APPENDIX A: CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

CLIENT: FRASERS PROPERTY

EASTERN CREEK QUARTER STAGE 3

MOITS JOB NO. 24-002

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1 Document Control

Amendments to this Environmental Management Plan are approved by the HSEQ Manager and distributed to all holders of controlled copies.

Date	Name of Recipient	Organisation

Uncontrolled copies of this plan may be distributed to Moits personnel. However, these copies are not subject to automatic amendment and the receiver should verify currency of the document. Revisions to this Management Plan shall be made as required to reflect the current system requirements or the requirements of the Principal Contractor.

Revision	Date	Description	Page	Reviewed By	Approved By
1.0	April	New CEMP	All	Darren O'Dea	Darren O'Dea

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2 Overview

This document defines the environmental protection practices and processes Moits will observe during project.

This Plan forms part of Moits Integrated Management System (Project Management Plan). It should be read in conjunction with Moits Project HSEQ management Plan which describes the contract's nature and scope, provides the framework of the system, and sets out Moits incident notification and reporting practices.

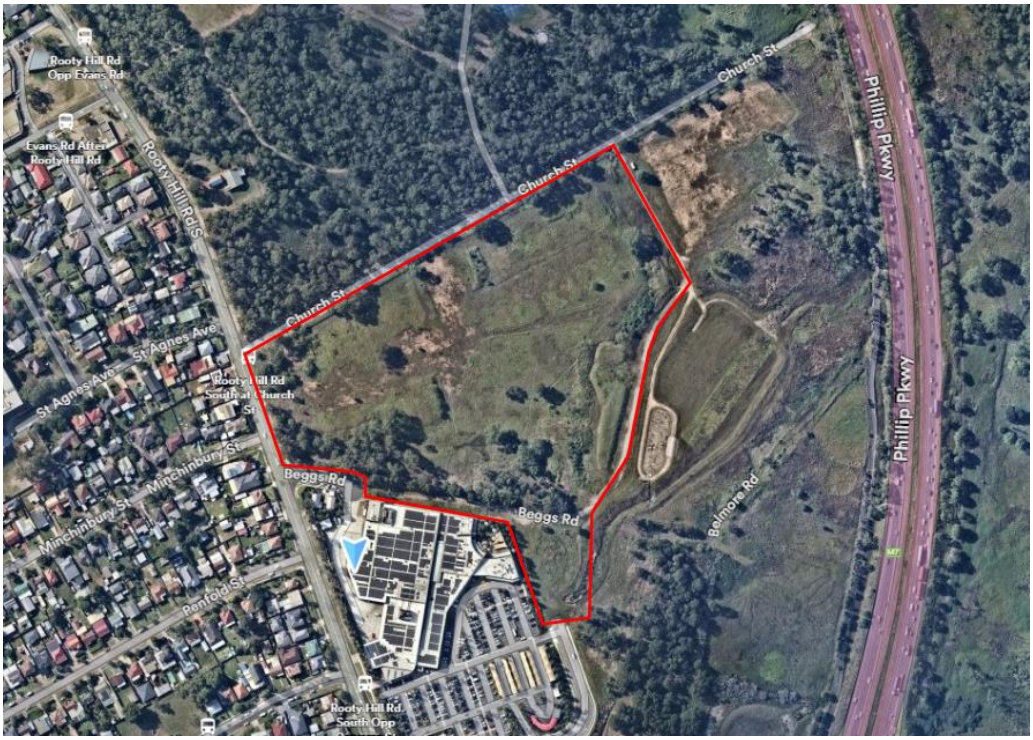
Services which are a) additional to those above and b) which have different environmental risks will be addressed by Site Specific Environmental Management Plans which will be developed using the risk management process.

3 Scope of Works

The Scope of Works details is described as follows:

The site (Rooty Hill Rd South, Eastern Creek) is located on the northern side of the Eastern Creek Quarter retail precinct (ECQ Lot 3) and is directly adjacent to a fully leased and operational retail centre.

The development comprises of approximately 100 retail tenancies located within a single large shopping centre extension with both basement and on-grade parking.



Site Locality Plan

The scope of works includes:

- Clear & Grub (incl. Tree Removal)

- Asbestos Remediation Works
- Bulk & Detailed Earthworks
- Cut & Fill (with a balance of Import material)
- Culvert Structures
- Supply & Install GPT Installation
- Block & Dincel Retaining walls (Incl. Footings)
- Construction of 2 x Temporary Basins.

3.1 Moits Environmental Objectives

Moits environmental protection objectives with respect to the contract are to:

- Manage the delivery of the services so that adverse impact on the environment is limited,
- Meet the requirements of:
- The client specifications in line with the contract;
- All relevant Legislation including that listed in Appendix E and
- Maintain trust, good faith and cooperation between Moits, the community and the client.

Moits objectives will be met through good leadership, commitment and training.

3.2 Objectives of Moits Construction Environmental Management Plan

The purposes of Moits Construction Environmental Management Plan ("CEMP") are to:

- Define Moits management of environmental protection when delivering the services,
- Provide guidance to Moits staff on Moits obligations under the contract,
- Assure the TFNSW / Council that Moits is fulfilling its obligations regarding the contract,
- Define the responsibilities of the Environmental Management Representative under the contract,
- Set down the frequency and responsibilities for management review of this plan.

3.3 Practice of Environmental Protection

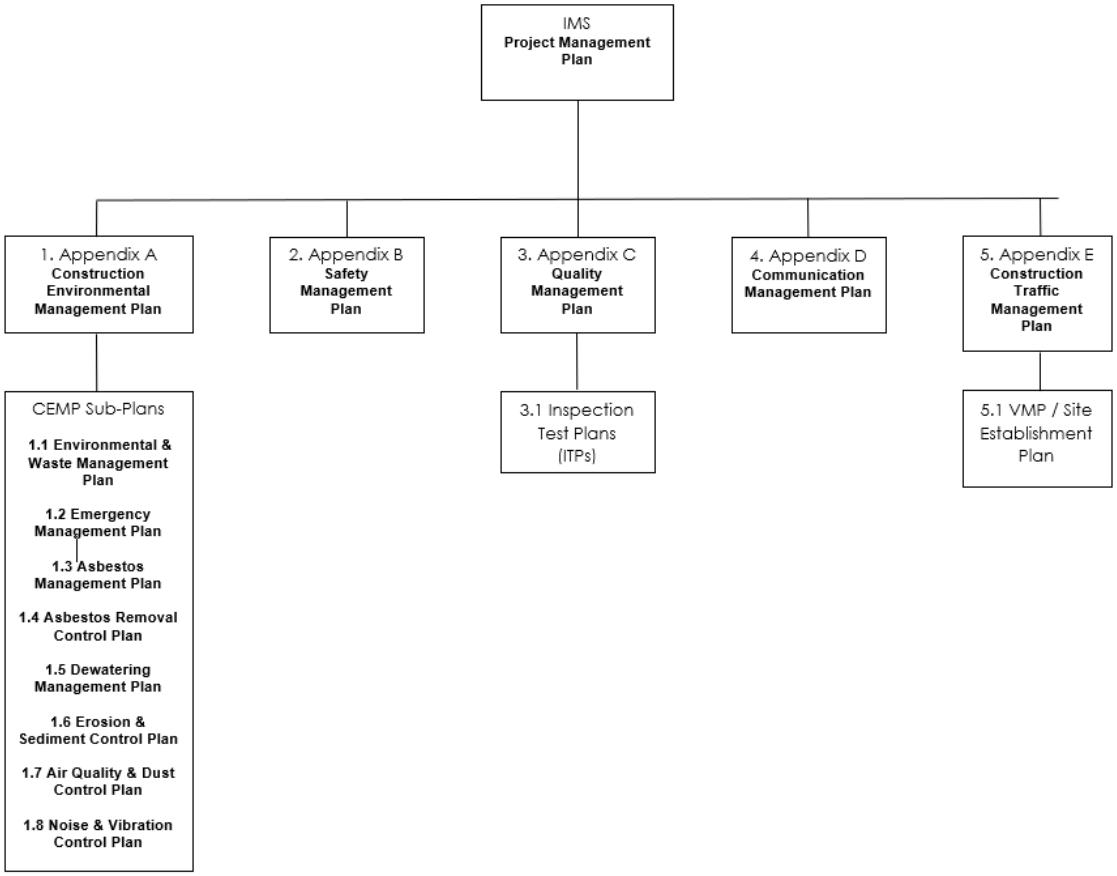
Moits will:

- Assess risks and plan work activities to eliminate or control foreseeable impacts or risks and comply with specified environmental protection requirements,
- Comply with relevant environmental, conservation, heritage, pollution, waste management and fire control legislation and regulations,
- Implement and maintain a risk-based performance evaluation program to verify that the services follow this CEMP,
- Consult with employees and subcontractors and disseminate environmental information,
- Provide appropriate instruction and training for employees and subcontractors,
- Set up response procedures which will initially contain, then remedy, any environmental damage which does arise and
- Improve environmental protection measures and revise this CEMP promptly when deficiencies are identified. Notify the relevant bodies when this occurs.

4 Management of the CEMP

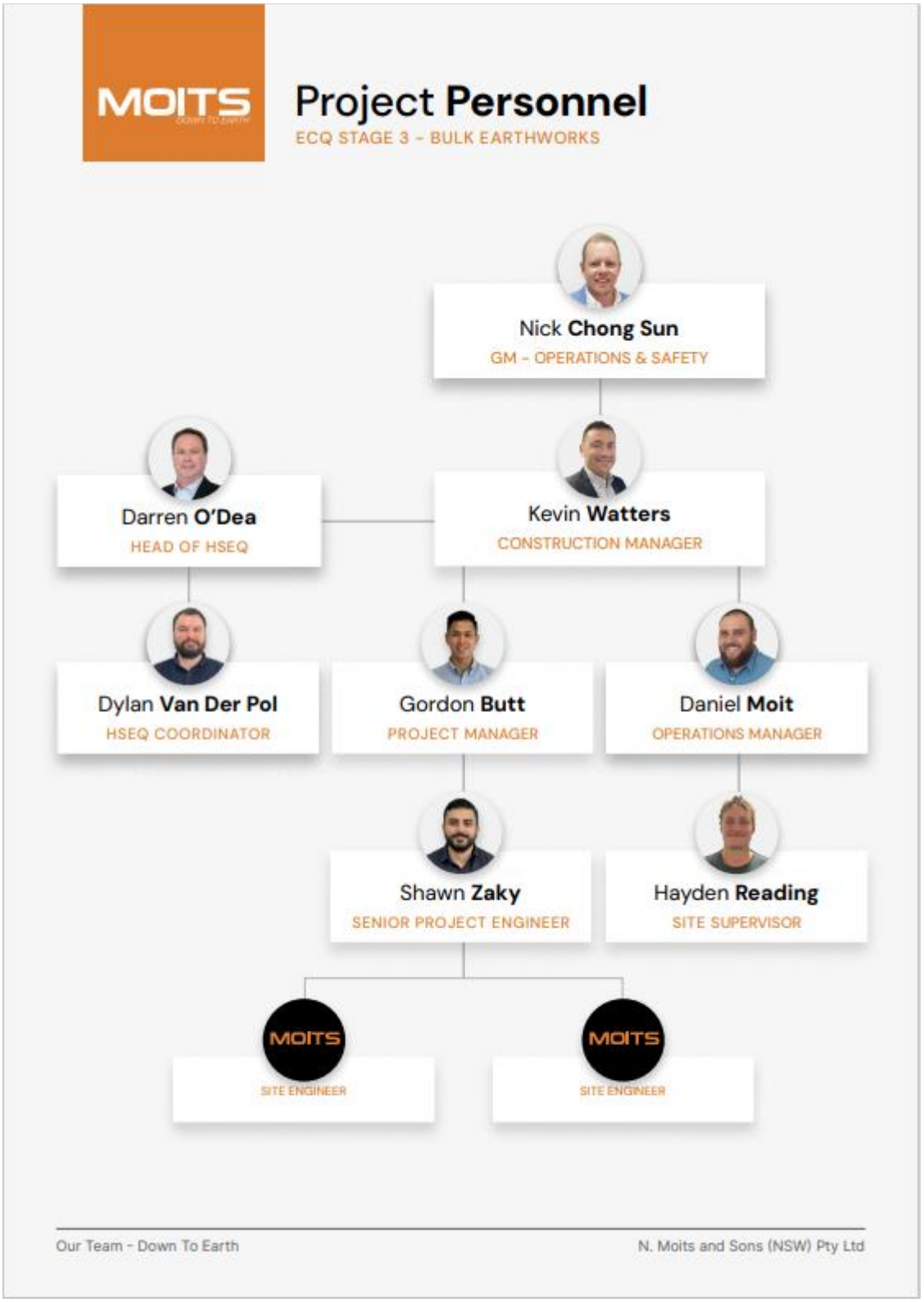
Moits has warranted that it will provide people, materials, resources, and systems to properly perform the services.

Moits and TFNSW/Council mandate that individuals conducting the services must possess competency, experience, and appropriate qualifications.



Please refer to Company Organisational Chart as shown below.

5 Project Organisation Chart



6 Summary of Legislative Requirements

Table 1 summarises the legislative requirements for the services under the contract, excluding specific requirements that may be identified in future activities not listed in the contract documents.

Table 1 - Legislative Requirements

Name of legislation	Regulating Authority	Requirement
Environmental Planning and Assessment Act, 1979	DECC, Council, RTA, NPWS, Primary Industry-Fisheries	For any Service not listed in the contract documents prepare and submit: - Site Specific CEMP
Protection of the Environment Operations Act, 1997	DECC	Not cause or have the potential to cause water, air, noise or land pollution. Dispose of waste at an appropriately licensed landfill. Notify the DECC when a "pollution incident" occurs that causes or threatens "material harm" to the environment*
Waste Avoidance and Resource Recovery Act, 2001 (NSW)	DECC	
Noxious Weeds Act, 1993	Department of Primary Industry Council, RTA	Notify the Department of Agriculture within 3 days of becoming aware of a notifiable weed (W1 weed). *
Contaminated Land Management Act, 1997	DECC	Report to DECC if aware that land contamination presents a "significant risk of harm". *
Pesticides Act, 1999	DECC	Read and follow the instructions on the pesticide's registered label. Don't detach the pesticide label. Do not cause risk of injury by a pesticide to a person or to property. Notify the public of its use – see G34 Clause 6.12 and the TFNSW Pesticide Use Notification Plan

Table 1 - Legislative Requirements		
Name of legislation	**Regulating Authority**	**Requirement**
Road and Rail Transport (Dangerous Goods) Act, 1997	DECC & SafeWork NSW	Ensure that dangerous goods are transported in a safe manner. Drivers of vehicles transporting dangerous goods and the vehicles themselves may need special licenses.
Heritage Act, 1977	Heritage Office of NSW	Notify the Heritage Office if a relic is discovered. *
Aboriginal and Torres Strait Islanders Heritage Protection Act, 1984	Department of FaHCSIA	Report the discovery of Aboriginal remains to the Federal Minister for Families, Housing, Community Services and Indigenous Affairs *

* Moits will notify the TFNSW / Council Representative before contacting any Regulating Authority.

7 Organisation & Environmental Responsibilities

Moits Organisation Chart is contained within the Civil Integrated Management Manual.

The principle responsibilities and authorities of Moits staff with respect to the environment are:

7.1 Construction Manager

The Construction Manager is responsible to the TFNSW / Council for ensuring Moits delivery of the Services meets Moits environmental objectives with respect to the contract and that its protection of the environment:

- Is properly resourced with people, equipment and systems and
- Complies with all environmental legislation.

The Construction Manager's responsibilities to the TFNSW / Council remain with him / her, however, the Construction Manager has delegated as follows:

7.2 Project Manager

The Project Manager has delegated authority from, and responsibility to, the Construction Manager as follows:

- Overall responsibility for environmental protection for the contract, including:
- Approving and regular evaluation of Moits environmental controls and this CEMP and
- Ensuring, for both Moits staff and subcontractors, documented environmental procedures are followed and records kept,
- Encouraging the active involvement of all staff in the management of the environment,
- Coordinating CEMP activities of all personnel involved in the contract,
- Monitoring subcontractor performance and commitment.
- Arrange and ensure environmental protection training of both staff and subcontractors takes place as required by this Plan and the Environmental Emergency Plan
- Act on corrective/preventive action notifications concerning environmental protection ensuring they are raised when appropriate and are closed out before the process or equipment is used again.
- Ensuring Moits response to environmental emergencies including:
- Ensuring it is appropriately resourced with trained people and with
- the equipment and materials required are available and deployed,
- Ensuring that processes and control systems needed for the plan are established, implemented and maintained,
- Arranging and approving training which ensures that all personnel understand what is required of them in emergencies,

Liaison with:

- Regulatory agencies including determining which approvals, licences and permits are required and obtaining them,
- The TFNSW to ensure its environmental requirements are met and ensuring that variations to the scope or timing of the services that impact on the environment are discussed with and agreed to by the TFNSW,
- Community Relations including addressing Environmental Impacts and
- Being one of the 24-hour emergency contacts.
- Ensuring reporting on environmental issues takes place as required

7.3 Moits Supervisor

Moits Supervisor has delegated authority from, and responsibility to, the Project Manager for:

- Ensuring environmental hazards and risks are controlled in construction activities and work areas,
- Ensuring the requirements of approvals, licences and permits are met,
- Coordinating or conducting environmental site inspections,
- Monitoring subcontractor behaviour on work sites,
- Identifying training needs with respect to spills and other environmental incidents and arranging for employees and subcontractors to attend the training,

- Holding toolbox meetings and team briefings about managing environmental issues, incidents and emergencies,
- Being one of the 24-hour emergency contacts,
- Implementing incident and emergency procedures and
- Arranging the supply of appropriate environmental incident and emergency equipment.
- Advising Project Manager of any environmental protection training needed,
- Investigating incidents with Moits Project Manager and HSEQ Manager
- Initiating non-conformance reports or corrective/preventive action notification when environmental protection problems are identified,
- Environmental assessment of subcontractors and their plant and equipment,
- Advising the Project Manager of any environmental or heritage issues employees encounter on site and
- Storage arrangements for hazardous substances.

When responding to Environmental Incidents

- Safety of Moits staff and subcontractors,
- Safety of road users and
- Quickly preventing/minimising further environmental damage.

7.4 Workers

Generally:

Workers have the responsibility to:

- Implement environmental controls during the delivery of services and in work areas,
- Ensuring the requirements of licences and permits are met on site,
- Ensuring site personnel (including subcontractors) are:
- Appropriately inducted and trained in the use of equipment such as spill kits and
- Comply with environmental protection procedures.

7.5 Nominated Environmental Management Representative

The Construction Manager has nominated the Project Manager and Supervisor to be Moits Environmental Management Representative for being fully conversant with Moits Construction Environmental Management Plan and Environmental Emergency Plan and ensuring they are fully implemented for the services under the contract.

The Environmental Management Representative is to keep Moits management informed of all issues relevant to the Plans.

The Environmental Management Representative is a point of contact within Moits on these matters and is particularly responsible for communicating with the TFNSW Representative and DECC.

The Environmental Management Representative's responsibilities with assistance from the HSEQ Manager are:

- Planning environmental controls,
- Regular evaluation and periodic audits of both staff and subcontractors at worksites,
- Preparing Site Environmental Checklists,
- Assisting site staff and subcontractors in their implementation of this CEMP,

- Delivering environmental induction and training,
- Keeping environmental records,
- Being conversant with complaints and pollution incidents and their resolution,
- Investigating, controlling and closing-out environmental Non-conformances,
- Being one of the 24-hour emergency contacts,
- Maintain the Register of Safety Data Sheets ("SDS") as described in the Environmental Emergency Plan

7.6 Subcontractors

- Adopting the CEMP for all Services under Contract.
- Implementing the environmental controls at work sites correctly.
- Following all environmental procedures or controls put in place at work sites.

8 Environmental, Approvals, Licences and Permits

Moits will ascertain from the appropriate authorities which approvals, licences and permits are required for the services. Prior to the commencement of any services Moits will obtain those which have not been obtained by TfNSW/ Blacktown City Council. Refer to the relevant licences obtained within the Company, licenses, and insurances sub-folder.

9 Time Management in Environmental Protection

Moits aims to meet its time related obligations regarding Environmental Protection and will ensure adequate planning and time management is in place to ensure all required protection is implemented.

10 Environmental Protection and Emergency Response Training

All Moits and Moits subcontractors' personnel will attend Moits Site Specific Environmental Induction prior to the commencement of the works. The Supervisor will arrange and conduct this induction as part of the Site Specific Safety Induction

Topics covered at this meeting will be at least the following:

1. Moits and TFNSW's / Councils environmental objectives in the contract,
2. Scope of the contract,
3. Organisation and Responsibilities,
4. Site specific issues such as boundaries for vegetation clearing, importance of any trees of significant value, location of refuse bins, washing, refuelling and maintenance of vehicles, plant and equipment,
5. Environmental Impacts, Safeguards and Control Measures,
6. Sensitive areas, exclusion zones and other precautions to be taken,
7. Waste Management and Reduction,

8. Conditions of any environmental licences, permits and approvals;
9. Reporting process for environmental harm/incidents,
10. Lessons learnt from incidents,
11. Control of subcontractors and
12. Emergency response training including use of personal protective equipment and spill kits.

Any relevant environmental issues which become apparent during the works will be added to this topics list.

All Moits and Moits subcontractor personnel who commence work during the contract will undergo the same induction training. This will be provided by the Moits Supervisor.

Only people who have been inducted will be permitted to work on worksites.

11 Environmentally Sensitive Areas

During the initial site inspection all sites of known environmental sensitivity will be identified and controls developed to ensure minimal impact during the works. These areas will be clearly signposted and barricaded to prevent access prior to works commencing.

These areas will be detailed on the site plan and communicated to all personnel during the site specific induction.

12 Environmental Impacts and Control Measures

The activities in the RMCC have been divided into two categories:

12.1 Activities Listed in The TFNSW Environmental Assessment Procedure for Routine and Minor Works (EAPRMW)

To ensure that environmental impacts are avoided or minimised Moits has adopted the safeguards set down in the EAPRMW Standard Safeguards List for the activities listed there.

12.2 Activities Not Listed in The Environmental Assessment Procedure for Routine and Minor Works (EAPRMW) and Activities in Sensitive Areas

Prior to undertaking any activity not in the EAPRMW (including excavation of material to be used for other activities) or any activity in a sensitive area shown in 39, Moits will complete the Site Specific CEMP as per the CC1 Matrix Conditions to comply with the DA CC1 - 3151.

13 Construction Waste Management

Moits' construction waste management procedure begins with comprehensive site assessments to identify waste sources and potential recycling opportunities. They then implement robust waste segregation practices to separate materials like concrete, wood, metal, and plastics. Hazardous materials are handled with utmost care and disposed of in accordance with regulatory guidelines via qualified sub-consultants, such as JBS&G to prevent environmental harm. Regular monitoring and audits are conducted to track progress and identify areas for improvement, ensuring continuous optimisation of their waste management practices.

Refer to the attached Construction Waste Management Sub-Plan for further information.

13.1 Legislative Requirements

Under the Protection of the Environment Operations Act, 1997 when Moits stores or transports Hazardous or Industrial waste it is classified as a non-licensed waste activity. Accordingly, Moits will:

- Ensure that waste is stored in an environmentally safe manner,
- Ensure that waste is not stored with and does not come into contact with any incompatible waste,
- Retain information regarding the generation, storage, treatment or disposal of the waste,
- Obtain a consignment authorisation number for the waste from the person to whom the waste is being delivered, complete and retain an approved waste data form in relation to the consigned waste and give a copy of the form to the person transporting the waste prior to transporting the waste,
- Ensure that the person transporting the waste is licensed if the waste is of such an amount as to require the person transporting the waste to be licensed,
- Ensure that the waste is being transported to a place that may be lawfully used as a waste facility,
- Accurately identify the waste and advise the transporter accordingly and
- Inform the DECC of any suspected breach of the Operations Act in connection with the transportation of waste from the premises.
-

Waste other than Virgin Excavated Material will be disposed of to a "controlled waste facility" ("Controlled Waste Facility" is defined to mean a waste facility of a class specified in the regulations).

Moits will ensure that:

- Vehicles carrying waste will be kept clean and be constructed and maintained so as to prevent spillage of waste,
- Loads which may spill or emit odours are covered so that spillage and/or emission is prevented,
- Any container is safely secured,

- Incompatible waste will not be mixed or transported together,
- Any hazardous waste is not mixed with any other type of waste,
- Any waste containing asbestos is wetted and fully covered,
- Material segregated for recycling is not mixed with other wastes,
- Any waste is transported only to controlled waste facilities or other facilities that can lawfully receive the waste and
- The occupier of the waste facility is advised of the type of waste involved before the waste is unloaded.

13.2 Construction Waste Management Plan

A waste management plan detailing all waste generated by the services will be developed in accordance with G34M Clause 6.16.1. Refer to the Construction Waste Management Plan for further information.

13.3 Waste Management Register

A waste management register will be kept detailing the type of waste collected, amounts, date/time, by whom, and the disposal location. Refer to G34M Clause 6.16.2. This namely in regard to Green Waste following initial site stripping will be captured.

13.4 Licensed Waste Facilities

Most of the ACM Waste will be covered and confined on the premises through the utilisation of a Borrow Pit as per the JBS&G Remedial Works Plan (RWP) via the means of a Containment Cell. Only demolition waste, ACM Fragments following emu pick and any potential on-site Friable Asbestos, if detected, will be transported off-site for proper disposal at an authorised waste facility in such cases.

13.5 Waste from Employee Facilities

All waste from employee facilities will be disposed of in accordance with legislative and council requirements. Employee facilities will be either plumbed to existing sewer lines or contain retention tanks that will be periodically pumped out and collected by a licence waste management contractor.

14 Soil and Water Management

For now, please refer to the Construction Soil & Water Management Sub Plan which forms part of this CEMP. Moits have engaged with a suitably qualified consultant to prepare a Construction Soil & Water Management Sub-Plan. This internally developed plan currently includes protection measures associated with the Bio-Basin as part of the Western Sydney Parklands Vegetation Management Plan.

14.1 Erosion and Sedimentation Control

Moits will plan and carry out the whole of the services to comply with DECC's Managing Urban Stormwater: Soils and Construction, Blue Book 1 and 2.

Refer to the Construction Soil & Water Management Sub Plan in accordance for TfNSW G36 for further information which demonstrates the Control measures to protect the site and Western Sydney Parklands Bio-Basin. This will be prepared by H&H.

Please refer to Erosion and Sedimentation Control Plan for information regarding how stormwater control and discharge will be managed, and measures taken into account to ensure that sediment and other materials are not tracked onto the roadway by vehicles.

14.2 Water Quality

Moits will provide adequate controls along the Eastern Creek Quarter, Stage 3 Project to ensure that any water entering the waterways or stormwater drainage system from areas it disturbs complies with the requirements of the POEO Act and the local water authority.

Appropriately constructed and situated wash out areas will be used when washing out concrete trucks and washing down plant and equipment.

14.3 Stormwater Control & Discharge

Moits will implement comprehensive stormwater control and discharge measures to manage runoff and prevent pollution on site. This includes the installation of 2 x Temporary sediment basins, silt fences, and erosion control blankets to capture and filter stormwater before discharge.

Regular inspections and maintenance of these systems will be conducted to ensure their effectiveness. Additionally, Moits will employ best management practices such as diverting clean water away from disturbed areas, stabilising exposed soil, and promptly revegetating completed sections to minimize erosion and sediment transport.

All measures will comply with local environmental regulations to protect downstream waterways and the surrounding environment. Further details can be adhered too from the Construction Soil & Water Management Sub Plan.

14.4 Water Extraction

Moits will identify any water source it intends to use for dust control, earthworks/pavement compaction, on-site concrete batching and the like, obtain any required licences, permits or approvals and comply with any conditions they or Legislation impose.

15 Air Quality and Dust Control

Moits has engaged with a suitably qualified consultant for the preparation of the Air Quality Management Sub Plan for this project to minimise environmental impacts as a result of discharges to the air. Please refer to the Air Quality and Dust Control Plan for more information on how Dust and Odours will be managed for the duration of the project.

16 Management of Dust & Odour

To protect the amenity of the neighbourhood, Moits will implement stringent dust and odour management procedures on site. Dust suppression methods will include regular water spraying, covering of stockpiles, and limiting vehicle speeds. Odour will be controlled by promptly removing waste materials and ensuring proper containment of volatile substances. Continuous monitoring will be conducted to ensure compliance with environmental standards, and any complaints from the community will be addressed promptly to minimise impact.

17 Noise & Vibration Control

Moits will make all practical efforts to comply with the requirements of the POEO Act, the DECC Noise Control Manual, DECC Industrial Noise Policy, DECC Environmental Criteria for Road Traffic Noise and the TFNSW Environmental Noise Management Manual.

Furthermore, Moits have engaged with a qualified consultant, i.e. Acoustic Logic to prepare the Noise & Vibration Monitoring Control Sub Plan. Refer to the attached, Construction Noise & Vibration Sub Plan prepared by Acoustic Logic for further information.

It will:

- Restrict, where possible, noise making activities to normal working hours
- When working near schools, hospitals, residences and places of worship avoid sensitive times for example those leading up to and during examinations such as the HSC, those during religious services,
- There is a Childcare center within the Eastern Creek Quarter (Stage 2) which will be carefully monitored & assessed throughout the construction of these works, for further details refer to the Noise & Vibration Management Plan prepared by Acoustic at initial stages.
- Inform and consult with affected residents,
- Ensure plant and equipment has efficient noise suppression devices.

18 External Lighting

Refer to the Statement prepared by Moits under DA Consent Condition, C18, SSD-10457 Outdoor Lighting which is Not Applicable to this Scope of Works under the Contract.

19 Traffic Management

Moits have prepared a Construction Traffic Management Plan (CPTMP) complying with the B2 Consent Condition specific to Eastern Creek Quarter Stage 3 project which details how vehicle and pedestrian traffic will be managed around the site for the duration of the project. Please refer to the attached CPTMP as per the B2 Consent Condition of SSD-10457 for further details.

20 Vegetation Protection

Moits will:

- Adhere to the requirements and precautions of TFNSW M300 Clause 4.310,
- Preserve existing trees, plants, and other vegetation within the network and use every precaution necessary to prevent damage as per the Tree clearing and protection requirements from the CC Matrix. Refer to the Tree Protection Plan (TPP) for further information prepared from Ecological Australia.
- Ensure that all site personnel observe the limits of clearing and are made aware of the importance of any trees of significant value.
- When required, get approvals under the National Parks and Wildlife Act 1974 (NSW), Native Vegetation Act 2003 (NSW), Environmental Planning and Assessment Act 1979 (NSW), Threatened Species Conservation Act 1995 (NSW), and Environmental Protection and Biodiversity Conservation Act 1999 (Cth).

20.1 Weeds

The services may require the eradication or controlling of weeds which interfere the work then only to the extent necessary for road purposes are the weeds to be removed or eradicated.

Moits will employ methods that will minimise the spreading or introduction of weeds by carrying out the services and will employ best practice weed removal methods.

21 Flora & Fauna Management

Moits will ensure best practice and protect all native flora & fauna from the impact of the services in accordance with the EAPRMW Standard Safeguards List. All native wildlife will be protected. Refer to the attached Biodiversity Management Plan for reference.

22 Fire Precautions

Fire prevention and precautions and the requisite equipment will be available on site in dedicated areas and vehicles.

Moits will take all necessary precaution with plant in bush-fire prone areas and, when the danger of fire is high, it will restrict or, when prudent, refrain from welding, grinding, using cut-off wheels and other heat or spark generating work.

23 Potential Contaminants

Moits will plan and execute the services to minimise the risk of polluting with chemicals, dangerous goods and other potential contaminants.

Where a significant risk exists (e.g. fuel storage and transfer to vehicles, use of pesticides, concrete batching, application of pre-coat) and especially near waterways and drains, it will meet all the requirements of TFNSW G34M Clause 6.12.

Public notification of pesticide use will be in accordance with the TFNSW Pesticide Notification Plan. The following measures will also be implemented whenever pesticides are used adjacent to or across the road from a Sensitive Place:

- Mechanical means of pest control (such as mowing or slashing) must be used where feasible; or
- Hand-held application of pesticides is required where mechanical means of pest control are not feasible.

24 Contamination Management including Unexpected Contamination Finds Protocol

- Moits will engage with a Suitably Qualified Person to prepare an Unexpected Finds Protocol in relation to Contamination and follow the Communications Procedure.
- If asbestos is found on site which has not been identified in any of the Sensitive Areas as per the JBS&G Contamination assessment, the following course of action must be taken: -
- All work must cease.
- The Asbestos supervisor is to be notified.
- The supervisor must assess the asbestos and put control measures in place to address the identified risk and make safe. This may require amendments to the ARCP.
- Once the control measures are in place then a Safe Work Method Statement will be developed for the removal works;
- The asbestos register is updated to reflect the current position and amended as the asbestos removal work progresses to reflect the level and quantum of asbestos.
- Furthermore, information can be located within the Unexpected Finds Protocol (Contamination) as per the consent C20 SSD-10457 condition & C31 of SSD-31515622.

