audit	To complete regular internal and external audits to monitor and maintain compliance. Regular site audits every 8 weeks and external audits bi-annually with less than 3 non-conformances per site	Less than 3 reported non-conformances per site audit

3.3 DOCUMENT AND DATA CONTROL

3.3.1 SITE DIARY

The Site Supervisor is responsible for recording events and activities on site, on a daily basis using the Site Diary. The diary is intended to be a record of all activities, events and occurrences on-site including; plant on hire, trades, incidents and staff. Each week the Site Diary will be reviewed by Project Manager.

3.3.2 DRAWING REGISTER

A drawing register will be maintained throughout the duration of the project to ensure latest drawings are followed by Chalouhi and subcontractors. Chalouhi will upload all drawings to Aconex with Grindley as the Administrator for approval and to amend drawing revision numbers and dates.

3.3.3 REQUESTS FOR INFORMATION (RFI'S)

- RFI's
  - Shall be raised whenever a response is required from a consultant, Grindley or Grindley representative that requires tracking or in cases where if an answer is not received it will affect the contract in terms of time or money.
  - Can be raised by the project manager, site manager, site supervisor or contracts administrator based on Subcontractor or MLC issues. Electronic subject to project size and set up
- The time allowed for the reply should be realistic.
- Issued shall be added and tracked on an RFI Register, closed and open
- Shall be distributed to the relevant parties and a copy filed
- Shall note if safety in design issues are identified and the consultant has conducted the safety risk design assessment
- Weekly print out a report of unanswered RFIs for follow up outstanding
- Distribute the reply to the relevant parties.
- File the reply in the Contract file.

3.4 INSPECTION METHODOLOGY

3.4.1 INSPECTION AND TEST PLANS (ITPS)

Inspection and test plans (ITPs) are prepared using the Inspection and Test Plan template to clearly identify the scope of inspection and testing required for the work activity. ITPs are prepared for each area or discipline as appropriate. Chalouhi ITPs are formulated by the Project Engineer and reviewed and approved by the Project Manager. Where a change is required to an ITP, a new version is prepared, approved, and distributed.

Inspections are conducted throughout the duration of the project as per the ITPs and the project's quality control inspection register. The Project Manager maintains regular contact throughout the duration of the project with the relevant subcontractors.

Subcontractors on site prepare specific ITPs covering all construction activities, which include the following, as a minimum:

- Project title
- Subcontract details
- Process activity
- Acceptance criteria, e.g. standards, procedures, and/ or specifications
- Verification record, e.g. certification/ reports resulting from the process; and
- Intervention/ inspection points, including company and third-party points.

The Project Quality Manager (or delegate) maintains a master copy of each ITP in the project's Document Management System in the Chalouhi intranet. The ITP register is maintained for all ITPs.

3.5 NON-CONFORMANCE AND CORRECTIVE ACTION PREVENTION

A Non-Conformance Report will be raised for:

- Specification deviation or work that fails to meet quality standards
- Non-compliance with the site rules
- Non-compliance with Health, Safety and Environmental Legislation requirements
- Repeated safety or housekeeping issues identified during inspections.

The Non-Conformance shall be completed and issued to the offending party. Non-Conformances shall be registered in the office non-conformance register

The Project Manager / Site Supervisor will decide on the appropriate disposition and corrective actions. Non-conformances raised as a result of a Safety or Environmental issue to be reviewed by the HSEQ Manager to confirm if systems need to be updated and if any company wide alerts, correspondence are required.

3.6 PRODUCT & SERVICES

3.6.1 PURCHASING

Chalouhi Management will ensure all equipment, goods or substances purchased or hired will be assessed against HSEQ Standards. All purchased materials and components are identified with unique numbers, codes or names. The identification is the same as used in drawings, specifications, bills of materials, part lists, purchase orders etc.

Materials and components are identified by marking, labelling or tagging the packaging of containers.

3.6.2 PROCUREMENT PROCESS

The following key measures will be considered in the procurement process for all supplies, subcontractors and direct purchase of materials:

- The hierarchy of waste avoidance, reduction, reuse, and recycling will be incorporated into all aspects of the project (waste management measures are detailed further within the Construction Waste Management Plan - Section 5.7)
- Suppliers and subcontractors will be made aware of Chalouhi's safety and environmental requirements and their obligations as an environmental supplier. Project specific information relating to the environmental requirements will be included in procurement and subcontract documentation through the contract and scope of works and the performance of suppliers and subcontractors measured and reported;
- Suppliers of chemicals and hazardous substances will be required to submit Safety Data Sheets (SDS) with delivery or prior to chemicals arriving at site. This may include plant and machinery hazardous chemicals such as ; diesel, oil or petrol;
- Ensure that purchase orders and agreements include HSEQ requirements as necessary

3.6.3 RECEIPT OF GOODS ON SITE

The Site Supervisor will be responsible for accepting deliveries to site.

Goods will be compared against the supplier's delivery/courier docket and Chalouhi's Purchase Order's where possible.

If goods meet requirements, the delivery/courier docket or copy of purchase order will be signed by the Site Supervisor or other authorized personnel.

If goods do not meet requirements, the receiver will record the discrepancies/issues (e.g. incorrect goods, incorrect quantity, damaged or faulty goods, etc.) on the delivery/courier docket. Any issues should be followed up with the supplier and/or Project Manager/Contract Administrator and resolved/appropriate action taken.

The Site Engineer will reconcile the purchase order, Delivery/Courier Docket and invoice and pass to accounts department.

3.6.4 GRINDLEY SUPPLIED PRODUCT & SERVICES

Product supplied by Grindley will be identified as such.

The Site Manager/Supervisor will check items on delivery to site including but not limited to:

- It is the correct type, model or part number.
- The correct quantity of items was delivered.
- No obvious damage or deterioration.
- The product or equipment is safe to use and meets work health & safety specifications and requirements.

The Site Supervisor will obtain and check the delivery docket for product received and will forward it to the Site Engineer.

3.6.5 SUPPLY AGREEMENTS

Project Managers will review credit applications for all contractors prior to supply agreements. A final review will be completed by the Managing Director for approval

3.6.6 STORAGE OF MATERIALS AND EQUIPMENT

At all times due diligence and care will be necessary to ensure any products or property supplied by Grindley is suitably protected and fit for service. If circumstances arise where this is not the case, Grindley is to be notified promptly of any deficiencies, discrepancies or damage.

- Handling: Chalouhi has put in place safe handling methods to ensure that all products delivered to the site are done so safely to protect the quality of the product and prevent any damage occurring to the product.
- Storage: Chalouhi will use designated areas to store all delivered product to ensure their safety and to prevent any damage to the quality of the product.
- Packaging: It is the requirement of all suppliers or subcontractors that the packaging of all products being delivered to the site is to be of a quality manner and will be inspected on delivery to site for any damage or defects. If any are found the product will be rejected and returned to the supplier or subcontractor for replacement
- Preservation; The Site Supervisor will provide appropriate methods for preservation and segregation of the products being used on the site while the products are under Chalouhi's control.
- Delivery: Chalouhi will arrange for the handover of the product after the final inspection and test.

- Servicing: Any servicing requirements for any product provided will be undertaken prior to handover, to ensure the product conforms to the manufacturer's requirements. All warranties and maintenance periods will be transferred to Grindley upon handover.

3.7 MANAGING SUB CONTRACTORS AND SUPPLIERS

All suppliers and installers of temporary works will be subject to Chalouhi procedures as set out in tender documents, contracts and IMP. Project and/or Site Managers are responsible for ensuring that the review of design of temporary works is conducted prior to contract acceptance.

All subcontractors must submit ITPs along with checklists to Chalouhi prior to commencement on site, or work to ITP's developed by Chalouhi. Any subcontractor supplied quality documentation will be submitted to the Project Manager for approval prior to commencement on site.

All subcontractors will be evaluated on a regular basis for their performance and the requirements to meet the quality standards of Chalouhi and the ISO 14001 Environmental Management Standard during the weekly site safety and Environmental walk and monthly Safe Work Environmental Method Statement (SWEMS) observation. Subcontractors will be assessed on their safety and environmental performance and contractual agreements at completion of the project by the Project Manager Form MC-S-07 Assessment of Subcontractors and suppliers and discussed at the weekly coordination meetings between Chalouhi and Grindley.

Prior to commencement of any subcontracted works, the HSEQ Manager will conduct a review of the Site Management Plans of the subcontractor engaged to perform such works. The review will be carried out using the.

The Subcontractor's site environmental management plan will have ongoing monitoring of their system. A copy of the monitoring review showing any shortfalls in the plan will be issued to the subcontractor for rectification. Chalouhi's IMP will be informed to sub-contractors during site-induction and controls identified in the site Safe work method statements, which will be provided as requested.

The subcontractors SWEMS that are requested prior to works for all high-risk activity are reviewed and evaluated by the site engineer prior to commencement of works.

3.8 PLANT AND EQUIPMENT REGISTER

A Plant and Equipment register will be maintained for all Chalouhi owned equipment held on site. New equipment will be added to the Register by the Site Engineer.

Each month the Site Engineer will print off the latest Plant and Equipment Register and forward it to the Site Supervisor for checking.

3.9 CALIBRATION

Chalouhi maintains a log or register of all inspection, measuring and testing equipment and provides independent certification of calibrations. The calibrations are carried out as per the manufacturer's written recommendations and records of such work will be maintained on site. This includes; water testing kits, noise meters, air monitors and laser meters. If requested by Grindley, the certifications and results of any testing or calibrations will be provided.

3.10 PROJECT AUDITS

3.10.1 INTERNAL AUDITS

During the course of the works on this project, the HSEQ Manager will conduct regular internal reviews on the IMP to ensure that it is being implemented and conforms to Chalouhi's certified Environmental Management System. The IMP will be reviewed every 3 months or unless changes are made prior by HSEQ Manager.

The objective of an Internal Review is to:

- Monitor the management system to seek further improvement and review generated documents, processes and procedures and for any legislative changes.
- Identify any action, process or procedure that may lead to or has caused a non-conformance or does not comply with current road laws and regulations.
- Record all findings in an Internal Review Report to declare the review has been conducted.
- Report any action, process or procedure that has or may cause a non-conformance to the Compliance Manager.
- Investigate why a non-conformance happened / what was the root cause.

On completion, the onsite HSEQ Manager will prepare and submit a report to the onsite Project Manager and Site Supervisor, detailing the findings (including any non-conformances) and list any actions to be taken. On completion of the actions to address Non-Conformances, the document is to be submitted back to the Systems Coordinator/Manager to be closed out, IMP updated and reissued and relevant changes made to policies.

3.10.2 EXTERNAL AUDITS

An independent environmental audit for Chalouhi's HSEQ Certification will be completed for C2 Building by a suitably qualified person/team approved by the site HSEQ Manager as a requirement for Chalouhi's certification.

Auditors will meet the qualification criteria in AS/NZS ISO 19011:2014 Guidelines for quality and/or environmental management systems auditing.

3.10.3 HEAVY VEHICLE AUDITS

HSEQ Manager will conduct regular internal reviews on the contractors to verify operation of system processes and act appropriately by taking corrective actions to minimize the likelihood of a non-conformance reoccurring incompliance with current road transport legislation. To achieve this, all documents records, processes and procedures are subject to regular reviews to verify that all results and activities conform to our policies, procedures and comply with current Acts and Regulations.

Procedure

Six Month Review: Records and documents reviewed during the Six-Month Review include:

- Compliance Statements are up to date
- Driver's medical due dates
- Scheduled maintenance records
- Mass verifications have taken place
- Training records
- Fatigue management: Drivers not taking required rest breaks
- Any Corrective Action Request form not yet closed out

This review should identify but not limited to:

- Driver documentation is being correctly completed
- Journeys have been compliant with mass management
- Vehicles have had all scheduled services carried out
- Training for all staff has been completed and records documented
- Driver medical certificates are up to date

- Whether the management system remains compliant with all current legislation

2. Review Assessment

Findings after any review are to be monitored to gauge whether processes or procedures should be amended or introduced into the management system to better ensure compliance with road transport laws.

After the completion of any review, a Corrective Action Request is to be completed immediately:

- Upon the detection of any non-conformance against this management system.
- Upon a breach of any road law.
- For any infringement or warning issued by a regulatory authority.
- Where drivers have not correctly completed Work Diary pages, Journey Declarations or any other associated journey document.
- For any other action, process or procedure where it has not conformed to this management system.

4.0 SAFETY MANAGEMENT

4.1 GENERAL

Section 4 of the Integrated Management Plan represents the project specific Safety Management. Chalouhi are the principal contractor on this project. Our IMP and this section reflect our WHS duties, and demonstrates our 'due diligence' that is as far as reasonably practicable under the applicable WHS and associated legislation.

Subcontractors will also be required to conform to this Management Plan which will be discussed during the site induction.

4.2 PROJECT SAFETY OBJECTIVES AND TARGETS

WORK HEALTH AND SAFETY		
Safety Aspects	Objectives	Target
Accidents/ Injuries	Incident free across all sites for the duration of works To strive for no accidents in the Chalouhi worksites Increase safety awareness to all staff by on-site training	No workers compensation claims
safety awareness	Chalouhi personnel and sub-contractors have appropriate knowledge and skills to contribute to the continuous improvement of site safety and health Train all Chalouhi workers in accordance with high-risk work activity through weekly-tool box and training workshops and monitor through an annual training calendar	Achieve 100% training in safety requirements -pre-starts/tool-box talks/VOC's Health and safety bi-annual report
Incident reporting	100% of all safety and health incidents reported are investigated by the Site Supervisor and reported to Project Management and Safety team immediately and corrective actions recorded and implemented within 48 hrs.	Health and safety bi-annual report WHSE Incident report

4.3 HAZARD IDENTIFICATION & RISK ASSESSMENT

Chalouhi will not commence any works at the work place unless:

- Chalouhi have undertaken an assessment of the risks associated with the work activities and has provided a written SWEMS for each activity;
- Chalouhi has developed a safety and environmental induction training for all employees and subcontractors;
- Chalouhi has identified the potential hazards of the proposed work activities, assess the risks involved and develops control measures to eliminate, or minimise the risks. The risk management process is to be carried out in consultation with employees through site inductions and tool box meetings; and
- Chalouhi has reviewed any design issues that may cause potential environmental hazards or risks on site.

4.4 PROJECT WHS RISK ASSESSMENT / RISK REPORT

The Project Manager will initiate the development of the Project Risk Register in consultation with the HSEQ Manager. The most recent revision of IMP highlighting the applicable risks associated with the subcontractor's works will be forwarded to subcontractors so they can prepare their respective SWMS accordingly, and communicated to their workforce.

Personnel working on the site will be consulted and their feedback included on the risks via tool box meetings, site induction or by training in revised SWMS, especially following a near miss, incident or accident.

4.5 TRAINING

The Project Manager will ensure that the appropriate training is provided to personnel working on site. This includes as standard:

- Construction Induction Card;
- Project induction;
- Standard Operating Procedures;
- Emergency procedures;
- Health and Safety Representative Competency Training
- Plant verification of competency;
- First Aid certificates;
- Supervisor training.

The HSEQ Manager will coordinate the training and records keeping, maintained and monitored at head office.

4.6 COMMENCEMENT ON SITE

4.6.1 PROJECT INDUCTIONS

Following completion of the Industry Induction Training for Construction Work at an accredited Work Safe training organisation, all site personnel must undertake the following inductions before commencing any work;

- Chalouhi's Site Induction
- Chalouhi's Safe Work and Environmental Method Statement (SWEMS) Induction

Every person must be fully aware of what procedures must be followed, site safety and environmental rules and what services are available should they require them prior to signing the documentation. All staff personnel inducted will be included to the site induction register and an induction sticker will be provided to each person to be placed on their hard hat to identify that they have complete the site induction.

On first arrival to site, all personnel will be required to provide personal details as part of the site-specific induction. The Chalouhi Site Safety and Environmental Rules will also be detailed as part of the induction. The Site Supervisor shall check to ensure that each person has completed an "Industry Induction Training for Construction Work" course and has documentation (Induction card) as evidence of this. Prior to working on site, the worker will be provided with the appropriate personal protective equipment (PPE).

Visitors attending the site are to be accompanied by an inducted person at all times. They will not be required to undertake a full induction, however the key points of the site induction must be communicated to them as per the list provided on the Site Specific Visitor Induction Form HSE-123 Site Specific Visitor Induction. The number of site inductions (including visitors) will be reported to the Grindley as requested.

4.6.2 SITE RULES

The Construction Manager and HSEQ Manager will prepare site rules for the conduct of all personnel in and around the site. The Supervisor will ensure that a copy of the Site rules is displayed in a prominent location and the rules communicated at the site induction.

4.6.3 SITE ATTENDANCE REGISTER

The Site Supervisor will ensure that all site personnel and visitors on site record their attendance and departure in the site pre-start sign in sheet. Records of all Site attendance will be stored on site saved in Chalouhi's intranet.

4.7 SAFE WORK AND ENVIRONMENTAL METHOD STATEMENTS (SWEMS)

4.7.1 GENERAL

The Safe Work and Environmental Method Statements (SWEMS) document the tasks to be carried out as individual steps and the environmental risks associated with each step and the controls necessary to be followed by the workers conducting the task. Any further scope added to Chalouhi's contract as a variation, which requires new or amended SWEMS will be inserted within this IMP and added to the Site SWEMS register.

SWEMS for both Chalouhi and Subcontractor activities are to be monitored as a part of the audit process to ensure their effectiveness and any breaches of safety and environmental concern. This is conducted by the Site Engineer on a weekly basis. The Project Management Team and Safety Management Team are to conduct a review of the SWEMS if it is found the control measures are inadequate, unsafe or environmentally unsuitable. All personnel involved in the works are to be inducted into the revised SWEMS and sign. At minimum the SWEMS will be reviewed bi-annually. High risk construction work activities will be carried out throughout the duration of the works. The NSW Government Code of Practice Construction Work (2019) lists the following as high risk construction;

- Work involving a risk of a person falling more than 2 meters
- Work carried out in or near a shaft or trench with an excavated depth greater than 1.5 meters
- Work carried out in or near a tunnel
- Work carried out on or near pressurized gas distribution mains or pipping
- Work carried out on or near energised electrical installations or services
- Work involving or is likely to involved the disturbance of asbestos

High Risk Construction Work SWMS will be implemented, if and when any of these tasks are undertaken.