25 Aboriginal Heritage Protection

Moits will ensure that all personnel performing the Services:

- Have received training regarding their responsibilities under the National Parks and Wildlife Act
- Are made aware of any relevant sites/areas which must be avoided.

If Moits encounters any previously unknown Aboriginal object or material (including skeletal remains) suspected of being of Aboriginal origin, it will cease all construction work that might cause damage or disturbance.

Moits will then notify the TFNSW Representative immediately, who will then arrange for the TFNSW's Regional Aboriginal Cultural Heritage Advisor to be contacted. The Advisor will then determine whether an officer of DECC and a member of the appropriate Local Aboriginal community should be consulted. Furthermore, please refer to the attached Unexpected Finds Protocol (for Aboriginal & Non-Aboriginal Heritage) for further information in relation to the Unexpected Finds Protocol / Procedures.

26 Non-Aboriginal Heritage Protection

Moits will ensure that all personnel working on site have received training regarding their responsibilities under the Heritage Act and are made aware of any relevant sites/areas which must be avoided. Such sites/areas will be identified on a site map, to be made available to all relevant personnel during the Services.

Should any previously unknown item be encountered which is suspected to be a relic or heritage item, all Services will stop and measures to protect the item from damage or disturbance will be taken. The TFNSW / Council Representative will be notified immediately, who will then arrange for an TFNSW / Council Environmental Officer to be consulted. Refer to the attached Unexpected Find Protocol (for Aboriginal & Non-Aboriginal Heritage) for further information.

27 Materials with Recycled Content Preferred

Materials and products with recycled content will be proposed wherever they are cost and performance competitive and environmentally preferable to the non-recycled alternative. Materials submissions will take place and submitted to the certifying authority for approval prior use. This namely for the preparation of the Hardstand where Site sheds will be set-up for the duration of the Project. It is noted however that as part of the CC1 Bulk Earthworks Package, the requirement for Import Material will be either VENM/ENM once determined.

28 Site Restoration

Moits will reinstate any areas disturbed by its delivery of the services. Restoration will include remediation of any ground contaminated by incidents such as oil or fuel spills (particularly in fuel storage areas) and appropriate revegetation.

29 Control of Subcontractors

29.1 Subcontractors CEMPs

Before engaging any subcontractor Moits will:

- Ensure that suitably qualified subconsultants are engaged for all Sub-Plans which will form part of this overarching CEMP Document.
- If the Subcontractor has its own CEMP:
- Audit that subcontractor's CCEMP and record the results,
- Induct that subcontractor's personnel
- Set down the responsibilities Moits will retain for the management of site environmental protection issues,
- Set down a surveillance program to monitor and document effectiveness of each subcontractor's systems.
- If the Subcontractor does not have its own CEMP:
- Engage the subcontractor upon the basis that it will adopt Moits CEMP.

29.2 Subcontractor Non-conformance

In the event that a subcontractor is found to be not working to the requirements of the CEMP Moits will immediately issue a CAR with a Hold Point which stops the noncompliant process until the CAR is closed out.

30 Environmental Incident and Emergency Management

30.1 Emergency Plan

Moits has prepared an Emergency Plan. It deals with key response personnel, emergency contracts, containment measures, cleaning, collecting and disposal, availability of SDS, the emergency procedure and communications strategy.

30.2 Response Time

Moits provide properly equipped and manned responses to Environmental Emergencies and to requests for assistance from emergency services within the response times set out in the RMCC documents.

30.3 Resources

Moits will ensure all required emergency response equipment such as spill kits, fire extinguishers, signage, communication devices are available on all sites to ensure the timely response to any emergency.

30.4 Reporting and Corrective Action

In the event of an environmental incident Moits Project Manager will ensure that the TFNSW Contracts Manager is informed, the Incident/Accident Report is completed and that, if required, Moits will cooperate with the TFNSW in its application of TFNSW's Environmental Incident Classification and Management Procedure.

31 Non-Compliance and Corrective Action

Environmental Protection non-conformances, for example those arising from:

- Audit and Surveillance conducted by either Moits or the TFNSW,
- Incidents,
- Application of the Risk Management process,
- Environmental issues being encountered on site,

Will be dealt with:

- By applying the processes set down in the Quality Management Plan
- According to the responsibilities set down in this CEMP,
- Within the times and in the manner down in the contract and
- Observing the Hold Points, set down in 41.

32 Environmental Performance Evaluation

Using the Environmental Inspection Checklist, the Project Manager or Supervisor will carry out monthly checks to ensure the service delivery is complying with the CEMP.

33 Records Management

Moits will hold the following for at least 5 years after the end of the contract. They will be accessible to the TFNSW / Council and to authorised DECC officers:

Details of qualifications held by individuals primarily responsible for environmental monitoring,

Monitoring/inspection reports,

Internal audit reports,

External audit reports,

Reports of pollution incidents, other environmental non-conformances, complaints and follow-up action,

Minutes of CCEMP management review meetings,

Evidence of action taken as a result of such meetings/events,

Induction and training records,

Records of monitoring by subcontractors against compliance limits, and

Waste Management Register.

34 Hours of Work, in accordance with conditions of this consent

Moits working hours as per "Eastern Creek Quarter Stage 3 – Principal's project requirements – Rev 2":

Monday to Friday: 7am – 6pm

Saturday: 8am – 1pm

Nil Works on Sundays and Public Holidays

Services conducted outside these hours will follow the TFNSW's / Blacktown City Council Procedure for Work Outside Normal Hours.

35 Community Consultation & Complaint Handling Procedure

Communication will be managed in accordance with the 'Communication & Consultation System Standard'. For further information, refer to the Moits Community Management Plan.

The Project Manager/Site Supervisor will undertake regular and effective communication and consultation between management, employees, and subcontractors on HSE issues. This may be facilitated through site meetings, toolbox meetings, pre-start meeting and through Health and Safety Committees/Health and Safety Representatives and a HSE notice board.

The Project Manager is to ensure appropriate consultation arrangements are established for the project in accordance with Regulatory requirements and contract requirements. The Project Manager will also ensure changes to HSE standards are communicated to relevant personnel.

A 24hr Site Contact will be available in case of any emergency / incidents which are to be reported to Moits and then relayed back to the Client.

Furthermore, as part of Moits commencement process, the team, with the support of the Frasers Client team, will actively begin to engage with stakeholders and the community to identify the community's needs and ensure that the construction solution addresses these needs as best as possible.

Prior to commencing, the Frasers team will be dealing with all community related issues on the Project and provide clarity about the upcoming changes, potential short-term impacts and the timings associated with the project work.

36 24hr - Site Manager Contact

The Appointed Site Manager as per the Organisational Chart will be Hayden Reading (Civil Site Supervisor).

The contact details will be provided and as follows. M: 0457 009 294

36.1 Complaints Management Procedure

If complaints made by the public to Moits staff cannot be immediately resolved, they will be recorded and dealt with promptly using Moits complaint procedure.

Key Stakeholders for Consultation:

Key Stakeholders throughout the Design and Construction process include Henry & Hymas (H&H) Designers who will be responsible for ensuring the Design has achieved CC. Currently the design is at 50% as per Tender issued drawings.

JBS&G are a nominated sub-consultant as per the PPR issued by Frasers and need to be consulted to ensure requirements of the RWP prepared by JBS&G has been adhered too which will ensure Clearance Certificate issue upon completion of the remedial works. The EPA Site Auditor overseeing their works is yet to be confirmed.

The principal will be consulted during the design and construction process for regular updates also.

As part of Moits commencement process, the team, with the support of the Frasers Client team, will actively begin to engage with stakeholders and the community to identify the community's needs and ensure that the construction solution addresses these needs as best as possible.

Prior to commencing, the team will prepare an information leaflet for the neighbours/retailers to provide clarity about the upcoming changes, potential short-term impacts and the timings associated with the project work. Further to this an information session will be held for the students and the community.

As part of the ongoing project, the Moits team will ensure that a regular liaison session is held for the precinct and the community and that concerns are itemised and addressed where possible.

Set-out procedure & distribution:

Moits will be utilising Project Management software, such as Aconex, for all formal correspondence / transmittals.

Moits will utilise their in-house Moits Central Management System for management of key documentation & Data Tracking, including all Materials Tracking Registers, SWMS, Company Procedures, Site Diaries, etc…

Procedures / Mechanisms to resolve an issue and mediate any disputes

In the event of disputes/complaints/issues that arise on site during construction, the issues must be escalated to the supervisor for mediation. If the issue cannot be resolved by this stage the issue will then be escalated to the Project Manager who will in turn manage the situation and escalate to Moits Senior Leadership Team where required.

37 Environmental Reporting to the TFNSW / Council

Moits will submit to the TFNSW / Council within the times shown in the contract.

- A report on each occasion when the site is visited by the DECC, notifying the TFNSW of the purpose and outcome of the DECC visit and of all actions being taken by Moits in response to the DECC visit and submitting it to the TFNSW/ Council,
- A report (on TFNSW form 624) of any incident resulting in failure to meet environmental obligations, the immediate action taken to alleviate the problem and the proposed measures to prevent the occurrence of a similar incident. On submission of this information, the TFNSW may apply a HOLD POINT
- A summary report of environmental performance evaluations

38 Reviewing This Construction Environmental Management Plan

The Project Manager and HSEQ Manager will review this Construction Environmental Management Plan to ensure it is appropriate and is being implemented effectively.

Changes may arise from a change of scope, Moits internal audits, TFNSW / Council audits, TFNSW / Council comments or from opportunities for improvement.

The Plan will then be updated to reflect any changes which have occurred. The revised document and the input which led to the revisions will be reviewed by the General Manager, approved by him/her and then forwarded to the TFNSW Representative for his/her record.

Controlled copies of this Plan will be updated.

The planned target dates (or frequencies) at which the Construction Environmental Management Plan will be subject to formal review are as per Moits integrated Management System.

39 Appendix 1 – Sub-Plans

Appendix 1.1 – Construction Pedestrian & Traffic Management Sub Plan (CPTMP)

CONSTRUCTION TRAFFIC MANAGEMENT PLAN

Project Address:
Rooty Hill Road South
Eastern Creek Quarter
Bulk Excavation Works

MOITS
DOWN TO EARTH

By: Maddison Angove

Document Approval:

Development	
DA/CDC Approval Reference:	
Approved by	Amy Dowsett
Position	Senior Planner
Date	27/02/2024

Document Control:

Version	Date	Author	Reason
A	27/02/2024	Maddison Angove	Design of CTMP
B			
C			
D			
E			

Plan Development:

Project Name	Eastern Creek Quarter Bulk Excavation Works
Job Number	CTMP2702
TMP Produced for	Moits
Project Address:	141 Rooty Hill Road South, Eastern Creek
Date Prepared	27/02/2024
Prepared by	Maddison Angove
TFNSWPWZTMP	TCT1004181
Contact Details	02 9584 0426
Scope of Works	Bulk Excavation Works
TMP Distribution list	**LIMITED DISTRIBUTION**

Table of Contents:

1 Construction Traffic Management Plan

2 Project Introduction

Project Name:	Bulk Excavation Work		
Project No:	CTMP2702	**Tender No.**	
Project Office Location:	141 Rooty Hill Road South, Eastern Creek		
Planning Office Contact Number:	**Contact:** Maddison Angove **Telephone:** 02 9584 0426 **Email:** planning@sstc.net.au		
Principal Contractor	**Contact:** Frasers Property Australia **Telephone:** 02 9767 2423 **Email:** Brendan.sharp@fraserspproperty.com.au **Mobile**:		
Project Description:	ECQ Stage 3 – Bulk Earthworks, Stormwater & Retaining Walls.		

Key Project Staff:

Project Manager:	**Contact:** Gordon Butt **Email:** Gordon.Butt@moits.com.au **Mobile**: 0468 569 977
Moits	

Plan Review:

This plan is schedule for review six monthly as follows -

	Date of planned review	**By Whom**	**Date completed**
First Review	27/08/2023	Maddison Angove	27/08/2023
Second Review	22/04/2024	Shawn Zaky	22/04/2024
Third Review	22/04/2024	Gordon Butt	22/04/2024
Fourth Review	22/10/2024	Amy Dowsett	

3 Traffic Management Plan Overview:

The site (141 Rooty Hill Rd South, Eastern Creek) is located on the northern side of the Eastern Creek Quarter retail precinct (ECQ Lot 3) and is directly adjacent to a fully leased and operational retail centre. The development comprises of approximately 100 retail tenancies located within a single large shopping centre extension with both basement and on-grade parking.

The scope of works consists of the following:-

- Clear & Grub (incl. Tree Removal)
- Asbestos Remediation Works
- Bulk & Detailed Earthworks
- Cut & Fill (with a balance of Import material)
- Culvert Structures
- Stormwater Drainage (Incl. GPT Installation)
- Block & Dincel Retaining walls (Incl. Footings)
- Construction of 2 x Temporary Basins.

The purpose of this Traffic Management Plan is to ensure that Moits are ensuring a commitment to safety, traffic management, reporting and reviewing is met during the life of this project.

This will be accomplished with consideration given to; Traffic Plans, Traffic Demands, Traffic Routing, Traffic Control Devices, Other road users and stake holders, Special (emergency) vehicle requirements and access, Accredited Traffic Controllers

This plan aims to identify the risks to persons undertaking work on, or adjacent to, a a traffic corridor. It shall ensure that appropriate control measures for any identified hazard are assessed, controlled, implemented, monitored and reviewed by elimination, substitution, engineering, administration or by using personal protective equipment.

The legislative and reference documents used in conjunction with this plan include, but are not limited to:-

- WH&S Act and Regulations (NSW)
- Risk Management Code of Practice (2007)
- Traffic Management for Construction or Maintenance Work Code of Practice (2008)
- Traffic Control at Worksites Manual (TCAWS) Version 6.1 February 2022 (TFNSW)
- Australian Standard AS1742.3 Traffic Control Devices (2009)

All contractors, subcontractors, employers, self-employed persons, workers and other persons will be bound by the requirements set out in this plan. This plan for TfNSW the basis of ongoing programmes in continuous improvement of traffic management and the required ongoing training and commitment of all personnel involved in this project.

4 Abbreviations:

Acronym	Description
MRTS	Main Roads Technical Specification
TCAWS	Traffic Control At Worksites Manual Version 6.1 February 2022 (TFNSW)
NSWPS	New South Wales Police Service
NSWAS	New South Wales Ambulance Service
NSWFS	New South Wales Fire Service
TC	A person authorized in accordance with TFNSW and TCAWS to control traffic at road works.
TGS	Traffic Control Plan - A Traffic Control Plan prepared by Site Security & Traffic Control in accordance with the requirements of the Contract as a means of planning and communicating individual traffic changes. The Traffic Control Plan shows all proposed traffic control devices and their layouts on a plan.
CTMP	Construction Traffic Management Plan - The Traffic Management Plan prepared by Site Security & Traffic Control PTY LTD in accordance with the requirements of the Contract. It outlines how the works are integrated into the operation of the road network.
TRSB	Temporary Road Safety Barrier
MOITS	Moits
SSTC	Site Security & Traffic Control

5 Legal & Other Requirements:

Moits must comply with relevant State and Territory Legislation, Codes of Practice, Compliance Codes and Australia Standards. The items listed below are specifically referred to in client documentation supplied.

- Traffic Control At Worksites Manual Version 6.1 February 2022 (TFNSW)
- Workplace Health and Safety Traffic Management for Construction or Maintenance Work Code of Practice 2008
- AS/NZS ISO 31000:2000 Risk Management – Principles and Guidelines
- AS/NZS ISO 9001:2008 Quality Management Systems – Requirements
- Australian Standard AS1742.3 , Fourth Edition 2009

- Development of plans within this TMP have been prepared and checked by those who hold a valid PWZTMP.

6 Risk Management & Mitigation:

Risk assessments will be conducted before Traffic Control Plans (shown in appendix) are prepared and prior to erecting any traffic control device on site. This will determine a safe environment of workers and a safe route for pedestrians and on-coming vehicular traffic.

7 Quality Planning:

7.1 Quality Record Management –

Form/Checklist	Responsibility	When
Traffic Management Audit Checklist	SSTC	As per schedule
Site Inspection Checklist	SSTC	Weekly
Daily Traffic Management Checklist & Docket	SSTC	Each day
Implement Traffic Control SWMS	SSTC	Each day
Construction Prestart participation	SSTC + Moits	Each day
Incident Reports	Staff Involved + Moits	If required

7.2 Record retention

Project records are to scanned and archived in the project file. Retention of these will be agreed with by Contract requirement but generally copies retained for 7 years.

7.3 Providing records to the Client

If requested by the client the Daily Traffic Management Checklist & Docket is signed by the client on site and a copy given to the client.

7.4 Site Management, Inspections and Audits

Regular inspections of traffic control devices shall be carried out a minimum of twice daily and recorded in Daily Traffic Management Checklist & Docket. These records are available for inspection during the project. These records will be held on site by SSTC and submitted at the end of the shift to Moits works supervisor.

Traffic delays shall be assessed and recorded on the Daily Traffic Management Checklist & Docket. Moits supervisory staff shall be notified of any delays that exceed the contract requirements.

Queue lengths shall be assessed hourly and additional advance warning signs shall be erected if deemed necessary.

7.5 Complaints

Prior to the commencement of works, Frasers will have a dedicated resource responsible for community management. This person will act as a conduit between the Contractor and the community, including responding to all enquiries, addressing complaints, and notifying the community of relevant upcoming construction works. The same is set out within the Moits 'Community Consultation and Engagement Plan to be utilised throughout the duration of the project.

Moits Supervisor shall be advised immediately of any traffic incident or complaint. An incident notification form shall be completed If the issue cannot be corrected immediately. If it is of a contractual nature then it should be elevated to Moits Senior Management.

7.6 Corrective & Preventive Action

Non-Conformances and Corrective Actions shall be identified, controlled and implemented in accordance with Moits Procedures. All non-conformances shall be acted on by Moits on receipt of written notice of the non-conformance.

8 TFNSW Requirements:

Road Occupancy Licences will need to be obtained by the Transport Management Centre for any road use on 141 Rooty Hill Road South, Eastern Creek. There are no site specific TFNSW Requirements at this current stage due to work being carried out within the site boundary. The site will be managed as per approved measures in the Traffic Control at Work Sites Manual Version 6.1 February 2022.

9 Specific Method of Traffic Control:

9.1 Project Staging – Please see detailed staging in appendix

Stage	Commencement Date	Duration	Estimated completion date	Reference in TGS

9.2 Traffic Guidance Schemes

Speed limit reductions shall be kept to a minimum. 40kph should only be used when personnel are working closer than 1.2 meters to the nearest edge of a traffic lane. These reductions should commence just prior to the work (area) and concluding immediately at the end of the work area.

9.4 Construction Workers parking

Staff and Contractors will have onsite parking available within the site boundary. Construction workers, contractors and visitors will be guided to use onsite parking and public transport if required. Refer to Site Establishment Plan in Appendix.

9.5 Site Access

Deliveries coming to site will be able to drive into the designated work area. Trucks/Delivery vehicles will be able to drive into the work area as shown on the appendices traffic plans. Vehicles will leave the site in a forward motion as located on the traffic control plan. Construction Traffic must not obstruct pedestrian crossings and footpaths and will wait for a suitable gap in traffic to allow them to assist in safe movements. The roads act does not give any special conditions to Vehicles leaving a Construction Site. The vehicles on the road have right of way. Site access will be left in and left out. Traffic control must not stop general traffic to enter or exit the site without an approved ROL. Refer to VMP in Appendix. VMP will be updated a regular basis. ATF Fencing and Flagging will be used to safely separate people and plant.

9.6 Truck Movements & Requirements

Moits will need approximately 100 Truck movements per week, with some weeks requiring up to 400 truck movements based on accelerated productivity levels during the Cut-Fill stage of the Bulk Earthworks within the site.

All vehicles must be driven in a forward direction at all times. All deliveries to and from the site are to be conducted from vehicles entering the work site area from Rooty Hill Road South in a forward motion. Trucks will pull in under Traffic Control Supervision, wait until a suitable gap becomes available, and then exit the work site area in a forward motion. In the event of obstruction to site access, deliveries will be not be able to be unloaded.

This route will be determined by the conditions outlined by the TFNSW website for restricted access http://www.TfNSW.nsw.gov.au/business-industry/heavy-vehicles/maps/restricted-access-vehicles-map/map/

10 Existing Site Conditions

10.1 Project Site

The project site is located on 141 Rooty Hill Road South, Eastern Creek with the nearest street being Church St. It is a built-up commercial and residential area with moderate to heavy traffic flow. Rooty Hill Road South runs North to South and is divided by Great Western Highway to the South and Eastern Road to the North.

10.2 Surrounding Road Network

Rooty Hill Road South: Rooty Hill Road South is a two way divided dual carriage way. The sign posted speed limit is 60km/h. Rooty Hill Road South runs North to South and is divided by Great Western Highway to the South and Eastern Road to the North.

Great Western Highway: A main road a two-day divided dual carriageway. The Great Western Highway is a major arterial road and intersects with the M4 and M7. It has a posted speed limit of 80km/h and is an OSOM approved road. It has high traffic volume at all hours of the day and night.

Satellite view of 141 Rooty Hill Road South, Eastern Creek

Image: Google Maps

10.3 Traffic Volume Data

Shows 5-minute manual traffic Count - TBA

Direction	ADT
Northbound	No volumes or SIDRA Analysis available?
Southbound	
Total	

Shows 5-minute manual traffic Count - TBA

Direction	ADT
Eastbound	TBA
Westbound	
Total	

*Volume may increase during peak times (5am-10am and 2pm-7pm)

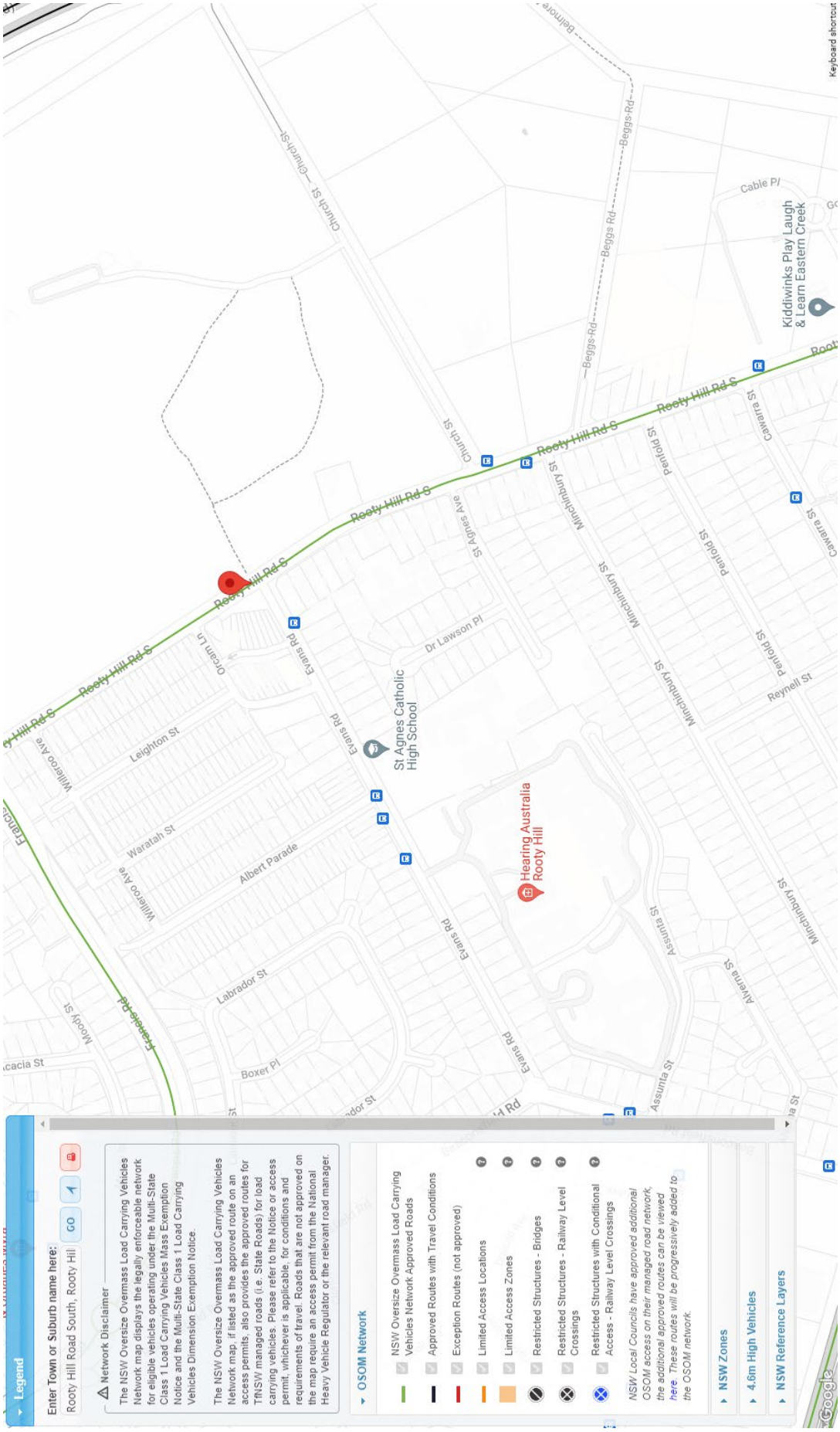
10.4 Public Transport

There are a number of bus stops located on Rooty Hill Road South which service 723, 729, 738

The nearest train station is Rooty Hill Train Station which is 1.3km away from the worksite

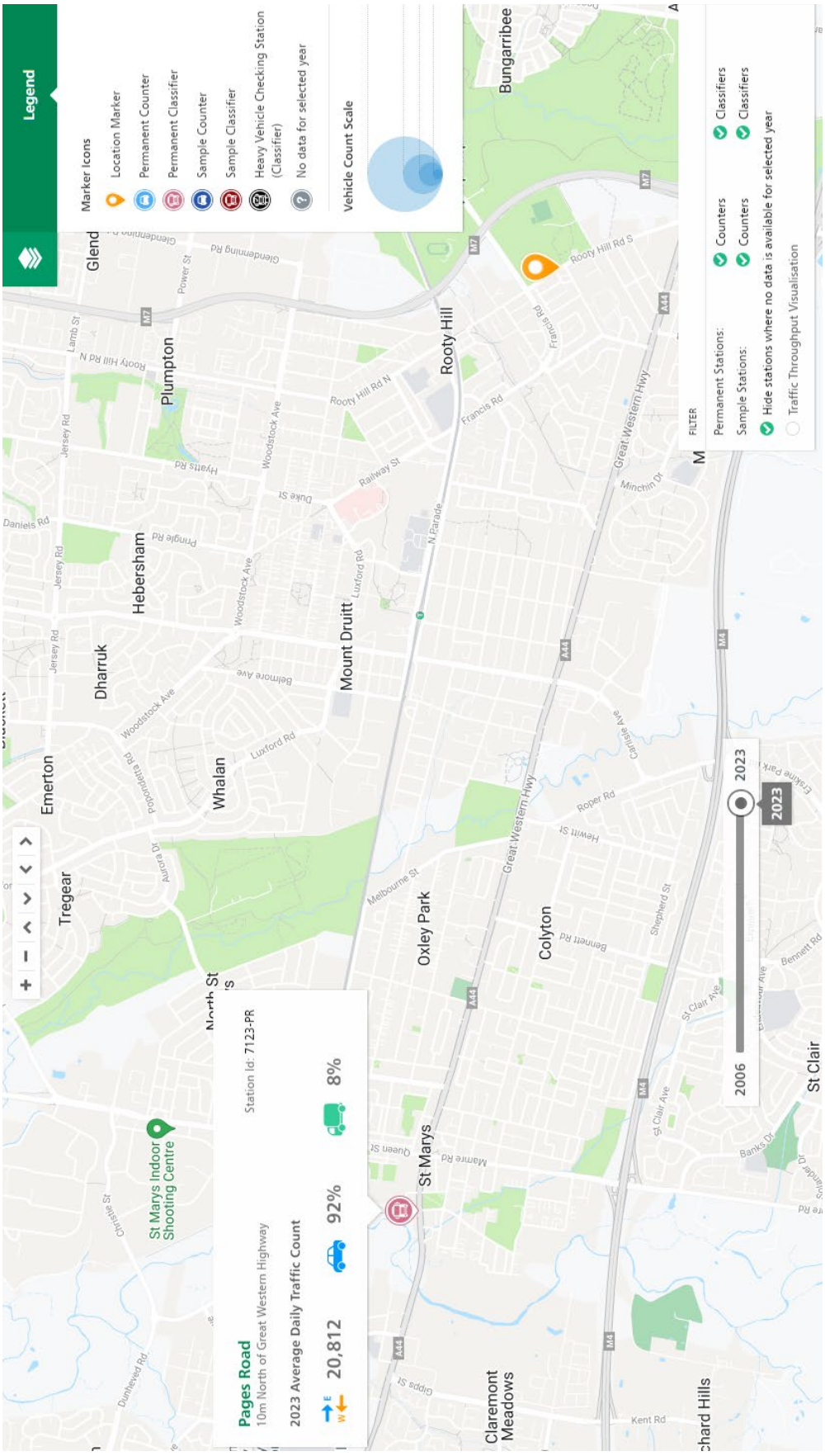
It is expected that bus stops will be affected/impacted throughout the duration of the project however onsite traffic control arrange alternate stops as required with the local bus companies and TfNSW.

10.5 Heavy Vehicle Route – TfNSW



10.6 Traffic Volume Viewer – Pages Road (10m North of Great Western Highway)

Shows RMs Traffic Volume Viewer: Shows nearest marker to the job site



11 Roles & Responsibility:

11.1 Principal Contractor

The Principal Contractor has an obligation to ensure all work at the construction workplace is carried out in a manner that will:

- Prepare a written construction safety plan, in accordance with the regulations before construction work starts.
- Ensures compliance with the contract requirements
- Provide a safe passage for both pedestrians and vehicular traffic through/ past and around the work site.
- Minimize delays and inconvenience to the community

In order to fulfil the above obligations the requirements contained within the Traffic Management Plan are to be compiled by all those who are engaged in work on this project. The management of Moits is committed to the requirements of this Traffic Management Plan. This will be achieved by:

- Providing clear direction and support in maintaining the objectives and standards set out in this Construction Traffic Management Plan (CTMP).
- The use of only accredited Traffic Controllers, approved regulatory and advisory signs.
- Providing suitable communication between supervisory staff and the Senior Traffic Controllers, e.g. radio transceiver or mobile phone.
- Providing the means necessary to achieve a safe working environment
- Reviewing procedures and best work practices.
- Providing control measures to effectively minimize the generation of dust and other environmental hazards.
- Monitor the use of any Safe Work Method Statement to ensure that all persons, to whom the statement applies, comply with the statement.

- Not allow a person to start construction work, unless the Principal Contractor has sighted the person's general induction evidence (Blue / White Card),
- Ensure a person has been given a site-specific induction for the workplace before allowing the person to start construction work.
- Ensure that all persons working have the opportunity to read and or understand the Traffic Management Plan prior to starting construction work.

11.2 Project Manager

The following list of requirements is not exhaustive for the responsibilities of a Project Manager:

- The involvement and competence of contractors and suppliers is fundamental to the success of Moits. Subcontractor procurement for this service is to be in accordance with the procedures "Managing Contractor Compliance" and "Purchasing".
- Programming of the works
- Outlines the high risk construction activity i.e. Working on, or adjacent to a road
- Monitoring, reviewing and amending the Traffic Management Plan as required
- Managing non-conformances / corrective action and minor incidents,
- Ensure that an applicable Safe Work Method Statement (which may be generic if the activity is performed in the same way and in the same or similar circumstance) is delivered through training to all persons affected on the construction site.

11.3 Works Supervisor

The following list of requirements is not exhaustive for the responsibilities of a Supervisor:

- Ensure compliance with the approved TMP, TCAWS & Main Roads specification and the contract requirements
- Periodic inspection of traffic control devices on a daily basis prior to commencement of work in conjunction with the Traffic Controllers Supervisor;

- Ensure that all Traffic Controllers are in fact licensed or accredited to perform the duties of a Traffic Controller
- Identify non-conformances and implementation of corrective actions.

11.4 Traffic Control Supervisor

The nominated sub-contractor is responsible but not limited to the following:

- Implementation of the approved Traffic Management Plan in accordance with the Traffic Control at Worksites Manual and all other relevant documents,
- Ensuring the conflicting regulatory speed signs is covered during works and at completion of works to reinstate the current regulatory speed for each individual street / road.
- The monitoring and recording of changes in traffic movements
- Advising Moits supervisory staff in the first instance of any non – conformances, accidents, near misses or complaints.
- Providing only duly accredited Traffic Controllers Subcontractors & Suppliers

12 Competency, Awareness & Training:

The Project Manager is responsible to ensure that employees and subcontractors of Moits are competent to complete their responsibilities and tasks.