4.7.2 SAFE WORK PROCEDURES

A Safe Work Procedure (SWPs) is a document that communicates the preferred way to safely perform work tasks and ensuring workers are adequately trained. Chalouhi have developed statistics for high-risk activities such as:

1. Site establishment
2. Sediment control
3. Excavation
4. Plant and equipment operation
5. Unexpected finds protocol
6. Trailer Decontamination Unit
7. Heat Stress
8. Needles and Syringes Procedure
9. Spill
10. Emergency evacuation

The SWP's are written by a member of staff who has a sound knowledge of the task and has performed the particular task. Consultation with others including Safety Management, Project Management, site representatives and Health and Safety representatives are encouraged to be involved in the process. In some circumstances additional expertise may be required and this should be sought where applicable. This SWP's are subject to reviewed every twelve months and or each time further for variation of works or incident review which requires SWP's to be amended. Staff will be informed of any variations via a site tool box meeting and/or new re-induction to the amended SWP's. All site personnel trained in the safe work procedure are done so by a competent trainer and assessor.

4.7.3 HAZARD NOTIFICATION

Hazards reported by site personnel should be reported to a Chalouhi representative promptly, who will take action to review the reported hazard and close-out the hazard as soon as possible, and eliminate the hazard where practicable to prevent incident. Record the hazard WHSE Incident report and raise it at site Inductions to ensure workers are familiar on the procedure for reporting hazards. Hazards that need to be reviewed in consultation with other stakeholders shall be raised at either the Safety Committee Meetings, and/ or via Consultation at project level at Toolbox Talks.

4.7.4 SITE INSPECTIONS

On a weekly basis the Site Engineers along with the assistance of the HSEQ Manager and/or Site Supervisors will complete a Weekly Site Safety and Environmental Walk (Appendix C) to inspect and identify where controls are adequate, inadequate or not relevant. If any inadequate, unsafe or environmentally unsuitable situations are identified which may be deemed serious or life threatening, or significant or threatening to the environment, then a 'Non-conformance Report' will be instigated detailing the corrective and/or preventive action required.

In consultation with the site HSEQ Manager, the Project Manager will decide on whether it is warranted (based on the severity of the safety and environmental issue) to stop work where a non-conformance applies until the matter is rectified.

4.7.5 PLANT AND EQUIPMENT PRE-START CHECK

On a daily basis, all operators of earthmoving plant and other plant on site will complete a pre-start checks, or plant pre-start checklist as provide by the subcontractor. In doing the pre-start inspection, the operator will confirm that the checks were carried out and any repairs deemed urgent by the operator, will be serviced immediately. Chalouhi will stop the plant from operating until repairs are completed.

Random checks of plant and equipment pre-start inspections will be carried out by the site HSEQ Manager to ensure compliance with this requirement.

4.7.6 MONITORING AND INSPECTIONS

On a daily basis the Site Supervisor will record the daily site activities to assist Site Management with costing and planning of future works with Information including; labour, plant and equipment hire, haulage, material and works for the day.

Chalouhi maintains a log or register of all inspection, measuring and testing equipment and provides independent certification of calibrations. The calibrations are carried out as per the manufacturer's written recommendations and records of such work will be maintained on site. If requested by client, the certifications and results of any testing or calibrations will be provided.

For all plant and machinery (e.g. excavators, dozers, rollers) a plant risk assessment and Plant pre-mobilisation checklist must be developed prior to them arriving on site. This risk assessments and plant checks considers the potential hazards, risks, harm and injury associated with the use of that plant and machinery.

4.7.6.1 PLANT AND EQUIPMENT PRE-START CHECK; MAINTENANCE AND REFUELING ACTIVITIES

4.7.6.1.1 Maintenance of plant and equipment

Plant and equipment used during construction activities will be maintained in a safe and serviceable manner in accordance with the following:

- Plant will be driven and operated only in approved areas only;
- Plant and equipment will be regularly maintained to prevent/fix oil leaks;
- Plant will be serviced and washed-down only in approved areas
- A certified trackable waste transport will then collect any hazardous waste from the plant facility as required; and
- Major servicing is will be carried out off site.

4.7.6.1.2 Plant and equipment refueling activities

Plant and equipment will be refueled by a mobile tanker at a nominated re-fueling position where hydrocarbons can be captured and collected.

Containers of spare fuel will be contained in a purpose-built cage which will contain any leaked or spilt fuel

Figure 4.7.6.1.2– Spare Fuel Contained in Bunded Flammable Cages



4.7.6.1.3 Plant and equipment register

Prior to any plant or equipment coming onto the construction site a Plant pre-mobilisation checklist will need to be carried out on the wet hired plant or equipment and submitted to the Chalouhi site Supervisor. All plant and equipment brought onto the construction site will be included in the site plant and equipment register.

Spill Response Bins are located at the gear store and spare fuel storage area, refer to Figure 4.7.6.1.4

Figure 4.7.6.1.4 – Spill Response Bins

4.7.7 ELECTRICAL EQUIPMENT/WORK

The Site Supervisor will ensure that all electrical equipment (flexible extension cords, portable tools, junction boxes, earth leakage devices and site accommodation appliances and equipment etc.) will be inspected and tested by a suitably qualified person and labeled with a tag of the colour specified in the Electrical Practices for Construction Work Code of Practice appropriate to the month of testing. This inspection, testing and tagging procedure will be undertaken every month throughout the duration of the project.

The inspection, testing and tagging of equipment will be recorded on the Electrical Tagging Log. This log will be maintained throughout the project duration or the duration the equipment is on site. Hired in equipment will be inspected, tested, tagged and logged at the supplier's premises prior to issue. Should an item be delivered to site, which does not have a current tag, then it will be removed from site.

4.7.8 LIFITNG EQUIPMENT

The Site Management Team will ensure that all lifting gear (chains, slings, shackles, hooks etc.) brought on site have a current certificate of test and recorded in the Lifting Equipment Register. Any lifting used by Chalouhi are tested and tagged annually and visually inspected bi-annually. The register will be maintained during the course of the contract. All lifting slings and accessories will be marked with the manufacturer's identification, Safe Work Load (SWL) and the grade of the steel or alloy or will come with a certificate. Prior to use, all lifting gear will be inspected by the Site Supervisor or by a competent person to check for visual defects. Lifting gear that does not have a current test certificate will be removed from site.

4.7.9 HOT WORKS

When hot work activities are carried out on site, a Hot Works Permit must be filled out in conjunction with the Site supervisor and the workers involved in the hot works activity. A hot works permit is valid for 7 days unless advised otherwise by the Principal Contractor

Hot works is defined as any task or work that may produce heat, sparks or having a naked flame. This would include activities such as:

- Oxy and acetylene
- Welding
- Angle grinding

4.7.10 FIRE PROTECTION EQUIPMENT

The Site Management Team will ensure that an adequate number and type of fire extinguishers are available at the workplace and additional extinguishers are located in the immediate vicinity of any work that may create a fire risk. This requirement will apply without exception to any hot works activity and plant operation. All fire extinguishers must be tested and tagged every six months.

Site Personnel and the Site Supervisor will check that extinguishers have not been tampered with prior to having them at the work areas. Combustible materials will not be allowed to accumulate in work areas so as to prevent the creation of a fire risk. A log of all extinguishers will be kept and maintained on site on the *"Fire Protection Register"* which are tested and tagged bi-annually.

4.8 HAZARDOUS SUBSTANCES

The Site Management Team will carry out a Hazardous Substance Risk Assessment on all hazardous substances to be used on site. These assessments will be attached to the Safety Data Sheet (SDS) and kept on site in a register. SDS's obtained must have been produced and/or reviewed by the manufacturer within the five years prior to commencement of site works

The assessment will identify the

- Health hazards;
- Method of use of the substance;
- Controls of the risks;
- PPE requirements;
- The do's and don't's of spills and disposal;
- Storage requirements.

Where practicable, the material with the lowest possible hazard that still meets the technical requirements for the job will be used.

Prior to using any hazardous substance, all workers involved in its use will be provided with adequate information and training to allow safe completion of the required task. This will be covered in the Site Induction and/or in a Tool Box Meeting/Pre start meeting.

Large quantities of concentrated mineral acids, e.g. sulphuric, nitric and hydrochloric acids, must be kept in designated cabinets for corrosive substances. Organic solvents and other flammable substances (petrol, diesel) will be stored in designated flammable storage cabinets. Incompatible chemicals must not be stored together (see relevant Hazard Data Sheet). Hazardous chemicals should never be stored on the floor or on high shelves. Containers should be kept on low shelves or in cabinets. Shelving units should be securely fastened to the wall or floors. Shelves should not be overloaded.

Containers should be inspected regularly for any sign of chemical leakage. Containers of all types should be free of rust and deformation. Caps and covers for containers shall be securely in place whenever the container is not in immediate use. All storage cabinets and rooms must be labelled with the appropriate hazard symbol. Out-of-date and unwanted chemicals will be disposed of regularly.

4.9 HEALTH SURVEILLANCE

4.9.1 DRUGS & ALCOHOL IN THE WORKPLACE

Chalouhi take a serious view in regard to the consumption of alcohol and drugs in the workplace and our goal is to have drug and alcohol-free building and construction sites. This applies to all building and construction sites and to all employees (including subcontractors, consultants and anyone engaged by Chalouhi) working at those sites. Chalouhi and its employees have an obligation not to place at risk the health of people in the workplace.

The consumption of alcohol or illegal drugs on company premises or work sites is prohibited, unless specifically approved by the Managing Director. Any Chalouhi employee (including subcontractors, consultants and anyone engaged by Chalouhi) found to be consuming or bringing onto the work site any alcohol or illegal drugs is in breach of the Chalouhi Drugs and Alcohol Policy and may be subject to disciplinary action, which could lead to dismissal.

Any employee attending work under the effects or influence of alcohol or illicit drugs will not be permitted to commence or continue work. This includes the consumption of alcohol or illicit drugs prior to working hours, which would have the effect that, if tested, the individual would return a positive result.

To ensure the health, safety and welfare of workers, random and casual testing for alcohol and other drugs will be undertaken to assist in determining fitness for duty.

Disciplinary action associated with drugs and alcohol use at the workplace

Any employees found to be under the influence of drugs or alcohol during working hours shall be managed in the following manner:

1. The worker will cease working immediately and will be instructed to sit in the site office;
2. The Project Manager and HSEQ Manager will be informed of the situation immediately;
3. The worker will be asked for the reasons for his actions by the Site Supervisor;

4. The worker will have explained to him the safety risk that he is placing on themselves and other workmates, by the HSEQ Manager;
5. The employee will be tested for drugs or alcohol by the HSEQ Manager as per the procedure;
6. If the result is positive, arrangements will be made for the employee to get home safely;

First positive result in a 12 month period	The worker will be offered transport home by the Company. The worker is to utilise their own leave. The first positive will be considered the worker's first warning. Once a worker has tested positive there will be compulsory testing for that worker in the next round of random tests, until they test negative or reach three (3) consecutive positive results.
Second positive result in a 12 month period	The worker will be offered transport home by the Company. The worker is to utilise their own leave. The worker is required to seek counselling from the EAP provider. The second positive result will be considered the workers final warning.
Third positive result in a 12 month period	A review of their employment status will occur, which may lead to termination.

4.9.2 HEARING LOSS EXPOSURE IN THE WORKPLACE

Prior to the commencement of employment all Chalouhi employees will undergo an Industrial hearing assessment as part of their pre-placement health assessment. Chalouhi provides hearing protection to all workers who carry out any work activities at their work sites. Chalouhi also carry out training with all workers on the possible exposure to loud noise on the site and what controls need to be in place to prevent the possibility of hearing loss of the worker and the public.

On a monthly basis the Site Engineer will complete an on- site noise test to assess the expose on site.

4.9.3 FIRST AID

The Chalouhi will not rely on the First-aid services provided by Grindley.
Where Chalouhi is to provide First-Aid services under the WH&S Act, the following minimum requirements will be provided:

- a First Aid attendant will be on site during site working hours;
- a First Aid shed/room, with First Aid bed and facilities;
- first-aid equipment is located in the designated First-Aid shed/room
- First aid kits will be easily accessible and left unlocked at all times.
- First aid kits shall be kept clean and checked and restocked as necessary, or on a three monthly basis.
- First aid kit locations and trained First Aiders and contact numbers will be displayed on site notice boards.

4.9.4 ACCIDENT & INCIDENT INVESTIGATION AND REPORTING

The two main steps when an employee or subcontractor sustains an injury is to;

- Notify the Site Supervisor as soon as possible;
- Receive appropriate first aid or medical treatment as soon as possible.

The responsibilities in regard to the immediate injury notification and attendance are;

Employee or Subcontractor

- With the escort of a first aid officer, seek immediate treatment for an injury sustained at work or allow assistance from the return-to-work coordinator to provide such treatment including transportation to a doctor/hospital;
- When being treated by the doctor, the doctor is to be informed that the injury was sustained at work or while travelling to/from/between workplaces;

- The employee must obtain from the doctor a Safe Work Medical Certificate of capacity with the "Initial" box ticked.

First Aid Attendant

- Provide first aid treatment to all injured employees;
- If the first aider is an employee of Chalouhi, then the first aider must enter the injury details onto the Injury Register
- The site team will nominate a first aider for the site who will assess the first aid requirements and needs for the project.
- Escort the injured worker to the nearest doctor/hospital for further medical treatment

Site Supervisor

- For workplace injuries, ensure the injured employee receives immediate treatment for injuries from the first aid attendant on site and then from a doctor/hospital (if necessary);
- Complete relevant sections on the "Injury Report" form WHSE Injury Report
- If the first aider is a Chalouhi employee, then the Site Supervisor is to enter the injury details onto the *Injury Register*
- Give a copy of the *Injury Report* to the Project Manager
- Give all the medical receipts (medicines, bandages etc.) and any other document relating to the injury to the HSEQ Manager
- In consultation with all site employees (by means of a Tool Box Meeting), put into action preventive measures to minimise or eliminate the potential of recurrence of such an injury
- Ensure all injured workers are escorted by a first aid officer when seeking further medical treatment

Project Manager, Project Engineer or Site Engineer

- Review the *Injury Report* and sign off on it;
- Give a copy of the *Injury Report* to the HSEQ Manager;
- Conduct a detailed investigation and complete a "*Non-conformance Report*";
- Give a copy of the *Non-conformance Report* to the HSEQ Manager;

Emergency Communication

- In the event of an emergency, communications shall be via the use of UHF radio and mobile phones.
- A list of emergency contact numbers is provided in table 4.9.5 of this document and will be posted on site notice boards.
- The appropriate emergency service shall be notified immediately in the event of an emergency.

The emergency numbers are listed in section 1 of this document and shall be posted on notice boards

4.9.5 EMERGENCY/STAKEHOLDER CONTACT DETAILS

Table 4.9.5 – Emergency Contacts

Contact Name / Service	Name	Ph. Number
POLICE/ AMBULANCE/ FIRE BRIGADE	---	000
STATE EMERGENCY SERVICE (flood and storm)	---	13 25 00
POISONS INFORMATION CENTRE	---	13 11 26
CHALOUHI SITE SUPERVISOR		
CHALOUHI PROJECT MANAGER		
ELECTRICITY	Energy Australia	13 13 88
	Integral Energy	13 10 03
	Country Energy	13 20 80
GAS	AGL Company	13 19 09
WATER	Sydney Water	13 20 90
SAFE WORK	---	13 10 50
DIAL BEFORE YOU DIG	---	11 00
Nearest Medical Centre – Macquarie Park Medical Centre	Shop 456 "the Loft", Macquarie Shopping Centre, Ryde New South Wales 2113	02 9878 6666

4.9.6 INCIDENT / NEAR MISS REGISTER

All Incidents or near misses shall be recorded in the site incident register by the HSEQ Manager or Site Supervisor

4.10 RETURN TO WORK AND INJURY MANAGEMENT PROGRAMME

Injury management is about ensuring the prompt, safe and durable return-to-work of an injured worker. It includes

- Treatment of the injury;
- Rehabilitation back to work;
- Retraining into a new skill or new job;
- Management of the workers compensation claim;
- The employment practices of the worker.

Everyone involved is required to cooperate and participate in injury management (including the injured worker, the insurer, the employer and the treating doctor). The earlier an injury is treated and managed, the sooner the employee will return to work and recover from the injury.

There are two types of plans intended to help the injured employee recover and return to work as soon as possible.

Injury Management Plan:
This is a plan drawn up by the insurance company, after consultation with the injured worker, the employer and the treating doctor. The IMP outlines all the services required for the injured employee to return to work.

Recover at Work Plan
This is a plan written by the Return-To-Work Coordinator or the accredited Rehabilitation Provider with regard to the treating doctor's assessment of injuries. The plan is the written formal offer of suitable duties by the employer to the injured employee.

Suitable Duties

The Return to Work Coordinator will consult with the injured employee's treating doctor to formulate suitable duties, this applies to all injured workers as a part of the Injury Management Plan and Return to Work Plan.

Comprehensive details of the injury management procedures of employees, including rehabilitation and return to work can be provided by the HSEQ Manager.

5.0 ENVIRONMENTAL MANAGEMENT

Chalouhi operates under an ISO 14001 accredited Environmental Management System (EMS), Chalouhi's Environmental Management provides the framework for the onsite construction managers to implement specified corporate standards and practices in a consistent manner. It defines the application of work practices, processes, and systems for engineering / design, acquisition of materials, equipment and services, construction, and other services related to tendering and project execution.

evidence of contaminated material.

5.1 SOIL AND WATER MANAGEMENT PLAN

Compliance requirements

The Soil and Water Management Plan will detail erosion and sediment controls, and:

- Identify the management responses to activities that could cause soil erosion or result in the discharge of sediments and/or other pollutants from the site:
- Specify standards/performance criteria for erosion, sediment, and pollution control including any water sediment basin locations and discharge points, for example parameters, frequency, duration, location and method; and
- Describe what actions and measures will be implemented, the effectiveness these actions and measures and how they will be monitored during the works, clearly indicating who will conduct the monitoring, how the results of the monitoring would be recorded; and if any non-compliance is detected.

5.1.1 POTENTIAL FOR ACID SULPHATES SOILS (PASS)

The potential for acid sulphate Grindley works is unlikely due to the reported findings from previous soil testing of the specific area carried out.

The objective of this plan is to ensure that solid materials are classified and controls put in place to ensure sediment does not enter stormwater drains.

5.1.2 SOIL AND WATER SOURCES AND MITIGATION METHODS

Chalouhi will take all necessary steps to limit the creation of any dust and debris nuisance, which might arise during the preparation of the site and during construction.

Activity	Environmental Impact pre-control measures	Control Measures
Soil (Sand) Management		
All work including, excavation	Prevent sand and rock sediments entering stormwater drains	- Stockpile materials on sealed surfaces (existing roadways) away from stormwater drains (inlets) - Install silt fencing and silt socks where applicable (see below)
Sediment fines	Transported off site via rain water, wind, attaching to vehicles and tracked off site, inadequate dewatering procedures	- Refer to the Dust Management Plan - Install silt fencing as per Figure 5.7.2c - Install silt fencing to the low side of all exposed earth excavations as well as temporary stockpiles, e.g. the stockpile location shown on Figure 5.7.2c - Install metal rumble grid at site exit as per Figure 5.7.2c to facilitate removal of dirt and debris from wheels of exiting vehicles once internal sealed roads have been excavated. - Gravel will be installed beneath the shaker ramp to allow it to act as a wash-down bay where necessary. Water blasters will be used to clean tyres of exiting vehicles as required. Figure 5.7.2a – Silt fencing  Figure 5.7.2b – Rumble Grid 
	Stormwater and/or infiltrated groundwater (considered unlikely due depth of excavation) contaminated with sediment	Install gravel / and filled geotextile socks or coil matts around stormwater drains to prevent sediment runoff Figure.5.7.2c - Silt socks

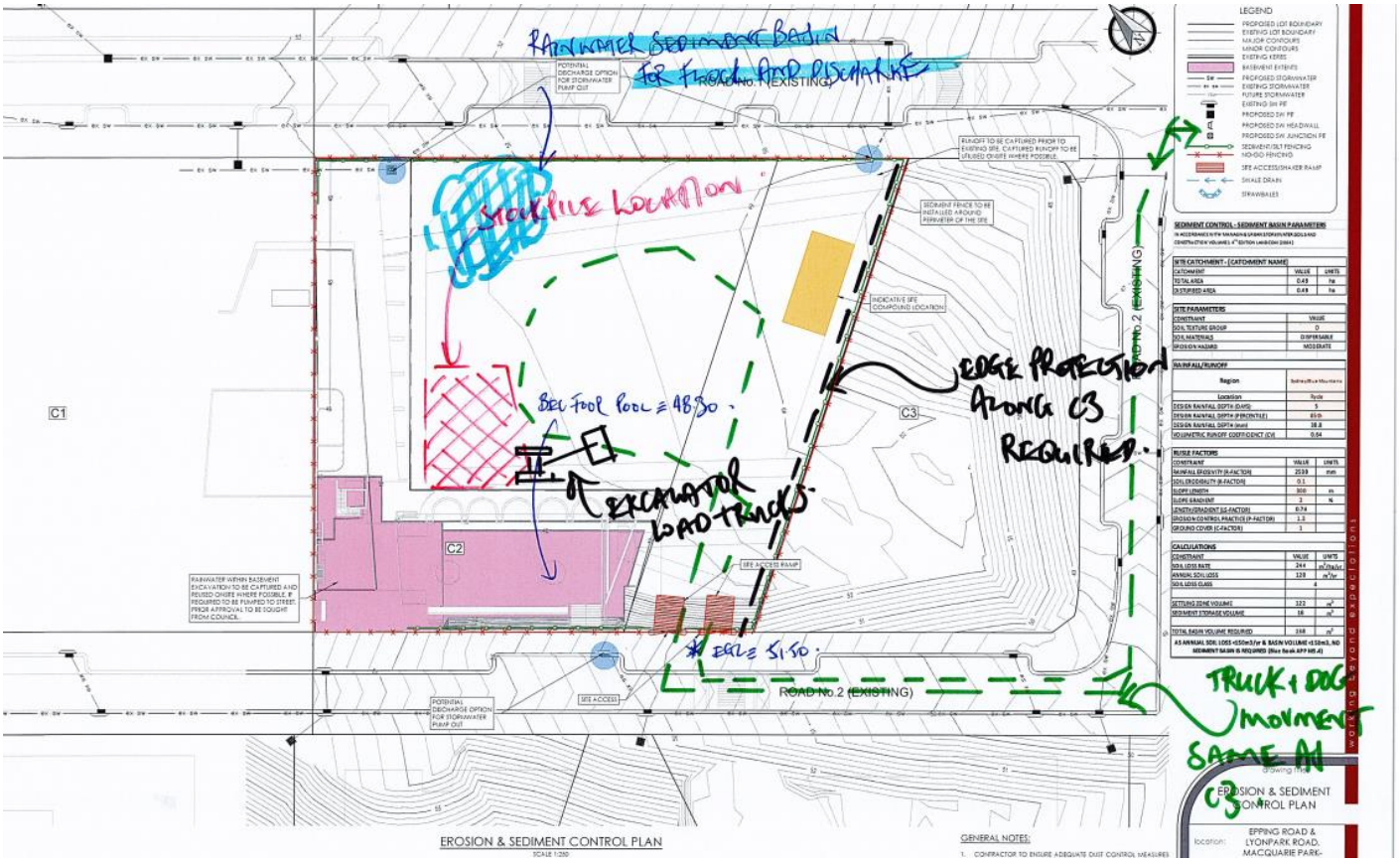
		
Import of bulk supplies of material	Prevent sediments entering stormwater drains	- Stockpile materials on sealed surfaces (existing roadways) away from stormwater drains (inlets) - Install silt fencing and silt socks where applicable (see above)
Water Management		
All work including, excavation and service trenching	Sediment laden water that accumulates within the site and enters the stormwater untreated	- Sediment laden water that accumulates within the site is not to be discharged into any water body or stormwater system without first being treated and tested for pH and turbidity as per Chalouhi's pH and Turbidity Treatment Procedures - Sediment controls (see above) - Dewatering of ponded stormwater or infiltrated groundwater - Subsequent collection to the site water cart for reuse for dust suppression

Table 5.7.2– Soil and Water Sources and Mitigation Methods

5.1.3 TEMPORARY SEDIMENT BASIN

A temporary sediment basin to be constructed by others to intercept sediment-laden site runoff and retain sediment and other materials in order to protect the creek (and other waterways) downstream from pollution. Temporary sediment basin key details are as follows:

- Total Minimum Volume: 1065m3
- Max Ponding Level: 0.54m from base level
- Dimensions: 20m x 35m
- 2x swale inlets with boulders at the basin interface
- 2x 450mm outlet pipes with a sieve-style filtration system that further promotes the capture of pollutants. Water is drained from the basin once the ponding level is greater than that of the outlet pipe, i.e. pumps are not required.
- A weir and rock protected spillway to the South of the basin
- Relevant calculations of temporary sediment basin



5.1.4 CONSTRUCTION SITE RAINWATER TESTING, TREATMENT AND DISCHARGE

Sediment laden water that accumulates within the site is not to be discharged into the existing sediment pond.

Groundwater entitlement is not expected to flow into the excavation zones. According to Douglas Partners Groundwater Monitoring report dated 30 July 2018, project 86043.01 Revision 5.005.Rev0, the ground water levels are typically below the bulk excavation levels of the works and therefore groundwater entitlement into the construction excavations is not expected and highly unlikely.

In addition, a visual inspection (appearance) and smell test for any unusual odour e.g. petrochemical odours.

To ensure this occurs, the following steps will be adhered to by Chalouhi:

- All dewatering must cease immediately where ANY water quality result falls outside the ANZECC water quality reference values;
- The non-conformance is to be documented and reported to the Site Supervisor;
- Trouble shooting should be undertaken to ascertain the reason for the failure and a second test should be undertaken to confirm or refute the non-conforming result;
- Trouble shooting would need to cover a review of the testing equipment, sampling techniques and the extent of flocculation of the water body;
- No dewatering shall recommence until the water quality results meet the ANZECC water quality criteria.

If the pH of sediment pond water is outside the range of 6.5-8.5, it will need to be treated to bring it

- Within the acceptable range. If the water pH is above 8.5, hydrochloric acid is used to lower the pH. Ensure correct PPE worn – Nitrile gloves, respirator mask, apron and safety goggles and follow relevant SDS and SWMS
- A 500mL dose of acid to 7000L of water will lower the pH by approximately 1.5.
- If the water pH is below 6.5, a base such as agricultural lime, with a pH of about 8.2, will be used to raise the pH.

If the turbidity of water is greater than 50 NTU, a flocculent should be used as follows:

- Treating water with flocculent (e.g. gypsum, liquid alum or flocculent blocks) will make the sediments drop to the bottom.
- Dosing rates of 30kg per 100m3 will be used and application methods will be applied as per methods recommended in the Landcom publication *Managing Urban Stormwater, Soils & Construction* (4th edition).
- Note that an even application over the captured water is essential for effective flocculation. Apply evenly in water and wait for the sediment to settle out.
- Only environmentally safe flocculants are to be used based on the HSE Manager's review of SDS information.

5.1.5 MINIMISING SPOIL REMOVAL AND INCREASE REUSE

Throughout the construction activities Chalouhi will actively seek opportunities to:

- Minimise spoil removal and associated impacts on stakeholders, community and the environment;
- Maximise the beneficial reuse of spoil material from the Project;
- Address the Project wide objective to provide certainty of delivery by managing spoil in a manner that avoids impacts on construction activities and timing.

Where feasible and reasonable, spoil would be managed according to the following hierarchy:

- Minimisation of spoil generation through design and management

- Reuse of spoil within the construction area
- Beneficial reuse of spoil outside the project for environmental and community works
- Beneficial reuse of spoil outside of the construction area for site levelling, development or rehabilitation
- Disposal of spoil outside the construction area for non-beneficial uses (landfilling)

The soil type including soil physical and chemical characteristic across the site are carefully assessed and recorded to provide information on the type of valuable resource that are available. The majority of spoil that would be generated from the construction activities is expected to meet the classifications of Virgin excavated natural Material (VENM).

Spoil temporary stockpile location

Any spoil that is to be reused on site will be stockpiled in the temporary stockpile. Material stockpiled will be wetted down to minimise dust. The location of the temporary stockpile position can be seen in Figure 5.7.2d of this report.

Excess spoil would be disposed of at a location that has appropriate approval or licences to accept the material. Solid waste and more highly contaminated materials will not be reused or imported to onsite. Imported materials include; stabilised sand.

5.1.6 EROSION AND SEDIMENT CONTROL INSPECTION CHECKLIST

As part of Chalouhi's weekly site walk, the site sediment controls are inspected to ensure they are compliant with their design intent. In the event of non-conformance, they will be immediately rectified and re-inspected by the site supervisor and site engineer. These controls are also visually monitored daily by the site supervisor to ensure they comply. **Figure 5.7.6a** below is an extract of the erosion and sediment control checklist from the weekly site safety walk.

ENVIRONMENTAL CONTROLS				
Item	Yes	No	N/A	Comments
Liquid Pollution				
Chemicals/fuels are kept in sealed containers and are in dedicated storage locations?				
Spill kit on site and stocked adequately?				
Silt ponds in place?				
Is silt pond water being tested for pH and turbidity prior to discharge?				
Erosion control measures are preventing sediment from entering waterways?				
Silt fence secure and in appropriate locations?				
Silt fence clean and maintained?				
Cattle Grid, maintained and draining within site boundary?				
Storm water grates are protected?				
Re-fuelling of plant is being carried out by mobile re-fuelling companies?				

Figure 5.1.6a – Weekly environmental site inspection checklist

In conjunction with the above figure 5.1.6a, extract from the weekly HSE walk, Chalouhi will implement the Weekly site inspection checklist prepared by the International erosion Control Association (IECA). A copy of this form is located in Appendix C of this Report.

6.0 APPENDICES

6.1 APPENDIX A – CHALOUHI POLICIES

CHALOUHI • DEMOLITION • EXCAVATION • CIVIL CONSTRUCTION	POLICY	Reference: IMS POL-003
	WORK HEALTH & SAFETY (WHS) POLICY	Revision: 2.1
		Date :11/01/2023

Policy
Work Health & Safety (WHS) Policy

Description
Chalouhi has guidelines for all employees regarding the WHS Policy.

Purpose
The purpose of this policy is to explain the general procedures relating to the Chalouhi WHS Policy.

Scope
The following guidelines are to be adhered to by all managers, supervisors and employees.

Procedure

Statement of Intent
Chalouhi is committed to Work Health & Safety ensuring the health and safety of all employees, customers, contractors, visitors and other interested parties.

We believe that our people are our greatest asset and their health & safety is our biggest responsibility. The public, including sub-contractors, shall be given equal priority to that of our employees.

As part of this process we shall
- Fully comply with all WHS Acts and Regulations
- Fully comply with all other reasonably practicable requirements placed upon us

Objectives
- To eliminate work related injury and illness.
- To make health & safety an integral part of every managerial, supervisory and employee position.
- To ensure health & safety is considered in all planning and work activities.
- To involve our employees in the decision-making processes through regular communication, consultation and training.
- To provide a continuous program of education and learning to ensure that our employees work in the safest possible manner.
- To identify and control all potential hazards in the workplace through hazard identification and risk analysis.
- To ensure all potential accident/incidents are controlled and prevented.
- To provide effective injury management and rehabilitation for all employees.

Strategies
- Monitoring the number or type of workplace accidents, health impact issues or near miss incidents.
- Ensuring regular and meaningful consultation methods are in place.
- Reviewing the number, type and close out of actions associated with workplace hazard reporting.
- Reviewing the effectiveness and status of our risk register in identifying and controlling safety risks in the workplace.
- Monitoring of outstanding inspections, safety actions and reviews.

Reporting
The HSEQ Manager and Management are responsible for monitoring and evaluating the implementation and effectiveness of this policy and for reviewing this policy as required.

Dissemination
This policy is provided to all staff upon induction and is to be prominently displayed in the workplace. This policy is available to interested parties upon request.

Review
This policy statement will be reviewed every 24 months or earlier if significant changes occur.

Chief Executive Officer — **Date** 11/01/23

Reference: IMS POL-003	Page: 1/ 1

CHALOUHI • DEMOLITION • EXCAVATION • CIVIL CONSTRUCTION	POLICY	Reference: IMS POL-002
	ENVIRONMENT POLICY	Revision: 2.1
		Date: 11/01/2023

Policy
Environmental Policy

Description
Chalouhi is striving for a sustainable future and as such, the organisation is committed to minimising the impact on the environment from its business operations.

Purpose
Chalouhi is committed to conducting our business in an environmentally aware and responsible manner. We seek the cooperation of our employees in ensuring our work practices are conducted with minimal environmental impact. The purpose of this policy is to explain the general procedures relating to the Environmental Policy

Scope
The following guidelines are to be adhered to by all Management, supervisors and employees.

Procedure
To support this objective, we will seek the assistance of our employees to minimize our environmental impact by:

- Comply with applicable local, state, and federal environmental regulations and legislations
- Comply with all conditions pertaining to our EPA Environmental Protection License
- Comply with all statutory licensing for the removal and disposal of Asbestos Materials
- Implementing systems to decrease the volume of waste we generate
- Where practical use environmentally appropriate packaging and recycle wherever possible
- Identify our environmental impact and any potential risks at all our locations and implement control measures for any potential hazards.
- Continually seek to improve the environmental performance of our business
- Engage employees, clients and suppliers in reducing the organisation's carbon footprint
- Train appropriate employees in sustainability management
- Lead by example and aim to become advocates for sustainability in our sector
- Encourage the development of innovative sustainable products and services
- Adopt sustainable procurement practices
- Actively encourage and support our suppliers to adopt sustainable practices
- Measure and periodically report on our progress towards our sustainability goals
- Use finite resources, including paper, energy, fuel and water as efficiently as possible
- Identify our environmental impact and any potential risks at all our locations and implement control measures for any potential hazards.

In particular we will:

Emissions

- Calculate the carbon footprint of our business operations
- Minimise our carbon footprint through reduction strategies
- Promote energy efficiency to our employees, customers and suppliers
- Consider purchasing carbon offsets where appropriate

Hazardous Substances

- Only Mix Chemicals in the designated areas
- Dispose of chemicals as per the Safety Data Sheets (SDS)
- Never wash chemicals down drains or gutters
- If spills occur, contain and clean up the spills by following Safety Data Sheet (SDS) directions

Waste

- Minimise waste by evaluating procedures to ensure they are as efficient as possible
- Actively promote recycling of paper, cardboard and other materials
- Recycle at every opportunity
- Remove all rubbish and waste from the work area and dispose of it appropriately

Water

- Actively promote water conservation across the organisation
- Wash company plant and vehicles in designated areas, where there are no designated areas for washing plant and vehicles, ensure it is done away from driveways, gutters and roads so run-off does not enter storm water drains.

Flora & Fauna

- Take steps to prevent soil erosion
- Reduce impact of our work on native flora and fauna (e.g. noise, dust)
- Where declared weeds occur on the job site, ensure all soil and seeds are removed from plant and vehicles so transference of weeks is avoided

This policy is explained and discussed at the general induction training given to all new employees and has been communicated to all current employees. All employees are expected to know what the environmental policy means to them and how it affects their job or position within the organisation.

Review
This policy statement will be reviewed every 24 months or earlier if significant changes occur.

Chief Executive Officer — Date: 11/01/23

CHALOUHI	POLICY	Reference: IMS POL-001
	QUALITY POLICY	Revision: 2.1
		Date: 11/01/2023

Policy
Quality Policy

Description
Chalouhi has guidelines for all employees regarding the Quality Policy.

Purpose
The purpose of this policy is to explain the general procedures relating to the Chalouhi Quality Policy

Scope
The following guidelines are to be adhered to by all Employees of Chalouhi Group and its group of companies.

Procedure

Chalouhi is engaged in the business of Civil Contracting and this policy applies to all of the divisions throughout the organisation.

The purpose of this policy is to confirm our commitment to meeting the quality standards expected by our clients in the delivery of our services.

Our quality system is based on the requirements of ISO 9001: 2015

Our quality objectives are to:

- Use the Quality Management System as a tool in achieving best practice outcomes across the organisation;
- Ensure continuous improvement;
- Ensure that there are zero complaints from the clients and every job is completed within the agreed time frame and on budget.

To implement this policy, we shall focus on the needs of our business with particular reference to consistently meeting our customer's requirements and statutory obligations.

Our quality management system will provide mechanisms for detecting system shortfalls and for stimulating process improvements.