Recruited employees are to have the required licences, trades and competencies to complete their responsibilities and tasks.

The Project Manager is to retain current certificates and licences for all Contractors in a compliance file located on site.

12.1 Induction

Moits recognises that induction is important in order to provide site specific information on Health and Safety requirements pertaining to the work place and to ensure the safety of all staff members, Contractors, client representatives and members of the public.

Project Managers are also responsible for ensuring that employees and Contractors complete Worker Safety Induction.

The Worker Safety Induction also contains an acknowledgement form and a site-specific induction checklist which must be signed and completed during the induction process.

13 Site Specific Requirements:

13.1 Emergency Management

Project Managers are to ensure staff are aware of:-

- Evacuation requirements and assembly points
- First Aid locations
- First Aiders

The Emergency Management Plan has been developed and available on staff noticeboards.

13.2 Incident reporting

Any safety incident that occurs on site or in the office must be reported immediately as per Moits policies and procedures and reviewed by the Project & Safety Managers.

In the event of a traffic related accident within the site, SSTC shall immediately notify the principal's representative, the Police and any necessary emergency services. TfNSW Operations Room to be contacted on 131 700 should an incident occur.

13.3 Visitors

The Project Manager shall ensure that all visitors sign a visitor's book located at each site and must be accompanied at all times by an Moits representative.

13.4 Qualified Traffic Controllers

Traffic Controllers must carry their current Traffic Control Accreditation on their person whenever performing traffic control duties. In addition all Traffic Controllers must also carry their current WHS Construction Induction Card.

13.5 Working Hours

- Hours of Construction On Site–
- Monday to Fridays – 0700 to 1800
- Saturdays – 0800 to 1300
- No work is permitted on Sundays or Public Holidays

The hours of work throughout the project's construction phase are to be adhered to by the Principal Contractor, Subcontractors and other relevant stakeholders for the entirety of the project.

13.6 Implementation of Controls

Traffic control devices and their use shall conform to the requirements of the TCAWS and such other additional Standards as may be issued by Transport for New South Wales. All traffic control devices shall be securely fixed in their correct position and maintained in an effective and clean condition suitable for day operations whilst employed on the work under the Contract. Devices which are damaged or worn, or which do not conform to the above requirements, shall not be used.

The Supervisor, Foreman and / or senior Traffic Controller on the construction site shall ensure that all applicable controls and safety devices are implemented prior to the commencement of works on a daily basis.

The Traffic Management Plan shall be monitored continually throughout the construction period and reviewed by the Project Manager and nominated traffic control sub-contractor. Amendments to the Traffic Management Plan shall be made within the timeframe specified under the contract.

Daily inspections of devices shall be carried out by the traffic control sub-contractor to ensure all traffic control devices are maintained and comply with the Traffic Control at Worksites Manual, Main Roads Specifications, relevant Australian Standards and contract requirements.

Work shall be programmed to minimise the effect on the road users. Specific requirements for individual premises will be planned on a day to day basis during a planning meeting at the end of the preceding day.

13.7 Restrictions to Traffic Lanes

Traffic lane restrictions may be necessary for preliminary activities related to the installation of advance warning signage approaching the site for all future truck movements for the duration of the project. A permit from Blacktown Council and TMC/TfNSW allowing a lane closure will need to be obtained before placing any traffic control devices on Rooty Hill Road South. Please see traffic control plans in the appendix attached.

13.8 Road Closures and Detouring Traffic

No road closures or detours are foreseen for this project at this time.

13.9 Over Dimension, Overweight & Dangerous Goods Vehicles

The Contractor shall not reduce pre-existing provisions for the movement of heavy vehicles including over dimension, overweight and dangerous goods vehicles that have approval from the relevant authorities. If required, the Contractor shall consult the Moits Heavy Vehicle Chain of Responsibility Plan for compliance. Onsite traffic control will coordinate with oncoming OSOM to assist with their movements through the site. Site will be adjusted if required. Sufficient traffic control allocated onsite to assist with this.

13.10 Access to private Property

Local businesses and resident’s access will be maintained at all times. The Contractor shall permit and provide for the free movement of traffic in and out of the properties at all times

except as otherwise agreed to by the property owners/tenants. The Contractor shall, at no expense to the Principal, make good any damage to accesses to private properties which results from the Contractor's operations during the construction of the work under the Contract.

13.11 Restrictions to STA or TFNSW Assets

With any temporary adjustment made to Bus Stops or Traffic Signals will require the written approval of the STA and/or TFNSW prior to commencement of work. Transport for NSW will impose communications with bus providers prior to the issue of a Road Occupancy License (ROL). Any work within 100m of Traffic Signals or work that will impose on to or effect any TFNSW operated/owned road way will require approval of a Road Occupancy License (ROL) prior to the commencement of any work.

13.12 Pedestrian Management

Pedestrian movement is to be maintained at all times. Under no circumstances are pedestrians to be held or asked to wait. A suitable gap in Pedestrian traffic will be present before construction materials are carried over the footpath. The footway will remain open at all times unless a Footpath Closure Permit is obtained with Blacktown Council with seven (7) business days prior notice.

Access and facilities for people with disabilities must be provided in accordance with the relevant requirements of the ‘Building Code of Australia’ and in addition, with the relevant requirements of the ‘Disability Standards 2010’.

NO trip hazards should be present on the footpath. Worksite must be fenced from pedestrian footpaths. Sufficient lighting is to also be provided for pedestrian safety. All installed pedestrian ramps must be compliant with TfNSW specifications. All crossings must also be maintained. Pedestrians are to be directed to cross the road at authorised crossing locations.

13.13 Direction and Street Signage

Where access to streets and side roads has been altered during the construction of the Works, the Contractor shall supply and erect all such temporary signs necessary to assist the travelling public to find their way to such streets and roads.

A sign must be erected in a prominent position stating that unauthorized entry to the site is not permitted. The sign must also name the builder or other person responsible for the site and telephone number in which they can be contacted outside of working hours.

13.14 Temporary Road Safety Barriers & End Treatments

Temporary Road Safety Barriers (TRSB) are not required for our scope of work.

13.15 Anti-Gawking Screens

Anti-gawking screens are not required for our scope of work.

13.16 Traffic Time Surveys

Measuring traffic delays – Only where stated by TFNSW, the Contractor shall undertake surveys to monitor the impact of the activities on the road user. Typical periods during which delays shall be recorded include during full road closures and during all road closures which require detours off site. Baseline traffic conditions prior to the commencement of works shall be measured for comparison.

13.17 Public Consultation

Throughout the duration of this project adequate information regarding the works may be made available to all stakeholders involved in or affected by these works.

These include but are not limited to, emergency services, travelling public, adjacent landowner's local authorities, businesses & Eastern Creek Public School.

All information provided will generally contain the location of work and the expected duration of work and any details relating to any expected delays.

As required, Moits will provide details for maintaining local access. Where sufficient access cannot be provided, Moits will provide details of temporary arrangements throughout the work period. All affected parties will be notified prior to the commencement of any temporary arrangements.

13.18 Plant on Site

Plant onsite will remain onsite on private space. The following items must not be placed on the footpath, roadway or nature strip at any time without the approval of Blacktown Council.

a) Building materials, sand, waste materials or construction equipment
b) Bulk bins/waste skips/containers
c) Other items that may cause a hazard to pedestrians.

13.19 Hoarding

Hoarding is not proposed for this site.

13.20 Dust and Sediment Control

The Project Manager is responsible to ensure prior to the commencement of the site works, the following measures are to be implemented on the site to assist with sedimentation control during the construction phase of the project. Taps will be made available at multiple positions across the site allowing for dust suppression. Water will be used as needed if required.

14 Neighbors

Moits are not undertaking any letterbox drops, this is being managed by Frasers and their community liaison person. The principal contractor will notify the below addresses via letterbox drop prior to start of construction activities of the programmed timing of works. Residents will have access to their properties as the proposed work will not block their driveways/entrances.

Adjacent to the site	110-184 Rooty Hill Road South
Opposite the site	
At the rear of the site	

15 Appendix:

16 Stage 1 Sequence Overview

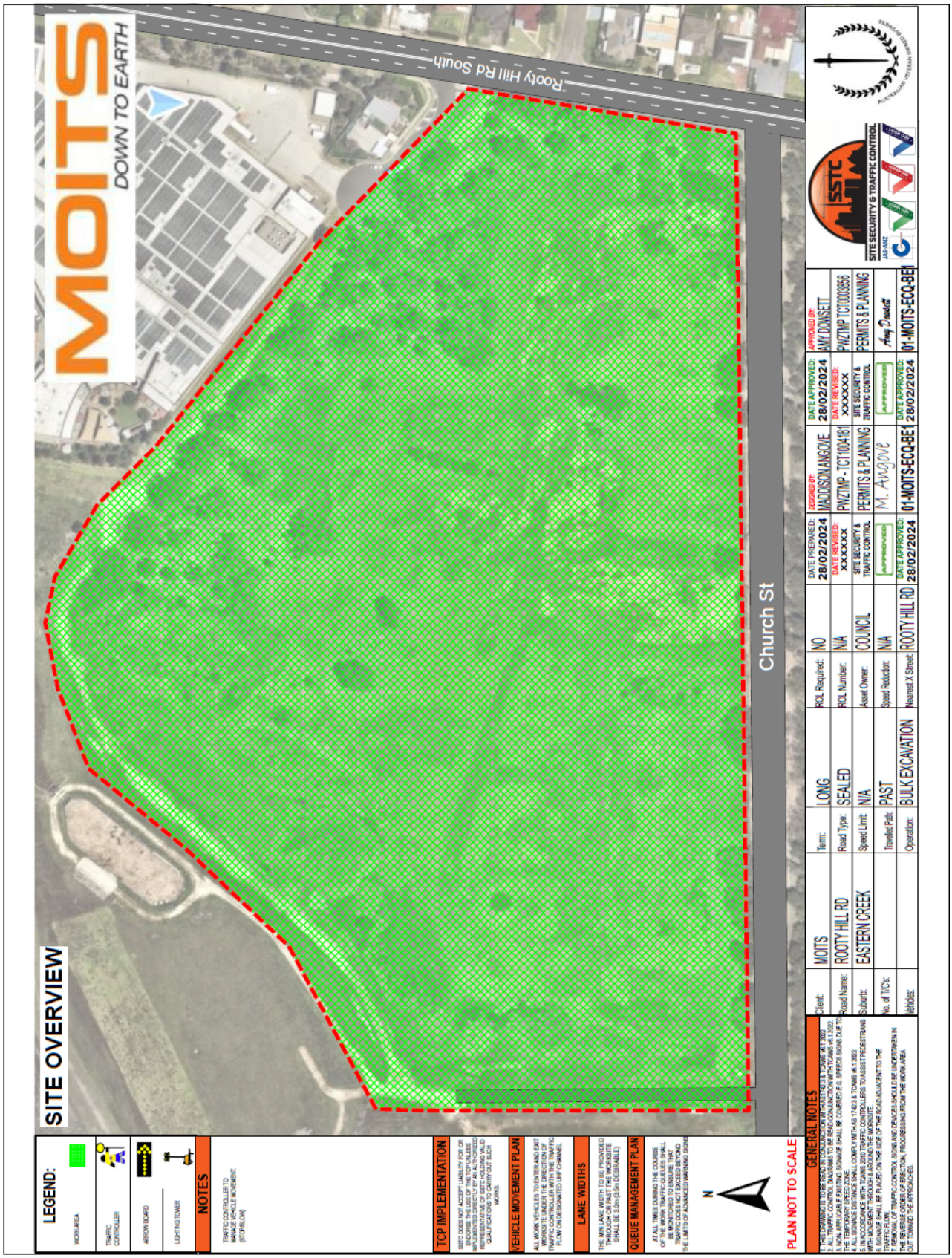
The site (141 Rooty Hill Rd South, Eastern Creek) is located on the northern side of the Eastern Creek Quarter retail precinct (ECQ Lot 3) and is directly adjacent to a fully leased and operational retail centre. The development comprises of approximately 100 retail tenancies located within a single large shopping centre extension with both basement and on-grade parking.

The scope of works consists of the following:-

- Clear & Grub (incl. Tree Removal)
- Asbestos Remediation Works
- Bulk & Detailed Earthworks
- Cut & Fill (with a balance of Import material)
- Culvert Structures
- Stormwater Drainage (Incl. GPT Installation)
- Block & Dincel Retaining walls (Incl. Footings)
- Construction of 2 x Temporary Basins.

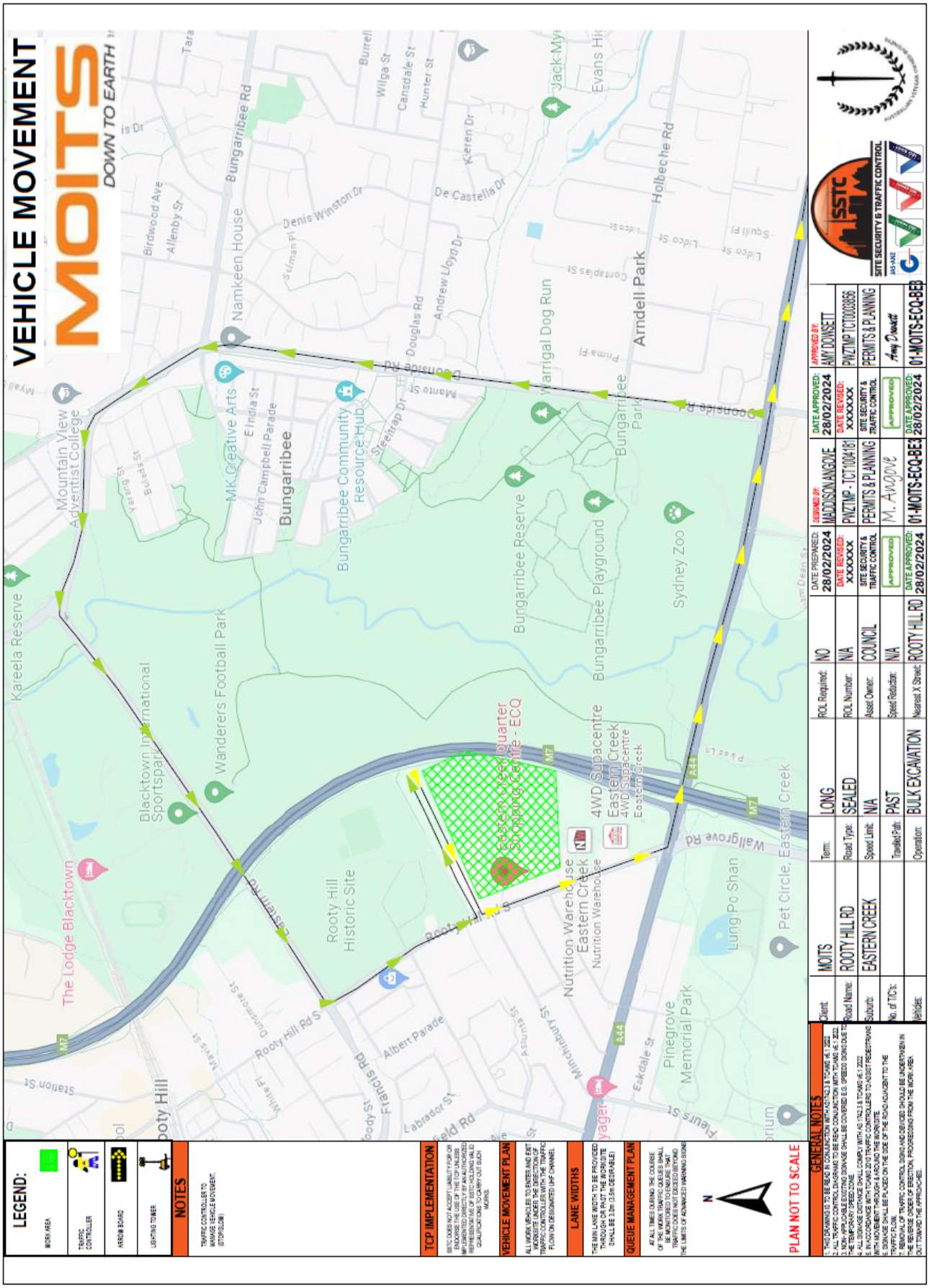
17 Traffic Guidance Schemes – Bulk Excavation Work

17.1 Site Overview



17.2 Site Establishment Plan

17.3 Vehicle Movement Plan



FRASERS PROPERTY

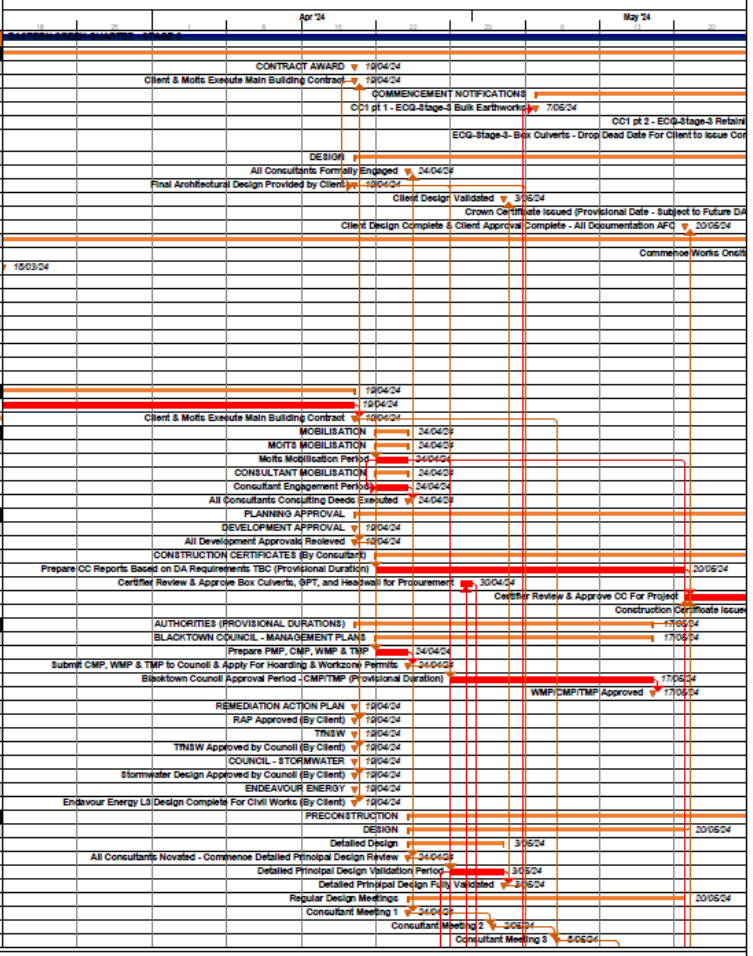
Eastern Creek Quarter Stage-3 Bulk Earthworks

CONSTRUCTION PROGRAM

REV13 - 22/04/24

MOITS DOWN TO EARTH

ID	Task Name	Dur	Start	Finish	Total Float	Predecessors	Successors
0	EASTERN CREEK QUARTER - STAGE 3	148 d	Mon 18/03/24	Mon 21/10/24	-53 d		
1	MILESTONES	148 d	Mon 18/03/24	Mon 21/10/24	-27 d		
2	CONTRACT AWARD	0 d	Fri 19/04/24	Fri 19/04/24	-50 d		
3	*Client & Moits Execute Main Building Contract*	*0 d*	*Fri 19/04/24*	*Fri 19/04/24*	*-50 d*	*27*	*105S*
4	COMMENCEMENT NOTIFICATIONS	23 d	Tue 7/05/24	Fri 7/06/24	33 d		
5	*CC1 pt 1 - ECQ-Stage-3 Bulk Earthworks*	*0 d*	*Tue 7/05/24*	*Tue 7/05/24*	*116 d*	*112FS-10 d*	
6	*CC1 pt 2 - ECQ-Stage-3 Retaining Wall Works & Culverts*	*0 d*	*Fri 7/06/24*	*Fri 7/06/24*	*93 d*	*148SS-10 d*	*7SS*
7	*ECQ-Stage-3- Box Culverts - Drop Dead Date For Client to Issue Commencement Notification.*	*0 d*	*Fri 7/06/24*	*Fri 7/06/24*	*93 d*	*6SS*	
8	DESIGN	24 d	Fri 19/04/24	Mon 27/05/24	-50 d		
9	*All Consultants Formally Engaged*	*0 d*	*Wed 24/04/24*	*Wed 24/04/24*	*-63 d*	*33*	*63*
10	*Final Architectural Design Provided by Client*	*0 d*	*Fri 19/04/24*	*Fri 19/04/24*	*-50 d*	*35S*	*60,70,76,82*
11	*Client Design Validated*	*0 d*	*Fri 3/05/24*	*Fri 3/05/24*	*117 d*	*61*	
12	*Crown Certificate Issued (Provisional Date - Subject to Future DA)*	*0 d*	*Mon 27/05/24*	*Mon 27/05/24*	*101 d*	*41*	
13	*Client Design Complete & Client Approval Complete - All Documentation AFC*	*0 d*	*Mon 20/05/24*	*Mon 20/05/24*	*106 d*	*56*	
14	CONSTRUCTION	128 d	Mon 18/03/24	Thu 19/09/24	20 d		
15	*Commence Works Onsite*	*0 d*	*Mon 27/05/24*	*Mon 27/05/24*	*101 d*	*122*	
16	*ECQ Stage-3-DEMOLITION & REMEDITION WORKS Completion*	*0 d*	*Mon 18/03/24*	*Mon 18/03/24*	*148 d*		*15/03/24*
17	*ECQ Stage-3-EARTH WORKS Completion*	*0 d*	*Mon 6/05/24*	*Mon 6/05/24*	*83 d*	*146,166,196,236,262*	
18	*ECQ Stage-3-RETAINING WALL WORKS Completion*	*0 d*	*Thu 19/09/24*	*Thu 19/09/24*	*20 d*	*162,172,206,241,266*	
19	*ECQ Stage-3-BOX CULVERTS WORKS Completion*	*0 d*	*Mon 25/06/24*	*Mon 25/06/24*	*-20 d*	*183,211,217*	*20*
20	PRACTICAL COMPLETION	28 d	Mon 9/09/24	Mon 21/10/24	-53 d	19	
21	*Separable Portion 1 - Handover Date*	*0 d*	*Mon 9/09/24*	*Mon 9/09/24*	*-30 d*	*320*	
22	*Separable Portion 1 - Main Contractor Take Possession of Site*	*0 d*	*Mon 16/09/24*	*Mon 16/09/24*	*-36 d*	*322*	
23	*Separable Portion 2 Works Complete*	*0 d*	*Mon 21/10/24*	*Mon 21/10/24*	*-63 d*	*361*	
24	*Project Completion (gross)*	*0 d*	*Mon 21/10/24*	*Mon 21/10/24*	*-63 d*	*362*	
25	PROJECT AWARD	23 d	Mon 18/03/24	Fri 19/04/24	-53 d		
26	*EOT001 - Delay in Contract Issue*	*23 d*	*Mon 18/03/24*	*Fri 19/04/24*	*-53 d*		*27*
27	*Client & Moits Execute Main Building Contract*	*0 d*	*Fri 19/04/24*	*Fri 19/04/24*	*-63 d*	*26*	*30,63,49,3,93,36,61,66,4*
28	MOBILISATION	3 d	Mon 22/04/24	Wed 24/04/24	-53 d		
29	MOITS MOBILISATION	3 d	Mon 22/04/24	Wed 24/04/24	-53 d		
30	Moits Mobilisation Period	3 d	Mon 22/04/24	Wed 24/04/24	-53 d	27	91,32SS,95,99,103,109
31	CONSULTANT MOBILISATION	3 d	Mon 22/04/24	Wed 24/04/24	-53 d		
32	Consultant Engagement Period	3 d	Mon 22/04/24	Wed 24/04/24	-53 d	30SS	33
33	*All Consultants Consulting Deeds Executed*	*0 d*	*Wed 24/04/24*	*Wed 24/04/24*	*-63 d*	*32*	*9,69*
34	PLANNING APPROVAL	24 d	Fri 19/04/24	Mon 27/05/24	-53 d		
35	DEVELOPMENT APPROVAL	0 d	Fri 19/04/24	Fri 19/04/24	-53 d		
36	*All Development Approvals Recieved*	*0 d*	*Fri 19/04/24*	*Fri 19/04/24*	*-63 d*	*27*	*35,49*
37	CONSTRUCTION CERTIFICATES (By Consultant)	24 d	Mon 22/04/24	Mon 27/05/24	-53 d		
38	Prepare CC Reports Based on DA Requirements TBC (Provisional Duration)	19 d	Mon 22/04/24	Mon 20/05/24	-53 d	36	40
39	Certifier Review & Approve Box Culverts, GPT, and Headwall for Procurement	1 d	Tue 30/04/24	Tue 30/04/24	-35 d	82	110
40	Certifier Review & Approve CC For Project	5 d	Tue 21/05/24	Mon 27/05/24	-53 d	38,42,57	41
41	*Construction Certificate Issued*	*0 d*	*Mon 27/05/24*	*Mon 27/05/24*	*-63 d*	*40*	*12,122*
42	AUTHORITIES (PROVISIONAL DURATIONS)	18 d	Fri 19/04/24	Fri 17/05/24	-52 d		40
43	BLACKTOWN COUNCIL - MANAGEMENT PLANS	18 d	Mon 22/04/24	Fri 17/05/24	-52 d		
44	Prepare PMP, CMP, WMP & TMP	3 d	Mon 22/04/24	Wed 24/04/24	-52 d	27	45
45	*Submit CMP, WMP & TMP to Council & Apply For Hoarding & Workzone Permits*	*0 d*	*Wed 24/04/24*	*Wed 24/04/24*	*-52 d*	*44*	*46*
46	Blacktown Council Approval Period - CMP/TMP (Provisional Duration)	15 d	Mon 29/04/24	Fri 17/05/24	-52 d	45	47
47	*WMP/CMP/TMP Approved*	*0 d*	*Fri 17/05/24*	*Fri 17/05/24*	*-63 d*	*46*	
48	REMEDIATION ACTION PLAN	0 d	Fri 19/04/24	Fri 19/04/24	-34 d		
49	*RAP Approved (By Client)*	*0 d*	*Fri 19/04/24*	*Fri 19/04/24*	*-34 d*	*37,36*	
50	TfNSW	0 d	Fri 19/04/24	Fri 19/04/24	-34 d		
51	*TfNSW Approved by Council (By Client)*	*0 d*	*Fri 19/04/24*	*Fri 19/04/24*	*-34 d*	*37*	
52	COUNCIL - STORMWATER	0 d	Fri 19/04/24	Fri 19/04/24	-34 d		
53	*Stormwater Design Approved by Council (By Client)*	*0 d*	*Fri 19/04/24*	*Fri 19/04/24*	*-34 d*	*37*	
54	ENDEAVOUR ENERGY	0 d	Fri 19/04/24	Fri 19/04/24	-34 d		
55	*Endavour Energy L3 Design Complete For Civil Works (By Client)*	*0 d*	*Fri 19/04/24*	*Fri 19/04/24*	*-34 d*	*37*	
56	PRECONSTRUCTION	62 d	Wed 24/04/24	Thu 25/07/24	-53 d		
57	DESIGN	16 d	Wed 24/04/24	Mon 20/05/24	-53 d		40
58	Detailed Design	5 d	Wed 24/04/24	Fri 3/05/24	-53 d		
59	*All Consultants Novated - Commence Detailed Principal Design Review*	*0 d*	*Wed 24/04/24*	*Wed 24/04/24*	*-63 d*	*33*	*60*
60	Detailed Principal Design Validation Period	5 d	Mon 29/04/24	Fri 3/05/24	-53 d	59,10	61,70SS,82SS
61	*Detailed Principal Design Fully Validated*	*0 d*	*Fri 3/05/24*	*Fri 3/05/24*	*-53 d*	*60*	*11,76,84*
62	Regular Design Meetings	16 d	Wed 24/04/24	Mon 20/05/24	-53 d		
63	*Consultant Meeting 1*	*0 d*	*Wed 24/04/24*	*Wed 24/04/24*	*-53 d*	*9*	*64FS+4 d*
64	*Consultant Meeting 2*	*0 d*	*Thu 2/05/24*	*Thu 2/05/24*	*-53 d*	*63FS+4 d*	*65FS+4 d*
65	*Consultant Meeting 3*	*0 d*	*Wed 8/05/24*	*Wed 8/05/24*	*-53 d*	*64FS+4 d*	*66FS+4 d*