Chalouhi will adopt procedures and disciplines to ensure that:

- The system is effectively implemented by undertaking relevant skills training and conducting appropriate quality awareness training;
- Responsibilities for quality are established by communicating these responsibilities clearly to all employees;
- The policy and procedures continue to be appropriate by initiating regular reviews to check its effectiveness and ongoing relevance, and the company regularly review the needs and expectations of our clients and initiate continuous improvement activities to meet these expectations.

Review
This policy statement will be reviewed every 24 months or earlier if significant changes occur.

Chief Executive Officer — **Date** 11/01/2023

6.2 APPENDIX B - PROJECT SAFETY AND ENVIRONMENTAL RISK REGISTER AND CONTROL MEASURES

Consequence	Description	Likelihood	Description
Extraordinary	Catastrophic impact on project. Major incident involving fatalities or permanent disability; toxic release of chemicals, long-term environmental impact; loss of property; very high financial loss	Almost Certain	The event/impact is common and expected to occur in most circumstances *(will occur regularly / 10 times for year)*
Major	Major negative impact on project; Serious injury or disease to workers or the general public; medium-term environmental effects; major property damage; loss of production; high financial loss	Likely	The event/impact has happened before and will probably occur again *(will occur often / 5-10 times per year)*
Moderate	Significant negative impact on project; Medical treatment requiring several days off work; spillage contained with outside assistance; significant property damage; medium- financial loss	Possible	This event/impact could occur at some time *(is likely to occur few 2-3 times per year)*
Minor	Minor negative impact on project; minor injury requiring First aid treatment; spillage contained on site; moderate property damage; low-medium financial loss	Unlikely	This event/impact is not likely to occur *(is unlikely to occur more than once per year)*
Insignificant	Insignificant negative impact on project; No injuries; Minor property or environmental damage; very low financial loss	Rare	This event/impact may occur in exceptional circumstances only *(is unlikely to occur during a year)*

Hazards Against each step	Raw Risk			Control Measures For each of the identified list the control measures required to eliminate or reduce the risk so far as reasonably practicable	Residual Risk			Role Responsible
	Consequence	Likelihood	Risk		Consequence	Likelihood	Risk	
Individuals struck by plant /delivery trucks moving around site	Extraordinary	Likely	death or disability of worker	• hold regular toolbox talks to inform site personnel of new works/access and plant operations • operators to have relevant plant licence and voc • cartage contractor to be consulted in determining the optimal means of site entry/exit and the loading area arrangement suitable for truck and dog. • use traffic control/spotter to co-ordinate movement of trucks into work area, when other machines or individuals are present. • pre start checks on the machine prior to work beginning on stable, level ground. • plant and vehicles to be fitted with yellow flashing light, reverse signal or beeper and horn in good working order • plant /trucks not to exceed 10km/hr on site and follow traffic management plan route • minimise work on foot, remove unnecessary personnel from work area • do not walk in front of or behind the plant while it is in operation. • do not approach moving plant; wait until the plant has ceased operation and signals for you to approach before approaching. • plant operators are to be aware of current entry and exit points for the work area. • machinery and trucks must operate at a safe and manageable velocity (<10km/h). • all machines and trucks are to operate with flashing lights that must be in use at all times whilst on site.	Extraordinary	Rare	death or disability of worker	plant operator, site supervisor and all site personnel

Hazards Against each step	RAW RISK			control measures for each of the identified list the control measures required to eliminate or reduce the risk so far as reasonably practicable	Residual Risk			Role Responsible
	Consequence	Likelihood	risk		Consequence	**Likelihood**	**risk**	
truck striking an individual (delivery to site)	Major	Likely	death or disability of worker broken bones, serious injury minor injury	• cartage contractor to be consulted in determining the optimal means of site entry/exit and the loading area arrangement suitable for truck and dog. all trucks must adhere to routes identified in traffic management plan and tc instructions • spotter with spotter vest) and operator must remain in constant contact via radio or eye contact with all plant and delivery trucks • all trucks to be fitted with audible reversing beacons. • all personnel are to keep a vigilant watchful eye for each other and spot for co-workers on site. • truck drivers shall adhere to the minimum ppe requirements if they exit vehicle-high vis apparel, hard hat and steel capped boots. • any reversing vehicles must have spotter • ensure that there is unrestricted vision between yourself and machine whilst working in the same area. • use of trained person as spotter. • prior to plant working on project site, all plant must have a plant daily pre-start checklist (hse-120), plant maintenance record (hse-145) and plant hazard & risk assessment (hse-132) completed and approved. • excavators are only to travel in the direction that the cabin is facing. • a dedicated spotter must ensure that all personnel are clear from the area of travel and that the excavator is safe to move. • spotter (with spotter vest) and operator must remain in constant contact via radio or eye contact with all plant and delivery trucks • delivery driver to remain in vehicle at all times unless instructed by otherwise by site supervisor. if exiting the vehicle, driver must wear correct ppe as per site requirements • when working near the exclusion zone ensure the operator has visually seen you and is aware of the activity taking place	Major	rare	death or disability of worker broken bones, serious injury minor injury	site supervisor all site personnel

Hazards AGAINST EACH STEP	RAW RISK			control measures for each of the identified list the control measures required to eliminate or reduce the risk so far as reasonably practicable	Residual Risk			Role Responsible
	Consequence	**Likelihood**	**risk**		Consequence	**Likelihood**	**RISK**	
plant colliding with other plant	Major	Likely	death or disability of worker broken bones, serious injury minor injury	• all drivers to follow designated tcp and designated haul route on site • barriers and signage is to be erected onsite prior to the commencement of works, this is to designate pathways and access ways. • delivery trucks to be access site via designated access ways and may be directed by site personnel as required. • competent spotter to be used to co-ordinate movements in and out of shared areas where collisions with other plant may be possible. • plant operators are to be aware of current entry and exit points for the work area. • machinery and trucks must operate at a safe and manageable velocity (<10km/h). • minimise unnecessary traffic through work areas •	MAJOR	unlikely	death or disability of worker broken bones, serious injury minor injury	site supervisor all site personnel
collapse of excavation	Major	Likely	death or disability of worker broken bones, serious injury minor injury	• avoid having persons working around areas where there could be a potential of collapse. • do not park plant and machinery near to excavation walls. • use spotter (identified with spotter vest) to help guide trucks into and out of site. • spotters and plant operators are to have a clear field of vision and maintain eye contact. • barriers & signage may be required to be erected to create exclusion zones as required. • batters are to be made safe prior to entering excavation, and excavators are to maintain a distance of 2m from the edge of a batter while moving. • do not park plant/machinery close to the edge of excavations. • remove loose material from the top of batters or excavation faces.	MAJOR	RARE	death or disability of worker broken bones, serious injury minor injury	site supervisor all site personnel

Hazards Against each step	RAW RISK			control measures for each of the identified list the control measures required to eliminate or reduce the risk so far as reasonably practicable	Residual Risk			Role Responsible
	Consequence	**Likelihood**	**risk**		CONSEQUENCE	**Likelihood**	**RISK**	
hit by falling objects	Major	Likely	death or disability of worker broken bones, serious injury minor injury	• all trucks to be fitted with audible reversing beacons • all personnel are to keep a vigilant watchful eye for each other and spot for co-workers on site • truck drivers shall adhere to the minimum ppe requirements that apply to all other site personnel if they exit their vehicle. this includes high visibility apparel, hard hat and steel capped safety boots • the loading area is a no-go zone for all non-involved personnel during load out • slewing of the excavator shall be at a speed such that material will not project from the bucket • do not move between the truck and the excavator while loading is in progress. • at no time shall personnel move between the truck and the dog.	MAJOR	unlikely	death or disability of worker broken bones, serious injury minor injury	site supervisor all site personnel
electrocution	Major	Likely	death or disability of worker broken bones, serious injury minor injury	• ensure all electrical equipment used in this activity has been tested and tagged by a competent person • there is to be no piggy backing of leads for any electrical equipment used within the confined space. • all connections are to be secured and taped with electrical tape for added assurance that there will be no moisture in the connection. • all leads that are used to supply live electricity to the work zone are to be plugged into a power board fitted with a rcd, the power board is then able to be plugged into the 240 volt electrical outlet. • manage the location of the leads so as they are not getting interfered with during the normal operation of the work site, keep all leads away from any moving parts or equipment to ensure they stay free from damage and in good working order	Major	RARE	death or disability of worker broken bones, serious injury minor injury	site supervisor all site personnel

Hazards Against each step	RAW RISK			control measures For each of the identified list the control measures required to eliminate or reduce the risk so far as reasonably practicable	Residual Risk			Role Responsible
	Consequence	**Likelihood**	**risk**		Consequence	**Likelihood**	**RISK**	
contact with underground services	Major	Very likely	death or disability of worker closure of Ports terminal	• tool box to be completed with all site personnel prior to any works near live services • excavation permit to be completed highlighting live services • safety barriers/fencing has been erected to protect staff and the public in areas that are at risk • spill kit and fire extinguisher to be available near works. operating plant to be fitted with fire-extinguisher • obtain service information: dial before you dig (www.1100.com.au) plans should remain on site and accessible (issued within last 30 days). • service locator to examine service plans and perform detailed scan of site- additional to plans • assets to be clearly labelled with marking paint and/or timber stakes • notification to the access authority- service supplier or its agent that you intend to commence excavation and associated works adjacent to underground assets inside no go zone • once services have been identified, potholing is to be performed with a combination of vacuum excavation and hand excavation to safely expose services. pot-holing must be used to locate existing underground assets to ensure adequate clearances are maintained between assets and to locate other asset crossings. pot-holing at each asset crossing and at regular spacing along assets is recommended	rare	unlikely	death or disability of worker closure of Ports terminal	site supervisor all site personnel

Hazards Against each step	RAW RISK			Control measures For each of the identified list the control measures required to eliminate or reduce the risk so far as reasonably practicable	Residual Risk			Role Responsible
	Consequence	**Likelihood**	**risk**		CONSEQUENCE	**Likelihood**	**RISK**	
contact with underground services (continued)	Major	Very likely	death or disability of worker closure of Ports terminal	full time supervision of spotter who has the full understanding of known services in the vicinity of the work area, with use of 2-way radio should any unidentified objects. marking tape, polymeric plastic slab, trace wire or other labelling be encountered during excavation work, the work must stop until site supervisor is notified.	MAJOR	unlikely	death or disability of worker closure of Ports terminal	site supervisor all site personnel
fire / explosion	Major	Unlikely	death or disability of worker broken bones, serious injury minor injury	• hot works permit obtained and adhered to where required. • appropriate warning signs to be displayed on fuel cages at all times • ensure the equipment being refuelled is switched off before refuelling. • no smoking in the vicinity of fuel containers • no hot works near fuel containers • fire extinguisher to be maintained (6 month inspections) and mounted to the fuel cage • fuel is to be kept in sealed containers and clearly labelled • store fuel containers in well ventilated fuel cages away from direct sunlight • fuel cages are to be accessed by authorized personnel and adequately secured. • no electrical devices and/or mobile phones used near fuel containers • ensure that incompatible chemicals are not stored close to each other	MAJOR	Unlikely	death or disability of worker closure of Ports terminal s	site supervisor all site personnel

Hazards Against each step	RAW RISK			control measures For each of the identified list the control measures required to eliminate or reduce the risk so far as reasonably practicable	Residual Risk			Role RESPONSIBLE
	Consequence	**Likelihood**	**risk**		CONSEQUENCE	LIKELIHOOD	risk	
fire / explosion (continued)	Major	Unlikely	death or disability of worker broken bones, serious injury minor injury	• maintain a fire equipment register. • fuel truck operator to ensure that the fuel nozzle is firmly placed within the fuel tank before the fuel pump is activated • oxy-acetylene bottles should be stored separately and upright. • do not place tanks near any fire or explosive material, or hot surfaces	MAJOR	RARE	death or disability of worker broken bones, serious injury minor injury	site supervisor all site personnel
inhalation of fumes	Moderate	Unlikely	irritation of lungs dizziness	• fuel is to be kept in sealed containers and clearly labelled • store fuel containers in well ventilated fuel cages away from direct sunlight • fuel cages are to be accessed by authorized personnel and adequately secured. • appropriate warning signs to be displayed on fuel cages at all times • no storage of fuel within 50m of a waterway • fuel cages are to be accessed by authorized personnel and adequately secured. • appropriate warning signs to be displayed on fuel cages at all times • wear task specific ppe as required • follow information/direction on the msds. copies of msds will be kept in Chalouhi site office • mobile fuel companies are to provide their own swms which their operators are to be inducted into	MODERATE	rare	irritation of lungs dizziness	site supervisor all site personnel

Hazards AGAINST EACH STEP	RAW RISK			control measures For each of the identified list the control measures required to eliminate or reduce the risk so far as reasonably practicable	Residual Risk			Role RESPONSIBLE
	Consequence	**Likelihood**	**risk**		CONSEQUENCE	LIKELIHOOD	**risk**	
use of damaged equipment	Moderate	Unlikely	death or disability of worker	• daily pre start inspections of all equipment must be carried out prior to use • training provided specific to the type of plant/equipment used including use of angle grinder/oxy-acetylene, demo saw and other power tools) • ensure the angle grinder is fitted with a dead man switch	MODERATE	RARE	death or disability of worker	site supervisor all site personnel
working in hot environment	Moderate	Unlikely	Unlikely	hard hat brims are provided to site and should be worn at all times, especially between 10am-3pm when the sun is at its most intense. wear sunscreen and safety sunglasses. provide shade for rest periods. • where possible, rotate duties to minimize the duration of exposure. • where workers are required to wear ppe that could cause overheating, schedule such work for the cooler times of the day. • a cool fresh water supply is to be provided • plant pre-start daily checks shall be carried out for all mobile plant. • plant operators shall monitor engine temperature gauges, ensure that plant is well-maintained, ensure air conditioner (where fitted) is in good working order and ensure engine has sufficient coolant to carry out works without overheating	Moderate	rare	heat stress heat stroke heat exhaustion plant overheating	site supervisor all site personnel
Dust from vehicles & plant moving around site.	Moderate	Unlikely	Lung infection	• dust control must be in-place such as wetting areas down with water blaster. • dust masks (minimum p2 grade) to be worn for any workers entering excavation works zone • appropriate eye protection, face shield or goggles as required. • all site personnel with risk to exposure to silica are to complete a site fit testing for	moderate	rare	Lung infection SILICOSIS	site supervisor & operators.

(silica exposure)			Silicosis	respiratory masks • dust monitoring to be completed on site to monitor site (hygienist) to monitor site and individual exposure levels • all stockpiles are to be wetted down with use of water gurney prior to load out • water gurney to light spray tracking path of plant to minimise dust. • all mobile plant completing excavation works such as hammering, loading out are to be monitored for dust control at all times with a water gurney • all trucks are to have covered tarps when transporting excavated material				

6.3 APPENDIX D – EMERGENCY EVACUATION PROCEDURES

The accidents or incidents may be significant enough to warrant the evacuation of work areas within sites or the entire site as a whole.

Induction

The Site Supervisor will induct all the people on site, working for or contracted by Chalouhi, onto the Emergency Procedures established for Chalouhi's scope of works.

Entry onto Site

Upon arrival on site, each person (whether a site employee, contractor or visitor) must sign in at the office and on leaving the site, sign out. This form will enable the Site Supervisor to account for all personnel on site in the case of an emergency or evacuation.

Fire Wardens

As part of the emergency control measures the site team must ensure that there is designated emergency personnel are trained in emergency evacuation of the site and Fire wardens are available to assist with the evacuation of the site as per the company procedures (Emergency evacuation drill).

Fire Fighting Equipment

The site team is to ensure that firefighting equipment e.g. Fire Extinguishers are tested and tagged every bi-annually and are located in accessible areas to the work area and any flammable goods. Only if it is safe to do so, and the person is trained to use fire fighting equipment, will fire fighting be carried out.

Emergency Contacts

The Emergency Contacts form will list the phone numbers for Emergency Services, key Chalouhi personnel and utilities, and details for the nearest medical centre, hospital and doctor. This will be available in the site office.

First Aid Services

Chalouhi will not rely on the First-aid services provided by Grindley .
Where Chalouhi is to provide First-Aid services under the WH&S Act, the following minimum requirements will be provided:

- A First Aid attendant will be on site during site working hours;
- first-aid equipment is located in the designated First-Aid shed/room
- First aid kits be located every Chalouhi work vehicle and in the site office(s).
- First aid kits will be easily accessible and left unlocked at all times.
- First aid kits shall be kept clean and checked and restocked as necessary, or on a three monthly basis.
- First aid kit locations and trained First Aiders and contact numbers will be displayed on site notice boards.

Injury Reporting and Investigation

- All injuries relating to activities on site, will be reported to the appropriate First Aider on site;
- Injuries will be recorded in the "Injury Register "by the First Aider or the site supervisor;
- The HSEQ Manager and Site Supervisor will record all injuries onto the Injury Report form;
- The HSEQ Manager will review the report to ensure that corrective measures are adopted and are in place to eliminate or control the likelihood of reoccurrence;
- The HSEQ Manager and Site Supervisor will investigate all injuries within 48 hours;
- Any notifiable injuries will be reported to Safe Work NSW and the Grindley Project Manager by the HSEQ Manager.

Emergency Communication

- In the event of an emergency, communications shall be via the use of UHF radio and mobile phones.

- A list of emergency contact numbers is provided in section 1 of this document and will be posted on site notice boards.
- The appropriate emergency service shall be notified immediately in the event of an emergency.
- The emergency numbers are listed in section 1 of this document and shall be posted on notice boards.

Emergency Assembly Area - TBC

6.4 EVACUATION PROCEDURES – RESPONSIBILITIES

In order for emergency procedures for evacuations to be carried out smoothly and safely, the following responsibilities have been allocated. In carrying out their responsibilities, each site person is to do so if it is safe and it does not present a risk to their health and safety.

Site Supervisor

- When informed of the event or having witnessed the event, make a judgement on the seriousness of the event itself;
- Direct the Site Engineer, Sub-Foreman or a member of the labour force to call everyone to take action in evacuating the work place;
- Direct site personnel to shut down machinery, gas supply, electrical supply etc.;
- Direct site personnel to clear evacuation routes of any obstructions;
- If the incident cannot be safely controlled by site personnel, then arrange for the appropriate emergency services;
- Direct site personnel to clear access routes in order for emergency services to gain access to the event;
- Direct someone to guide the emergency services, ambulance, doctor, etc. to the emergency area;
- Arrange for first aid or medical assistance to anyone who is injured;
- Cordon off the area, if safe to do so;
- Notify public utilities if utilities are affected by the incident;
- If EPA has licensed the activity, then EPA is to be notified of the incident immediately;
- If the works are not EPA licensed, then notify the local council environmental officer;
- Communicate with the appropriate emergency service(s) for assistance;
- Once everyone has arrived to the assembly area, do a head count and check to make sure everyone is present.