Critical Task | Milestone | Summary | Complete Milestone | Baseline Normal

Non-critical | Project Summary | Split | Progress | Baseline Critical

Date : Mon 22/04/24
Planner: PD / SB
Revision: 1

File: 240422 MOITS - ECQ Stage 3 Bulk Earthworks- Post Tender 2 Programme REV 13

MOITS DOWN TO EARTH

Eastern Creek Quarter Stage-3 Bulk Earthworks

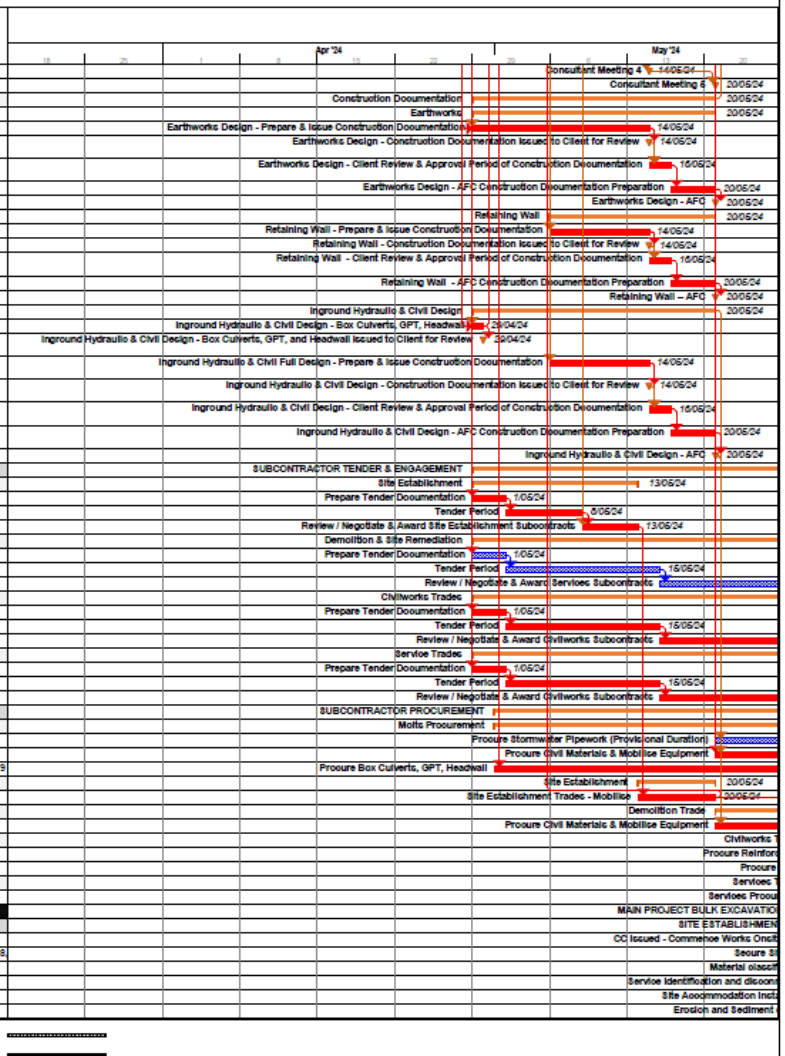
CONSTRUCTION PROGRAM

REV13 - 22/04/24

FRASERS PROPERTY

MOITS DOWN TO EARTH

ID	Task Name	Dur	Start	Finish	Total Float	Predecessors	Successors
66	*Consultant Meeting 4*	*0 d*	*Tue 14/05/24*	*Tue 14/05/24*	*-53 d*	*65FS+4 d*	*67FS+4 d*
67	*Consultant Meeting 5*	*0 d*	*Mon 20/05/24*	*Mon 20/05/24*	*-53 d*	*66FS+4 d*	
68	**Construction Documentation**	**16 d**	**Mon 29/04/24**	**Mon 20/05/24**	**-53 d**		**13**
69	**Earthworks**	**16 d**	**Mon 29/04/24**	**Mon 20/05/24**	**-53 d**		
70	Earthworks Design - Prepare & Issue Construction Documentation	12 d	Mon 29/04/24	Tue 14/05/24	-53 d	60SS,10	72,71
71	*Earthworks Design - Construction Documentation Issued to Client for Review*	*0 d*	*Tue 14/05/24*	*Tue 14/05/24*	*-53 d*	*70*	*72*
72	Earthworks Design - Client Review & Approval Period of Construction Documentation	2 d	Wed 15/05/24	Thu 16/05/24	-53 d	70,71	73
73	Earthworks Design - AFC Construction Documentation Preparation	2 d	Fri 17/05/24	Mon 20/05/24	-53 d	72	74
74	*Earthworks Design - AFC*	*0 d*	*Mon 20/05/24*	*Mon 20/05/24*	*-53 d*	*73*	
75	**Retaining Wall**	**11 d**	**Mon 6/05/24**	**Mon 20/05/24**	**-53 d**		
76	Retaining Wall - Prepare & Issue Construction Documentation	7 d	Mon 6/05/24	Tue 14/05/24	-53 d	61,10	78,77
77	*Retaining Wall - Construction Documentation Issued to Client for Review*	*0 d*	*Tue 14/05/24*	*Tue 14/05/24*	*-53 d*	*76*	*78*
78	Retaining Wall - Client Review & Approval Period of Construction Documentation	2 d	Wed 15/05/24	Thu 16/05/24	-53 d	76,77	79
79	Retaining Wall - AFC Construction Documentation Preparation	2 d	Fri 17/05/24	Mon 20/05/24	-53 d	78	80
80	*Retaining Wall – AFC*	*0 d*	*Mon 20/05/24*	*Mon 20/05/24*	*-53 d*	*79*	
81	**Inground Hydraulic & Civil Design**	**16 d**	**Mon 29/04/24**	**Mon 20/05/24**	**-53 d**		**108**
82	Inground Hydraulic & Civil Design - Box Culverts, GPT, Headwall	1 d	Mon 29/04/24	Mon 29/04/24	-38 d	60SS,10	39,83
83	*Inground Hydraulic & Civil Design - Box Culverts, GPT, and Headwall Issued to Client for Review*	*0 d*	*Mon 29/04/24*	*Mon 29/04/24*	*-38 d*	*82*	
84	Inground Hydraulic & Civil Full Design - Prepare & Issue Construction Documentation	7 d	Mon 6/05/24	Tue 14/05/24	-53 d	61	86,85
86	*Inground Hydraulic & Civil Design - Construction Documentation Issued to Client for Review*	*0 d*	*Tue 14/05/24*	*Tue 14/05/24*	*-53 d*	*84*	*86*
88	Inground Hydraulic & Civil Design - Client Review & Approval Period of Construction Documentation	2 d	Wed 15/05/24	Thu 16/05/24	-53 d	84,85	87
87	Inground Hydraulic & Civil Design - AFC Construction Documentation Preparation	2 d	Fri 17/05/24	Mon 20/05/24	-53 d	86	88
88	*Inground Hydraulic & Civil Design - AFC*	*0 d*	*Mon 20/05/24*	*Mon 20/05/24*	*-53 d*	*87*	*109,114*
89	**SUBCONTRACTOR TENDER & ENGAGEMENT**	**23 d**	**Mon 29/04/24**	**Wed 29/05/24**	**-48 d**		
90	**Site Establishment**	**11 d**	**Mon 29/04/24**	**Mon 13/05/24**	**-48 d**		
91	Prepare Tender Documentation	3 d	Mon 29/04/24	Wed 1/05/24	-48 d	30	92
92	Tender Period	5 d	Thu 2/05/24	Wed 8/05/24	-48 d	91	93
93	Review / Negotiate & Award Site Establishment Subcontracts	3 d	Thu 9/05/24	Mon 13/05/24	-48 d	92,27	112
94	**Demolition & Site Remediation**	**23 d**	**Mon 29/04/24**	**Wed 29/05/24**	**99 d**		
96	Prepare Tender Documentation	3 d	Mon 29/04/24	Wed 1/05/24	99 d	30	96
98	Tender Period	10 d	Thu 2/05/24	Wed 15/05/24	99 d	95	97
97	Review / Negotiate & Award Services Subcontracts	10 d	Thu 16/05/24	Wed 29/05/24	99 d	96	
98	**Civilworks Trades**	**23 d**	**Mon 29/04/24**	**Wed 29/05/24**	**-44 d**		
99	Prepare Tender Documentation	3 d	Mon 29/04/24	Wed 1/05/24	-44 d	30	100
100	Tender Period	10 d	Thu 2/05/24	Wed 15/05/24	-44 d	99	101
101	Review / Negotiate & Award Civilworks Subcontracts	10 d	Thu 16/05/24	Wed 29/05/24	-44 d	100	119,116,117
102	**Service Trades**	**23 d**	**Mon 29/04/24**	**Wed 29/05/24**	**-44 d**		
103	Prepare Tender Documentation	3 d	Mon 29/04/24	Wed 1/05/24	-44 d	30	104
104	Tender Period	10 d	Thu 2/05/24	Wed 15/05/24	-44 d	103	105
106	Review / Negotiate & Award Civilworks Subcontracts	10 d	Thu 16/05/24	Wed 29/05/24	-44 d	104	119,116,117
106	**SUBCONTRACTOR PROCUREMENT**	**60 d**	**Wed 1/05/24**	**Thu 25/07/24**	**-39 d**		
107	**Moits Procurement**	**60 d**	**Wed 1/05/24**	**Thu 25/07/24**	**-35 d**		
108	Procure Stormwater Pipework (Provisional Duration)	40 d	Tue 21/05/24	Wed 17/07/24	66 d	81	
109	Procure Civil Materials & Mobilise Equipment	5 d	Tue 21/05/24	Mon 27/05/24	-42 d	88,30	143
110	Procure Box Culverts, GPT, Headwall	60 d	Wed 1/05/24	Thu 25/07/24	-35 d	39	181,215,180,175,177,179
111	**Site Establishment**	**5 d**	**Tue 14/05/24**	**Mon 20/05/24**	**-48 d**		
112	Site Establishment Trades - Mobilise	5 d	Tue 14/05/24	Mon 20/05/24	-48 d	93	122,5FS-10 d
113	**Demolition Trade**	**5 d**	**Tue 21/05/24**	**Mon 27/05/24**	**-42 d**		
114	Procure Civil Materials & Mobilise Equipment	5 d	Tue 21/05/24	Mon 27/05/24	-42 d	88	143
116	**Civilworks Trades**	**15 d**	**Thu 30/05/24**	**Fri 21/06/24**	**-39 d**		
116	Procure Reinforcement	10 d	Thu 30/05/24	Fri 14/06/24	-39 d	101,105	149,202
117	Procure Bricks	15 d	Thu 30/05/24	Fri 21/06/24	84 d	101,105	
118	**Services Trades**	**15 d**	**Thu 30/05/24**	**Fri 21/06/24**	**-44 d**		
119	Services Procurement	15 d	Thu 30/05/24	Fri 21/06/24	-44 d	101,105	149,202
120	**MAIN PROJECT BULK EXCAVATION**	**101 d**	**Mon 27/05/24**	**Mon 21/10/24**	**-53 d**		
121	**SITE ESTABLISHMENT**	**5 d**	**Mon 27/05/24**	**Mon 3/06/24**	**-53 d**		**138,226**
122	*CC Issued - Commence Works Onsite*	*0 d*	*Mon 27/05/24*	*Mon 27/05/24*	*-53 d*	*41,112*	*123,16*
123	Secure Site	2 d	Tue 28/05/24	Wed 29/05/24	-53 d	122	130,124,125,126,127,128
124	Material classification	3 d	Thu 30/05/24	Mon 3/06/24	-53 d	123	130
125	Service Identification and disconnection	2 d	Thu 30/05/24	Fri 31/05/24	-52 d	123	130
126	Site Accommodation Installation	2 d	Thu 30/05/24	Fri 31/05/24	-52 d	123	130
127	Erosion and Sediment control	3 d	Thu 30/05/24	Mon 3/06/24	-53 d	123	130



Critical Task — Milestone — Summary — Complete Milestone — Baseline Normal

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Date : Mon 22/04/24
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File: 240422 MOITS - ECQ Stage 3 Bulk Earthworks- Post Tender 2 Programme REV 13

MOITS DOWN TO EARTH

FRASERS PROPERTY

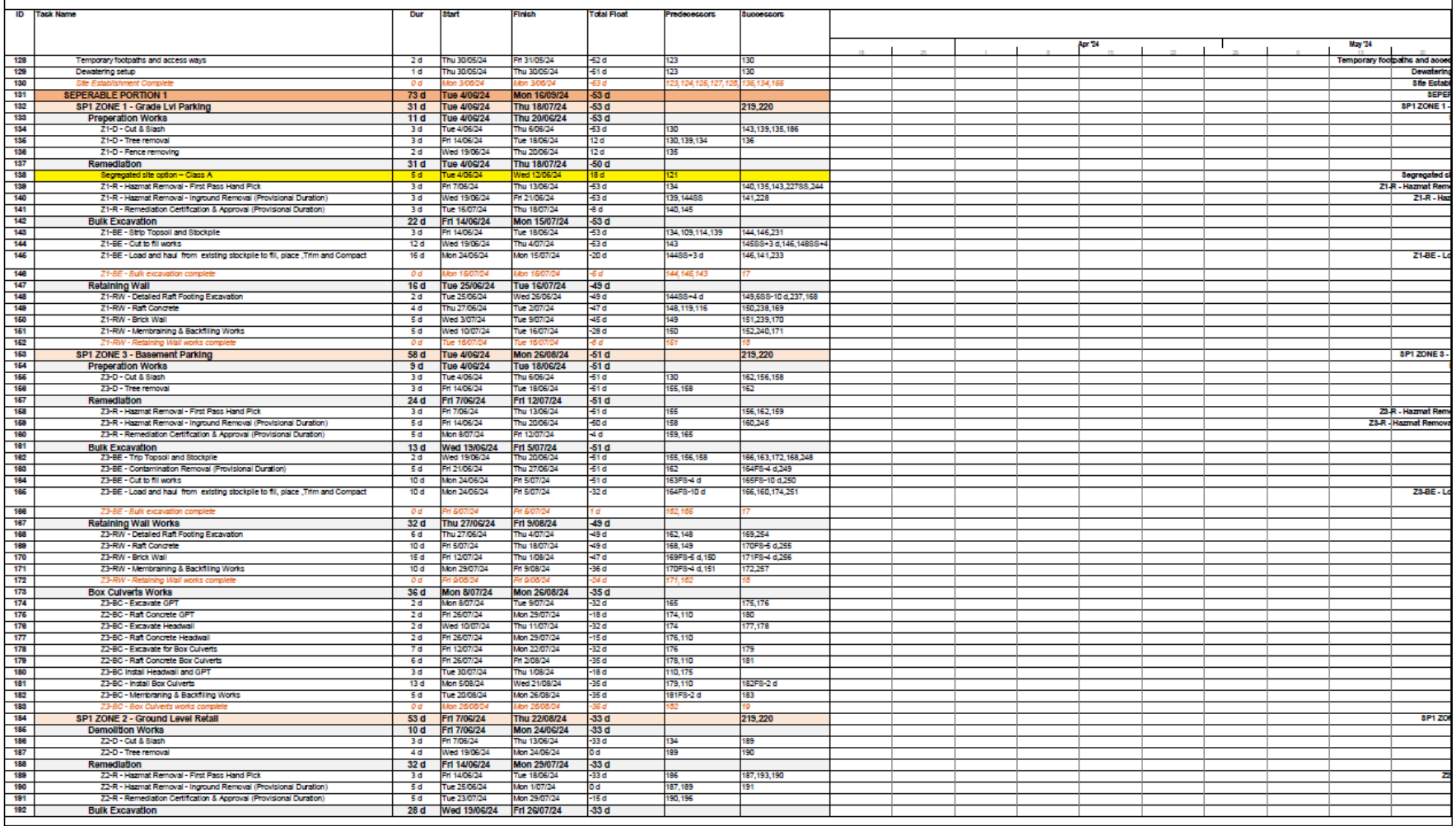
Eastern Creek Quarter Stage-3 Bulk Earthworks

CONSTRUCTION PROGRAM

REV13 - 22/04/24

MOITS DOWN TO EARTH

ID	Task Name	Dur	Start	Finish	Total Float	Predecessors	Successors
128	Temporary footpaths and access ways	2 d	Thu 30/05/24	Fri 31/05/24	-52 d	123	130
129	Dewatering setup	1 d	Thu 30/05/24	Thu 30/05/24	-51 d	123	130
130	*Site Establishment Complete*	*0 d*	*Mon 3/06/24*	*Mon 3/06/24*	*-53 d*	*123,124,126,127,128,*	*136,134,166*
131	**SEPERABLE PORTION 1**	**73 d**	**Tue 4/06/24**	**Mon 16/09/24**	**-53 d**		
132	**SP1 ZONE 1 - Grade Lvl Parking**	**31 d**	**Tue 4/06/24**	**Thu 18/07/24**	**-53 d**		**219,220**
133	**Preperation Works**	**11 d**	**Tue 4/06/24**	**Thu 20/06/24**	**-53 d**		
134	Z1-D - Cut & Slash	3 d	Tue 4/06/24	Thu 6/06/24	-53 d	130	143,139,135,186
136	Z1-D - Tree removal	3 d	Fri 14/06/24	Tue 18/06/24	12 d	130,139,134	136
136	Z1-D - Fence removing	2 d	Wed 19/06/24	Thu 20/06/24	12 d	135	
137	**Remediation**	**31 d**	**Tue 4/06/24**	**Thu 18/07/24**	**-50 d**		
138	Segregated site option – Class A	5 d	Tue 4/06/24	Wed 12/06/24	18 d	121	
138	Z1-R - Hazmat Removal - First Pass Hand Pick	3 d	Fri 7/06/24	Thu 13/06/24	-53 d	134	140,135,143,227SS,244
140	Z1-R - Hazmat Removal - Inground Removal (Provisional Duration)	3 d	Wed 19/06/24	Fri 21/06/24	-53 d	139,144SS	141,228
141	Z1-R - Remediation Certification & Approval (Provisional Duration)	3 d	Tue 16/07/24	Thu 18/07/24	-8 d	140,145	
142	**Bulk Excavation**	**22 d**	**Fri 14/06/24**	**Mon 15/07/24**	**-53 d**		
143	Z1-BE - Strip Topsoil and Stockpile	3 d	Fri 14/06/24	Tue 18/06/24	-53 d	134,109,114,139	144,146,231
144	Z1-BE - Cut to fill works	12 d	Wed 19/06/24	Thu 4/07/24	-53 d	143	145SS+3 d,146,148SS+4
146	Z1-BE - Load and haul from existing stockpile to fill, place ,Trim and Compact	16 d	Mon 24/06/24	Mon 15/07/24	-20 d	144SS+3 d	146,141,233
148	*Z1-BE - Bulk excavation complete*	*0 d*	*Mon 15/07/24*	*Mon 15/07/24*	*-6 d*	*144,146,143*	*17*
147	**Retaining Wall**	**16 d**	**Tue 25/06/24**	**Tue 16/07/24**	**-49 d**		
148	Z1-RW - Detailed Raft Footing Excavation	2 d	Tue 25/06/24	Wed 26/06/24	-49 d	144SS+4 d	149,68S-10 d,237,168
149	Z1-RW - Raft Concrete	4 d	Thu 27/06/24	Tue 2/07/24	-47 d	148,119,116	150,238,169
160	Z1-RW - Brick Wall	5 d	Wed 3/07/24	Tue 9/07/24	-45 d	149	151,239,170
161	Z1-RW - Membraining & Backfilling Works	5 d	Wed 10/07/24	Tue 16/07/24	-28 d	150	152,240,171
162	*Z1-RW - Retaining Wall works complete*	*0 d*	*Tue 16/07/24*	*Tue 16/07/24*	*-6 d*	*161*	*16*
163	**SP1 ZONE 3 - Basement Parking**	**58 d**	**Tue 4/06/24**	**Mon 26/08/24**	**-51 d**		**219,220**
164	**Preperation Works**	**9 d**	**Tue 4/06/24**	**Tue 18/06/24**	**-51 d**		
166	Z3-D - Cut & Slash	3 d	Tue 4/06/24	Thu 6/06/24	-51 d	130	162,156,158
168	Z3-D - Tree removal	3 d	Fri 14/06/24	Tue 18/06/24	-51 d	155,158	162
167	**Remediation**	**24 d**	**Fri 7/06/24**	**Fri 12/07/24**	**-51 d**		
168	Z3-R - Hazmat Removal - First Pass Hand Pick	3 d	Fri 7/06/24	Thu 13/06/24	-51 d	155	156,162,159
169	Z3-R - Hazmat Removal - Inground Removal (Provisional Duration)	5 d	Fri 14/06/24	Thu 20/06/24	-50 d	158	160,245
180	Z3-R - Remediation Certification & Approval (Provisional Duration)	5 d	Mon 8/07/24	Fri 12/07/24	-4 d	159,165	
181	**Bulk Excavation**	**13 d**	**Wed 19/06/24**	**Fri 5/07/24**	**-51 d**		
182	Z3-BE - Trip Topsoil and Stockpile	2 d	Wed 19/06/24	Thu 20/06/24	-51 d	155,156,158	166,163,172,168,248
183	Z3-BE - Contamination Removal (Provisional Duration)	5 d	Fri 21/06/24	Thu 27/06/24	-51 d	162	164FS-4 d,249
184	Z3-BE - Cut to fill works	10 d	Mon 24/06/24	Fri 5/07/24	-51 d	163FS-4 d	165FS-10 d,250
186	Z3-BE - Load and haul from existing stockpile to fill, place ,Trim and Compact	10 d	Mon 24/06/24	Fri 5/07/24	-32 d	164FS-10 d	166,160,174,251
188	*Z3-BE - Bulk excavation complete*	*0 d*	*Fri 5/07/24*	*Fri 5/07/24*	*1 d*	*162,166*	*17*
167	**Retaining Wall Works**	**32 d**	**Thu 27/06/24**	**Fri 9/08/24**	**-49 d**		
168	Z3-RW - Detailed Raft Footing Excavation	6 d	Thu 27/06/24	Thu 4/07/24	-49 d	162,148	169,254
169	Z3-RW - Raft Concrete	10 d	Fri 5/07/24	Thu 18/07/24	-49 d	168,149	170FS-5 d,255
170	Z3-RW - Brick Wall	15 d	Fri 12/07/24	Thu 1/08/24	-47 d	169FS-5 d,150	171FS-4 d,256
171	Z3-RW - Membraining & Backfilling Works	10 d	Mon 29/07/24	Fri 9/08/24	-36 d	170FS-4 d,151	172,257
172	*Z3-RW - Retaining Wall works complete*	*0 d*	*Fri 9/08/24*	*Fri 9/08/24*	*-24 d*	*171,162*	*16*
173	**Box Culverts Works**	**36 d**	**Mon 8/07/24**	**Mon 26/08/24**	**-35 d**		
174	Z3-BC - Excavate GPT	2 d	Mon 8/07/24	Tue 9/07/24	-32 d	165	175,176
176	Z2-BC - Raft Concrete GPT	2 d	Fri 26/07/24	Mon 29/07/24	-18 d	174,110	180
176	Z3-BC - Excavate Headwall	2 d	Wed 10/07/24	Thu 11/07/24	-32 d	174	177,178
177	Z3-BC - Raft Concrete Headwall	2 d	Fri 26/07/24	Mon 29/07/24	-15 d	176,110	
178	Z2-BC - Excavate for Box Culverts	7 d	Fri 12/07/24	Mon 22/07/24	-32 d	176	179
179	Z2-BC - Raft Concrete Box Culverts	6 d	Fri 26/07/24	Fri 2/08/24	-36 d	178,110	181
180	Z3-BC Install Headwall and GPT	3 d	Tue 30/07/24	Thu 1/08/24	-18 d	110,175	
181	Z3-BC - Install Box Culverts	13 d	Mon 5/08/24	Wed 21/08/24	-36 d	179,110	182FS-2 d
182	Z3-BC - Membraining & Backfilling Works	5 d	Tue 20/08/24	Mon 26/08/24	-36 d	181FS-2 d	183
183	*Z3-BC - Box Culverts works complete*	*0 d*	*Mon 26/08/24*	*Mon 26/08/24*	*-36 d*	*182*	*19*
184	**SP1 ZONE 2 - Ground Level Retail**	**53 d**	**Fri 7/06/24**	**Thu 22/08/24**	**-33 d**		**219,220**
186	**Demolition Works**	**10 d**	**Fri 7/06/24**	**Mon 24/06/24**	**-33 d**		
186	Z2-D - Cut & Slash	3 d	Fri 7/06/24	Thu 13/06/24	-33 d	134	189
187	Z2-D - Tree removal	4 d	Wed 19/06/24	Mon 24/06/24	0 d	189	190
188	**Remediation**	**32 d**	**Fri 14/06/24**	**Mon 29/07/24**	**-33 d**		
188	Z2-R - Hazmat Removal - First Pass Hand Pick	3 d	Fri 14/06/24	Tue 18/06/24	-33 d	186	187,193,190
190	Z2-R - Hazmat Removal - Inground Removal (Provisional Duration)	5 d	Tue 25/06/24	Mon 1/07/24	0 d	187,189	191
191	Z2-R - Remediation Certification & Approval (Provisional Duration)	5 d	Tue 23/07/24	Mon 29/07/24	-15 d	190,196	
192	**Bulk Excavation**	**28 d**	**Wed 15/06/24**	**Fri 26/07/24**	**-33 d**		



Critical Task | Milestone | Summary | Complete Milestone | Baseline Normal

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Eastern Creek Quarter Stage-3 Bulk Earthworks

CONSTRUCTION PROGRAM

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ID	Task Name	Dur	Start	Finish	Total Float	Predecessors	Successors
183	Z2-BE - Trip Topsoil and Stockpile	2 d	Wed 19/06/24	Thu 20/06/24	-33 d	189	194
184	Z2-BE - Cut to fill works	5 d	Fri 21/06/24	Thu 27/06/24	-33 d	193	195,201,207
186	Z2-BE - Load and haul from existing stockpile to fill, place ,Trim and Compact	12 d	Fri 28/06/24	Mon 15/07/24	-24 d	194	196FF+5 d,213FF
196	Z2-BE - External Material- fill, place ,Trim and Compact	8 d	Thu 11/07/24	Mon 22/07/24	-15 d	195FF+5 d	197,191
197	Z2-BE - Stabilising disturbed areas	4 d	Tue 23/07/24	Fri 26/07/24	-14 d	196	198
198	*Z3-BE - Bulk excavation complete*	*0 d*	*Fri 26/07/24*	*Fri 26/07/24*	*-14 d*	*197*	*17*
199	**Retaining Wall Works**	**40 d**	**Fri 28/06/24**	**Thu 22/08/24**	**-33 d**		
200	**East Side Boundry-Retaining Wall**	**40 d**	**Fri 28/06/24**	**Thu 22/08/24**	**-33 d**		
201	Z2-RW - Detailed Raft footing Excavation	10 d	Fri 28/06/24	Thu 11/07/24	-33 d	194	202SS+5 d
202	Z2-RW - Raft Concrete	15 d	Fri 5/07/24	Thu 25/07/24	-33 d	201SS+5 d,119,116	203SS+5 d
203	Z2-RW - Brick Wall	20 d	Fri 12/07/24	Thu 8/08/24	-33 d	202SS+5 d	204SS+15 d
204	Z2-RW - Membraining & Backfilling Works	15 d	Fri 2/08/24	Thu 22/08/24	-33 d	203SS+15 d	205
205	*Z2-RW - Retaining Wall works complete*	*0 d*	*Thu 22/08/24*	*Thu 22/08/24*	*-33 d*	*204*	*18*
206	**Basement -Dincel Type Retaining Wall**	**34 d**	**Fri 28/06/24**	**Wed 14/08/24**	**-27 d**		
207	Z2-DRW - Detailed Raft footing Excavation	12 d	Fri 28/06/24	Mon 15/07/24	-27 d	194	208SS+2 d
208	Z2-DRW - Raft Concrete	20 d	Tue 2/07/24	Mon 29/07/24	-27 d	207SS+2 d	209SS+3 d
209	Z2-DRW - Brick Wall	23 d	Fri 5/07/24	Tue 6/08/24	-27 d	208SS+3 d	210FF+6 d
210	Z2-DRW - Membraining & Backfilling Works	20 d	Thu 18/07/24	Wed 14/08/24	-27 d	209FF+6 d	211
211	*Z2-DRW - Retaining Wall works complete*	*0 d*	*Wed 14/08/24*	*Wed 14/08/24*	*-27 d*	*210*	*19*
212	**Box Culverts Works**	**25 d**	**Wed 10/07/24**	**Tue 13/08/24**	**-26 d**		
213	Z2-BC - Excavate	4 d	Wed 10/07/24	Mon 15/07/24	-24 d	196FF	214
214	Z2-BC - Raft Concrete	8 d	Tue 16/07/24	Thu 25/07/24	-24 d	213	215FS-2 d
215	Z2-BC - Install Box Culverts	9 d	Fri 26/07/24	Wed 7/08/24	-26 d	214FS-2 d,110	216FS-2 d
216	Z2-BC - Membraining & Backfilling Works	6 d	Tue 6/08/24	Tue 13/08/24	-26 d	215FS-2 d	217
217	*Z2-BC - Box Culverts works complete*	*0 d*	*Tue 13/08/24*	*Tue 13/08/24*	*-26 d*	*216*	*19*
218	**HANDOVER - SEPARABLE PORTION 1**	**15 d**	**Tue 27/08/24**	**Mon 16/09/24**	**-35 d**		
219	Inclement Weather	10 d	Tue 27/08/24	Mon 9/09/24	-35 d	184,153,132	220
220	*Separable Portion 1 - Handover Date*	*0 d*	*Mon 9/09/24*	*Mon 9/09/24*	*-35 d*	*184,153,132,219*	*222,21*
221	*Commence novation to builder engagement for contract works*	*0 d*	*Tue 27/08/24*	*Tue 27/08/24*	*35 d*	*222SP-10 d*	
222	Main Contractor Mobilisation	5 d	Tue 10/09/24	Mon 16/09/24	-35 d	220	22,221SF-10 d
223	**SEPERABLE PORTION 2**	**96 d**	**Tue 4/06/24**	**Mon 21/10/24**	**-53 d**		
224	**SP2 ZONE 1 - Grade Lvl Parking**	**43 d**	**Tue 4/06/24**	**Mon 5/08/24**	**-44 d**		**260,261**
225	**Remediation**	**39 d**	**Tue 4/06/24**	**Tue 30/07/24**	**-44 d**		
226	Segregated site option – Class A	5 d	Tue 4/06/24	Wed 12/06/24	18 d	121	
227	Z1-R - Hazmat Removal - First Pass Hand Pick	3 d	Fri 7/06/24	Thu 13/06/24	-47 d	139SS	228,244
228	Z1-R - Hazmat Removal - Inground Removal (Provisional Duration)	2 d	Mon 24/06/24	Tue 25/06/24	-53 d	227,140	231SS,245
229	Z1-R - Remediation Certification & Approval (Provisional Duration)	2 d	Mon 29/07/24	Tue 30/07/24	-16 d	233	
230	**Bulk Excavation**	**31 d**	**Mon 24/06/24**	**Mon 5/08/24**	**-27 d**		
231	Z1-BE - Strip Topsoil and Stockpile	4 d	Mon 24/06/24	Thu 27/06/24	-27 d	228SS,143	232
232	Z1-BE - Cut to fill works	9 d	Fri 5/07/24	Wed 17/07/24	-32 d	231,144	233SS+3 d,237
233	Z1-BE - Load and haul from existing stockpile to fill, place ,Trim and Compact	9 d	Tue 16/07/24	Fri 26/07/24	-20 d	232SS+3 d,145	229,234
234	Z1 - BE Import balance material and cap borrow pit	6 d	Mon 29/07/24	Mon 5/08/24	-20 d	233,251	235
235	*Z1-BE - Bulk excavation complete*	*0 d*	*Mon 5/08/24*	*Mon 5/08/24*	*-20 d*	*234*	*17*
236	**Retaining Wall**	**13 d**	**Thu 18/07/24**	**Mon 5/08/24**	**-32 d**		
237	Z1-RW - Detailed Raft Footing Excavation	2 d	Thu 18/07/24	Fri 19/07/24	-32 d	232,148	238
238	Z1-RW - Raft Concrete	3 d	Mon 22/07/24	Wed 24/07/24	-32 d	237,149	239
239	Z1-RW - Brick Wall	5 d	Thu 25/07/24	Wed 31/07/24	-32 d	238,150	240
240	Z1-RW - Membraining & Backfilling Works	3 d	Thu 1/08/24	Mon 5/08/24	-32 d	239,151	241,257
241	*Z1-RW - Retaining Wall works complete*	*0 d*	*Mon 5/08/24*	*Mon 5/08/24*	*-20 d*	*240*	*16*
242	**SP2 ZONE 3 - Grade Lvl Parking**	**70 d**	**Fri 14/06/24**	**Thu 19/09/24**	**-53 d**		**260,261**
243	**Remediation**	**33 d**	**Fri 14/06/24**	**Tue 30/07/24**	**-47 d**		
244	Z3-R - Hazmat Removal - First Pass Hand Pick	2 d	Fri 14/06/24	Mon 17/06/24	-47 d	227,139	245
245	Z3-R - Hazmat Removal - Inground Removal (Provisional Duration)	3 d	Wed 26/06/24	Fri 28/06/24	-53 d	228,244,159	248
246	Z3-R - Remediation Certification & Approval (Provisional Duration)	3 d	Fri 26/07/24	Tue 30/07/24	-16 d	251	
247	**Bulk Excavation**	**19 d**	**Mon 1/07/24**	**Thu 25/07/24**	**-53 d**		
248	Z3-BE - Trip Topsoil and Stockpile	4 d	Mon 1/07/24	Thu 4/07/24	-53 d	162,245	258,252,249
249	Z3-BE - Contamination Removal (Provisional Duration)	3 d	Fri 5/07/24	Tue 9/07/24	-53 d	248,163	250
250	Z3-BE - Cut to fill works	7 d	Wed 10/07/24	Thu 18/07/24	-53 d	249,164	251FS-2 d,254FS-2 d
251	Z3-BE - Load and haul from existing stockpile to fill, place ,Trim and Compact	7 d	Wed 17/07/24	Thu 25/07/24	-19 d	250FS-2 d,165	252,246,234
252	*Z3-BE - Bulk excavation complete*	*0 d*	*Thu 25/07/24*	*Thu 25/07/24*	*-13 d*	*246,251*	*17*
253	**Retaining Wall Works**	**47 d**	**Wed 17/07/24**	**Thu 19/09/24**	**-53 d**		
254	Z3-RW - Detailed Raft Footing Excavation	9 d	Wed 17/07/24	Mon 29/07/24	-53 d	250FS-2 d,168	255FS-3 d
255	Z3-RW - Raft Concrete	15 d	Thu 25/07/24	Wed 14/08/24	-53 d	254FS-3 d,169	256FS-3 d
256	Z3-RW - Brick Wall	20 d	Mon 12/08/24	Fri 6/09/24	-53 d	255FS-3 d,170	257FS-3 d
257	Z3-RW - Membraining & Backfilling Works	12 d	Wed 4/09/24	Thu 19/09/24	-53 d	256FS-3 d,171,240	258

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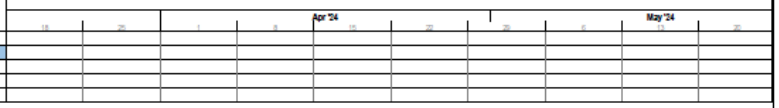
258	*Z3-RW - Retaining Wall works complete*	*0 d*	*Thu 19/09/24*	*Thu 19/09/24*	*-53 d*	*267,246*	*16*
259	**HANDOVER - SEPARABLE PORTION 2 & PRACTICAL COMPLETION**	**20 d**	**Fri 20/09/24**	**Mon 21/10/24**	**-53 d**		
260	*Inclement Weather*	*20 d*	*Fri 20/09/24*	*Mon 21/10/24*	*-53 d*	*224,242*	*261*
261	*Separable Portion 2 Works Complete*	*0 d*	*Mon 21/10/24*	*Mon 21/10/24*	*-53 d*	*260,242,224*	*23,262*
262	*Project Completion (gross)*	*0 d*	*Mon 21/10/24*	*Mon 21/10/24*	*-53 d*	*261*	*24*



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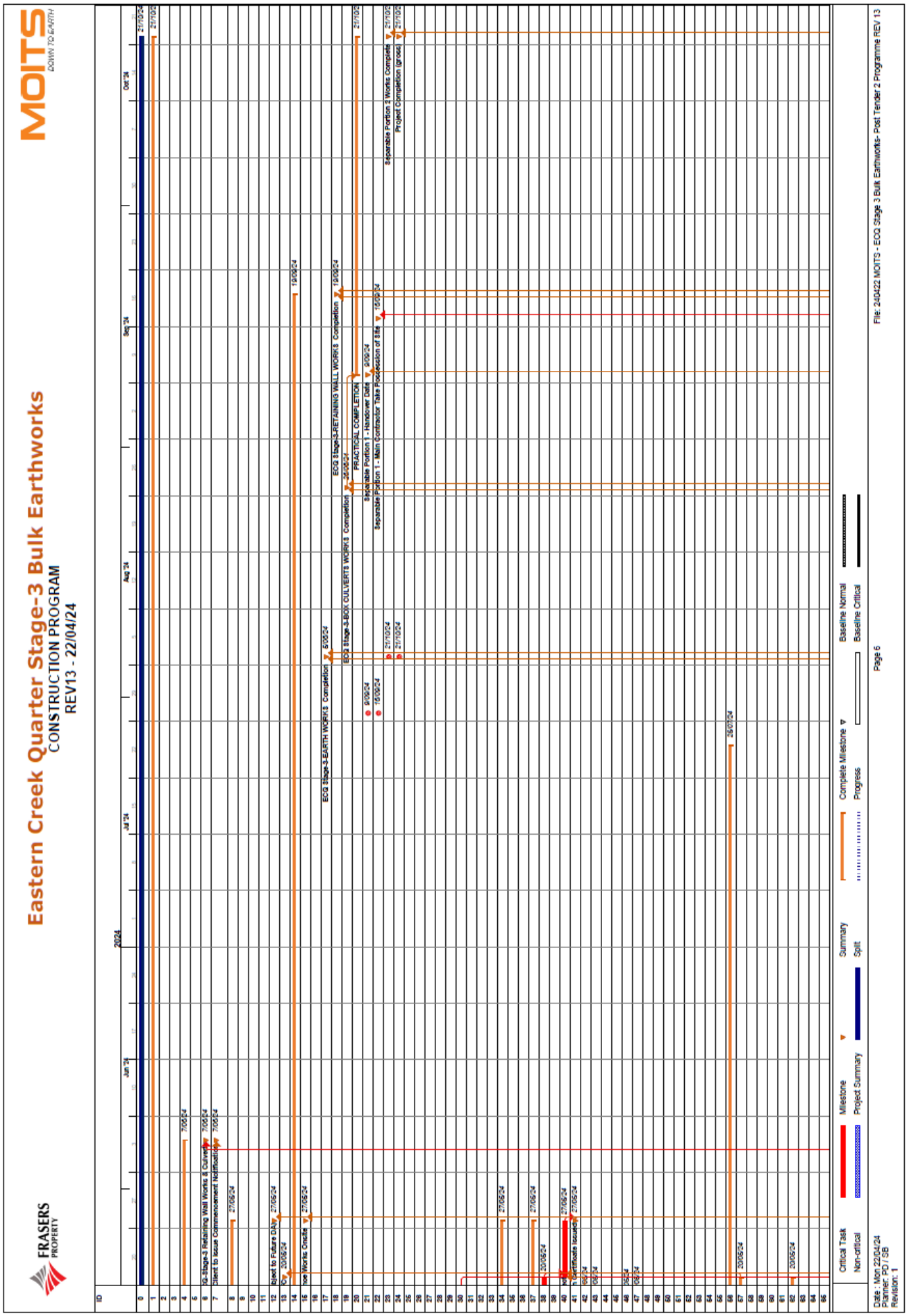
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EGQ Stage-3-BOX CULVERTS WORKS Completion 24/08/24
EGQ Stage-3-RETAINING WALL WORKS Completion 19/09/24
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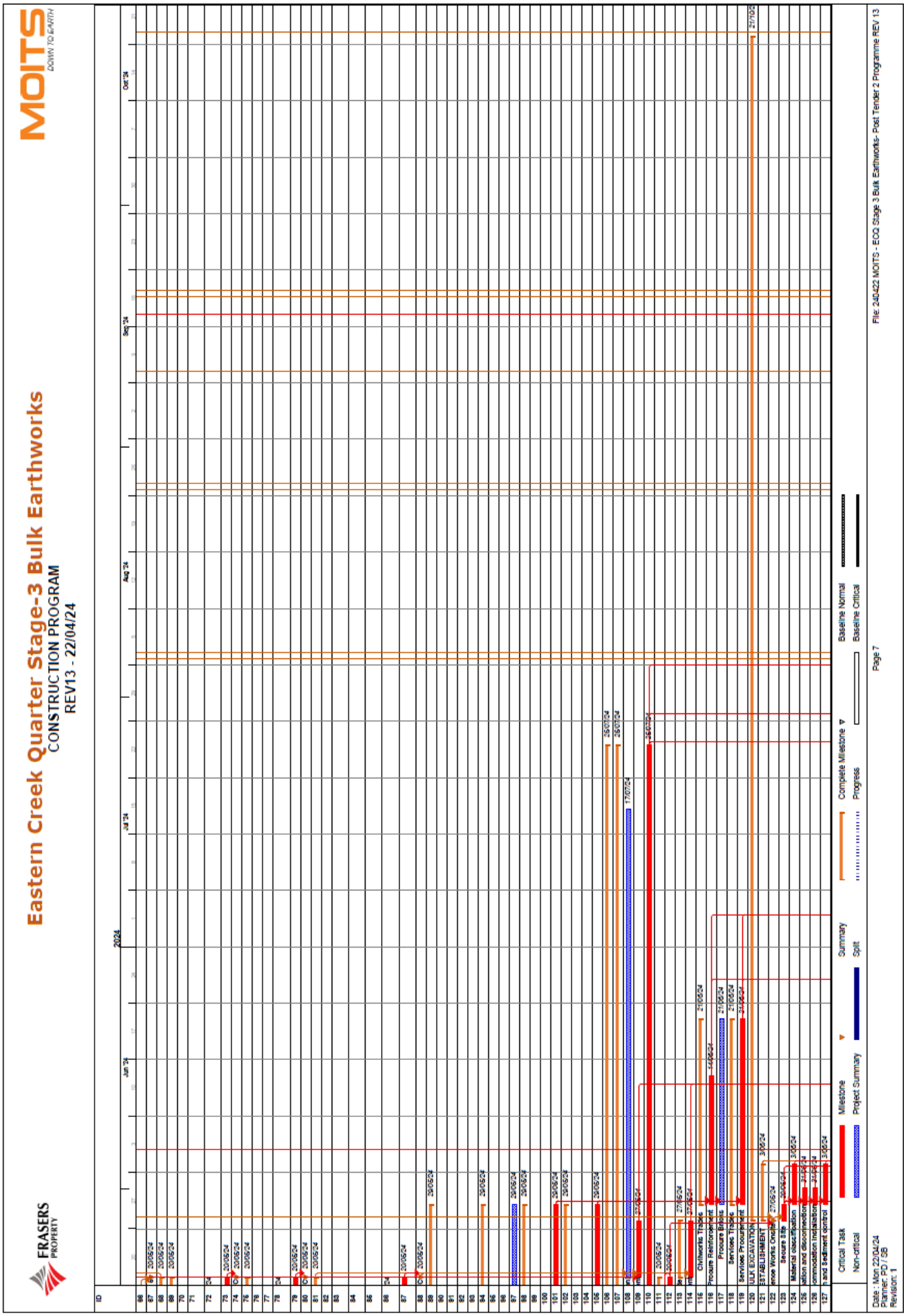
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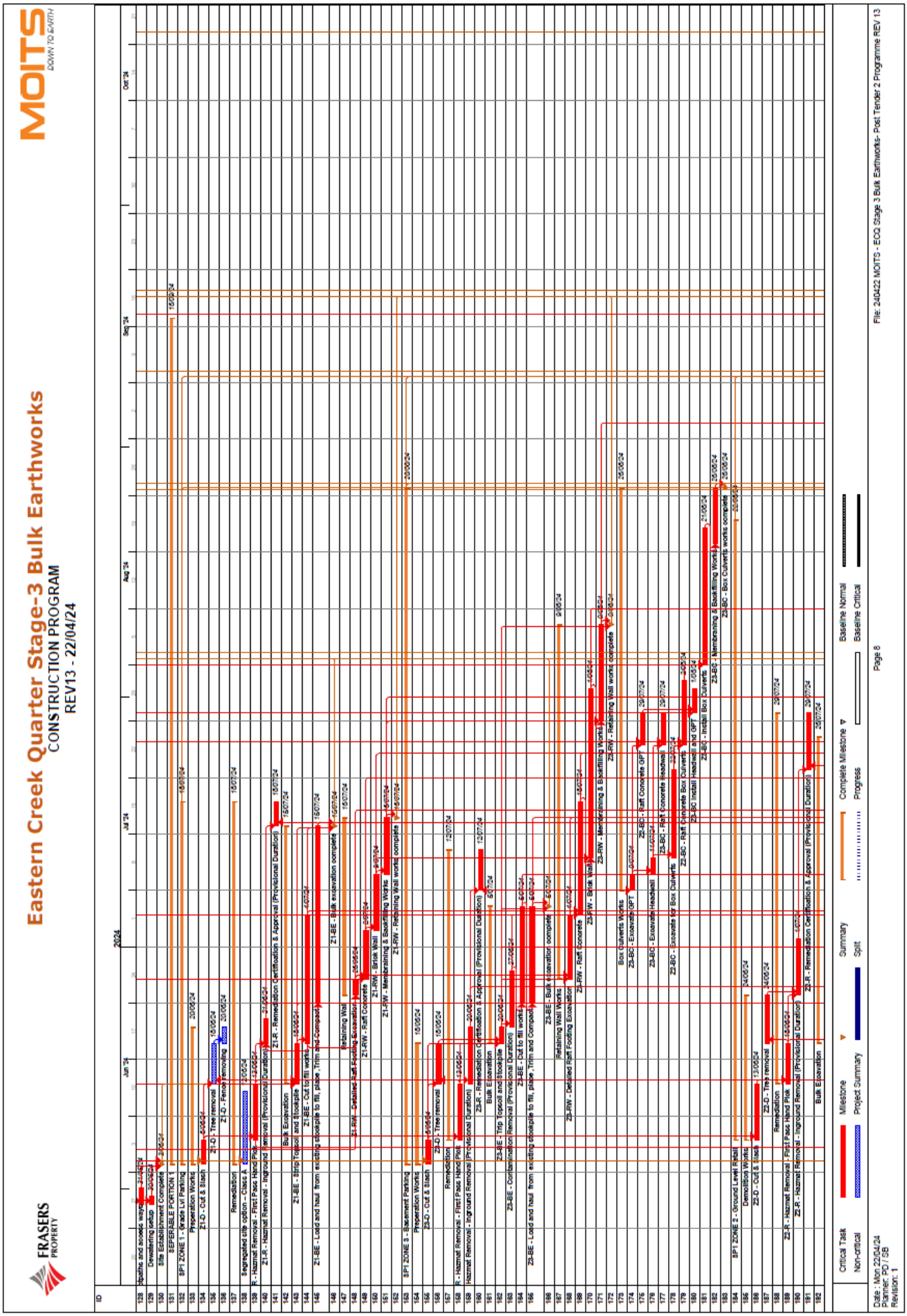
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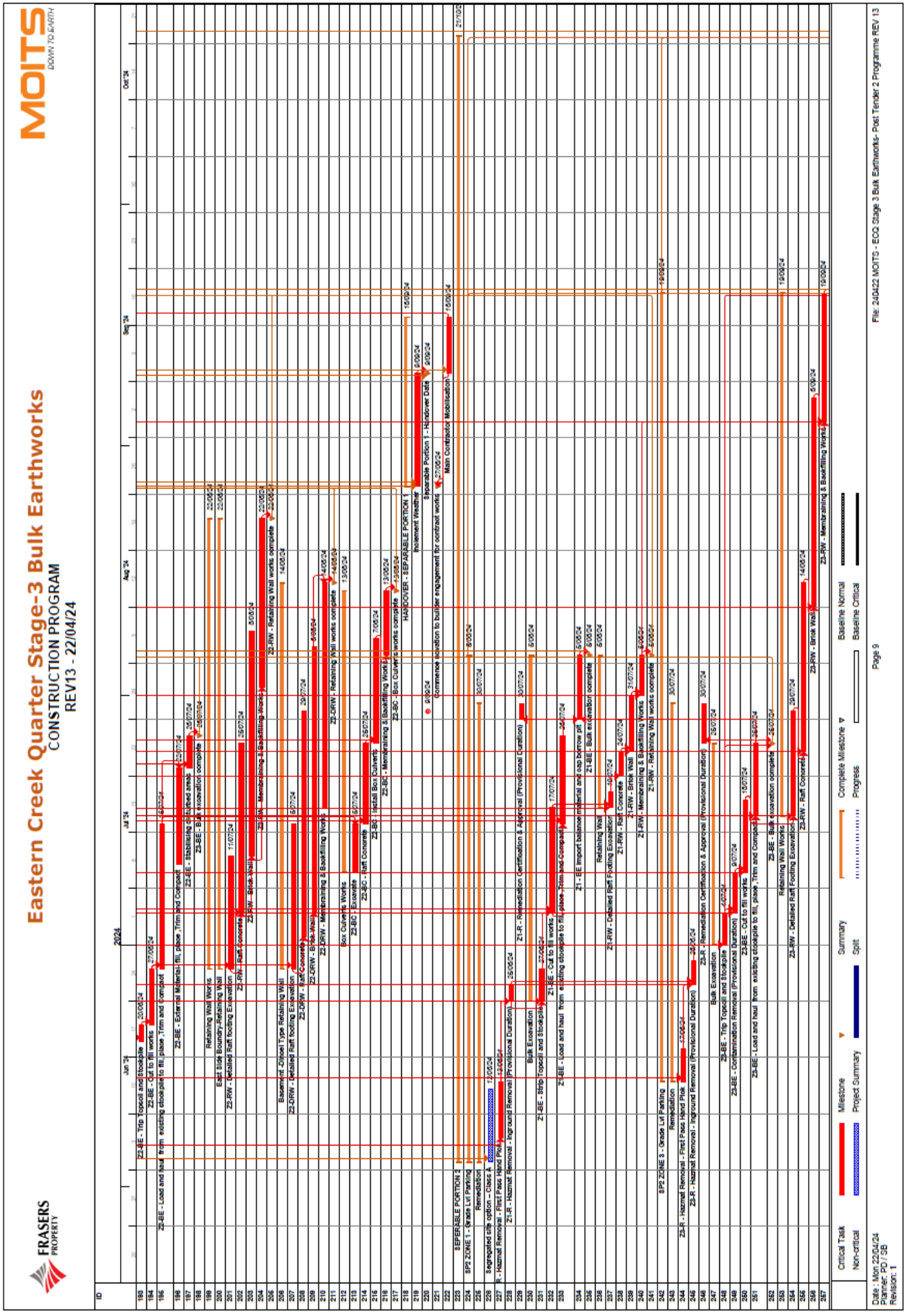
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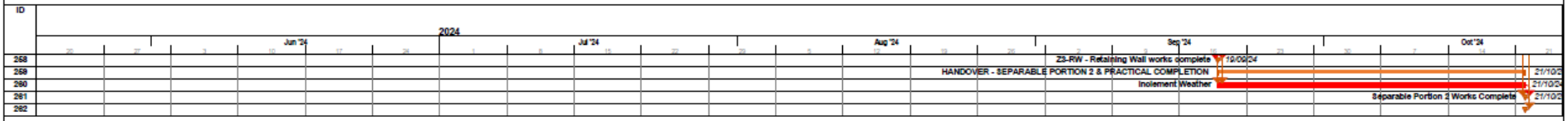

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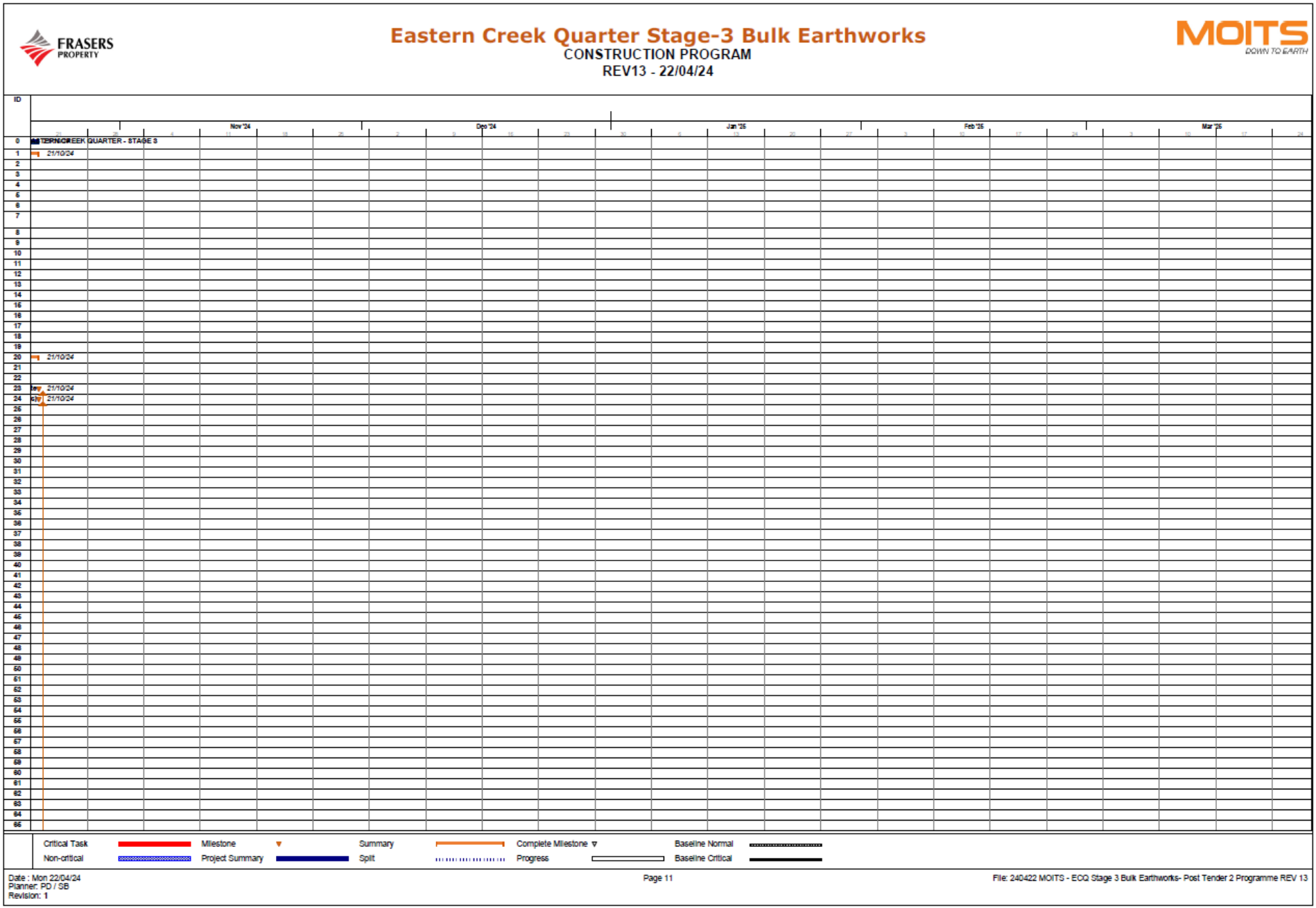
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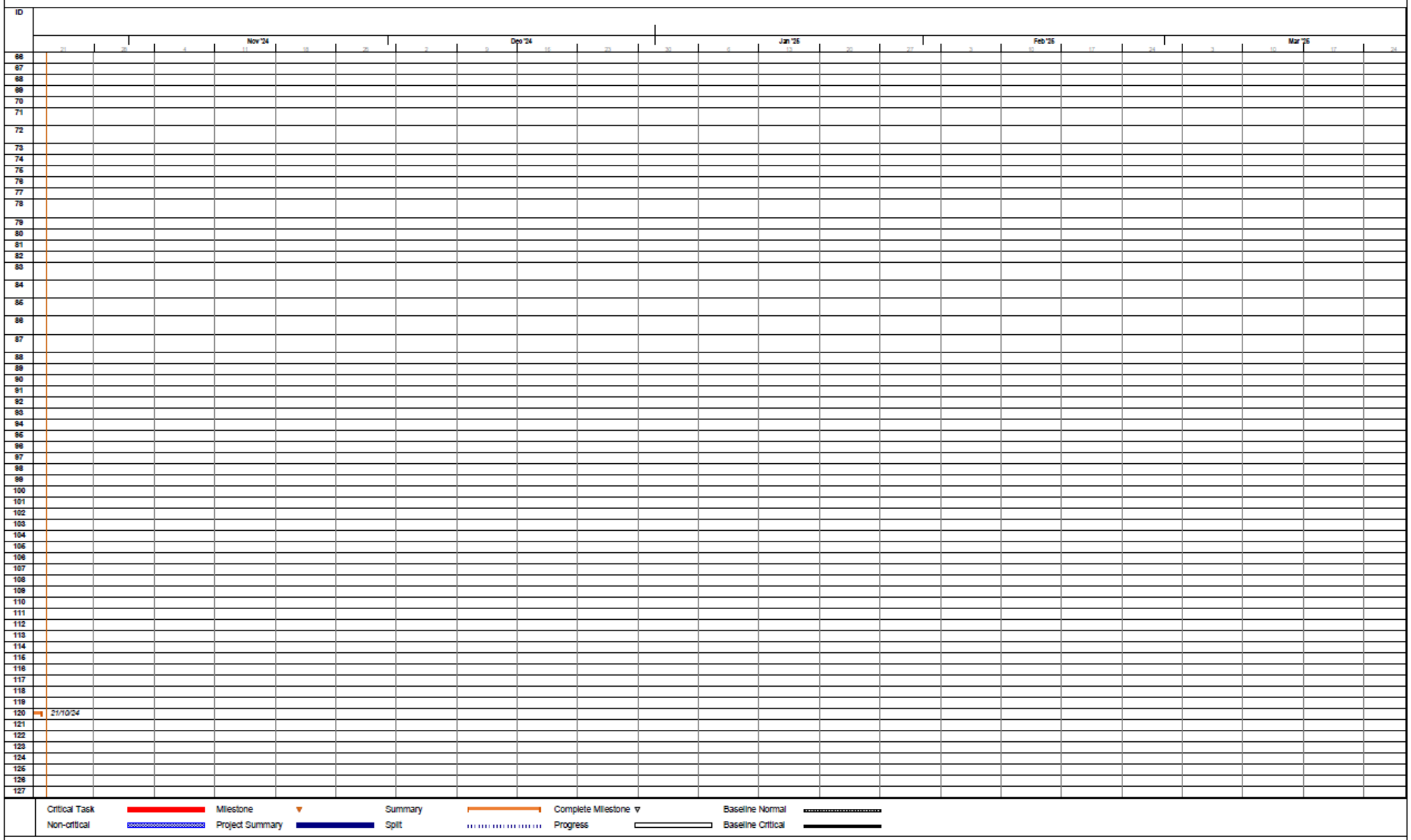

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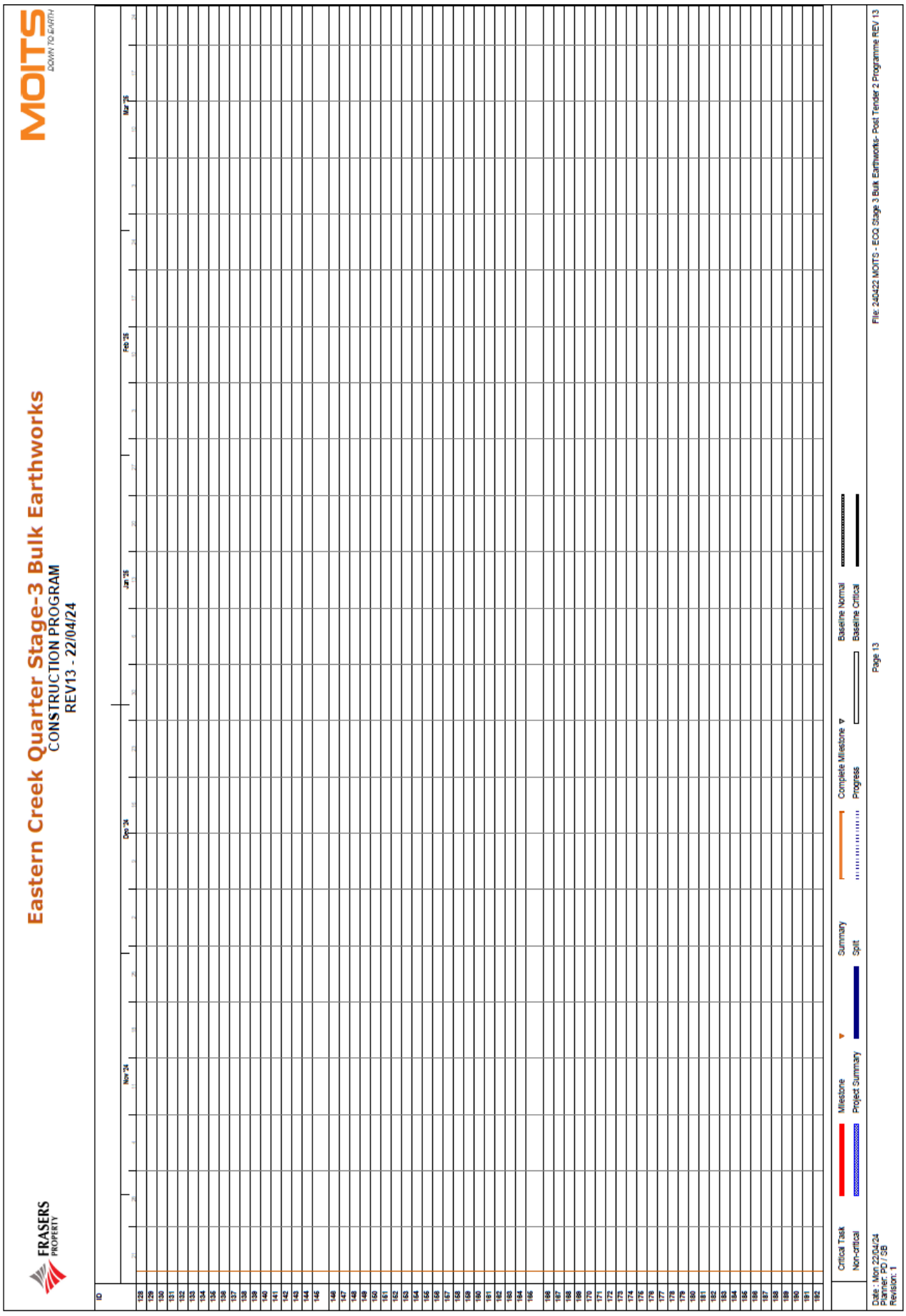
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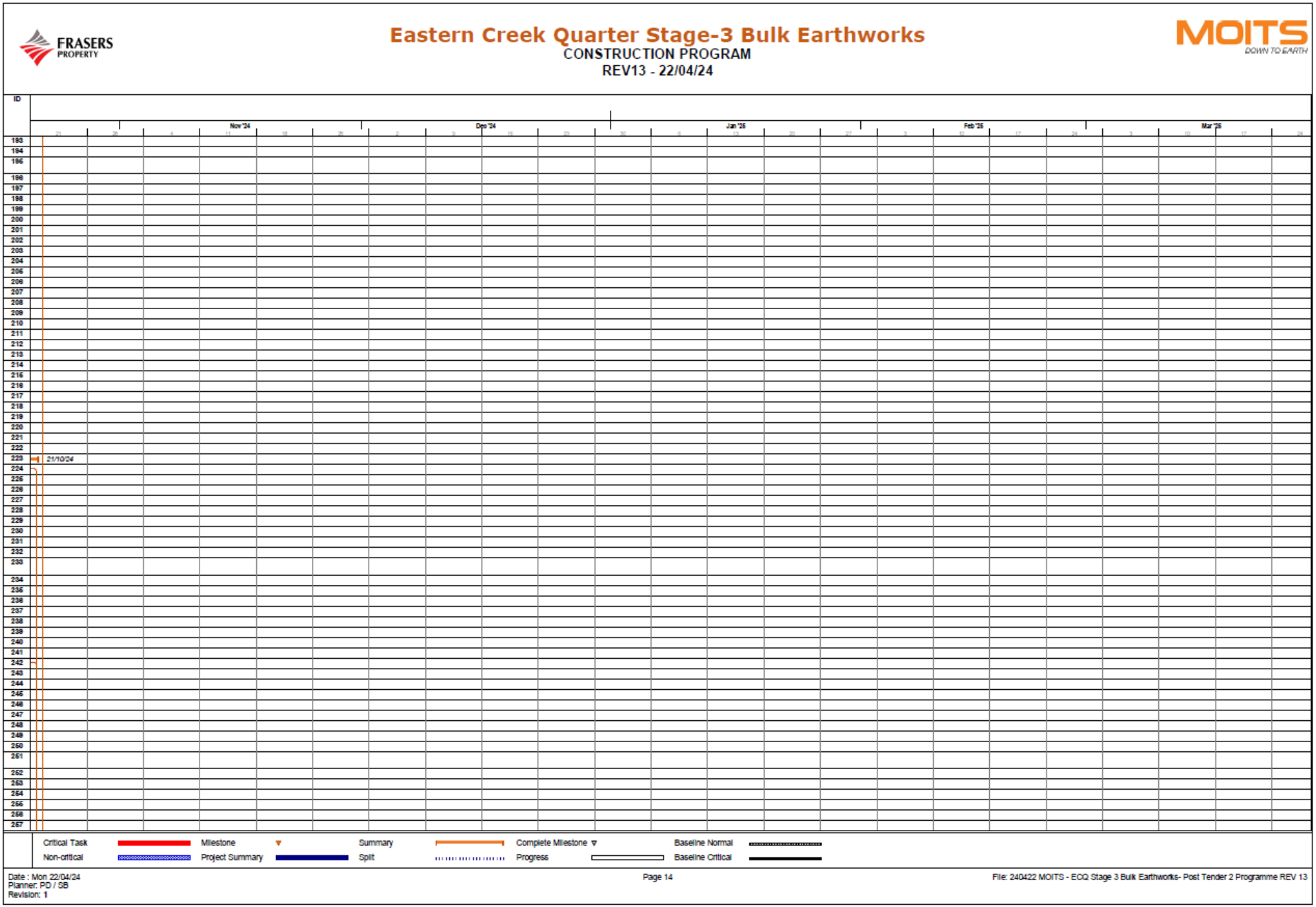
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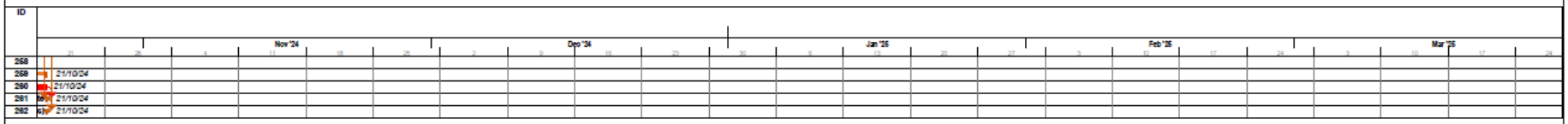
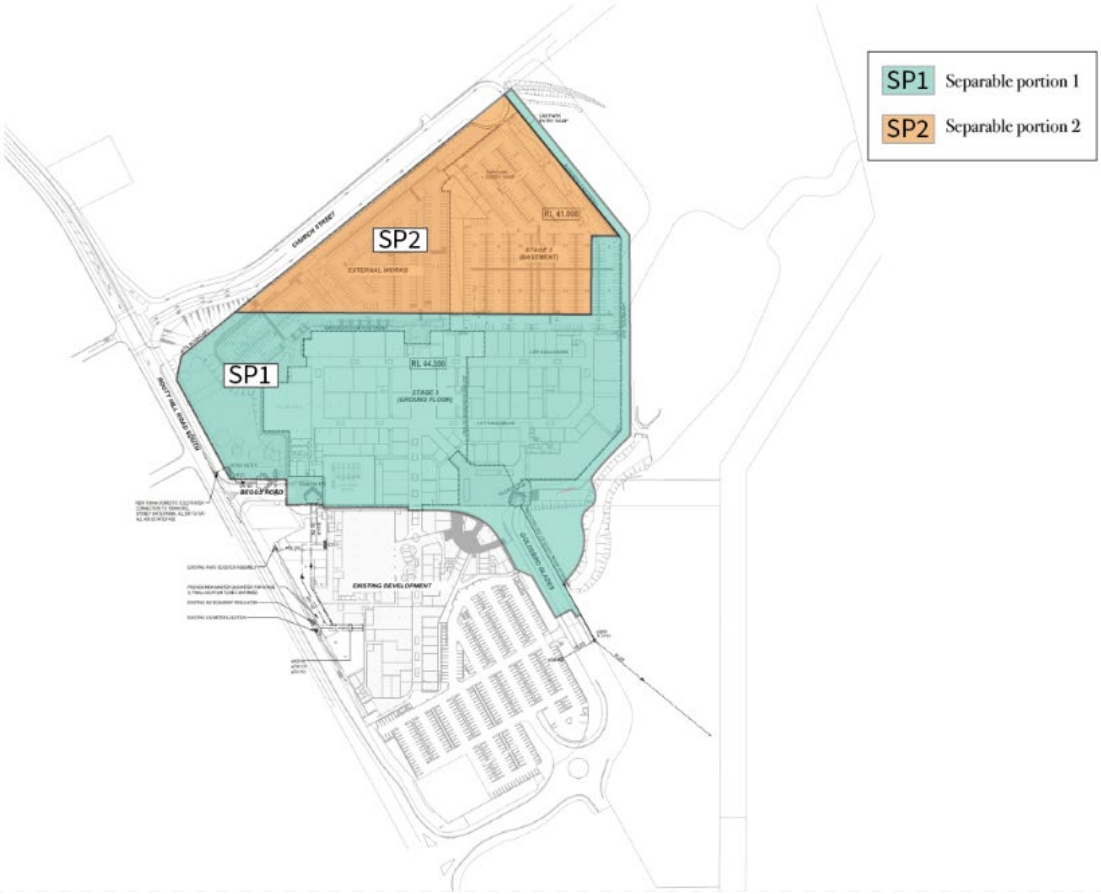
REV13 - 22/04/24

MOITS DOWN TO EARTH



Critical Task | Milestone | Summary | Complete Milestone | Baseline Normal
Non-critical | Project Summary | Split | Progress | Baseline Critical

MOITS DOWN TO EARTH


SP1 Separable portion 1
SP2 Separable portion 2
SP2
SP1
CHURCH STREET
ROOTY HILL ROAD SOUTH
EXISTING DEVELOPMENT

PROJECT EXECUTION PLAN

PROJECT EXECUTION PLAN – MANAGEMENT, PLANNING AND DESIGN

The Eastern Creek Quarter Stage 3 Package (ECQ) is a complex bulk earthworks and civil project that demands thorough planning and intelligent sequencing. A key focus will be on smartly sequencing the earthworks, stormwater, and civil works, enabling us to prioritise key zones for immediate attention. This will minimise the need for later adjustments and ensure that construction of stormwater culverts commences early in the project timeline. Of critical importance is the encapsulation and safe containment of existing site contaminants. These will be strategically located to mitigate future rework and risks, especially during the early stages of the retail centre construction. Compliance with Western Sydney Parkland Trust's environmental guidelines and ensuring community safety, particularly concerning the nearby childcare and retail shops, will be integral to our project management approach. With a proven track record in delivering complex civil projects, Moits is committed to executing ECQ Stage 3 to the highest standards of efficiency, safety, and stakeholder satisfaction.