Project Engineer / Site Engineer

- Once safe to do so, investigate the event, complete a “Non-conformance Report” and submit the report to the Project Manager or Systems Manager for action.

Site personnel, Contractors, Visitors

- No one is to go the site accommodation sheds to collect personal items;
- All personnel are to immediately make safe any equipment or machinery being used and go to the emergency evacuation muster point and remain until instructed by the Site Manager to do otherwise; and

Recording of Personnel

- The site sign on register shall be maintained by the Site Manager ensuring all personnel, both workers (including subcontractors) and visitors sign in an out of the site office on a daily basis.
- The Deputy shall ensure that this register is taken to the Muster point during an emergency evacuation.

6.5 APPENDIX E - CHALOUHI SITE SAFETY RULES

Breach of any of the following rules may result in immediate removal from site.

1. Mandatory PPE whilst on site; Hard Hat, High Vis Vest and Steel Cap Work Boots, additional PPE required to task specific activity.
2. Use of mobile phones and portable music players are not permitted in work areas during work hours, including all social media.
3. Due to contractual requirements, no site personnel are permitted to post any image of our sites or related material to any social media platform.
4. Follow signs and procedures – control measures are put in place for your safety.
5. Work areas must remain in a clean and safe condition.
6. All persons requiring first aid treatment are to remain on site and contact the First-Aid Attendant for treatment.
7. All persons must report all hazards (including all equipment damage), accidents, incidents and near misses immediately to the Site Supervisor.
8. All site personnel are to maintain an exclusion zone of 3 metres from swing radius of mobile plant or vehicles unless the operator/driver has been informed and the plant or vehicle is immobile.
9. Barricading and signage must be installed around all excavations and exclusion zones.
10. All penetrations must be covered and fixed down or a guard rail installed around the hole to prevent persons falling through.
11. No tools, equipment or machinery to be operated by anyone unless that person has obtained a verification of competency for each tool/machine.
12. Hazardous chemicals and gases are to be stored in an enclosed cages on site. SDS available in site office
13. No water is to be discharged from site without being treated and tested.
14. Any comments, suggestions or complaints from the public in regard to safety and environmental issues in or around the site are to be reported to the Site Supervisor.
15. The consumption of, or being under the influence of alcohol and illegal drugs on site is prohibited
16. The following behaviour is not permitted on site: offensive language, bullying, harassment, racism, sexism, defamatory content or any serious breach of the Work Health and Safety Act,
17. In the event of an emergency all persons must move to the nearest exit muster point

Appendix 7 - Unexpected Finds Protocol

Douglas PARTNERS

GROUNDED EXPERTISE

Report on Unexpected Finds Protocol

Proposed Midtown Building C2
Ivanhoe Place, Macquarie Park NSW

Prepared for Grindley Construction Pty Ltd

Project 86043.26

17 July 2024

Document History

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The undersigned, on behalf of Douglas Partners Pty Ltd, confirm that this document and all attached drawings, logs and test results have been checked and reviewed for errors, omissions and inaccuracies.

Signature		Date
Author		17 July 2024
Reviewer		17 July 2024

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Attachments

Notes About this Report

Appendix A: Drawings

Appendix B: Table 1: Summary of Laboratory Analytical Results – Groundwater

Appendix C: Unexpected Finds Form

bsi ISO 9001 Quality Management Systems CERTIFIED FS604853

Douglas Partners acknowledges Australia's First Peoples as the Traditional Owners of the Land and Sea on which we operate. We pay our respects to Elders past and present and to all Aboriginal and Torres Strait Islander peoples across the many communities in which we live, visit and work. We recognise and respect their ongoing cultural and spiritual connection to Country.

Report on Unexpected Finds Protocol
Proposed Midtown Building C2
Ivanhoe Place, Macquarie Park NSW

1. Introduction

Douglas Partners Pty Ltd (Douglas) was engaged by Grindley Construction Pty Ltd through an email dated 11 July 2024 to prepare this Unexpected Finds Protocol (UFP) for Building C2, Stage 2 (herein referred to as the 'site'. as indicated on Drawing 1, Appendix A) of the broader Midtown Development (located within the former Ivanhoe Estate Social Housing Precinct), Ivanhoe Place, Macquarie Park NSW. The purpose of the UFP is to provide a formal contingency protocol to be followed in the event of an unexpected find (UF) with respect to potential site contamination issues encountered during bulk earthworks.

Douglas understands that no contamination investigations were previously undertaken for the site.

The proposed Building C2 development is located within the central portion of the broader Stage 2 – Midtown Development and comprises a community centre, including landscaped village green and swimming pool facilities. The final ground surface levels are proposed to be generally around Reduced Level (RL) 49.5 m Australian Height Datum (AHD) for landscaping and ground floor levels. Basement floor levels are anticipated to be at RL 47.1 m AHD in local areas towards the western corner for plant rooms and basement foyer areas.

At the time of preparing this UFP, the site is vacant and has been subject to bulk excavation, a photograph of the site conditions is provided in Figure 1 below.



Figure 1: Site condition at the time of preparing this UFP

2. Previous reports

2.1 Expected sub-surface conditions

Douglas has undertaken a brief review of the geotechnical investigation for Building C2 (Douglas, 2021). The geotechnical investigation provided a summary of the expected subsurface condition, which comprises the following:

- **Fill** – variable fill, including concrete, gravelly sand and clay, of apparently variable compaction, to depths of 0.2 m to 1.2 m; underlain by,
- **Sandy Clay and Clayey Sand** – residual soil, typically stiff and very stiff or dense, to depths of 1.5 m to 3.2 m, absent at some locations; underlain by,
- **Sandstone** – variable, typically fractured to highly fractured, very low to medium strength, but including extremely low strength bands, to depths of 1.9 m to 4.3 m; underlain by, typically fractured to slightly fractured, low and medium strength to depths of 3.5 m to 7.3 m; underlain by, typically slightly fractured to unbroken, medium and high strength, with occasional very high strength bands (e.g. Bores 103, 07 and 117) to the limit of investigation (Douglas, 2021).

It should be noted that the site conditions during the geotechnical investigation (Douglas, 2021) are likely to vary from the present site conditions due to construction and site preparations works

undertaken since 2021. The previous geotechnical test locations and the C2 area boundary is indicated on Drawing 1, Appendix A.

No groundwater was observed whilst auguring at the borehole locations. Measurement at the standpipes, after allowing the wells to stabilise following purging, indicated groundwater at a depth of approximately:

- 7.3 m bgl (RL 46.8 m AHD) at Bore 101, with a screen interval from 8.0 m to 11.0 m; and
- 4.93 m bgl (RL 44.6 m AHD) at Bore 106, with a screen interval from 8.0 m to 11.0 m.

It should be noted that groundwater levels are subject to seasonal and temporal variations.

2.2 **Groundwater quality**

One round of the groundwater monitoring was completed as part of the dewatering management plan (Douglas, 2022) from the wells within or near the Stage 2 development.

Groundwater samples were collected from bore locations 109A, 111 and 118A[1] and analysed for a combination of the following suite of common contaminants to inform dewatering requirements:

- Dissolved and total heavy metals (As, Cd, Ca, Cr, Cu, Fe, Pb, Mg, Hg, Ni, Ka and Zn);
- Total petroleum hydrocarbons (TPH);
- Monocyclic Aromatic Hydrocarbons (e.g. BTEX);
- Polycyclic Aromatic Hydrocarbons (PAH);
- Volatile Organic Compounds (VOC);
- Organochloride pesticides (OCP);
- Organophosphate pesticides (OPP);
- Polychlorinated Biphenyls (PCB); and
- General Water quality parameters (e.g. pH, total suspended solids, major anions and cations).

Results were compared against the adopted groundwater quality criteria comprising ANZG (2018) Freshwater 95% level of species protection toxicant default guideline value to provide an indication of the groundwater quality.

The results of the groundwater monitoring indicate that chemical concentrations in groundwater were within the adopted screening criteria for all analytes tested with the exception of metals that exceeded the adopted criteria (more specifically, chromium, copper, iron, lead and zinc). However, the elevated metals in groundwater are considered to be associated regional urbanisation and / or mineralogy of the aquifer. Importantly, the groundwater monitoring results indicated an absence of gross groundwater contamination as indicated by non-detect of all other analytes.

[1] Borehole BH118A was installed in 2022 adjacent to BH118.

The extracted table of analytical results of the three groundwater samples (Douglas, 2022) are provided as Table 1, Appendix B.

3. Implementation of the unexpected finds protocol

3.1 Overview

This UFP is a precautionary measure (to be implemented during any civil or construction works at the site) to ensure that unexpected finds of contamination, if any, are appropriately managed. Unexpected finds of potential contamination may be identified by visual (appearance or staining) and / or olfactory (odour) evidence during site works.

3.2 Responsibilities

The site (project) manager is responsible for providing advice and a copy of the UFP to all excavation and construction personnel prior to commencing work and for ensuring that the plan is implemented by contractors during works undertaken at the site.

All site workers must be inducted to the UFP prior to commencement of any works. The induction can be undertaken at the time of a general site induction and toolbox meetings. Induction into the UFP must be performed by a suitably qualified person.

The UFP is to be implemented by the contractor during any site preparation, excavation and construction works where the ground surface is disturbed. Prior to the commencement of site works, a pre-start meeting should be convened between all relevant parties to discuss the requirements of the UFP and to assign roles and responsibilities.

3.3 Timing

This UFP should be implemented over the period of construction and earthworks being carried out at the site. The management of long-term contamination issues (if encountered) is outside the purview of this UFP.

4. Contingency plan

In order to assist in the early identification of unexpected finds and to minimise the potential for unexpected finds to be damaged and / or spread across the site during earthworks and / or development works, a site walkover following excavation works to visually identify areas of uncontrolled filling should be undertaken by a competent person or a suitably qualified environmental consultant. Should any unexpected contamination find be encountered during the site walkover, the management procedure and relevant procedure for the specific find (detailed below) should be implemented.

4.1 Unexpected finds protocol – general

If unexpected conditions with respect to contamination are encountered by the Contractor during the earthworks (such as fragments of suspected asbestos containing material (ACM), buried structures or unexpected contaminated soil or contaminants), the following general approach should be adopted:

- Upon discovery of an UF, works should cease in that area. The Contractor's Site Manager should be notified and the affected area closed off by the use of barrier tape;
- The location of the UF should be surveyed using dGPS with sub-metre accuracy;
- The Site Manager is to contact the Principal's Representative (PR), and the PR is to notify the Environmental Consultant;
- The Environmental Consultant will inspect the area and make an assessment of the significance of the find in terms of the potential impact to human health and the environment with reference to NSW EPA endorsed guidelines including NEPC (2013);
- Provision of advice from the Environmental Consultant to the PR regarding the recommended course of action;
- The Environmental Consultant will prepare a report detailing their assessment, including the extent and methods of remediation, as required;
- The assessment results together with a suitable management plan may be provided to Council / consent authority (as required) prior to the removal or treatment of such contamination;
- The agreed management / remedial strategy shall be implemented; and
- Details of the incident are to be recorded in the site record system.

4.2 **Unexpected finds protocol – asbestos**

In the event that the UF relates to the identification of asbestos, the following protocol will also apply:

- Upon discovery of suspected asbestos, the Site Manager should be notified and the affected area closed off by the use of barrier tape and warning signs. Warning signs shall be specific to Asbestos Hazards and shall comply with the Australian Standard 1319-1994 *Safety Signs for the Occupational Environment*;
- The location of the UF should be surveyed using dGPS with sub-metre accuracy;
- The Site Manager is to contact the Principal's Representative (PR), and the PR is to notify an appropriately qualified Environmental Consultant or Occupational Hygienist;
- The Environmental Consultant or Occupational Hygienist is to confirm the presence of asbestos and assess the extent of remediation works to be undertaken. An assessment report detailing this information will be compiled by the Environmental Consultant or Occupational Hygienist and provided to the PR;
- The Environmental Consultant or Occupational Hygienist should prepare a report detailing their assessment including the extent and methods of management / remediation, as required;
- The assessment results, together with a suitable management plan, may be provided to Council / consent authority (as required) prior to the removal or treatment of the asbestos;
- The agreed management / remedial strategy shall be implemented;
- In dry and windy conditions, any stockpiles or other areas of the site found to contain asbestos should be lightly wetted and covered with plastic sheeting whilst awaiting remediation / disposal;

- All work associated with asbestos in soil will be undertaken by an appropriately licenced contractor;
- Monitoring for airborne asbestos fibres is to be carried out during the soil excavation and remediation (if undertaken);
- Documentary evidence (weighbridge dockets) of correct disposal is to be provided to the contractor's construction manager;
- At the completion of the excavation, a clearance inspection is to be carried out and written confirmation is to be provided by the Environmental Consultant or Occupational Hygienist that the area is safe to be accessed and worked. Validation should include appropriate soil sampling and testing; and
- Details of the UF and the remedy employed should be recorded in the site record system.

4.3 Unexpected finds protocol – buried structures

In the event that buried structures, such as underground storage tanks (USTs), are encountered during site works, in addition to the procedure outlined in Section 4.1 above, the structure(s) and any associated pipework should generally be managed / removed as follows:

- Upon discovery of the structure, the site (project) manager is to be notified and the area barricaded;
- The area will be inspected by a qualified environmental consultant including visual identification of the structure and associated pipework;
- Under the supervision of a competent person or environmental consultant:
    - Remove and dispose of the structure and associated pipework by a qualified contractor. In the case of an UST, the tank must be removed in accordance with Australian Standard AS 4926 - 2008 *The Removal and Disposal of Petroleum Underground Storage Tanks*; and
    - Excavate and stockpile impacted materials (based on field observations) for waste classification).
- Validation of the remedial pit by a qualified environmental consultant for the contaminants of concern at the following sampling density (note: validation works should be undertaken in general accordance with NSW EPA authored and / or endorsed guidance):
    - Base of tank pit excavation: at least one to two samples per tank;
    - Side of tank pit excavation: one sample per 10 linear metre (minimum of 1 sample per side) and one sample per 2 - 3 m depth interval;
    - Fuel feed lines / pipe-work: one sample per 10 linear metre and 2 - 3 m depth interval; and
    - Quality assurance / quality control (QA / QC) sampling and analysis at a rate of at least 10% of the samples collected.
- If required, "chase out' all of the material in the remediation pit identified to be impacted by petroleum hydrocarbons, and undertake further validation sampling and analysis as required to assess appropriate removal of impacted materials;
- Waste classification and off-site disposal of impacted materials in accordance with EPA (2014);

- Based on the extent of impacts, the need for a groundwater investigation should be considered by the environmental consultant; and
- Inclusion of validation, waste classification and disposal documents (including landfill dockets and, in the case of USTs, tank and pipe work destruction certificates) in a validation report for the site.

4.4 Unexpected finds protocol – groundwater

Previous geotechnical investigation (Douglas, 2021) have encountered groundwater at depths of between RL 44.6 and 46.8 m AHD (near bulk excavation levels) and the results of the groundwater monitoring (Douglas, 2022) did not indicate a high risk of groundwater contamination. Notwithstanding if potentially contaminated groundwater (i.e. odorous or stained) is encountered during the proposed development, then:

- Upon discovery of contaminated groundwater, the site (project) manager is to be notified, works in the area halted and the area barricaded;
- The area / impacts should be inspected by a qualified environmental consultant with a view to investigating the nature and extent of the contamination if any. As necessary, the delineation exercise may involve a detailed groundwater investigation; and
- Based on the results, the environmental consultant will provide a report to the project manager / Principal regarding the nature of the contamination, the need for additional investigations and / or the proposed management strategy. In this regard, it is noted that management of contaminated groundwater can be a complex matter and therefore, the type of management strategies will be dependent on the nature and extent of the identified contamination if any.

4.5 Documentation

An unexpected find form is attached at the end of this UFP and should be completed by the Contractor's Site Manager in the event of encountering an UF. The form should be sent to the PR and Environmental Consultant, or Occupational Hygienist, in the event of encountering a UF.

5. Concluding statements

This UFP has been prepared to outline appropriate management procedures and reporting protocols that should be implemented in the event that unexpected contamination is encountered during the proposed development.

It is possible that indications of contamination not specifically covered in this UFP may be encountered at the site. In such a scenario, a precautionary principal will be applied and the general unexpected finds protocol (Section 4.1) should be applied in all circumstances.

6. References

Douglas. (2021). *Report on Geotechnical Investigation of C2 Site.* Stage 2 - Midtown, Herring Road, Macquarie Park, Dated August 2021 (reference: 86043.06.R.001.Rev1) (Douglas, 2021).

Douglas. (2022). *Dewatering Management Plan*. Stage 2 - Midtown, Herring Road, Macquarie Park, Dated May 2022 (reference: 86043.06.R.008.Rev0) (Douglas, 2022).

NEPC. (2013). *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]*. Australian Government Publishing Services Canberra: National Environment Protection Council.

NSW EPA. (2014). *Waste Classification Guidelines - Part 1: Classification of waste*. Sydney: NSW Environment Protection Authority (EPA).

NSW EPA. (2020). *Guidelines for Consultants Reporting on Contaminated Land*. Contaminated Land Guidelines: NSW Environment Protection Authority.

7. Limitations

Douglas Partners Pty Ltd (Douglas) has prepared this report for this project at Ivanhoe Place, Macquarie Park NSW in accordance with Douglas' email proposal dated 28 June 2024 and acceptance received from Michael Jones on 11 July 2024. The work was carried out under Douglas' Engagement Terms. This report is provided for the exclusive use of Grindley Construction Pty Ltd for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of Douglas, does so entirely at its own risk and without recourse to Douglas for any loss or damage. In preparing this report Douglas has necessarily relied upon information provided by the client and / or their agents.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. Douglas cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by Douglas. This is because this report has been written as advice and opinion rather than instructions for construction.

Notes About This Report

About this Report

November 2023

Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Copyright

This report is the property of Douglas Partners Pty Ltd. The report may only be used for the purpose for which it was commissioned and in accordance with the Conditions of Engagement for the commission supplied at the time of proposal. Unauthorised use of this report in any form whatsoever is prohibited.

Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;
- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

continued next page

About this Report

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. DP would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

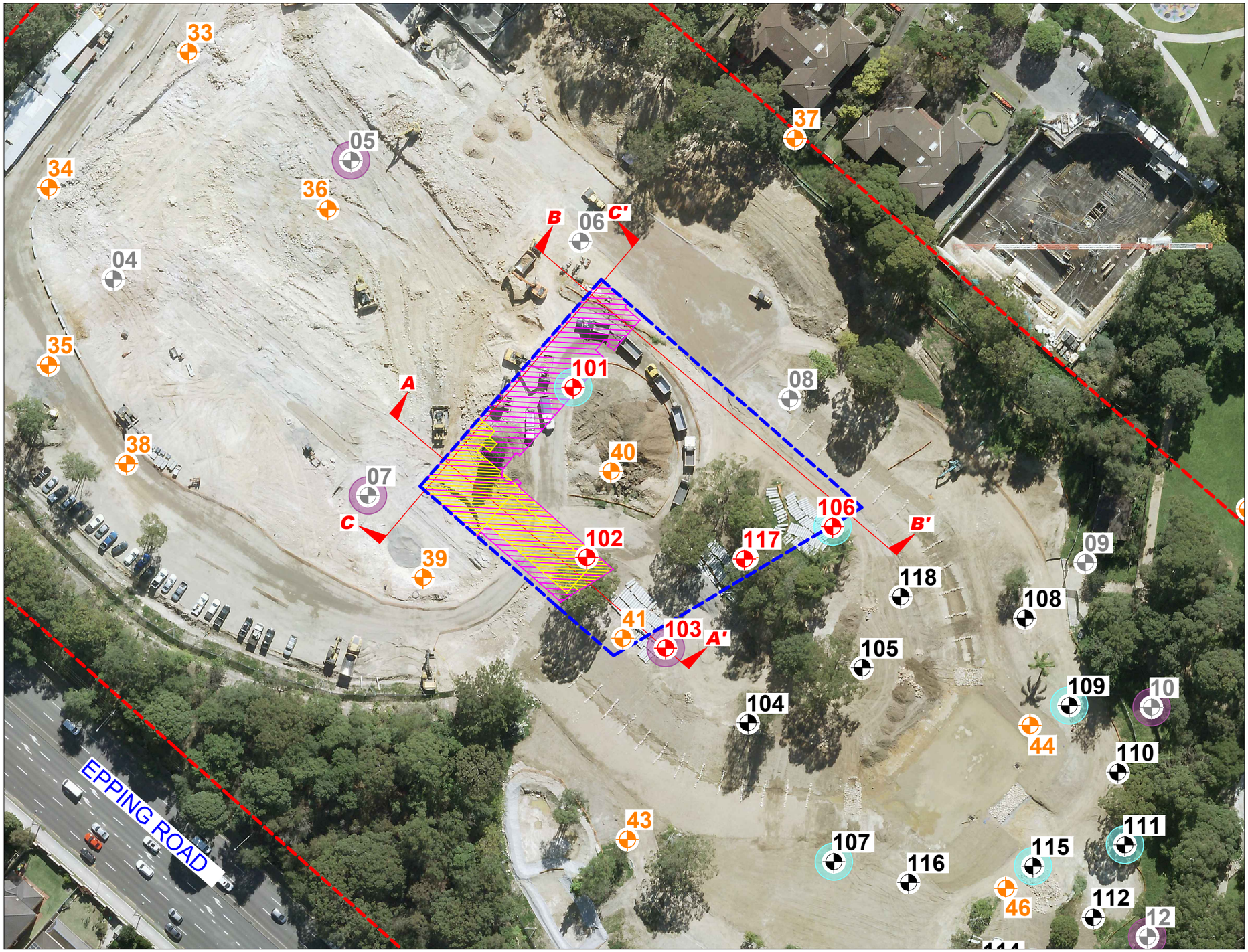
The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.

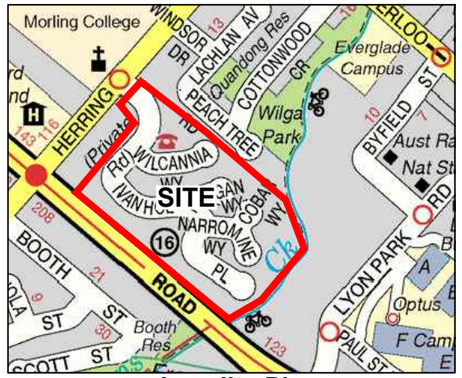
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Appendix A

Drawings





Locality Plan

LEGEND

- Borehole Location
- Cored Bore Location (2021, Beyond C2 Site)
- Previous (2017) Cored Bore Location
- Previous (2017) Shallow Cored Bore Location
- Standpipe Location (Current)
- Standpipe Location (Damaged or Missing)
- C2 Area Boundary
- Greater Midtown Site Boundary
- Approximate Proposed Building Footprint
- Approximate Proposed Basement and Pool Footprint

NOTE:
1: Base image from MetroMap (Dated 15.04.2021)

0 10 20 30 40 50 75 100m
1:1000 @ A3

Douglas Partners
Geotechnics / Environment / Groundwater

CLIENT: Frasers Property Ivanhoe Pty Ltd		TITLE: **Test Location Plan - C2 Site** **Proposed Residential Development** **Midtown, Macquarie Park**
OFFICE: Sydney	DRAWN BY: PSCH/MG	
SCALE: 1:1000 @ A3	DATE: 21.05.2021	

PROJECT No: 86043.06
DRAWING No: 201
REVISION: 0

Appendix B

Table 1: Summary of Laboratory Analytical Results - Groundwater

				Sample ID	109A	BD1/20220321	111	118A
				LocCode	109A	109A	111	118A
				WellCode				
				Sample Date	21/03/2022	21/03/2022	21/03/2022	21/03/2022
				Lab_Report_Number	291444	291444	291444	291444
				Matrix_Type	WATER	WATER	WATER	WATER
				ANZG (2018) Freshwater 95% LOSP Toxicant DGVs*				
Chem_Group	**ChemName**	**Units**	**PQL**					
Ion Balance	Carbonate Alkalinity as CaCO3	mg/L	5		<5	-	<5	<5
PAHs in Water - Low Level	Benzo(a)pyrene TEQ	µg/L	0.5		<0.5	<0.5	<0.5	<0.5
	Benzo(b,j+k)fluoranthene	µg/L	0.2		<0.2	<0.2	<0.2	<0.2
	Total +ve PAHs	µg/L	0.1		<0.1	<0.1	<0.1	<0.1
Inorganics	Alkalinity (Hydroxide) as CaCO3	mg/L	5		<5	-	<5	<5
	Alkalinity (total) as CaCO3	mg/L	5		<5	-	65	120
	Alkalinity (Bicarbonate as CaCO3)	mg/L	5		<5	-	65	120
	Chloride	mg/L	1		120	-	110	48
	Ferrous Iron	mg/L	0.05		0.24	-	0.52	1.3
	Ionic Balance	%			-15	-	-5	-11
	Sodium (Filtered)	mg/L	0.5		93	-	74	67
	Sulphate	mg/L	1		170	-	64	95
	TDS	mg/L	5		300	-	320	420
	TSS	mg/L	5		76	-	300	95,000
Metals	Arsenic	mg/L	0.001	0.024	<0.001	-	<0.001	0.006
	Arsenic (Filtered)	mg/L	0.001	0.024	<0.001	<0.001	<0.001	<0.001
	Cadmium	mg/L	0.0001	0.0004	<0.0001	-	<0.0001	0.0002
	Cadmium (Filtered)	mg/L	0.0001	0.0002	<0.0001	<0.0001	<0.0001	<0.0001
	Calcium (Filtered)	mg/L	0.5		6	-	27	28
	Chromium (III+VI)	mg/L	0.001	0.0068	0.001	-	0.004	0.058
	Chromium (III+VI) (Filtered)	mg/L	0.001	0.0068	<0.001	<0.001	<0.001	<0.001
	Copper	mg/L	0.001	0.0014	0.003	-	0.006	0.069
	Copper (Filtered)	mg/L	0.001	0.0014	0.002	0.002	<0.001	0.035
	Ferric Iron	mg/L	0.05		<0.05	-	0.21	<0.05
	Iron	mg/L	0.01		0.5	-	2.7	44
	Iron (Filtered)	mg/L	0.01		0.22	0.25	0.73	1.3
	Lead	mg/L	0.001	0.0103	0.005	-	0.006	0.07
	Lead (Filtered)	mg/L	0.001	0.0103	0.004	0.004	<0.001	<0.001
	Magnesium (Filtered)	mg/L	0.5		7.9	-	5	2
	Mercury	mg/L	0.00005	0.0006	<0.00005	-	<0.00005	0.00008
	Mercury (Filtered)	mg/L	0.00005	0.0006	<0.00005	<0.00005	<0.00005	<0.00005
	Nickel	mg/L	0.001	0.0232	0.003	-	0.004	0.019
	Nickel (Filtered)	mg/L	0.001	0.0232	0.002	0.002	0.002	0.003
	Potassium (Filtered)	mg/L	0.5		0.7	-	1	3
	Zinc	mg/L	0.001	0.0168	0.019	-	0.048	0.23
	Zinc (Filtered)	mg/L	0.001	0.0168	0.016	0.016	0.026	0.022
TPH	C10-C16	mg/L	0.05		<0.05	<0.05	<0.05	<0.05
	C16-C34	mg/L	0.1		<0.1	<0.1	<0.1	<0.1
	C34-C40	mg/L	0.1		<0.1	<0.1	<0.1	<0.1
	Oil and Grease	mg/L	5		<5	-	<5	-
	F2-NAPHTHALENE	mg/L	0.05		<0.05	<0.05	<0.05	<0.05
	C6 - C9	mg/L	0.01		<0.01	<0.01	<0.01	<0.01
	C10 - C14	mg/L	0.05		<0.05	<0.05	<0.05	<0.05
	C15 - C28	mg/L	0.1		<0.1	<0.1	<0.1	<0.1
	C29-C36	mg/L	0.1		<0.1	<0.1	<0.1	<0.1
	+C10 - C36 (Sum of total)	mg/L	0.05		<0.05	<0.05	<0.05	<0.05
	C10 - C40 (Sum of total)	mg/L	0.05		<0.05	<0.05	<0.05	<0.05
	C6-C10 less BTEX (F1)	mg/L	0.01		<0.01	<0.01	<0.01	<0.01
	C6-C10	mg/L	0.01		<0.01	<0.01	<0.01	<0.01
BTEX	Benzene	mg/L	0.001	0.95	<0.001	<0.001	<0.001	<0.001
	Ethylbenzene	mg/L	0.001	0.08	<0.001	<0.001	<0.001	<0.001
	Toluene	mg/L	0.001	0.18	<0.001	<0.001	<0.001	<0.001
	Xylene (m & p)	mg/L	0.002		<0.002	<0.002	<0.002	<0.002
	Xylene (o)	mg/L	0.001	0.35	<0.001	<0.001	<0.001	<0.001
MAH	1,2,4-trimethylbenzene	mg/L	0.001		<0.001	-	<0.001	<0.001
	1,3,5-trimethylbenzene	mg/L	0.001		<0.001	-	<0.001	<0.001
	Isopropylbenzene	mg/L	0.001	0.03	<0.001	-	<0.001	<0.001
	n-butylbenzene	mg/L	0.001		<0.001	-	<0.001	<0.001
	n-propylbenzene	mg/L	0.001		<0.001	-	<0.001	<0.001
	p-isopropyltoluene	mg/L	0.001		<0.001	-	<0.001	<0.001
	sec-butylbenzene	mg/L	0.001		<0.001	-	<0.001	<0.001
	Styrene	mg/L	0.001		<0.001	-	<0.001	<0.001
	tert-butylbenzene	mg/L	0.001		<0.001	-	<0.001	<0.001
Chlorinated Hydrocarbons	1,1,1,2-tetrachloroethane	mg/L	0.001		<0.001	-	<0.001	<0.001
	1,1,1-trichloroethane	mg/L	0.001	0.27	<0.001	-	<0.001	<0.001
	1,1,2,2-tetrachloroethane	mg/L	0.001	0.4	<0.001	-	<0.001	<0.001
	1,1,2-trichloroethane	mg/L	0.001	6.5	<0.001	-	<0.001	<0.001
	1,1-dichloroethane	mg/L	0.001		<0.001	-	<0.001	<0.001
	1,1-dichloroethene	mg/L	0.001	0.7	<0.001	-	<0.001	<0.001
	1,1-dichloropropene	mg/L	0.001		<0.001	-	<0.001	<0.001
	1,2,3-trichloropropane	mg/L	0.001		<0.001	-	<0.001	<0.001
	1,2-dibromo-3-chloropropane	mg/L	0.001		<0.001	-	<0.001	<0.001
	1,2-dichloroethane	mg/L	0.001	1.9	<0.001	-	<0.001	<0.001
	1,2-dichloropropane	mg/L	0.001	0.9	<0.001	-	<0.001	<0.001
	1,3-dichloropropane	mg/L	0.001	1.1	<0.001	-	<0.001	<0.001
	2,2-dichloropropane	mg/L	0.001		<0.001	-	<0.001	<0.001
	Bromochloromethane	mg/L	0.001		<0.001	-	<0.001	<0.001
	Bromodichloromethane	mg/L	0.001		<0.001	-	<0.001	<0.001
	Bromoform	mg/L	0.001		<0.001	-	<0.001	<0.001
	Carbon tetrachloride	mg/L	0.001	0.24	<0.001	-	<0.001	<0.001
	Chlorodibromomethane	mg/L	0.001		<0.001	-	<0.001	<0.001
	Chloroethane	mg/L	0.01		<0.01	-	<0.01	<0.01
	Chloroform	mg/L	0.001	0.77	<0.001	-	<0.001	<0.001
	Chloromethane	mg/L	0.01		<0.01	-	<0.01	<0.01
	cis-1,2-dichloroethene	mg/L	0.001		<0.001	-	<0.001	<0.001

				Sample ID	109A	BD1/20220321	111	118A
				LocCode	109A	109A	111	118A
				WellCode				
				Sample Date	21/03/2022	21/03/2022	21/03/2022	21/03/2022
				Lab_Report_Number	291444	291444	291444	291444
				Matrix_Type	WATER	WATER	WATER	WATER
				ANZG (2018) Freshwater 95% LOSP Toxicant DGVs*				
Chem_Group	**ChemName**	**Units**	**PQL**					
	cis-1,3-dichloropropene	mg/L	0.001		<0.001	-	<0.001	<0.001
	Dibromomethane	mg/L	0.001		<0.001	-	<0.001	<0.001
	Hexachlorobutadiene	mg/L	0.001		<0.001	-	<0.001	<0.001
	Trichloroethene	mg/L	0.001	0.33	<0.001	-	<0.001	<0.001
	Tetrachloroethene	mg/L	0.001	0.07	<0.001	-	<0.001	<0.001
	trans-1,2-dichloroethene	mg/L	0.001		<0.001	-	<0.001	<0.001
	trans-1,3-dichloropropene	mg/L	0.001		<0.001	-	<0.001	<0.001
	Vinyl chloride	mg/L	0.01	0.1	<0.01	-	<0.01	<0.01
Halogenated Hydrocarbons	1,2-dibromoethane	mg/L	0.001		<0.001	-	<0.001	<0.001
	Bromomethane	mg/L	0.01		<0.01	-	<0.01	<0.01
	Dichlorodifluoromethane	mg/L	0.01		<0.01	-	<0.01	<0.01
	Trichlorofluoromethane	mg/L	0.01		<0.01	-	<0.01	<0.01
Halogenated Benzenes	1,2,3-trichlorobenzene	mg/L	0.001	0.01	<0.001	-	<0.001	<0.001
	1,2,4-trichlorobenzene	mg/L	0.001	0.17	<0.001	-	<0.001	<0.001
	1,2-dichlorobenzene	mg/L	0.001	0.16	<0.001	-	<0.001	<0.001
	1,3-dichlorobenzene	mg/L	0.001	0.26	<0.001	-	<0.001	<0.001
	1,4-dichlorobenzene	mg/L	0.001	0.06	<0.001	-	<0.001	<0.001
	2-chlorotoluene	mg/L	0.001		<0.001	-	<0.001	<0.001
	4-chlorotoluene	mg/L	0.001		<0.001	-	<0.001	<0.001
	Bromobenzene	mg/L	0.001		<0.001	-	<0.001	<0.001
	Chlorobenzene	mg/L	0.001	0.055	<0.001	-	<0.001	<0.001
	Hexachlorobenzene	mg/L	0.000001	0.0001	<0.000001	-	<0.000001	<0.0002
Solvents	Cyclohexane	mg/L	0.001		<0.001	-	<0.001	<0.001
PAH/Phenols	Acenaphthene	mg/L	0.0001		<0.0001	<0.0001	<0.0001	<0.0001
	Acenaphthylene	mg/L	0.0001		<0.0001	<0.0001	<0.0001	<0.0001
	Anthracene	mg/L	0.0001	0.0004	<0.0001	<0.0001	<0.0001	<0.0001
	Benz(a)anthracene	mg/L	0.0001		<0.0001	<0.0001	<0.0001	<0.0001
	Benzo(a) pyrene	mg/L	0.0001	0.0002	<0.0001	<0.0001	<0.0001	<0.0001
	Benzo(g,h,i)perylene	mg/L	0.0001		<0.0001	<0.0001	<0.0001	<0.0001
	Chrysene	mg/L	0.0001		<0.0001	<0.0001	<0.0001	<0.0001
	Dibenz(a,h)anthracene	mg/L	0.0001		<0.0001	<0.0001	<0.0001	<0.0001
	Fluoranthene	mg/L	0.0001	0.0014	<0.0001	<0.0001	<0.0001	<0.0001
	Fluorene	mg/L	0.0001		<0.0001	<0.0001	<0.0001	<0.0001
	Indeno(1,2,3-c,d)pyrene	mg/L	0.0001		<0.0001	<0.0001	<0.0001	<0.0001
	Naphthalene	mg/L	0.0002	0.016	<0.0002	<0.0002	<0.0002	<0.0002
	Phenanthrene	mg/L	0.0001	0.002	<0.0001	<0.0001	<0.0001	<0.0001
	Pyrene	mg/L	0.0001		<0.0001	<0.0001	<0.0001	<0.0001
Polychlorinated Biphenyls	Arochlor 1016	mg/L	0.00001		<0.00001	-	<0.00001	<0.002
	Arochlor 1221	mg/L	0.00001		<0.00001	-	<0.00001	<0.002
	Arochlor 1232	mg/L	0.00001		<0.00001	-	<0.00001	<0.002
	Arochlor 1242	mg/L	0.00001	0.0006	<0.00001	-	<0.00001	<0.002
	Arochlor 1248	mg/L	0.00001		<0.00001	-	<0.00001	<0.002
	Arochlor 1254	mg/L	0.00001	0.00003	<0.00001	-	<0.00001	<0.002
	Arochlor 1260	mg/L	0.00001		<0.00001	-	<0.00001	<0.002
Organochlorine Pesticides	4,4-DDE	mg/L	0.000001		<0.000001	-	<0.000001	<0.0002
	a-BHC	mg/L	0.000001		<0.000001	-	<0.000001	<0.0002
	Aldrin	mg/L	0.000001		<0.000001	-	<0.000001	<0.0002
	b-BHC	mg/L	0.000001		<0.000001	-	<0.000001	<0.0002
	Chlordane (cis)	mg/L	0.000001		<0.000001	-	<0.000001	<0.0002
	Chlordane (trans)	mg/L	0.000001		<0.000001	-	<0.000001	<0.0002
	d-BHC	mg/L	0.000001		<0.000001	-	<0.000001	<0.0002
	DDD	mg/L	0.000001		<0.000001	-	<0.000001	<0.0002
	DDT	mg/L	0.000001	0.00001	<0.000001	-	<0.000001	<0.0002
	Dieldrin	mg/L	0.000001		<0.000001	-	<0.000001	<0.0002
	Endosulfan I	mg/L	0.000002		<0.000002	-	<0.000002	<0.0002
	Endosulfan II	mg/L	0.000002		<0.000002	-	<0.000002	<0.0002
	Endosulfan sulphate	mg/L	0.000001		<0.000001	-	<0.000001	<0.0002
	Endrin	mg/L	0.000001	0.00002	<0.000001	-	<0.000001	<0.0002
	Endrin aldehyde	mg/L	0.000001		<0.000001	-	<0.000001	<0.0002
	g-BHC (Lindane)	mg/L	0.000001	0.0002	<0.000001	-	<0.000001	<0.0002
	Heptachlor	mg/L	0.000001	0.00009	<0.000001	-	<0.000001	<0.0002
	Heptachlor epoxide	mg/L	0.000001		<0.000001	-	<0.000001	<0.0002
	Methoxychlor	mg/L	0.000001		<0.000001	-	<0.000001	<0.0002
Organophosphorous Pesticides	Azinophos methyl	mg/L	0.00002	0.00002	<0.00002	-	<0.00002	<0.0002
	Bromophos-ethyl	mg/L	0.0002		<0.0002	-	<0.0002	<0.0002
	Chlorpyrifos	mg/L	0.000009	0.00001	<0.000009	-	<0.000009	<0.0002
	Chlorpyrifos-methyl	mg/L	0.0002		<0.0002	-	<0.0002	<0.0002
	Diazinon	mg/L	0.00001	0.00001	<0.00001	-	<0.00001	<0.0002
	Dichlorvos	mg/L	0.0002		<0.0002	-	<0.0002	<0.0002
	Dimethoate	mg/L	0.00015	0.00015	<0.00015	-	<0.00015	<0.0002
	Ethion	mg/L	0.0002		<0.0002	-	<0.0002	<0.0002
	Fenitrothion	mg/L	0.0002	0.0002	<0.0002	-	<0.0002	<0.0002
	Malathion	mg/L	0.00005	0.00005	<0.00005	-	<0.00005	<0.0002
	Methyl parathion	mg/L	0.0002		<0.0002	-	<0.0002	-
	Ronnel	mg/L	0.0002		<0.0002	-	<0.0002	<0.0002
Pesticides	Parathion	mg/L	0.000004	0.000004	<0.000004	-	<0.000004	<0.0002