PROACTIVE COMMENCEMENT

Upon receiving the award of the contract, the Moits team will immediately mobilise all resources, staff, design team, certifier, suppliers, and contractors to commence works on this project. In conjunction with commencing the preliminary Mobilisation items, the team will prepare the project Construction Management, Environmental, Waste, and Quality Assurance Plans which will all be submitted for approval with the client and the project certifier.

The team will also commence the consultant engagement process, onboarding the design team (H&H Consulting Engineers) immediately to ensure the intensive final design development process is efficient, robust and delivers accuracy and maximum value. Furthermore, the consulting team will commence on the other plans required for certification.

CONSTRUCTION CERTIFICATE WORKS

As part of the detailed tender & post tender process, we have identified through the DA matrix the requirements to achieve a Construction Certificate. We have reviewed and identified each of these needs and have sourced fees from specialists to manage and achieve an orderly CC.

Importantly, Moits have allowed for the nominated design consultant and project management to achieve the requirements of the DA including preparing the vegetation management plan, unexpected finds protocol, dilapidation reports and the acoustic construction management review. All permits and approvals associated with achieving the CC will be sourced and the CC provided by the certifier.

TEAM COLLABORATION

Active collaboration is of the utmost importance to Moits, creating a team environment for the project stakeholders from the outset. The collaboration process creates a win-win situation for all parties involved, always working towards delivering the best outcome for the project. Moits understands that the ECQ Stage 3 Project is a highly important project for Frasers Property Group, and we will work from the outset to drive and deliver safely the most high-quality project.

MOITS DESIGN DEVELOPMENT PROCESS

Moits are aligned in their general ethos in that we both see each project we undertake as its own unique opportunity, and as such undertake planning, estimating, design and construction tasks from first principals based on merits, risk and opportunity. Whilst many projects have similar qualities, we find that it is best to take a fresh, first principals look at the project itself and utilise the years of experience and industry knowledge within the business. Moits are a collaborative and flexible bulk earthworks and civil contractor who team up with our Design Team and help deliver this project from the outset to a safe and successful completion.

Our immediate focus is placed on working through the design development process with the Design Team to realise any value management opportunities. Moits team will also focus on the construction procurement requirements, with emphasis on the Remediation Works (ACM), Bulk Earthworks, stormwater pipework, Retaining Walls / Block Walls and Pavements.

Moits will prepare a detailed decision, design and procurement program within the first 2 weeks of project activation.

The decision, design and procurement program will outline:

- Project workshops and briefings.
- Key project decisions.
- Key project opportunities and risks.
- Construction Certificate requirements.
- Timings for alternative design solutions and selections.
- Services coordination and long lead time procurement; and
- The durations for off-site manufacturing.

Project workshops will be arranged within the first weeks following the project award.

The design finalisation process is a great opportunity for Moits and the Frasers Client team to work together to achieve a great value solution. Moits consultants are skilled and experienced in this type of civil earthwork and the strong working relationships between Moits and the designers will help deliver great solutions that benefit the project. The team will work intensively together through the design development process to challenge all elements of the project and ultimately deliver a great outcome for the team.

Moits team have identified the history and learnings that the existing Client design team have been through during the Client design development process and as such we plan on partnering with H&H Consulting Engineers Pty Ltd consultants for the final design finalisation and construction phases of the project.

Beyond this Moits will bring to the table experience and lessons learnt from the Moits portfolio of similar projects, which includes previous projects for Frasers and others of similar complexity, all being delivered safely, and on time. This experience is extremely valuable and will assist in ensuring the delivery of the project in the best manner possible.

The team will work through each of the phases of design in a diligent, organised, and robust manner in the following sequence:

- Civil Works Design:
- Bulk Earthworks
- Stormwater Works
- Civil Works, i.e. Retaining Walls / Dincel

All stages of the earthworks will be progressed concurrently, and the interfaces will be properly coordinated to ensure accurate and cohesive designs. As part of these processes, Moits and the Design team including H&H Consulting Engineers Pty Ltd will prepare the designs to issue to the Fraser's team 100% and then formally for final approval (issued for construction). This is a critical proponent of the AS4902 D and C contract, and we have allowed for this in our tender to obtain our Construction Certificate (CC).

This design phase of the project will provide a platform for the remainder of the project and will ensure that the Moits team sets up the project effectively. Utilising the right processes and systems will ensure the successful delivery of Eastern Creek Quarter Stage 3 project, safely, on time, within budget and with an exceptional standard of quality.

PROJECT OPPORTUNITIES and RISK MANAGEMENT

As part of our tender process, we have undertaken a detailed project risk and opportunities analysis of the project. We have identified the top project risks and opportunities and will work collaboratively with stakeholders to collectively either mitigate or realise any project risks and the associated savings, delays, costs, and disruptions that may arise from these opportunities, unknowns, and project challenges.

- Moits project risk workshops will identify, and propose mitigation strategies for factors such as:
- Improving the overall design.
- Reducing overall project costs.
- Avoiding critical path project delays.
- Minimising project scope change and creep.
- Authority management strategies.
- Open and collaborative discussion to actively find the most innovative solutions.
- Workshop development and presentation of program and staging options and opportunities; and
- Feasibility options and accurate budget estimates.

HIGH QUALITY MANAGEMENT

Using our high-quality management and delivery team, we always aim to achieve and produce a high-quality solution by ensuring that proven work practices developed over many years of building projects of a similar size and nature. This experience and skill will be employed and reflected in our construction program to ensure that adequate periods of testing and defects rectification can ensure that all quality issues and defects are resolved during the construction process and not once the civil works have been handed over to the client.

COMMUNITY LIAISON

As part of Moits commencement process, the team, with the support of the Frasers Client team, will actively begin to engage with stakeholders and the community to identify the community's needs and ensure that the construction solution addresses these needs as best as possible.

Prior to commencing, the team will prepare an information leaflet for the neighbours/retailers to provide clarity about the upcoming changes, potential short-term impacts and the timings associated with the project work. Further to this an information session will be held for the students and the community as required.

As part of the ongoing project, the Moits team will ensure that a regular liaison session is held for the precinct and the community and that concerns are itemised and addressed where possible.

PROCUREMENT STRATEGIES

One of the key project strategies is to ensure that the best and most suitable contractors are engaged and brought into the team as early as possible in the project.

As part of the procurement process, we have identified the following major processes, each of which require suitable project controls and structures of which the format has been provided as part of the tender:

1. **Subcontractor Selection:**

   The team has learned on the data collected during the tender phase from similar projects to ensure the most suitable tender panel has been developed. Upon award, the tender panel will be shortlisted, and the process will be tracked by the project planner and reported on a fortnightly basis.

2. **Subcontractor Tender:**

   A detailed and diligent and subcontractor tender process will be undertaken by Moits management team. Each subcontractor will need to meet all tender criteria for a detailed and transparent tender recommendation to be prepared and approved by Moits senior management. This will include all WHS, Environment & Safety management plans.

3. **Subcontractor Procurement:**

   Following the subcontract award, all contractors will be required to develop and provide a detailed project tracking sheet that the project planner will approve and then implement. This tracking sheet will focus on each of the key phases of the procurement process from design, shop drawing development and approval, manufacture as well as shipping and delivery.

PROGRAM CERTAINTY and CONTINGENCY

As part of our planning and programming of the project, we have diligently and carefully prepared a fully considered program.

However, we are conscious that we are working in a dynamic environment and that some of the project tasks are unique and carry serious challenges. With this in mind, we believe that the most prudent way to plan this project is on a 5-day week.
We have also allowed 30 days in inclement weather contingency. I.e. 10 days float for SP1
and 20 days for SP2 as per our Contract Program.

Beyond this, we will have industry leading project controls that will identify issues within a week of becoming an issue. This then gives us the opportunity to accelerate areas by working dual shifts, working Sunday, or added resources (where possible). These project controls will be transparently issued to the Fraser's team on a fortnightly basis.

A detailed program is included as part of the construction approval submission including a soft copy in the requested format (ASTA). Should we be selected as preferred contractor, Moits would encourage a continued transparent client review and look forward to working collaboratively with the Fraser's project team to ensure the most accurate and best program is continually provided to the project.

INDUSTRIAL RELATIONS and COMMUNICATIONS

Moit's aim will be to have nil lost time with Industrial Relations issues. To achieve this result, Moits will establish effective communication channels between all the key parties to eliminate confusion and ease tension within the work force.

Moits will instigate a once-a-week site wide toolbox talk with the entire workforce to provide a forum for the work force to provide feedback, identify safety issues and concerns on site and allow the main contractor sufficient time to rectify or eliminate issues before the incorrect action occurs. Other means of site-wide communication will be via the Subcontractors meetings, Safety Committee Meetings, Safety Walks weekly, Site Notice Boards, Safety Hazard Notices throughout site and the subcontractor principal meetings.

Possible initiatives in parting important information to the workforce may include the following:
Hazard signage around site, items relating to work:

- BEWARE TRIPS and SLIPS.
- BEWARE OF YOUR SURROUNDINGS.
- CHECK YOUR LEADS and TOOLS.
- IS YOUR LADDER SAFE?
- NO 9" ANGLE GRINDERS.

In all subcontractor's toolbox talks / meetings, the main contractor should have a nominated representative to attend to ensure that all safety issues raised or discussed are dealt with immediately.

This highlights to the workforce that the main contractor believes that the safety of the workforce is of paramount importance. This action makes the workers feel that the main contractors care about their safety and should empower the workforce to ensure the project runs smoothly.

CONSTRUCTION METHODOLOGY – PREPARATIONS and MANAGEMENT

SITE SAFETY

Safety during construction is our priority – we work to ensure a safe working environment for the students, staff, public, our project team and subcontractors.

Moits projects are delivered in line with ISO 45001:2018. Moits has achieved certification in safety for these standards.

Our OHS Management Systems have met the requirements of the NSW Government Occupational Health and Safety Management Systems Guidelines (5th Edition).

To ensure the project experiences no delays in both industrial relations and HSE issues, Moits will establish a Site Safety Plan prior to the commencement of trades on site. The plan will incorporate job site etiquette, health, safety, environment, and site-specific details.

Moits HSE policy encourages regular consultation with the client and workers on site. Weekly toolbox meetings by Moits and the trades will be recorded, and a site safety committee established in line with industry requirements. Moits will ensure that our representatives are the first on site and the last to leave every workday.

Workplace Health and Safety is at the forefront of every Moits project and will not be compromised or overlooked under any circumstances. The health and safety of the neighbours, the Public, consultants and subcontractors, our staff and visitors to the site is without question the priority of any Moits project. The Site Manager and site supervision team will be on site full time with the ongoing assistance of our HSE Manager, will ensure the implementation of our systems and procedures throughout the duration of the project.

SITE ESTABLISHMENT AND PREPARATION WORKS

Once Moits commence on site, the first activity sequence will be to secure the site and isolate the site. The fence around the full perimeter of the site will be checked to ensure that is properly secured at all junctions. Furthermore, Tree protection will occur prior site establishment.

Noting the size of the site, deliveries will need to be fed to the project via the Eastern Side of Church Street designed as an entry and then a separate exit back onto Church Street, this will be consistent when working withing the proximity of the site and depending on the ground conditions, it may stay as our construction haul road throughout the project. The site benefits from multiple possibilities for a secondary entry/entrance option, allowing deliveries to be via Beggs Road and Cable Pde.

Refer to the below Site VMP proposed for further details.

Figure 1: Proposed Site Vehicle Movement / Site Establishment Plan

The team will establish site facilities and accommodation within the footprint of the site, as per diagram Bulk Earthworks Site Plan in the North-Eastern section of the site while the provisioning the project with temporary power, sewer and water and environmental controls and measures.

While the site establishment is being completed, Moits will undertake the preparation works for the earthworks involving locating and services and validating the soil materials. At this time, any inground contamination will be identified and relocated as per diagram Bulk Earthworks Site Plan

ENVIRONMENTAL MANAGEMENT

Environmental controls will be placed around the site in the stormwater system to ensure there is no pollution or environmental runoff into the broader stormwater or sewer network. The silt fence and site environmental controls will be checked to ensure compliance with the civil design and forms one part of the sites erosion and sediment controls (ESC). Hay bales and socks will be installed at each gutter stormwater inlet. Care will be taken with the existing bio basin on the neighboring property that belongs to Western Sydney Parklands, seeing as this is one of the low points of the site, extra precautions will be added to prevent run off heading that way, instead, diverted into one of the catchment basins we propose to install.

Extra sediment controls will be added to the boundary between Frasers & WSPT, to ensure the safety of WSPT bio basin. As described in the ESCP Moits are committed to the responsibility for environmental management of the site, as it relates to the construction of the stormwater infrastructure.

Communication environmental features and mitigation measures to all subcontractors during procurement, induction and works phase.

Supervise sub-contractors to ensure implementation if in accordance with the VMP

- Consulting impacted community members prior to work.
- Manage staff and subcontractors.
- Manage and report complaints.
- Respond to and report incidents.
- All staff and sub-contractors are to complete site induction.
- Responsibility for carrying out works in accordance with this VMP.
- Monitoring and reporting of VMP implementation.
- Manage and report complaints to the Principal Contractor.
- Respond to and report incidents.

NOISE AND VIBRATION

Having extensive experience in civil construction, MOITS are aware of the impact of noise and vibration in urban environments, especially when near businesses and residents. As such, it is our standard construction practice to plan works involving heavy noise and vibration to avoid undertaking them during the lunch time peak period.

For each new project and location MOITS during the planning stage and via the feedback received from the Community Liaison Officer ensures our construction practices are balanced with the needs of the stakeholders.

Furthermore, Moits are awaiting Feedback from Frasers for the need to engage with Acoustic Logic, whom have prepared this sub-plan pre-contract award and issued by Frasers. Pricing for PO engagement has been forwarded to Frasers and pending instructions.

Moits understand that noise, dust, and vibration will have significant impacts on sensitive receivers such as adjoining business owners; and local residents / visitors amenity. A Construction Noise and Vibration Management Plan (CNVMP) will be drafted the construction methodology shall refer and implement the controls presented in the CNVMP to ensure that the construction methodology adheres to the guidelines in the Environment Protection Authority (EPA) Interim Construction Noise Guideline (ICNG).

- The following controls shall be implemented to minimise the impact of dust, noise, vibration and other environmental factors are as follows:

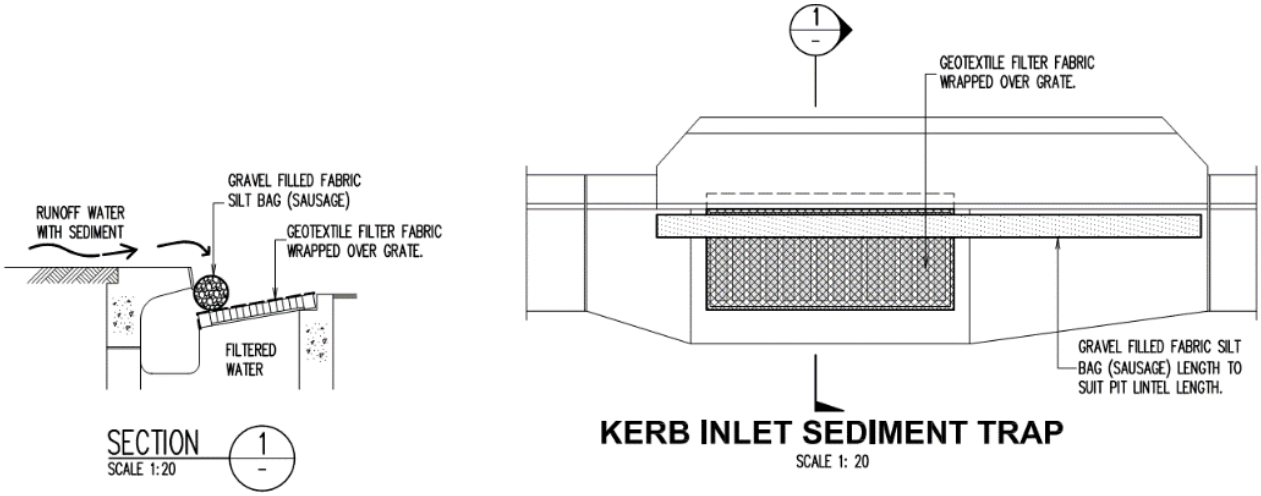
- inform potentially noise sensitive receivers as early as possible prior to commencement of any site work.
- Use small capacity equipment.
- Conduct regular equipment checks.
- Dust created during demolition and excavation works will be suppressed by water sprinkling and water carts positioned adjacent to the works. All haulage vehicles have covered loads prior to leaving the site.
- Switching off machinery if not in use.
- Implement silenced hydraulic hammers, noise barriers, silenced mufflers, and saws.
- Avoid any loud noise activities and take deliveries during the daytime.
- Stockpiles to be covered with plastic or similar to prevent dust from wind and runoff / erosion from rainfall.
- Manual localised water suppression.
- Ceasing work in heavy wind events

A growing public awareness of environmental issues has elevated water issues to the forefront of public debate in Australia. Urban stormwater pollution is a major contributor to environmental degradation of many of the State's natural waterways with concrete drains and channels transporting sediment and rubbish to creeks, estuary systems and waterways.

- The following strategies will be implemented to minimise the impact of stormwater run-off:
- Stormwater pits have sediment traps as per Diagram 1, these will be monitored and repaired on daily basis.

E1/2 Performance
Micro Enclosure

Image 2 – Kerb Inlet Sediment Trap



- Concrete Trucks will be washed out into a mobile tray (Pumperdump) or in a plastic lined bin for recycling later.
- Silt control fencing shall be erected around the entire boundary of the works area (regularly inspected).

SOIL AND WATER MANAGEMENT

As soon as practical, the stormwater network consisting of pipework, Pits and swales will be constructed and connected to the existing detention basis to assist with the management of ESC for the project.

To prevent sediment escape onto roadways and to assist with program surety, all weather hard stands will be constructed at– the main accesses to the site. These hardstands will provide not only all-weather access, but also a safe and engineered foundation on which mobile plants, such as pumps cranes and EWP, can work safely. Temporary hardstands will be removed prior to completion.

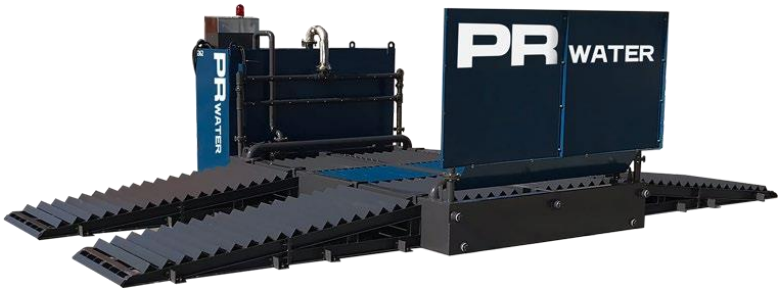
PUBLIC IMPACT

To minimise the disruption from noise, work will be done in nominated hours strictly. The noise and vibration management plan will be followed along with the DA conditions to minimise the disruptions caused by noise and vibration.

To control dust generation water will be sprayed at the source of origin, over demolished materials, and excavation stockpiles. This will be implemented as required on site. The dust control plan will be followed strictly.

Water misting spray cannons will be implemented in appropriate locations, in particular noting wind direction to manage impact to the public spaces and residential housing. Dust generated by hydraulic hammers and ripping excavators will be suppressed as its source. Dust cannon locations are shown below.

Moits have planned this project to maximise truck movements on concrete and asphalt surfaces to eliminate dust and tracking of spoil onto external roads. In addition, truck wheel wash systems will be set up where there is a risk of tracking spoil onto roads as per the image below. Managing sediment tracking onto public roads is critical and is best eliminated at the source rather than with street sweepers.



WASTE MANAGEMENT

All waste from both the demolition and excavation will be suitably sorted and placed in bins prior to being regularly taken offsite for disposal in licensed waste sites. Every bin removed from site will be suitably catalogued and tracked for future records and all Certification will be provided at months end by the Moits team.

Where possible and for much of the demolition, the waste will be recycled and reused in building and civil infrastructure products.

CONTAMINATION MANAGEMENT

During the early portions of the site earthworks, the top levels on the site will need to be levelled and the topsoil stripped and stockpiled for future use. As expected, there is the possibility of these topsoil areas being contaminated with Asbestos and other dangerous fines. Early investigations of these areas will be undertaken to confirm the extent of this contamination and the team will work towards removing these materials. To undertake these works, all workers will require to be suitably trained, certified, and indicted into the process of working with contaminated fines.

These zones will be isolated from the rest of the site and all workers will have full PPE protection including full Hazardous suits, gloves, face protection and breathing masks. These works will be completed in isolation prior to opening these areas to the full site team and the zones will have suitable signage and washdown areas for all workers and equipment as well as appropriate monitoring regimes for any airborne contamination.

DUST MANAGEMENT

Our objective is to control noise pollution and air quality (airborne dust and pollutants) in and around the construction site, ensuring it is maintained at acceptable levels throughout the construction period. If required Moits will investigate implementing various noise control measures including the deployment of noise mats over the site fencing as well as preparation of a noise and vibration control plan and associated monitoring.

Additionally, various dust suppression techniques/tools may be required depending on the following.

- Weather and Wind Conditions
- Exposure/proximity to the public and surrounding buildings Moits will employ various techniques to minimise dust onsite, including.
- Covering exposed areas with geofabrics
- Dust suppression with water
- Keeping areas tidy

The Site-Specific Environmental Management Plan will be developed for the Project to outline the procedures that will be in place. for the duration of the work. This will be most imperative when working in and around ECQ Social Area, where we will have dust control measures and monitoring in place.

BULK EXCAVATION CUT TO FILL WORKS

The project requires approximately 28,000m3 of cut and 33,800m3 of fill resulting in a net import of 35,510m3 of material. Works will be undertaken across the whole site and careful consideration has been considered with all information provided by JBS&G consultants, and bore logs we propose to encapsulate all contaminated material away from stage 3 building footprint, this will prevent piling rework and further costs once the building is under construction as

- Zone 1 – Access Roadway
- Zone 2 – South-Western Main Site
- Zone 3 – North-Eastern Main Site

The Moits team will progressively work in this sequence to complete the works with an average of 700-1000m3 of fill per day being the defining metric. To achieve this, 80 truck movements will be required a day to import materials from the local suppliers.

The purpose of this method of statement is to define the procedures to ensure that the proposed materials and workmanship to be used at the above site are complying with the condition / requirements as stipulated in JBS&G consultants assessment documents

This method statement covers the requirements for all earth works up to and including the preparation of formation level. This method statement is to be adopted during earthwork activities for widening and strengthening of highways. This method statement describes the controlling elements during the exaction of earthworks.

Conditions and precautions listed in the project specifications shall be followed as minimum.

All staff involved with the project shall be inducted on the safety, health and environmental issues associated with the work.

Only trained personnel with relevant experience shall be allowed to handle machinery.
Appropriate Safety Signboards, barriers and lighting shall be, and other safeguards shall be provided as required by the nature of and location of the works. All operations shall be carried out in accordance with the safety requirements. All field personnel will use PPE safety requirements like safety shoes, hard hats, cover all, goggles, and dust mask, etc. as required.

METHODOLOGY

SETTING OUT:
Prior to any commencement of any physical works, a professional land surveyor shall be appointed to carry out demarcation works and establish benchmarks on site. Upon obtaining all the necessary survey data, a joint survey to check existing ground levels shall be carried out with the consulting engineers.

PREPARATION OF SITE:
When any material is disposed outside the site, the disposed material shall be graded to a neat appearance and shall not obstruct natural drainage or cause damage to highways or property. All precautions shall be taken to prevent any erosion of the soil in the affected areas.

All unsuitable material and surplus suitable material shall be run to spoil in tips approved by the Engineer.

EXCAVATION OF THE CUT
The excavation of the cut shall be carried out in accordance with the relevant approved drawings and to the levels, widths and heights shown thereon.

Hauling of material from cuttings or the importation of fill material to the site or other areas of fill shall proceed only when sufficient compaction plant is operating at the place of deposition to ensure compliance with specification requirements, and the site is safe to manoeuvre. Any excess depth excavated below the formation level exceeding tolerance of 300mm shall be made good by backfilling with suitable material of similar characteristics to that removed and compacted in accordance with specifications.

EXCAVATION FOR SITE LEVELLING AND SOIL REPLACEMENT
Finish level shall be recorded in accordance with survey practice and jointly checked in the presence of Engineer.

The side slopes of cuttings and embankments shall be as per the approved drawings.

EXCAVATION GENERAL
Removal of Unsuitable Soil and Soft Spots

If during the progress of the work the soil encountered has characteristics, as determined by tests conducted under the direction of the Engineer, that render it unsuitable for incorporation in the road embankment, the Contractor shall excavate and remove such unsuitable material to the extent directed by the Engineer.

Where Contractor finds isolated soft spots during excavation, this material shall be removed to the extent directed by the Engineer.

No excavated suitable material shall be removed from the site without the approval of the Engineer. Should Moits be permitted to remove suitable material to suit his operational procedure then we shall make good any consequent deficit of fill material arising there from.

Where the excavation reveals a combination of suitable and unsuitable material the excavation shall, unless otherwise agreed with the Engineer, be carried out in such a manner that the suitable materials area excavated separately for use in the works without contamination by the unsuitable material.

The hauling of excavated material to areas of fill shall proceed only when sufficient spreading and compacting plant/equipment are operating at the place of deposition to ensure placing and compaction.

Unsuitable excavated material shall be removed and hauled away to the approved fill areas as per JBS&G assessments after approved by the Engineer.

The Contractor shall replace the unsuitable material with other suitable surplus or imported material in layers not exceeding 150mm compacted thickness to the density specified.

If the Contractor considers, in some situations, it is impractical to replace unsuitable material with imported material, he may elect to use granular material.

If any solution cavities are found in limestone material, they shall be brought to the attention of the Engineer. The Engineer shall advise what treatment is to be carried out in such situations.

If the CBR is <30% the Contractor shall excavate 300mm below the formation level and fill it with suitable material according to specifications. Prior to any excavation for the works Moits will obtain all required permits related to this work.

EXCAVATING HIGH LEVEL AREAS
The Contractor shall excavate high level areas in all materials including rock for the full width of the road construction down to the top of the required sub grade. The Contractor shall then scarify a layer not less than 150mm deep except that this requirement shall not apply where rock is present. In all excavations the groundwater level shall be maintained at least 300 mm below the formation level during the works.
The soil shall be pulverized

ROCK EXCAVATION
This will be discussed with the client should we find rock.

EXCAVATION FOR PITS, TRENCHES, AND CULVERTS
All trenches and pits under roads shall, where possible, be excavated, backfilled, and compacted before road construction commences. The sides of the excavation shall be adequately always supported. Trenches and pits shall be kept free of water. Trenches for pipes or ducts shall be excavated to the levels and gradients indicated in the contract documents.

FILLING GENERAL
Filling low-level areas shall be to the level of sub grade as designated. After completion of clearing and grubbing, the Contractor shall carry out the necessary leveling to control the thickness of the layers of fill.

The existing natural ground shall then be scarified in place to a minimum depth of 150 mm for the full width of the embankment except where the material is classified as rock. The scarified material shall be watered as required, thoroughly mixed, shaped, and compacted to a minimum of 95% maximum dry density.

Where an existing embankment is being widened, the existing embankment slope shall be trimmed and compacted into benches of minimum width 1m and depth 500mm before placing and compaction each layer of new embankment material unless otherwise directed by the Engineer to suit circumstances.

Moits shall not proceed with filling and compacting any subsequent layer before testing and securing the approval of the Engineer for the previous layer.

All fill material for a depth of 500mm below the formation level must meet the requirement for selected fill

Each fill thickness shall not exceed 150mm, Testing levels and events of the formation between the tolerance limits
+ 15mm to 20mm. In areas of shallow filling, where after removal of topsoil, before embankment construction is commenced, the surface of the ground shall be graded and compacted.

Embankments and other areas of fill shall be made of suitable material.

All earthworks material placed in or below embankments, below formation level in cuttings or elsewhere in the works shall be deposited and compacted as soon as practicable after excavation in layers of thickness not exceeding 200mm.

Embankments shall be built up evenly over the full width unless otherwise indicated and shall be always maintained with a sufficient camber and a surface sufficiently even to enable surface water to drain readily from them. During the construction of embankments, construction traffic or water erosion shall be made good.

When an embankment is to be placed against and existing hillside or when a new embankment is to be constructed against existing embankments, the existing slopes that are steeper than 1.6 shall be continuously benched in not less than 300 mm rises over those areas where it is required as the work is brought up in layers. Benching shall be of sufficient width to permit placing of compacting operations. Each horizontal cut shall begin at the intersection of the ground line and the vertical side of the previous bench.

Compaction of embankments and other areas of fill shall be undertaken to the requirements of specifications. The embankments shall be constructed to sufficient width to permit adequate compaction at the edges before trimming back.

PLACING & COMPACTION OF FILL AREAS
Earth fills on the embankments shall be spread to produce uniform distribution and gradation of the earth fill throughout.

Cluster of rock, which would interfere with proper compaction, will not be permitted. The earth fill shall be placed in continuous, approximately horizontal layers over the length being constructed for the full width of the embankment.

The optimum moisture content of the earth fill shall be that moisture content which is required to produce the maximum dry density.

If the surface of the embankment is left exposed for any length of time, drying of the underlying material shall be prevented by periodic watering, by covering, by maintaining the surface layer in a loosened condition or by other approved methods.

If the surface of the prepared foundation or the surface of the embankment is allowed to become too wet for proper compaction of the layer material to be placed thereon, work shall be carried out with harrow, scarified or other suitable equipment to reduce the moisture content to the optimum range and then recompacted before the next succeeding layer or earth fill is placed.

Material which has been compacted to a dry density less than required or at a moisture content outside the agreed range shall be removed or reworked and recompacted until the required properties are achieved.

Holes formed in the fill by the removal of samples for test shall be filled, consolidated, and compacted in homogeneity with surrounding fill.