Notes:

a. Criteria for cadmium, chromium, lead, nickel and zinc were hardness adjusted for a hardness of 72 mg/kg of CaCO3

* Where criteria was not available, either a lower or unknown reliabiility criteria was applied, or the laboratory PQL was used as an initial screen

Appendix C

Unexpected Finds Form

Unexpected Find Form

Unexpected Find No.:

Date:

Location:

Actions

Item	Action Taken	Action Taken By
Unexpected find encountered	Affected area closed off by barrier tape	Contractor
	Notify the Principal's Representative	Site Manager
	Notify Environmental Consultant / Occupational Hygienist	Principal's Representative

Information for the Environmental Consultant to be completed by the Contractor's Site Manager

Description of the Unexpected Find	
Does the Unexpected Find potentially involve asbestos	Yes No

Appendix 8 - Community Consultation Strategy



Community Communication Strategy - Stage 2

Midtown Estate
1 Ivanhoe Place, Macquarie Park NSW 2113

Frasers Property Australia (ABN 89 600 448 726)
Level 2, 1C Homebush Bay Dr, Rhodes NSW 2138

7 November 2023

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1. Introduction

1.1 Document summary

This Community Communication Strategy (Strategy) has been prepared in accordance with the relevant conditions of the Ivanhoe Stage 2 Development Consent.

The Strategy provides an overarching framework for communicating with the community as the project moves towards and through the delivery of Stage 2. The Strategy outlines who the community stakeholders are and how to communicate about project milestones and construction impacts, as well as how to share relevant project information and respond to dynamic community feedback.

The objective of this Strategy is to build on the confidence within the community that the urban renewal of Ivanhoe Estate will redefine the way social, affordable and market housing are integrated together to provide a sustainable and inclusive neighbourhood for people from all walks of life.

The objectives of the Strategy will be supported with specific implementation plans, providing concrete information about how the approach outlined herein applies to project phases.

1.2 Background

The Ivanhoe Estate project will transform over 8-hectares at the corner of Herring Road and Epping Road, drawing together world-class urban design, quality facilities and public open spaces to create a sustainable community where people want to live.

The redevelopment of the Ivanhoe Estate is part of the NSW Government Communities Plus program, which seeks to deliver new communities where social housing blends with private and affordable housing, with good access to transport, employment, improved community facilities and open space.

Community consultation over the past three years has contributed to the revised masterplan. The revised masterplan features:

» approximately 3,300 new homes

» approximately 6,000 sqm of open space

» the retention of 94 per cent of the existing ecological community along Epping Road

» the protection of Shrimptons Creek

» revised building heights

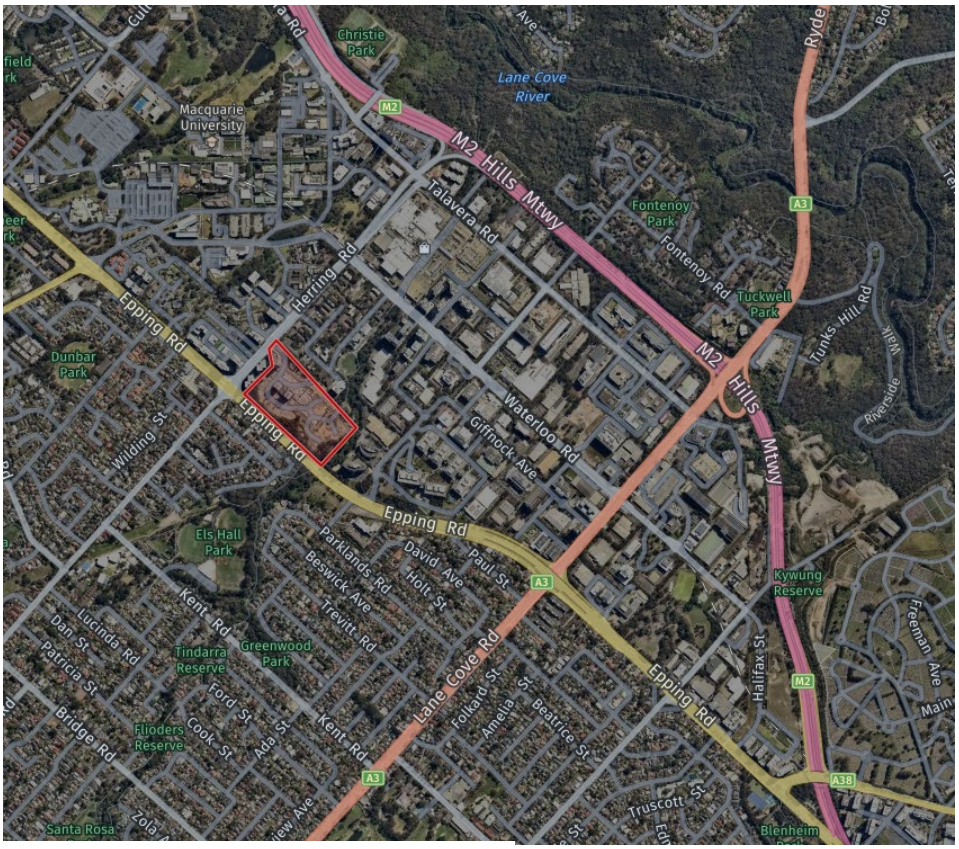
» the realignment of private apartments adjacent to the existing ecology community

» greater amenity

» improved integration with the existing community.

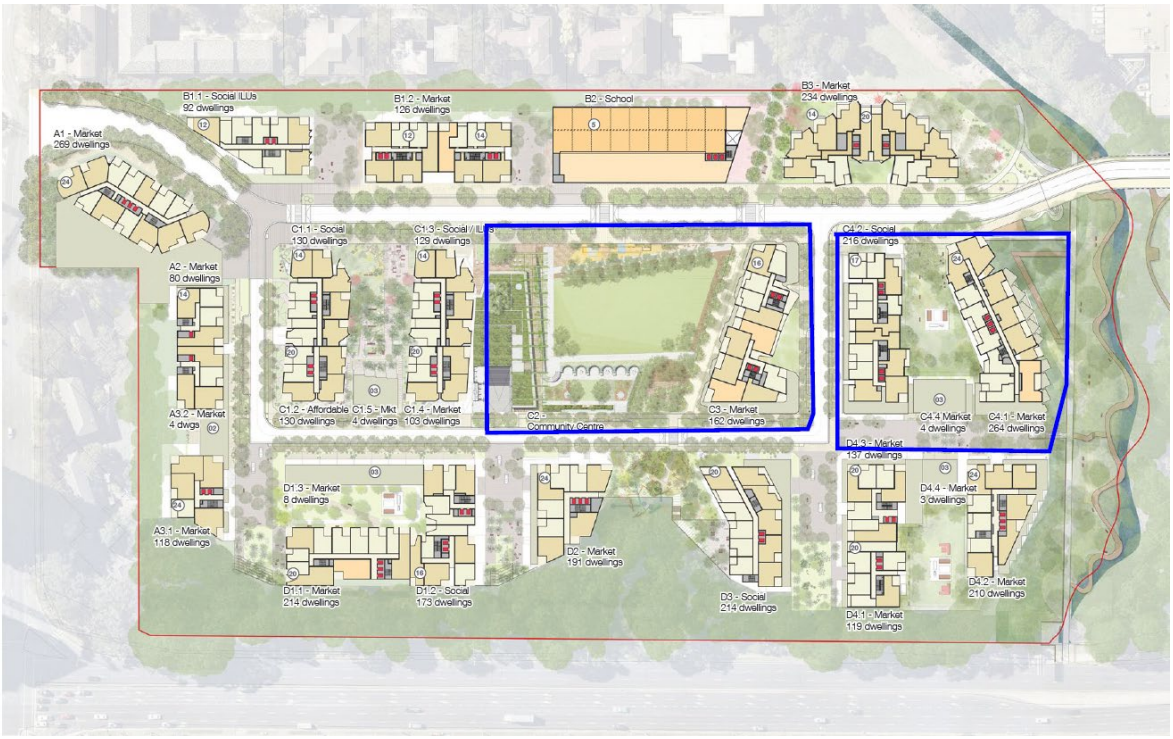
Other features of the urban renewal project include a new primary school, two childcare centres, community centre, gym and pool, a supermarket, cafes and specialty retail shops, nature-based playgrounds and exercise stations and community gardens.

Figure 1: Aerial Photograph of Midtown Estate



Source: Frasers Property

Figure 2: Masterplan – Stage 2 Outlined



1.3 About Stage 2

The Stage 2 plans for the former Ivanhoe Estate were approved in November 2022 by the Minister for Planning and Public Spaces. The Development Consent (SSD-15822622) has been issued, prompting the preparation of this Strategy.

Approved Stage 2 works include:

> excavation and earthworks

> construction of a community facilitates building (Building C2) and two residential apartment buildings (Building C3

> and Building C4) with basement car parking:

- Building C3 with 162 dwellings, 163 car parking spaces and ground floor retail
- Building C4 with 488 dwellings and 396 car parking spaces

> construction of Village Green public open space

> utilities, services infrastructure and public domain areas. tree removal

1.4 About the Community Communication Strategy (Strategy)

This Community Communication Strategy (Strategy) has been developed in response to conditions B12 and B13 of the Development Consent. The Development Consent stipulates the preparation and publishing of a Community Communication Strategy (Strategy) that spans the design and construction of Stage 2, as well as the first 12 months following completion of construction. In line with conditions, this Strategy:

a. identifies the people who need to be consulted and communicated with during design and construction

b. set out procedures and mechanisms for the regular distribution of accessible information about or relevant to the development;

c. provide for the formation of community-based forums, if required, that focus on key environmental management issues for the development;

d. set out procedures and mechanisms:

(i) through which the community can discuss or provide feedback to the Applicant;

(ii) through which the Applicant will respond to enquiries or feedback from the community; and

(iii) to resolve any issues and mediate any disputes that may arise in relation to construction and operation of the development, including disputes regarding rectification or compensation.

2. Stakeholders and community

Table 1 Development Consent (COMMUNITY COMMUNICATION STRATEGY)

B11. A Community Communication Strategy must be prepared to provide mechanisms to facilitate communication between the Applicant, the relevant Council and the community (including adjoining affected landowners and businesses, and others directly impacted by the development), during the design and construction of the development and for a minimum of 12 months following the completion of construction.

B12. The Community Communication Strategy must:

» identify people to be consulted during the design and construction phases

This Strategy pertains to communications with the community, relating specifically for Stage 2 works. This Strategy expands on the engagement and consultation undertaken with Council and community to date, throughout the planning process and in the lead up to the approvals for Stage 2. The project anticipates a greater emphasis on construction impacts and environmental management as the project shifts from planning to the construction of Stage 2.

'Community' encompasses the following stakeholder groups: [Ref. Table 2]

Table 2 Community stakeholder matrix

Stakeholder category	Likely level of interest	Specific Stage 2 interest	Participation Spectrum [Ref IAP2]
Existing, returning and future social housing residents and staff at Ivanhoe Estate	High	» Delivering socially integrated housing » Staging and timing of Stage 2 construction » High amenity and services » Community involvement	Involve
Existing and prospective market housing owners and renters	High	» Delivering socially integrated housing » Staging and timing of Stage 2 construction » High amenity and services » Community involvement	Involve

Stakeholder category	Likely level of interest	Specific Stage 2 interest	Participation Spectrum [Ref IAP2]
Local Government (General Managers and Elected Representatives – Mayors)	High	» Service delivery » Infrastructure provision » Urban form and density » Delivering a socially integrated community » Impact on existing community, services and infrastructure » Community partnership program and opportunities	*Engagement to be undertaken by consortium and engagement specialists – outside of general community communications
Media and social media	Moderate – High	» Delivering socially integrated housing » Environmental management and construction impacts » Community partnership program and opportunities	Inform
Macquarie University	Moderate	» Delivering socially integrated housing » Environmental management and construction impacts » Community partnership program and opportunities	Consult
Business Councils Chambers of Commerce Business District – including Macquarie Connect	Moderate	» Delivering socially integrated housing » Environmental management and construction impacts » Impact on existing community, services and infrastructure » Community partnership program and opportunities » Staging and timing of Stage 2 construction	Consult

Stakeholder category	Likely level of interest	Specific Stage 2 interest	Participation Spectrum [Ref IAP2]
Neighbours	Moderate – High	» Urban form and management of density impacts » Management of construction impacts on neighbouring road networks and infrastructure » Impact on community, services and programs	Consult
Local businesses (in vicinity of the precinct)	Moderate – High	» Urban form and management of density impacts » Impact on existing community, services and infrastructure » Community partnership program and opportunities » Business expansion	Involve
Community service providers	Moderate – High	» Delivering socially integrated housing » Environmental management and construction impacts » Community partnership program and opportunities	Involve
Businesses within Macquarie University	Moderate – High	» Delivering socially integrated housing » Environmental management and construction impacts » Community partnership program and opportunities	Involve
Local community and residents' groups (including environmental groups)	Moderate – High	» Urban form and management of density impacts » Environmental management and construction impacts » Impact on community, services, infrastructure and programs	Consult

Stakeholder category	Likely level of interest	Specific Stage 2 interest	Participation Spectrum [Ref IAP2]
Local education providers	Moderate – High	» Delivering socially integrated housing » Community partnership program and opportunities	Consult
Transport providers	Moderate – High	» Community partnership program and opportunities	Consult
Aged care / disability care providers (including those operating in the local are)	Moderate – High	» Community partnership program and opportunities	Consult
Community service providers	Moderate – High	» Community partnership program and opportunities	Involve
Childcare providers in the local area	Moderate – High	» Community partnership program and opportunities	Involve
Aboriginal Land Councils	Moderate – High	» Community partnership program and opportunities	Involve

3. Communication approach

Table 3 Development Consent (COMMUNITY COMMUNICATION STRATEGY)

B13. The Community Communication Strategy must:

- » set out procedures and mechanisms for the regular distribution of accessible information about or relevant to the development
- » provide for the formation of community-based forums, if required, that focus on key environmental management issues for the development
- » set out procedures and mechanisms

through which the community can discuss or provide feedback to the Applicant

through which the Applicant will respond to enquiries or feedback from the community

to resolve any issues and mediate any disputes that may arise in relation to construction and operation of the development, including disputes regarding rectification or compensation.