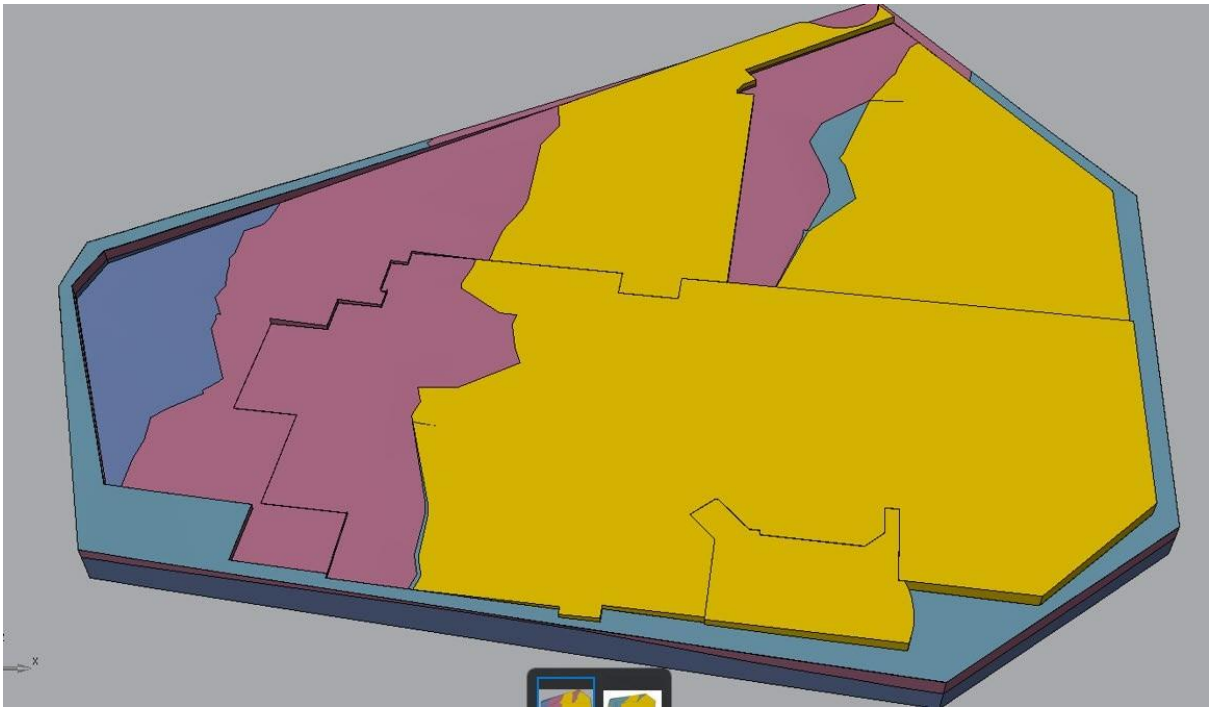
REINSTATEMENT

All surfaces of roads, fields, paths, etc., whether public or private, which are affected by the operations shall be restored. Upon completion of reinstatement work, all soil heaps, rubbish, and the like from the site shall be removed.

HAZARDOUS SUBSTANCES REGISTER

A hazardous substance registers such as the one below will be maintained via Moits Central for all hazardous substances Moits has on sites. It is the responsibility of the site supervisor to ensure all hazardous substances are recorded and a copy of the safety data sheet (SDS) provided. Contractors on site are to provide the site supervisor with a hazardous substance register and up to date SDS for all substances they will be using onsite.

Moits have undertaken our own 3D modeling for cut to fill and import requirements as per diagram below.



ENTRY ROADWAY WORKS

One of the key elements of the project will be installing & maintaining a haul road once the major bulk excavation works are completed, the team will commence these works. These areas will be fully coordinated with the sitework to ensure that disruption to the site is minimised, and access is always maintained.

Internally to the project the pavements, roadworks and subgrades will follow all utilities. The composition and build-up of these elements will be carefully managed by the Moits team and witnessed by the consulting design team to ensure a suitable long term high-quality roadway. The road & pavements will be built up in sequential layers in a controlled manner and all checks and compaction tests will be undertaken in a progressive manner. The roadway will be used during construction & then once major deliveries are completed the final trim & level will occur.

GPT CONSTRUCTION

While the design is not completed for this area, the GPT on site will be a critical element for the project.

SERVICES INFRASTRUCTURE

Following the bulk excavation works, the site is going to require installation of stormwater services and associated infrastructure including the installation of the 2 x stormwater basins & the alteration of the Rip Rap & stormwater channels. The stormwater team will work in the excavation teams to install these elements, with the primary focus on the basin area.

Moits are reviewing the cost of the basin elements and believe that there are suitable value management alternatives that can be considered by the client.

Each of the stormwater services will be constructed using traditional open cut methods, first setting the pits and then installing the pipework. The basin construction will focus on the retaining wall and backfill progressively installed under full time supervision, before backfilling and completing the sedimentation basin works.

TREE PROTECTION AND REMOVAL

Prior to any heavy vehicle or machinery entering the site Moits will install tree protection zones to ensure that trees and root systems are not damaged. Temporary fencing will surround trees to be protected and trees to be removed will be marked as per the tree removal plan. Following tree removal and mulching, mulch can be used to provide further protection to existing trees and as a flow reducing and dust control measure. The tree removal & replacement plan will be one of the first tasks undertaken on the project.

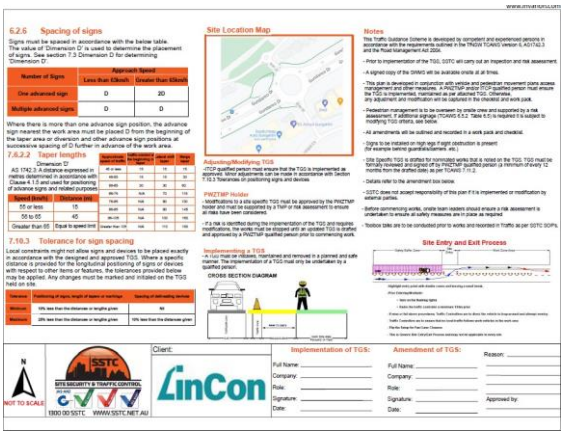
CONSTRUCTION METHODOLOGY – TRAFFIC MANAGEMENT

Traffic management is a critical aspect for any construction and any construction project that involves roadways and transportation infrastructure – in particular the construction of the ECQ Stage 3. Effective traffic management ensures the safety of both construction workers and the public, minimise disruptions to traffic flow, and helps maintain efficient transportation systems during construction:

Safety:

Safety is the paramount concern during construction. The construction process for this project involves heavy equipment, workers, and potential hazards that could pose risks to both motorists and construction personnel. Proper traffic management strategies will be always employed by the Moits team, including clear signage, temporary barriers, speed reductions, and designated pedestrian pathways, help prevent accidents and protect everyone involved.

Adjacent are some non-site-specific examples of suitable traffic management plans that Moits have employed recently.



Minimizing Disruptions:

Church Street entry will be a designated left entry and left exit intersection only, Effective traffic management will minimize disruptions by maintaining traffic flow as much as possible, reducing congestion, and preventing unnecessary delays for commuters and businesses.

Congestion Reduction:

Well-planned traffic management strategies aim to keep traffic moving smoothly and avoid unnecessary congestion – maintaining the traffic flows during peak periods on the local road network

Public Perception:

Smooth traffic flow and minimal disruptions during construction will contribute to positive public perception of the project Frasers Property Group. Effective traffic management will assist to mitigate complaints from the public about delays and inconveniences.

Compliance and Regulations: Moits have a long history of compliance with regulations and agreed traffic management plans & the team will always diligently follow the requirements onsite.

Coordination with Stakeholders:

Effective traffic management from Moits will require coordination with various stakeholders, including local authorities, transportation departments, emergency services, and nearby businesses. Engaging and communicating with these stakeholders helps ensure a smoother construction process. We acknowledge the delivery bay at the end of Beggs Street, this will have a traffic management crew member as and

when we have deliveries or vehicle movement in this area and all roads.
Refer to the ECQ Stage 3 - Construction Traffic Management Plan (CTMP) for further details.

Worker Safety:
Construction workers on the site are also at risk if traffic management is not handled properly. Well-defined work zones, protective barriers, and clear communication between workers and motorists help safeguard the workers' well-being.

For further information, please refer to the CTMP (sub-plan) that forms part of the overall CEMP.

CONSTRUCTION METHODOLOGY OF CULVERTS

Precast concrete and steel pipe culverts and pipe ducts will be installed in trenches cut into previously constructed and compacted embankment either from the subgrade or from an embankment height at least twice the nominal diameter of the pipe.

Unless otherwise noted in the drawings, trenches will be no wider than the external diameter of the pipe plus 300 mm on each side. If trenches are dug too wide, the pipe culvert will be bedded in a concrete cradle.

Pipe bedding will be either graded aggregate 12 mm nominal size to Table 1 of BS 882, or concrete Class 12 shown on the drawings. Exposed concrete bedding will be cured for a minimum of 3 days.

Pipes will be laid so that the lower portion of each pipe is supported for its entire length to a depth at least equal to ¼ the external diameter. They will be fitted and matched so that when laid in the trench they form a pipeline with a smooth and uniform fall invert.

Granular material for pipe bedding will be compacted to the minimum bed thickness shown in below table. 50 mm less bedding may be provided under the sockets of spigot and socket pipes.

Sewer Pipe Bedding Thickness

Pipe Diameter	Minimum bedding
<300mm	150mm
300mm to 500mm	200mm
>500mm	250mm

Granular bedding material **will** be placed and compacted in uniform layers on both sides simultaneously to 50 mm above the top of the pipes. Selected excavated material or approved granular fill will then be placed and compacted above the pipe for the full trench width to not less than 300 mm finished thickness.

Where rock, or similar material is encountered in the excavation bottom, it will be removed for a depth of 150mm. The extra excavation will be backfilled with a properly compacted granular material.

In silty conditions concrete pipe culverts shall be cast in trenches cut into previously constructed and compacted embankment from the subgrade or from an embankment height at least twice the nominal diameter of pipe.
The trench width will be no greater than the external diameter of the pipe plus 300 mm each side when external forms are elected to be used or plus 80 mm each side when external forms are elected not to be used.

If forms are used and trench wider than specified is excavated, backfill to the height of the external haunch of pipe will consist of bedding concrete class 12. If specified, the side walls of the pipe will be increased to fill the channel width. *Over-depth* excavation will be compensated for by increasing the thickness of concrete base or as otherwise instructed by the consultant.

Works will be scheduled so that no excavation is left in an exposed condition for a period greater than 30 days.

If earthworks progress is not integrated with the drainage structural work to the point where the road embankment dams the natural drainage, the consulting engineer may order Moits to open adequate temporary water structure through the roadway at locations

where drainage structures are to be installed.

Damage to the roadway caused by water passing through these openings will be repaired.

BACKFILLING STRUCTURES

Only selected granular materials that **will** produce a stable, dense, backfill **will** be used for structures. In addition, backfill for metal pipe culverts will contain less than 1.5 % of combined chlorides and sulphates.

Selected backfill, which will be subject to the prior approval of the Engineer, will consist of well graded natural sands and gravels, crushed gravel, and crushed rock (but excluding argillaceous rock types) with the properties shown in below table.

SELECT BACKFILL PROPERTIES

Particle size	75mm maximum
Material passing 75mm sieve	15% maximum
Uniform coefficient	10 minimum
10% Fines value	100 kn minimum

No cast in place concrete structures will be subjected to pressures from backfilling until 3 days after expiration of the period designated for removal of forms.

Backfill placed around the culverts, abutments and piers will be deposited on both sides to approximately the same elevation at the same time.

Care will be taken to prevent any wedging action against the structure. Slopes bounding the excavation will be stepped on to prevent such wedge action.

Materials will be placed in layers and compacted by means of rollers, vibrating plates, or mechanical rammers.

Each layer will be compacted to 95% of the MOD. In no case will any layer be uniform and within the optimum moisture range. Box culverts backfill will be completed to the level of the original ground line and to the full width of the excavation area.

If the top of the culvert extends above the original ground line, backfill operation will continue to the top of the culvert and for a width of 3 m on each side of the culvert to the full width of the roadway embankment. At pipe culverts and storm sewers (including metal pipe and metal arch culverts) backfill will be completed around the culvert as specified to the level of original ground line and to the full width of the excavation area.

If the top of the culvert extends above the original ground line, backfill operation will continue to the top of culvert for a width of 1 ½ times the maximum external width of the culvert on each side of the center line of the culvert to the full width of the roadway embankment.

At bridges backfill will be completed to piers and abutments to the level of original ground or to the top elevation of any adjacent embankment if appropriate.

The backfill around retaining walls will be compacted to the finished level shown on the Drawings.

Catch pits, manholes, inlets, and other structures will be backfilled in accordance with methods specified in the project specifications.

Stormwater: Being that stormwater is typically the deepest and largest service being installed on the project, it is the first service to be installed in each stage of the project, using the supplied program of works, stage's 1, 2 & 3 have been chosen to be undertaken first, as it is the lowest point of the stormwater line to be installed. Laying the stormwater line uphill allows the line to be installed as low as practical to avoid conflicts with other services.
Moits methodology for the installation of stormwater lines is to excavate as much of the line as practical in one run. This allows us to identify potential service conflicts to avoid re-work. In the instances of identified conflicts Moits's project engineer and project

manager will undertake an on-site survey and propose possible solutions to Frasers.
Moits will provide hot mix asphalt restoration to all trenched areas for safety, prior to being re sheeting in later stages.

NDD: Moits will undertake industry standard services search for existing services before we open ground, as identified on the drawings we are excavating near an existing tree, which is not identified on the drawings to be removed. The section of stormwater excavation will be undertaken by NDD works, to ensure the protection of the tree roots.

CONSTRUCTION OF RW1 & RW2

Once we are bulked / filled to design levels for wall types RW1 & RW2, our surveyor will mark out the locations of these walls & Moits along with our FRP subcontractors will bench out the footing and prepare subgrade ready for concrete. Following this Dincel will deliver the specified units for our Dincel approved installer to undertake installation.

Following on from this the same approach will be applied for the 300 and 200 series blockwork walls. The wall to the eastern perimeter of site for the fire track is currently noted as keystone facing earth wall, we may propose a reinforced earth wall as these are more cost effective and faster to install. https://www.reco.com.au/reinforced-earth/reinforced-soil-structures/

REMEDIATION EXCAVATION AND MATERIALS MANAGEMENT

Material management will involve working in hazardous conditions, stockpiling asbestos material, over-excavating VENM to create a remediation void, backfilling contaminated material, capping and containing. Moits proposes to contain the contamination within a borrow pit located on the northern side of the site. This ensures that the contamination can be contained outside the building footprint, reducing the program duration and maintaining efficient work.

Moits have completed all these activities on a similar site at 48-Odea Avenue in Waterloo. At this site Moits successfully stockpiled asbestos contaminated material over 7m high for over 6 months, and to minimise public impact spray grass was used to control dust and reduce visual impact as shown below. There were no complaints from the neighbouring residents or council. To cap and contain the material four separate basement excavations were over excavated to provide sufficient remediation void volume for the 30,000m3 of material.

Moits will emulate our successful methodology on this project to deliver the ECQ Stage 3 project with minimal contaminated material export.

Following piling works, all contaminated material will be excavated and properly stockpiled on site. Contaminated areas are to be always surrounded with hoarding or temporary fencing with shade cloth. Asbestos to be wetted down prior to and during disturbance and stockpiles will be covered with geotextile fabric if they are to be left for more than one day. Ring mains will be established for water supply and containment areas will have sprinklers fitted where required.

Once the required depth of borrow pit has been achieved, Moits will back fill the contaminated material within the pit. The backfilling works will use Moits trucks to transfer material. The material will be tipped within a cordoned contaminated zone adjacent to location The material will be lowered into the remediation void where rollers, a D65 bulldozer, 30T excavator and a dump truck will work within the remediation void to spread and compact the material. The plant used for the backfilling works has been selected to ensure that productivity is maintained throughout the life of the project. Moits will utilise geotechnical supervision in the upper layers of the backfill, cover with geofabric, and cap with a blinding slab / DGB / VENM

Workplace Contamination – Working Under Class-B Friable Conditions

All fill on the site has been classed as homogenous material determined to contain friable asbestos.

Air monitors to be always in place during work. Moits will install modular decontamination units to the entry/exits to work areas. All persons engaged in ACM work must wear respirators, coveralls, protective gloves, safety footwear etc. in accordance with their ARCP & SWMS. Where practical, disposable protective clothing should be used. Where equipment is not disposable (e.g., some respirators & safety footwear), this must be decontaminated and maintained.

All personnel involved in the project will have nationally recognised asbestos awareness training along with silica dust training. All machines working in contaminated areas will be HEPA filter equipped.

Figure 1: Hazmat Controls

Figure 2: Ring sprinkler system

DEFECTS MANAGEMENT

Moits' policy is to encourage and support a culture of "right first time" every time.

The starting point is to agree definitions and targets, which are established between the Client and Moits through approved samples, prototypes, and handover dates. Moits will prepare a list of apparent defects and rectify all defects on the list and issue a copy to the Project Manager prior to Practical Completion.

The site team will remain onsite until OC. The Site team will also prepare all required documentation for PC and Handover to ensure there is a smooth transition for the principal's staff and residents.

HANDOVER

A properly controlled handover process will need to be undertaken after the completion of the infrastructure and civil roadwork finishes. Handover is comprised of several different activities, including defect inspection and rectification, testing and commissioning, pre-handover inspections and final cleans. These are all essential parts of the project required to ensure the proposed works have been completed and Moits will dedicate focus to ensuring that each of the Separable Portion Handovers are controlled and of the highest quality, ultimately making Frasers role stress free and enabling the future project handovers to run smoothly.

EXISTING SERVICES MANAGEMENT

We don't foresee this being an issue, but as always, Moits will seek the relevant information to make sure the areas are safe to excavate. Regardless of DBYD and service plan information, Moits will complete due diligence with service scanning and excavation permits prior to any cutting and demolition work.

GENERAL PROJECT MANAGEMENT OVERVIEW

Project Management including management of risks and plans for timely delivery.

This project will be supervised by Moits Site Manager whose overall responsibility will be to ensure that the project is completed in a safe, timely manner and to the highest standard possible. They will ensure that site specific Risk Assessments, Toolbox Meetings and Safe Work Method Statements are provided to our clients before any work commences.

The project will be broken up into weekly/daily tasks and these tasks will be carried out and completed on the day/week which has been programmed. MOITS will allocate additional staff/time to ensure that these targets are met.

CONSTRUCTION PROGRAM

Please refer to the program provided as a separate document as per Item 9 from latest CC1 Checklist Rev A 6.2.24.

EQUIPMENT

MOITS owns the equipment it intends to deploy to perform the contract work, which eliminates any delays that could occur if purchasing/hiring plant was required.

- 30 Ton excavators
- 20 Ton excavators
- Moxy dump trucks
- D65
- Skip bins
- Small tools
- Road saw(s) various sizes

DEFECTS AND REPORTING

Whilst undertaking the works or during the project supervisor's audit any defects will be recorded on our defects spread sheet and reported to our clients on a fortnightly basis. Any urgent issues will be raised immediately with the superintendent, any noted defects will be rectified promptly.

Development of Safety, Quality, Environmental, Risk Management (SQER) Plan
A contract SQER plan will be prepared and submitted to the nominated Officer for approval.

STANDARDS AND REGULATIONS

All works will be carried out in accordance with the general service objectives and compliance with Australian Standards.

OHS MANAGEMENT

MOITS actively accepts its responsibilities and obligations to ensure, as far as it is practicable, the health, safety and welfare of all its employees.
To achieve this, the following is undertaken:

- Provide and maintain a safe work environment, including work conditions, practices and procedures for all employees.
- Ensure that priority is given to the training and education of employees in safe and healthy work practices and procedures, to help develop safety awareness throughout the whole company.
- Upon commencement of employment, all employees must undertake a rigorous course on safety and maintenance aspects in relation to the handling and correct operation of machinery.
- Through the process of Health and Safety audits, reviews will occur to identify and eliminate, so far as is practicable, potential hazards in the working environment.
- Ensure that all employees are holders of the current WH&S Induction for Construction course and understand the standards set for safety by the company and understand their responsibilities and accountability concerning health and safety in the workplace.
- Ensure that accident prevention, reporting and emergency procedures are understood and complied with by all employees. In the event of accidents, a positive approach to the rehabilitation process will occur.

COMMITMENT REQUIRED BY OUR EMPLOYEES

- Follow company rules and regulations at all times.
- Maintain a safe and tidy work environment.
- Ensure that they are able to undertake set tasks safely and correctly before they commence.
- Report all hazards and give ideas on how to improve safety to their foreman or safety representatives.
- Report all accidents/incidents to their foreman and notify insurer of any injury within 7 days and within 48 hours for significant injuries.

JOINT SITE INSPECTION LIST

As per our communication channels, MOITS has allocated its Project Manager control of the project. MOITS encourages clients to be involved in decision making at crucial points of the construction phase. It is anticipated that a meeting with your representative will be held at the end of each week to inspect the works carried out. A Works Program will be given to a representative to sign off upon satisfactory completion of each initial stage.

PROVISION FOR OUT OF HOURS CONTACTS

Communication will be carried out via email. Emails sent to MOITS will be responded to within 24 hours. Emergency responses can be communicated via mobile phone to MOITS company representatives 7 days per week. Any public complaints will be addressed immediately. Our head office is open Monday to Friday between the hours of 7.00 am to 5.00 pm.

MOITS will provide an after-hours contact number for any emergencies that may arise outside of normal working hours.

20 End of Document:

END OF DOCUMENT.

Appendix 1.2 – Construction Noise & Vibration Management Sub Plan

MATTHEW PALAVIDIS
VICTOR FATTORETTO
MATTHEW SHIELDS

Eastern Creek Quarter - Stage 3

Construction Noise & Vibration Management Sub-Plan

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Project ID	20240425.1
Document Title	Construction Noise & Vibration Management Sub-
Attention To	Moits Pty Ltd

Revision	Date	Document Reference	Prepared By	Checked By	Approved By
0	2/05/2024	20240425.1/0205A/R0/RW	RW	AW	
1	15/05/2024	20240425.1/1505A/R1/RW	RW		AW

TABLE OF CONTENTS

1 INTRODUCTION

Acoustic Logic Consultancy has been engaged to prepare a Noise and Vibration Management Sub-Plan for Lot 3 of the Eastern Creek Quarter Site at Rooty Hill Road South, Eastern Creek to satisfy consent conditions for SSD 31515622. This report addresses condition C19.

The issues which will be addressed in this report are:

- Identification of the noise and vibration standards which will be applicable to this project.
- Identification of potentially impacted nearby developments.
- Identify likely sources of noise and vibration generation and predicted noise levels at nearby development.
- Formulation of a strategy to comply with the standards identified and mitigation treatments in the event that compliance is not achievable.

2 SITE DESCRIPTION

We note that this report will primarily address early works on the site.

Refer to Figures 1 and 2 for detail.

The overall project duration is envisioned to be 7 months and the relevant construction activities are as follows:

- Tree protection/removal.
- Remediation works.
- Bulk earthworks.
- Stormwater comprising of culverts.
- Retaining block/Dincel wall construction.

The hours of construction are outlined in section 4.2

2.1 RECEIVER LOCATIONS

Noise sensitive receivers are generally located west of the proposed development across Rooty Hill Road. Residential dwellings at this location are typically single storey, however a limited number of two storey dwellings have also been constructed. There is a single residential dwelling located on the corner of Beggs Road and Rooty Hill Road South, on the boundary of Eastern Creek Quarter Stage 1 works. We note that there is a 2.5m high acoustic screen constructed on the eastern boundary of this property, which faces the proposed Beggs Street loading dock.

Noise levels in the vicinity of the site are generally dominated by traffic noise impacts from Rooty Hill Road South.

Refer to Figures 1, 2 & 3 for detailed project siting, layouts and noise receiver locations.

Proposed Site Boundaries

Residential Receivers

Figure 1 – Site Survey and Unattended Measurement Locations

Unattended Noise Monitor

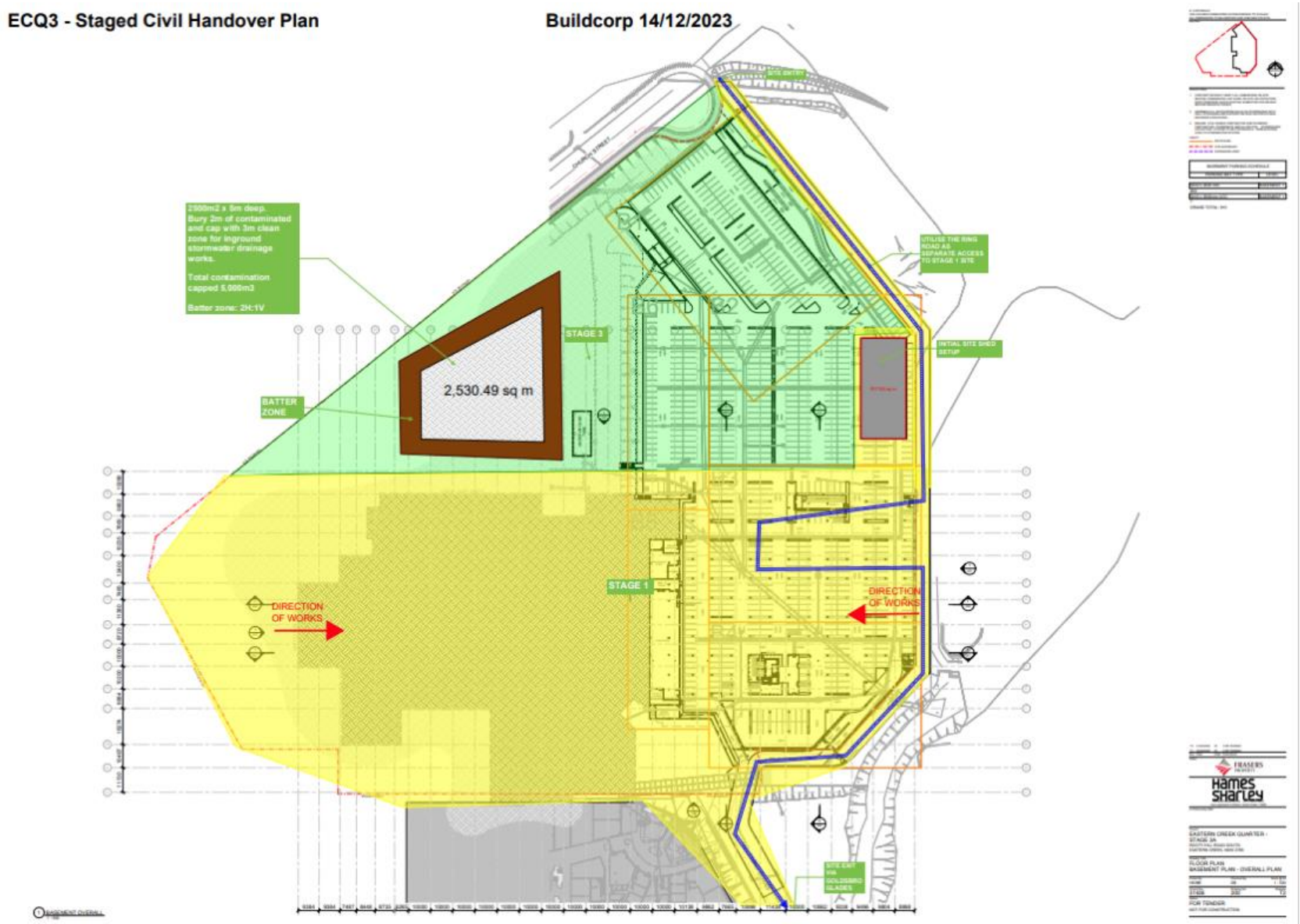


Figure 2 – Staging Plan

3 BACKGROUND NOISE MEASUREMENT

Unattended noise monitoring was conducted over an eleven-day period between 17th to the 27th July, 2020 using Acoustic Research Laboratories monitors set on A-weighted fast response mode. The monitor was calibrated before and after the measurements using a Rion Type NC-73 calibrator. No significant drift was recorded. Weather affected data has been excluded in line with the requirements of Factsheets A & B of the NSW EPA Noise Policy for Industry. Detail of the noise monitoring results is presented in the approved acoustic report for SSD 10547.

Measured noise levels are presented in the table below.

Table 1 – Measured Background Noise Levels, dB(A) L_{90}

Location	Period/Time	Background noise level dB(a) L_{90}
Eastern Creek Retail, Stage 1	Day (7am to 6pm)	49

4 CONSENT CONDITIONS

4.1 CONSTRUCTION NOISE AND VIBRATION MANAGEMENT SUB-PLAN

C19. *Prior to the commencement of any earthwork or construction, the Applicant must submit to the Certifying Authority a Construction Noise and Vibration Management Sub-Plan (CNVMP) for the development. A copy of the CNVMP must be submitted to the Planning Secretary for information. The Sub-Plan must include:*

(a) all recommendations detailed in the Noise Impact Assessment, prepared by Acoustic Logic, rev 3 dated 31 August 2023 to manage construction activities for the site with particular emphasis on activities that are anticipated to exceed highly noise affected levels under the EPA's Interim Construction Noise Guide
(b) identification of the specific activities that will be carried out and their associated noise sources at the site
(c) identification of all potentially affected sensitive residential receiver locations, including the Eastern Creek Public School
(d) quantification of the rating background noise level (RBL) for sensitive receivers, as part of the Sub-Plan, or as undertaken in the EIS and RtS
(e) the construction noise and vibration objectives derived from an application of the EPA Interim Construction Noise Guideline (ICNG), as reflected in this development consent
(f) prediction and assessment of potential noise, ground-borne noise (as relevant) and vibration levels from the proposed construction methods expected at sensitive receiver premises against the objectives identified in the ICNG and this development consent
(g) where objectives are predicted to be exceeded, an analysis of feasible and reasonable noise mitigation measures that can be implemented to reduce construction noise and vibration impacts
(h) description of management methods and procedures, and specific noise mitigation treatments/measures that can be implemented to control noise and vibration during construction
(i) where objectives cannot be met, additional measures including, but not necessarily limited to, the following must be considered and implemented where practicable; reduce hours of construction, the provision of respite from noise/vibration intensive activities, acoustic barriers/enclosures, alternative excavation methods or other negotiated outcomes with the affected community
(j) measures to identify non-conformances with the requirements of the Sub-Plan, and procedures to implement corrective and preventative action
(k) suitable contractual arrangements to ensure that all site personnel, including sub-contractors, are required to adhere to the noise management provisions in the Sub-Plan
(l) procedures for notifying residents of construction activities that are likely to affect their noise and vibration amenity
(m) measures to monitor noise performance and respond to complaints
(n) measures to reduce noise related impacts associated with offsite vehicle movements on nearby access and egress routes from the site
(o) procedures to allow for regular professional acoustic input to construction activities and planning
(p) effective site induction, and ongoing training and awareness measures for personnel (e.g. toolbox talks, meetings etc).

The CNVMP must include a table summarising the location of each of the items listed above within the plan. A copy of the final endorsed CNVMP, shall be submitted to the certifying Authority, the Secretary, Council and TfNSW, prior to the commencement of works.

4.2 CONSTRUCTION HOURS

Hours of Construction

D3. *Construction, including the delivery of materials or machinery to and from the site, must only be carried out between the following hours:*

(a) Between 7am and 6pm, Mondays to Fridays inclusive; and

(b) Between 8am and 3.30pm, Saturdays.

D4. *No work can be carried out on Sundays or public holidays.*

D5. *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.

D6. *Notification of activities undertaken in the circumstances in Condition D5 must be given to affected residents before undertaking the activities or as soon as is practical afterwards.*

D7. *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.

4.3 CONSTRUCTION TRAFFIC

D38. *All construction vehicles (excluding worker vehicles) are to be contained wholly within the site, except if located in an approved on-street work zone, and vehicles must enter the site before stopping.*

4.4 CONSTRUCTION NOISE LIMITS

D15. *The development must be constructed to achieve the construction noise management levels detailed in the Interim Construction Noise Guideline (DECC, 2009). All feasible and reasonable noise mitigation measures must be implemented and any activities that could exceed the construction noise management levels must be identified and managed in accordance with the management and mitigation measures identified in the approved CNVMP.*

D16. *The Applicant must ensure construction vehicles (including concrete agitator trucks) do not arrive at the site or surrounding residential precincts outside of the construction hours of work outlined under condition C3.*

D17. *The Applicant must implement, where practicable and without compromising the safety of construction staff or members of the public, the use of 'quackers' to ensure noise impacts on surrounding noise sensitive receivers are minimised.*

D18. *The Applicant must ensure that any work generating high noise impact (i.e. work exceeding a NML of LAeq 75 dBA) as measured at any sensitive receiver is only undertaken in continuous blocks of no more than 3 hours, with at least a 1 hour respite between each block of work generating high noise impact, where the location of the work is likely to impact the same receivers. For the purposes of this condition 'continuous' includes any period of which there is less than 1 hour respite between ceasing and recommencing any of the work the subject of this condition.*

D19. *Any noise generated during construction of the development must not be offensive noise within the meaning of the Protection of the Environmental Operations Act 1997 or exceed approved noise limits for the site.*

4.5 VIBRATION CRITERIA

D20. *Vibration caused by construction at any residence or structure outside the site must be limited to:*

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

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

D21. *Vibratory compactors must not be used closer than 30 metres from residential or heritage buildings unless vibration monitoring confirms compliance with the vibration criteria specified above. Thes limits apply unless otherwise outlined in the project specific CNVMP required by this consent.*

5 NOISE AND VIBRATION CRITERIA

5.1 EPA INTERIM CONSTRUCTION NOISE GUIDELINE (DECC, 2009)

The EPA Interim Construction Noise Guideline (ICNG) assessment requires:

- Determination of noise generation goals (based on ambient noise monitoring).
- Review of operational noise levels at nearby development.
- If necessary, recommendation of noise controls strategies in the event that compliance with noise emission goals is not possible.