3.1 Objectives of communication and engagement approach

The objectives of the communication approach outlined in this Strategy include:

- » providing accessible, easy-to-understand information about the project to interested stakeholders, including impacted residents and site neighbours
- » listening to and considering a range of stakeholder and community ideas about how the project can deliver a sustainable, cohesive community that is a desirable place to live
- » building and strengthening stakeholder relationships that have been supported throughout the planning phases of the project
- » reinforcing the commitment to delivering world-class urban design, quality facilities and public open spaces in a way that fosters community development
- » meeting and exceeding statutory requirements for notification periods relating to construction impacts and project milestones
- » promoting ongoing opportunities for engagement as the project progresses through and beyond Stage 2.

The objective of this Strategy is to build on the confidence within the community that the urban renewal of Ivanhoe Estate will redefine the way social, affordable and market housing are integrated together to provide a sustainable and inclusive neighbourhood for people from all walks of life.

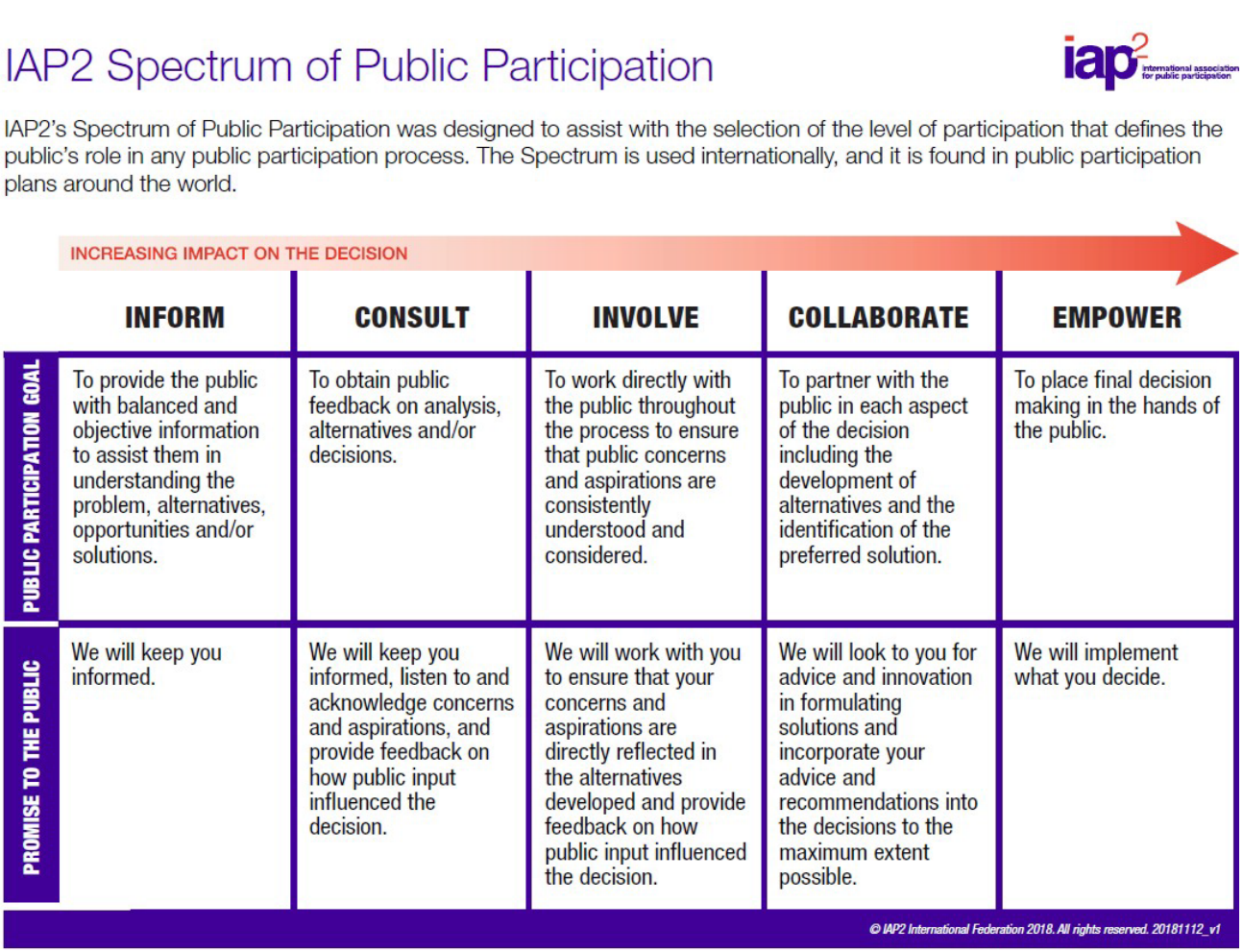
This Strategy will advance the engagement objectives that have guided communications throughout planning and initial phases, including:

- » the establishment of an open and transparent communication process
- » to gain insight into community sentiment as early as possible
- » develop relationships with the community and stakeholders as early as possible
- » to understand the aspirations of different stakeholders towards the future use of the site
- » to communicate the project's benefits
- » identify and mitigate concerns or risks before the master plan is submitted
- » build a sense of confidence and excitement about the site's renewal
- » commit to ongoing engagement

IAP2 public participation spectrum

The International association for public participation (IAP2) public participation spectrum will be the framework for the engagement approach, as required by the Green Star accreditation. The approach outlined in this Strategy combines techniques that inform, consult, involve and/or collaborate with the community.

Figure 1 IAP2 Spectrum of Public Participation [Ref iap2.org.au/resources/spectrum/]



IAP2 Spectrum of Public Participation

IAP2's Spectrum of Public Participation was designed to assist with the selection of the level of participation that defines the public's role in any public participation process. The Spectrum is used internationally, and it is found in public participation plans around the world.

INCREASING IMPACT ON THE DECISION

	INFORM	CONSULT	INVOLVE	COLLABORATE	EMPOWER
PUBLIC PARTICIPATION GOAL	To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions.	To obtain public feedback on analysis, alternatives and/or decisions.	To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered.	To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.	To place final decision making in the hands of the public.
PROMISE TO THE PUBLIC	We will keep you informed.	We will keep you informed, listen to and acknowledge concerns and aspirations, and provide feedback on how public input influenced the decision.	We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision.	We will look to you for advice and innovation in formulating solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible.	We will implement what you decide.

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3.2 Feedback and enquiries loop



Figure 2 Feedback and enquiries loop – listening to the community and responding proactively

Receiving and responding to community and stakeholder input

The feedback and enquiries loop illustrates how the communication channels and engagement mechanisms outlined in this Strategy enable the community to discuss and provide feedback on the project to the Project Team. The Project Team will provide relevant and accessible information as is required and will respond to feedback and comments from the community in a timely fashion.

Sharing information and receiving and responding to feedback

Table 4 Procedures to distribute accessible information

This table maps foreseeable project events that warrant communication with community stakeholders against the requisite communication channel.

Event (trigger)	Assessment of interest	Communication channel
Planning approval	High level of interest amongst all stakeholders	» Website » Letter » Newsletter » Media release » Facebook post (linking to website text)

Event (trigger)	Assessment of interest	Communication channel
Construction commences (Stage 2)	High level of interest amongst all stakeholders, especially site neighbours	» Website » Newsletter » Media release » Facebook post (linking to website text) » Equip 1800-number and project email
Construction activities (impactful)	High level of interest amongst site neighbours and local residents	» Website » Newsletter (project notification) » Equip 1800-number and project email » Newspaper advertisement
Project milestones	High level of interest amongst all stakeholders	» Community-based forum » Website » Newsletter » Media release
Key environmental management issues for development	High level of interest amongst environmental groups and site neighbours	» Mobilise dedicated community-based forum, as required » Direct email correspondence to mailing list of interested stakeholders

^In addition to regularly updated information that is always available on the project website

3.3 Mechanisms to distribute information about the development

Table 5 Communication channels

There are several communication channels employed by the Project Team to build and maintain effective communications with the community. This table outlines what the communication channels are and when they will be applied.

Channel	Audience	Details
Community-based forum (aka drop-in Community Information Session)	All stakeholders	» Community-based forum hosted on or near the site to provide project information in a relaxed, face-to-face environment » Exchange project information and feedback from the community and other stakeholders » Accommodate heightened interest in environmental management

Channel	Audience	Details
Website	All stakeholders	» One-stop shop for all project information » 24/7 feedback and ideas portal
Letter	Current Ivanhoe residents	» Providing residents with projects updates, including construction of Stage 2 news » Invitations to community-based forums (as and if required)
Newsletter	Residents proximal to the site	» Project update, including scheduled construction activity (relating to Stage 2) » Invitation to community-based forums (Community Information Session) » Details about how to provide feedback » Project notifications are a short-form newsletter, focusing on immediate project activity and upcoming construction impacts
Fact sheet	Project facts and benefits	» Available on the website, and hardcopy fact sheets distributed at face-to-face forums
Project email and phone number	All stakeholders, especially local residents (enquiries and complaints regarding construction)	» Community can make enquiries, provide feedback and seek information about Stage 2 construction activities » [Email] Disseminate project information, including virtual newsletter distribution and details about upcoming community-based forums (Community Information Sessions). Use database of previous consultation participants
Media release	Wider community	» Relevant project updates » Notification of upcoming community-based forums (Community Information Session) » Details on how to provide feedback and ideas, and promote public communication channels for enquiries and feedback
Ad in local newspapers	Wider community	» Notification of upcoming community-based forums (Community Information Session) » Details on how to provide feedback and ideas, and promote public communication channels for enquiries and feedback
Facebook	Wider community	» Direct construction and development enquiries to website, 1800-number or project email, understanding Facebook is predominantly used as a marketing tool

About the communication channels

Community-based forum

Community-based forums, or Community Information Sessions, are held as relaxed drop-in sessions near the Ivanhoe Estate site. Interested stakeholders, including site neighbours and former residents, can attend at any point to view large information displays and talk about the project with representatives of the project team.

Forums are valuable ways to build stakeholder relationships and to address sensitive issues, such an environmental impacts. Targeted sessions can be held, as required, with a focus on specific elements of planning and construction, including environmental management.

Website

ivanhoeestate.com.au https://www.frasersproperty.com.au/NSW/Midtown

The established project website provides up-to-date information about the project, including planning developments and construction information and progress, with the commencement of Stage 2 works.

Visitors to the website can navigate between information about the Masterplan and contact information to raise specific project enquiries.

The website includes a page that encourages residents to provide ideas about how to make the community a great place to live and ways to connect with the dedicated Community Development Team.

Letter

Letters provide directly impacted stakeholders with important information, customised to their particular interest in the project, in addition to information provided on the website and shared with the wider community. Mail outs alleviate the possibility of correspondence being overlooked in local press or cluttered inboxes, and overcome challenges relating to an individual's internet access.

Newsletter

Newsletters provide project updates at notable delivery milestones or when there is important information to share with the community about activities on site, including construction activities during Stage 2. Project newsletters collate contact information for the project and can promote upcoming community-based forums. Like mail-outs, newsletters alleviate the possibility of correspondence being overlooked in local press or cluttered inboxes, and overcome challenges relating to an individual's internet access.

Fact sheet

Fact sheets present information about the project under areas of interest for the wider community and local residents, such as environment, project staging, Masterplan information and resident relocation. Fact sheets provide more detail about specific aspects of the proposal, rather than an overview, such as on the project website or newsletter.

Project email and phone

The dedicated project email, midtowncommunityfeedback@frasersproperty.com.au and 13 38 38 number provide the community with easy-access, 24/7 platforms to provide comment or ask questions about the project. These communication channels can become more heavily used during construction activities, and this is anticipated during Stage 2 works.

In accordance with Condition B11 - the dedicated postal address for written complaints and enquiries may be sent to 1 Ivanhoe Place Macquarie Park. This postal address shall be noted on the Midtown Macpark website.

Emails are an effective way to disseminate project information to people who've registered interest in the project, including virtual newsletter distribution and details about upcoming community-based forums (Community Information Sessions).

Media release

Media releases provide accurate information about project developments and milestones that may be in the public interest. Possible media coverage provides a platform for reaching a wide local audience with details of engagement opportunities, such as community-based forums, and publishing media releases on the project website can be an effective way to create a single-source-of-truth if misinformation is gaining traction.

Advertisements in local newspapers

Advertisements in local newspapers can promote engagement opportunities and inform a wider local audience about upcoming activities on the site, including construction impacts.

Facebook [social media]

Community building is a core objective of the project, and early community building is happening online, with a project page that provides interested community members with a platform to ask questions, make comments, share ideas and request more information about engagement activities and planning and construction progress.

3.4 Dispute resolution and mediation

In the first instance, the communication and engagement team will identify a prospective or actualised dispute requiring resolution and/or mediation. If or when a dispute has been identified, the communication and engagement specialist will promptly escalate the dispute to the Project Team Lead. In consultation with the communication and engagement specialist, the Project Team Lead will prepare an immediate written response to the stakeholder or stakeholders involved and prepare a clear action plan to achieve timely resolution, in consultation with the project's legal representatives, if required. This action plan should include face-to-face meetings, where possible, that are attended by no less than two project representatives, to ensure accurate minutes are recorded.

3.5 Maintaining a complaint register

B5. At least 48 hours before the commencement of any construction until the completion of all works, the following documents will be made available:

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

(viii) a complaints register, updated monthly

All comments, feedback and complaints received from the community through communication channels outlined above, including the 13 38 38 -number and project email (midtowncommunityfeedback@frasersproperty.com.au), will be logged in a complaints register. A report of registered complaints will be prepared monthly to satisfy condition B5 of the Planning Consent.

4 Strategic communications

4.1 Key messages

Project key messages should be used to maintain clear, consistent project messaging. These will be updated throughout Stage 2, and the life of the project, to reflect the changing status of the project and community responsiveness.

Project overview

» The Ivanhoe Estate at the corner of Herring and Epping roads is set to become a vibrant, sustainable community where people want to live.

» Set over 8-hectares, Ivanhoe Estate will draw together world-class urban design, quality facilities and public open spaces.

» The redevelopment of the Ivanhoe Estate is part of the NSW Government Communities Plus program, which seeks to deliver new communities where social housing blends with private and affordable housing, with good access to transport, employment, improved community facilities and open space.

» Community consultation over the past three years has contributed to the revised masterplan. The revised masterplan features:

> approximately 3,300 new homes

> approximately 6000 sqm of open space

> the retention of 94 per cent of the existing ecological community along Epping Road

> the protection of Shrimptons Creek

> revised building heights

> the realignment of private apartments adjacent to the existing ecology community

> greater amenity

> improved integration with the existing community.

» Other features of the urban renewal project include a new primary school, two childcare centres, community centre, gym and pool, a supermarket, cafes and specialty retail shops, nature-based playgrounds and exercise stations and community gardens.

The Stage 2 plans for the former Ivanhoe Estate were approved in November 2022 by the Minister for Planning and Public Spaces. The Development Consent (SSD-15822622) has been issued, prompting the preparation of this Strategy.

Approved Stage 2 works include:

> excavation and earthworks

> construction of a community facilitates building (Building C2) and two residential apartment buildings (Building C3

> and Building C4) with basement car parking:

- Building C3 with 162 dwellings, 163 car parking spaces and ground floor retail
- Building C4 with 488 dwellings and 396 car parking spaces

> construction of Village Green public open space

> utilities, services infrastructure and public domain areas. tree removal

Frasers Property Australia and Mission Australia Housing remain dedicated to the project vision for a socially cohesive and sustainable world-class precinct at Ivanhoe Estate, and will continue to work towards this vision.

4.2 Holding statement

NSW Land and Housing Corporation (LAHC) has been working with Frasers Property Australia and Mission Australia Housing since 2017 to transform the former Ivanhoe Estate at the corner of Herring and Epping roads into a vibrant and sustainable community.

The urban renewal project was one of the first projects to progress through the NSW Government's Planning System Acceleration Program, and in May 2020 the revised Masterplan and Stage 1 plans were approved.

Stage 2 marks the next phase of Ivanhoe Estate redevelopment which will see the delivery of market, affordable and social housing, community centre, gym, pool, cafes, retail and public amenity.

The redevelopment of the Ivanhoe Estate is proudly the first major project being delivered under the NSW Government's Future Directions Policy and the Communities Plus Program, which seeks to deliver new communities where social housing blends with private and affordable housing, with good access to transport, employment, improved community facilities and open space.

Appendix 9 – Impact Mitigation Plans

Project:	Midtown C2
Project Objective:	Increase amount of waste being recycled, reduce waste costs
Environmental Aspect: Environmental Impact:	Solid waste Landfill, depletion of natural resources
Legal and Other Requirements	Waste Avoidance and Resource Recovery Act 2001
Aspect and Impacts Affected	
Current Performance:	Refer to Landfill Monitoring spreadsheet
Target Performance Level:	85%-90% solid waste recycled across all projects

Project:	Midtown C2
Project Objective:	Reduce the amount of dust being produced from site during certain conditions
Environmental Aspect: Environmental Impact:	Dust generation Deterioration of air quality
Legal and Other Requirements	Protection of the Environment Operations Act 1997
Aspect and Impacts Affected	
Current Performance:	
Target Performance Level:	0 complaints/notices regarding dust from site

SITUATION IN WHICH THIS PLAN MAY COME INTO PLAY

Once consistent dust is being produced through wind gusts, vehicle movement (cars, trucks and plant) excavation/earthwork activities, cutting, crushing (jackhammering) and grinding concrete the following actions must be looked at to find the best course of action to take to reduce the impact to the environment

ACTIONS REQUIRED

Action no.	Task	When is this task required	Person Responsible
1	Use watercart/hose to wet down the whole site/stockpiles etc and reduce dust being created	When wind is creating dust	Site Manager
2	Use watercart/hose to wet down roads within the site	When vehicle movement is creating dust	Site Manager
3	Use hose to wet down area where earthworks are taking place	When earthworks/loading trucks is occurring	Site Manager/Foreman
4	Use hose to wet down any concrete being cut or crushed	When excessive dust is being created through this activity	Site Manager/Foreman

ACTIONS REQUIRED

Action no.	Task	To be completed date or intervals	Action taken	Completed?	Person Responsible
1	Environmental inspection checklist	Weekly			SM
2	Sorting of waste	Ongoing			Contractors/Grindley
3	Re-using materials i.e. Timber, soil, etc	Ongoing			Contractors/Grindley
4	Recycling materials i.e. steel, copper, bricks	Ongoing			Contractors/Grindley
5	Using bin contractors with waste separation	Ongoing			CA
6	Monthly waste recycle reports from bin contractor	Monthly			CA