Residential noise management levels are based on the "rating background noise level" ("*RBL*") applicable to the receivers. RBL's are typically determined by measuring the ambient noise environment using the methodology in the EPA NPfI.

EPA guidelines adopt differing strategies for noise control depending on the predicted noise level at the nearest residences:

- *"Noise affected" level*. Where construction noise is predicted to exceed the "noise effected" level at a nearby residence, the proponent should take reasonable/feasible work practices to ensure compliance with the "noise effected level". For residential properties, the "noise effected" level occurs when construction noise exceeds ambient levels by more than 10dB(A)$L_{eq(15min)}$.
- "*Highly noise affected level*". Where noise emissions are such that nearby properties are "highly noise effected", noise controls such as respite periods should be considered. For residential properties, the "highly noise effected" level occurs when construction noise exceeds 75dB(A)$L_{eq(15min)}$ at nearby residences.

In addition to the above goals for residential receivers, the ICNG nominates a Management Level of 45dB(A) $L_{eq(15min)}$ internally for School Classrooms.

A summary of relevant construction noise management levels is presented below. In order to present a conservative assessment, the lowest daytime rating background noise level determined from monitoring has been used as a basis for calculation of the 'Noise Affected Level'.

Table 2 – Noise Management Levels

Location	"Noise Affected" Level - dB(A)$L_{eq(15min)}$	"Highly Noise Affected" Level - dB(A)$L_{eq(15min)}$
All Residential Receivers	59	75
Commercial	65	-
School Classroom	45 (Internal) 55 (External)	-

If noise levels exceed the criteria identified in the tables above, reasonable and feasible noise management techniques will be reviewed.

5.2 VIBRATION

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

- For structural damage vibration, German Standard DIN 4150-3 *Structural Vibration: Effects of Vibration on Structures; and*
- For human exposure to vibration, the evaluation levels presented in the British Standard BS 6472:1992 *Guide to Evaluate Human Exposure to Vibration in Buildings (1Hz to 80Hz)* for low probability of adverse comment.

5.2.1 Structure Borne Vibrations (Building Damage Criteria)

German Standard DIN 4150-3 (1999-02) provides vibration velocity guideline levels for use in evaluating the effects of vibration on structures. The criteria presented in DIN 4150-3 (1999-02) are presented in Table 4.

It is noted that the peak velocity is the value of the maximum of any of the three orthogonal component particle velocities as measured at the foundation, and the maximum levels measured in the x- and y-horizontal directions in the plane of the floor of the uppermost storey.

Table 3 – DIN 4150-3 (1999-02) Safe Limits for Building Vibration

TYPE OF STRUCTURE		PEAK PARTICLE VELOCITY (mms^{-1})			
		At Foundation at a Frequency of			**Plane of Floor of Uppermost Storey**
		< 10Hz	**10Hz to 50Hz**	**50Hz to 100Hz**	**All Frequencies**
1	Buildings used in commercial purposes, industrial buildings and buildings of similar design	20	20 to 40	40 to 50	40
2	Dwellings and buildings of similar design and/or use	5	5 to 15	15 to 20	15
3	Structures that because of their particular sensitivity to vibration, do not correspond to those listed in Lines 1 or 2 and have intrinsic value (e.g. buildings that are under a preservation order)	3	3 to 8	8 to 10	8

The surrounding commercial/industrial buildings would be considered a Type 1 structure, whilst nearby residences would be classified as a type 2 structure.

5.2.2 Assessing Amenity

The NSW EPA document "*Assessing Vibration: A Technical Guideline*" provides procedures for assessing tactile vibration and regenerated noise within potentially affected buildings and is used in the assessment of vibration impact on amenity.

Relevant criteria are presented below.

Table 4 – EPA Recommended Vibration Criteria

		RMS acceleration (m/s^2)		RMS velocity (mm/s)		Peak velocity (mm/s)	
Place	Time	Preferred	Maximum	Preferred	Maximum	Preferred	Maximum
Continuous Vibration							
Residences	Daytime	0.01	0.02	0.2	0.4	0.28	0.56
Offices		0.02	0.04	0.4	0.8	0.56	1.1
Workshops		0.04	0.08	0.8	1.6	1.1	2.2
Impulsive Vibration							
Residences	Daytime	0.3	0.6	6.0	12.0	8.6	17.0
Offices		0.64	1.28	13.0	26.0	18.0	36.0
Workshops		0.64	1.28	13.0	26.0	18.0	36.0

6 NOISE & VIBRATION ASSESSMENT AND RECOMMENDATIONS

6.1 ACTIVITIES TO BE CONDUCTED AND THE ASSOCIATED NOISE SOURCES

For this project, the most significant sources of noise or vibration generated during earthworks. The following table presents assessment noise levels for typical construction equipment expected to be used during the construction of the proposal.

Table 5 – Sound Power Levels of the Typical Equipment

Equipment / Process	Sound Power Level dB(A)
Excavator Mounted Hammer	120
Trucks	100
Powered Hand Tools	95-100

The noise levels presented in the below table are derived from the following sources, namely:

- Table A1 of Australian Standard 2436-2010.
- Data held by this office from other similar studies.

Noise levels take into account correction factors (for tonality, intermittency where necessary).

6.2 NOISE IMPACT ASSESMENT

The predicted noise levels during excavation and construction will depend on:

- The activity undertaken.
- The distance between the work site and the receiver. The distance between the noise source and the receiver will vary depending on which end of the site the work is undertaken. For this reason, the predicted noise levels will be presented as a range.

Predicted noise levels are presented in the following tables. Predictions take into account the expected noise reduction as a result of distance and the internal noise reduction where indicated

Table 6 – Predicted Noise Generation to Residential Receivers (R1)

Activity	Predicted Level dB(A) $L_{eq(15min)}$ (External)	Comment
Excavator Mounted Hammer	61 - 82	Exceeds HNAML when working close to the southern boundary
Trucks	41 – 62	Within NAML
Powered Hand Tools (Externally)	41 – 62	Within NAML

Table 7 – Predicted Noise Generation to Residential Receivers (R2)

Activity	Predicted Level dB(A) $L_{eq(15min)}$ (External)	Comment
Excavator Mounted Hammer	60 - 76	Marginal exceedance of the HNAML when working close to boundary
Trucks	40 – 56	Within NAML
Powered Hand Tools (Externally)	40 – 56	Within NAML

Table 8 – Predicted Noise Generation to Eastern Creek Public School

Activity	Predicted Level dB(A) $L_{eq(15min)}$ (External)	Comment
Excavator Mounted Hammer	45 - 50	Below NAML at all times.
Trucks	< 40	
Powered Hand Tools (Externally)	< 40	

6.3 DISCUSSION – NOISE

For noise impacts to residential receivers external to site

Proposed equipment to be used during groundworks phase of the development is expected to exceed noise management limits. Noise impacts to surrounding receivers is expected during this time, however we note the following;

- Excavation activities are intended to be scheduled, and as such a notification process will be possible to assist surrounding receivers to manage noise impacts.

For noise impacts to school buildings

No exceedance is expected during the duration of the works.

6.4 DISCUSSION – VIBRATION

The proposed construction activities would not be expected to generate levels of vibration which would exceed the structural damage or human comfort/amenity criterion identified in Section 5.2.

6.5 RECOMMENDATIONS

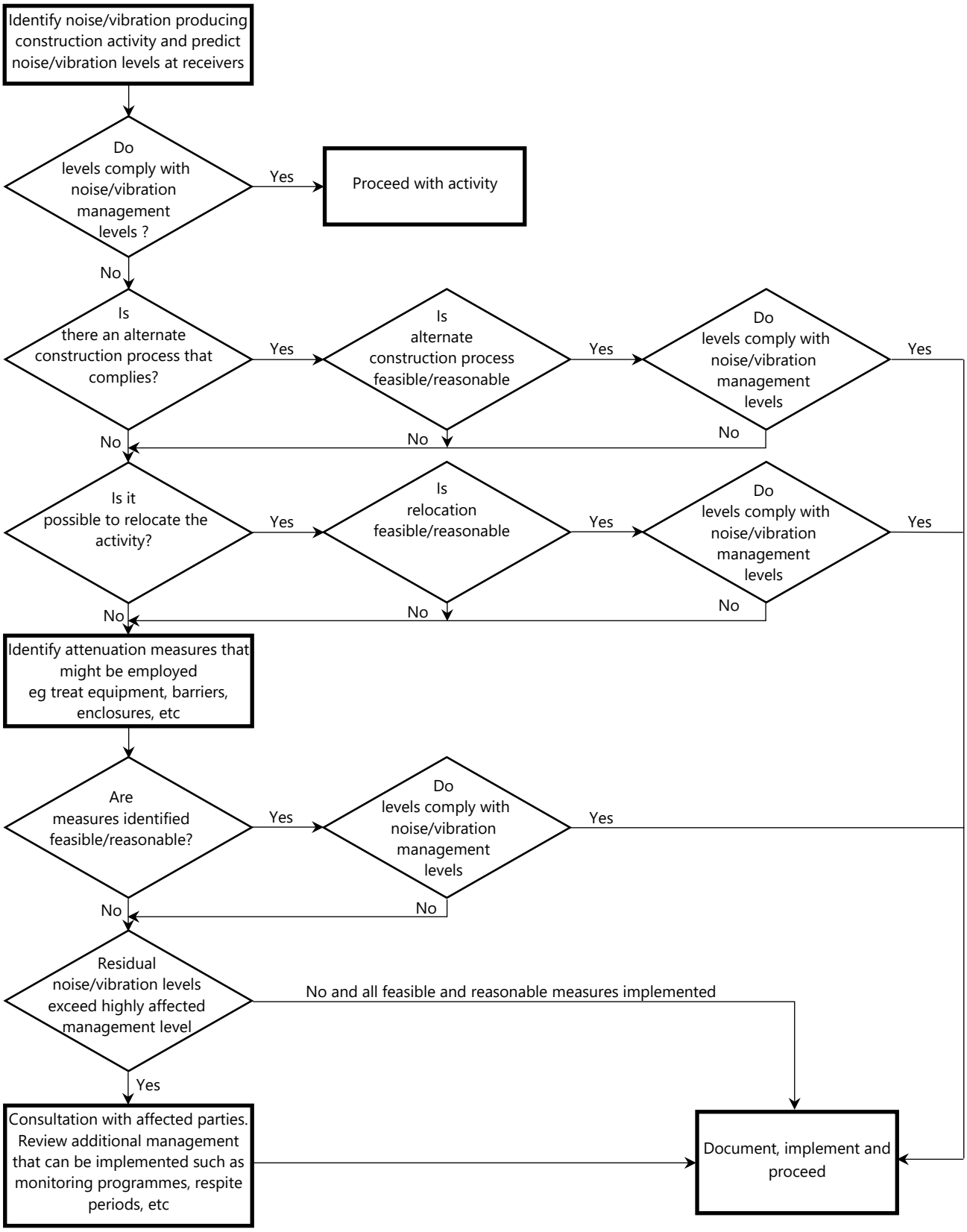
Exceedances to the 'Noise Affected Management Level' are expected when concrete pumping occurs close to the eastern site boundaries. Higher noise generating activities (such as hammering or excavation of rock) may exceed the highly noise affected management level if undertaken in close proximity to residential receivers. Where located in northern or eastern portions of the site, exceedance of the HNAML is unlikely.

In light of the above, the following recommendations are made:

- If regular and continuous exceedance of the HNAML are anticipated during the excavation/in-ground portion of the works, the implementation of respite periods should be considered, in line with Condition D18.
- Quiet work methods/technologies:
    - Materials handling/vehicles:
        - Trucks and bobcats to use a non-tonal reversing beacon (subject to OH&S requirements) to minimise potential disturbance of neighbours.
        - Avoid careless dropping of construction materials into empty trucks.
        - Trucks, trailers and concrete trucks (if feasible) should turn off their engines during idling to reduce noise impacts (unless truck ignition needs to remain on during concrete pumping).
- Complaints handling - In the event of complaint, the procedures outlined in section 7 should be adopted.
- Site Induction:
    - A copy of the Noise Management Plan is to be available to contractors. The location of the Noise Management Plan should be advised in any site induction.
    - Site induction should also detail the site contact is to be notified in the event of noise complaint.

6.6 CONTROL OF CONSTRUCTION NOISE AND VIBRATION – PROCEDURAL STEPS

The flow chart presented below illustrates the process that will be followed in assessing construction activities.



7 COMMUNITY INTERACTION AND COMPLAINTS HANDLING

7.1 ESTABLISHMENT OF DIRECT COMMUNICATION WITH AFFECTED PARTIES

In order for any construction noise management programme to work effectively, continuous communication is required between all parties which may be potentially impacted upon, Moits, Frasers Property Australia and the regulatory authority. This establishes a dynamic response process which allows for the adjustment of control methods and criteria for the benefit of all parties.

The objective in undertaking a consultation processes is to:

- Inform and educate the groups about the project and the noise controls being implemented;
- Increase understanding of all acoustic issues related to the project and options available;
- Identify group concerns generated by the project, so that they can be addressed; and
- Ensure that concerned individuals or groups are aware of and have access to the Complaints Register which will be used to address any construction noise related problems should they arise.

It is noted that Frasers Property Australia will be undertaking this process.

7.2 ADDRESSING COMPLAINTS

Should ongoing complaints of excessive noise or vibration criteria occur immediate measures shall be undertaken to investigate the complaint, the cause of the exceedances and identify the required changes to work practices. In the case of exceedances of the vibration limits all work potentially producing vibration shall cease until the exceedance is investigated.

The effectiveness of any changes shall be verified before continuing. Documentation and training of site staff shall occur to ensure the practices that produced the exceedances are not repeated.

If a noise complaint is received the complaint should be recorded on a Noise Complaint Form. The complaint form should list:

- The name and address of the complainant (if provided);
- The time and date the complaint was received;
- The nature of the complaint and the time and date the noise was heard;
- The name of the employee who received the complaint;
- Actions taken to investigate the complaint, and a summary of the results of the investigation;
- Required remedial action, if required;
- Validation of the remedial action; and
- Summary of feedback to the complainant.

A permanent register of complaints should be held.

All complaints received should be fully investigated and reported to management. The complainant should also be notified of the results and actions arising from the investigation.

The investigation of a complaint shall involve where applicable;

- Noise measurements at the affected receiver;
- An investigation of the activities occurring at the time of the incident;
- Inspection of the activity to determine whether any undue noise is being emitted by equipment; and
- Whether work practices were being carried out either within established guidelines or outside these guidelines.

Where an item of plant is found to be emitting excessive noise, the cause is to be rectified as soon as possible. Where work practices within established guidelines are found to result in excessive noise being generated then the guidelines should be modified so as to reduce noise emissions to acceptable levels. Where guidelines are not being followed, the additional training and counselling of employees should be carried out.

Measurement or other methods shall validate the results of any corrective actions arising from a complaint where applicable.

7.3 CONTINGENCY PLANS

Where non-compliances or noise complaints are raised the following methodology will be implemented.

1. Determine the offending plant/equipment/process
2. Locate the plant/equipment/process further away from the affected receiver(s) if possible.
3. Implement additional acoustic treatment in the form of localised barriers, silencers etc. where practical.
4. Selecting alternative equipment/processes where practical
5. If necessary, setup noise/vibration monitoring devices at locations representing the nearest noise/vibration affected receivers and provide data for each complain time period. Analysis is required to determine suitable mitigation measures.

Complaints associated with noise/vibration generated by site activities shall be recorded on a Complaint Form. The person(s) responsible for complaint handling and contact details for receiving of complaints shall be established on site prior to construction works commencing. A sign shall be displayed at the site indicating the Site Manager to the general public and their contact telephone number.

8 ADDITIONAL NOISE AND VIBRATION CONTROL METHODS

In the event of complaints, there are a number of noise mitigation strategies available which can be considered.

The determination of appropriate noise control measures will be dependent on the particular activities and construction appliances. This section provides an outline of available methods.

8.1 SELECTION OF ALTERNATE APPLIANCE OR PROCESS

Where a particular activity or construction appliance is found to generate excessive noise levels, it may be possible to select an alternative approach or appliance. For example; the use of a hydraulic hammer on certain areas of the site may potentially generate high levels of noise. Undertaking this activity using bulldozers, ripping and/or milling machines will result in lower noise levels.

8.2 ACOUSTIC BARRIER

Given the position of adjacent development, it is unlikely that noise screens will provide significant acoustic benefit for commercial or residential receivers, but will provide noticeable improvement for those on ground level.

The placement of barriers at the source is generally only effective for static plant. Equipment which is on the move or working in rough or undulating terrain cannot be effectively attenuated by placing barriers at the source.

Barriers can also be placed between the source and the receiver.

The degree of noise reduction provided by barriers is dependent on the amount by which line of sight can be blocked by the barrier. If the receiver is totally shielded from the noise source reductions of up to 15dB(A) can be effected. Where only partial obstruction of line of sight occurs, noise reductions of 5 to 8dB(A) may be achieved. Where no line of sight is obstructed by the barrier, generally no noise reduction will occur.

As barriers are used to provide shielding and do not act as an enclosure, the material they are constructed from should have a noise reduction performance that is approximately 10dB(A) greater than the maximum reduction provided by the barrier. In this case the use of a material such as 10mm or 15mm thick plywood (radiata plywood) would be acceptable for the barriers.

8.3 MATERIAL HANDLING

The installation of rubber matting over material handling areas can reduce the sound of impacts due to material being dropped by up to 20dB(A).

8.4 TREATMENT OF SPECIFIC EQUIPMENT

In certain cases it may be possible to specially treat a piece of equipment to dramatically reduce the sound levels emitted.

8.5 ESTABLISHMENT OF SITE PRACTICES

This involves the formulation of work practices to reduce noise generation. A more detailed management plan will be developed for this project in accordance to the construction methodology outlining work procedures and methods for minimising noise.

8.6 COMBINATION OF METHODS

In some cases it may be necessary that two or more control measures be implemented to minimise noise.

9 CONCLUSION

A noise and vibration assessment has been undertaken of the proposed construction works to be undertaken for Lot 3 of the Eastern Creek Quarter Site at Rooty Hill Road South, Eastern Creek to satisfy consent conditions for SSD 31515622. This report addresses compliance with condition C19.

Potential noise and vibration impact on nearby development have been assessed. Provided that the mitigation techniques recommended in sections above are adopted, noise and vibration impact on the nearby noise sensitive receivers are expected to be acceptable.

Please contact us should you have any further queries.

Yours faithfully,

Acoustic Logic Pty Ltd
Ryan Williams

Appendix 1.3 – Air Quality Management Sub Plan

Air Quality Management Plan (AQMP)

Eastern Creek Quarter – Stage 3

Prepared for: Moits Pty Ltd

Job Number: A101024.0214.00 v1F **| Date:** 15/05/2024

ADE CONSULTING GROUP

Document Information

Report Title: Air Quality Management Plan (AQMP)
Prepared for: Moits Pty Ltd
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v2d	10/05/2024	Danielle Nguyen	Draft for client review	Stephen Bowly
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For and on behalf of

ADE Consulting Group Pty Ltd

Prepared by:

Elin Griffiths
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Reviewed by:

Stephen Bowly
Principal Consultant

Contents

Tables

Abbreviations

ACM	Asbestos-containing materials
ADE	ADE Consulting Group Pty Ltd
AF	Asbestos fines
AQMP	Air Quality Management Sub-Plan
CO	Carbon monoxide
ECQ	Eastern Creek Quarter
EMP	Environmental Management Plan
EP&A Act	Environmental Protection
FA	Friable asbestos
NEPC	National Environmental Protection Councils
NO_x	Nitrogen oxides
NOHSC	National Occupational Health and Safety Commission
NSW EPA	NSW Environmental Protection Agency
SAR	Site Audit Report
SO2	Sulphur dioxide
SVOC	Semi-Volatile Organic Compound
VOC	Volatile Organic Compound
POEO Act	Protection of the Environmental Operations Act 1997
WHS Act	Work Health and Safety Act 2011

1 Introduction

1.1 Context

ADE Consulting Group Pty Ltd (ADE) was engaged by Moits Pty Ltd (the client) to provide environmental consultancy services associated with the proposed development of the Stage 3 of the commercial/industrial Eastern Creek Quarter (ECQ) Retail Development (the site). The Eastern Creek Quarter redevelopment currently comprises three stages of development. Stages 1 and 2, comprising retail and entertainment areas, have been completed.

The site comprises an area of approximately eight hectares (ha) and is located at Lot 3 of the Eastern Creek Business Hub, 141 Rooty Hill Road South, Eastern Creek, Blacktown NSW and is legally identified as part Lot 1 in DP1260111 and part Lot 12 in DP 1245264. The site was formerly used for livestock grazing, poultry farming, agricultural use, and rural residential purposes. Currently the site is understood to be vacant awaiting redevelopment. Stages 2 and 3 of the ECQ Retail Development have been the subject of a Site Audit Statement (SAS 0503-1301-AI, JBS&G 20171), certifying the site was suitable for commercial/industrial use.

It is understood that historic remediation undertaken at the site circa 2017 was related to fill impacted by asbestos containing materials (ACM), although potential for additional impacted areas to be encountered was noted in the Site Audit Report (SAR). An environmental management plan (EMP, WSP 2017) was prepared for the broader ECQ development site, in part, to ensure appropriate steps are followed in the event that further contamination is uncovered during the future site development and/or ground disturbance works following development. The provisions of the EMP are legally enforceable, since they form a condition of the Site Audit statement (SAS, JBS&G 2017).

The environmental investigations undertaken to date have suggested that contaminants on site primarily relate to asbestos. The management of asbestos will be documented in the site's Asbestos Management Plan (AMP). Consequently, no other emissions to air of contaminants of potential concern in the soil are considered within this Air Quality Management Plan (AQMP). Only air emissions typically associated with construction activities, such as dust and odour, will be considered within this AQMP.

1.2 Development Consent Requirements

Consent condition C20 of the development consent conditions (SSD 31515622) requires an Air Quality Management Sub-Plan (AQMP) to be prepared for the development. Consent condition C20 'Air Quality Management Sub-Plan' details the requirements of the document, as follows:

Table 1-1 Development Consent Conditions

Development Consent Condition	Response
C20. Prior to the commencement of any earthwork or construction, the Applicant must submit to the satisfaction of the Certifying Authority an Air Quality Management Sub-Plan (AQMP) for the development. A copy of the AQMP must be submitted to the Planning Secretary for information. The Sub-Plan must include, as a minimum, the following elements:	N/A
(a) be prepared by a suitably qualified and experienced expert in accordance with the EPA's Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (the Approved Methods)	The report has been prepared by suitably qualified environmental consultants, experienced in air quality assessment and management, and informed by NSW EPA (2022) Approved Methods for the Modelling and Assessment of Air Pollutants in NSW.
(b) relevant environmental criteria to be used in the day-to-day	Presented in Table 5

Development Consent Condition	Response
management of dust and volatile organic compounds (VOC/odour)	
(c) mission statement	Presented in Section 1.4 as 'Purpose'
(d) dust and VOCs/odour management strategies consisting of: *(i) objectives and targets* *(ii) risk assessment* *(iii) suppression improvement plan* *(iv) monitoring requirements including assigning responsibility (for all employees and contractors)* *(v) communication strategy* *(vi) system and performance review for continuous improvements.*	(i) Section 1.5 and 1.6 (ii) Section 4 (iii) Section 4.1.1 and Table 4 (iv) Table 4 (v) Section 5.3 and 5.4 (vi) Section 6
C21. The AQMP must detail management practices to be implemented for all dust and VOC/odour sources at the site. The AQMP must also detail the dust, odour, VOC and semi-volatile organic compounds (SVOC) monitoring program (e.g. frequency, duration and method of monitoring) to be undertaken for the project.	Management practices are presented in Section 4. The monitoring program is presented in Section 4
C22. The Applicant must also develop and implement an appropriate comprehensive Reactive Air Quality and Odour Management Plan which will incorporate an Ambient Air Monitoring Program and Reactive Management Strategy to ensure that the assessment criteria are met during the works.	Presented in Section 4

1.3 Site Description

The site location is shown in **Figure 1** (**Appendix A**). The site details are summarised in **Table 1-2** and described in detail in the following sections.

Table 1-2 Summary site details

Lot/Deposited Plan	part Lot 1 in DP1260111 and part Lot 12 in DP 1245264
Address	Lot 3 of the Eastern Creek Business Hub, 141 Rooty Hill Road South, Eastern Creek, Blacktown NSW
Local Government Authority	Blacktown City Council
Site Area	Approximately 8.0 hectares
Approximate MGA Coordinates (GDA94 - MGA56)	E: 301302 N: 6259915
Site Zoning	Unzoned Land — Western Parklands (2021)
Current Use	Vacant lot
Previous Use	Former market gardens and residential dwellings
Proposed Use	Commercial/retail precinct, carparking, and landscaping

The site comprises a large property of vacant land, gently sloping down from the northwest to southeast. The majority of the site comprised thickly vegetated undulating terrain with silty topsoils, with long grass and areas of dense tree and scrubland in the west and southern portions of the site. A substantial portion in the northwest of the site comprised bare ground with orange clay at the surface with sparse surface vegetation and a ground surface level approximately 0.3 m lower than surrounding areas.

Based on review of previous environmental reports and historic aerial imagery (JBS&G 2023), the lateral extents of this area were consistent with the former extent of remediation undertaken circa 2017. A constructed earthen watercourse, adjacent an access road and earthen mound were present in the south-western portion of the site abutting the ECQ Shopping centre. Several large stockpiles of material were observed, which are understood to have been generated as part of the previous stages of the ECQ development. These stockpiles were previously assessed in JBS&G (2021) and were not subject to further assessment in this investigation.

Several piles of building and demolition waste (sheet metal, metal pipes, bricks, timbers etc.) were observed, along with areas of dumped waste (fly-tipping along the site boundaries, particularly the Beggs Road, Rooty Hill South, and Church Street boundaries. A raised and levelled earthen area was observed in the middle portion of the site, with a row of trees along its eastern extent. The north-western and western extents were level with the surrounding ground surface, and the eastern and southeastern extents were raised by 1.5-2.5m above the surrounding ground surface. Given the historical landuse and proposed construction activities, emissions to air of dust, odour and volatile organic compounds may occur. The management of these potential emissions is presented in the following chapters.

1.4 Purpose

The purpose of this procedure is to provide information and guidance on how to safely conduct Stage 3 ECQ construction works and minimise adverse exposure to air pollutants to on site and off site receptors. This procedure is to be read in conjunction with the Environmental Management Plan (EMP, WSP 2017) for the greater ECQ Development.

1.5 Objective

The key objective of this AQMP is to ensure that adverse air quality impacts to the local community during construction works are minimised.

1.6 Targets

Targets for the management of adverse air quality impacts during the construction phase of this include:

- Compliance with the relevant legislative requirements and conditions of consent
- Manage complaints from the community and stakeholders in accordance with the complaints management process
- Manage potential air quality / dust impacts during the construction of the Project through the implementation of reasonable air quality management measures
- All construction personnel to be undergo site induction training which will include details on air quality management

1.7 Scope of the Plan

This procedure applies to all works relating to the ECQ Development construction works. The procedure is to document the management responsibilities, controls, and procedures to mitigate potential environmental and human health impacts associated with emissions to air that may be occur during construction works.

2 Environmental Requirements

The legislation and guidelines used to inform this AQMP follow:

- Work Health and Safety Act 2011 (WHS Act)
- Work Health and Safety Regulation 2017
- WorkCover NSW (2011) How to Manage Work Health and Safety Risks
- Environmental Planning and Assessment Act 1979 (EP&A Act)
- Protection of the Environmental Operations Act 1997 (POEO Act)
- Protection of the Environment Operations (Clean Air) Regulation 2022
- NSW EPA (2022) Approved Methods for the Modelling and Assessment of Air Pollutants in NSW
- NSW EPA (2022) National Environment Protection (Ambient Air Quality) Measure
- Department of Environment and Conservation NSW (2006) Technical framework: Assessment and management of odour from stationary sources in NSW
- Commonwealth Department of the Environment (2016) National Environment Protection Councils (NEPC) - National Environment Protection Measure (NEPM) for Ambient Air Quality Guidelines

3 Environmental Aspects

The following section identifies the sensitive receptors who may be impacted by air pollutants generated on site, the construction activities generating those activities, and the factors likely to affect the generation of dust (particulate matter) or gaseous emissions.

3.1 Sensitive receivers

Two categories of sensitive air quality receivers have been identified as being potentially impacted by the construction activities associated with the project:

- Ecological receivers – defined as natural environments such as the Rooty Hill Historic Site located North of the Lot; and
- Sensitive human receivers – a range of sensitive (human) receptors including the Eastern Creek Quarter Shopping Centre and residential area located West of the Lot.

Potential human receivers who may be exposed to air emissions during the development include:

- Future workers of the site (commercial/retail workers, visitors, maintenance, and landscaping workers, etc);
- Future construction and site maintenance workers;
- Future and current sub-surface excavation and intrusive workers; and
- Stage 1 shopping centre visitors.

3.2 Construction Activities

Emissions to the atmosphere, during construction that could result in adverse impacts to air quality, are typically divided into two categories. These are:

- Dust and particulates
- Gaseous emissions.

The project includes the excavation of material including infill and soft sandstone, and construction of the development. The expected activities can be expected to include:

- Vegetation Clearance
- Asbestos Remediation Works
- Bulk & Detailed Earthworks
- Cut & Fill
- Culvert Structures
- Stormwater Drainage (Incl. GPT Installation)
- Block & Dincel Retaining walls (Incl. Footings)
- Construction of 2 x Temporary Basins.

Key construction activities that could result in dust emissions include:

- General earthworks particularly during site establishment
- Excavation and establishment of joint bays and concrete pits for ancillary infrastructure
- Vegetation clearing
- Culvert installation
- Topsoil / material handling including stockpiling, material loading and material haulage

- Vehicular movements over unpaved surfaces (including unsealed access roads)
- Wind erosion of exposed areas and temporary stockpiles
- Tracking of dirt onto roads

Gaseous emissions which may be generated by construction activities include:

- Vehicle and plant exhaust emissions, which may be excessive if vehicles and plant are poorly maintained;
- Other odorous emissions, including gases released during excavation of organic or contaminated materials, asphalting, and sealing works.

3.3 Factors likely to affect dust generation

During construction, the primary risk to local air quality is the generation of dust. Airborne particulate matter has the potential to cause adverse health (such as potential respiratory effects) or nuisance impacts if not effectively managed. Due to the existing urban setting, there is also potential for dust emissions to contain:

- Contaminants mobilised through the disturbance of contaminated soils
- Other hazardous materials mobilised through excavation, storage handling and management activities.

Without the implementation of standard management and mitigation measures, dust emissions could result in dust deposition leading to reduced local air quality around the nearest receiver locations.

Dust generation will primarily be limited to construction activities as they progress along the project alignment and will be expected to increase where potentially higher dust generating activities are conducted.

Dust emissions can also be expected to increase during unfavourable weather, such as dry windy conditions. In addition to the inherent risks of specific construction activities creating the potential to generate dust, a number of other environment factors also affect the likelihood of dust emissions. These include:

- Wind direction – determines whether dust and suspended particles are transported in the direction of the sensitive receivers
- Wind speed – governs the potential suspension and drift resistance of particles
- Soil type - more erodible soil types have an increased soil or dust erosion potential
- Soil moisture – increased soil moisture reduces soil or dust erosion potential
- Rainfall or dew – rainfall or heavy dew that wets the surface of the soil and reduces the risk of dust generation.

Wind erosion from exposed surfaces will also generate dust emissions. Erosion rates (generating dust) from exposed surfaces will vary with wind gusts, threshold wind speeds, precipitation events, silt loadings and the number of disturbances that restore the erosion potential. The dispersion of particulate matter will depend on the meteorological conditions present during the works. It is expected that these particulate levels will drop significantly with distance. During unfavourable meteorological conditions, such as dry and windy conditions, particulate emissions may be higher and will require specific corrective measures.

Overall, dust emissions will be comparable to other similar infrastructure projects and the risk of dust impacting on receivers will be readily manageable through standard management and mitigation measures.

3.4 Factors likely to affect gaseous emissions

Emissions from vehicles will be associated with the combustion of fuel (diesel and petrol) in construction plant, vehicles, and machinery. These sources will generate emissions of particulate matter, CO, oxides of nitrogen (NOx), SO2 and trace amounts of non-combustible hydrocarbons.

The rates of emission and potential impact on surrounding land uses will depend on the number and power output of the combustion engines, the quality of the fuel used, the condition of the engines and the intensity of use. Vehicle emissions are not expected to be significant and are unlikely to impact on surrounding sensitive receptors. Additionally, excavations of odorous soil may also be encountered. Given volatile contaminants (the source of odours) were not identified in the RWP (JSB&G, 2023) odorous emissions are considered unlikely to be encountered, however if they are encountered, they are likely to be localised in nature.

4 Environmental Risk Assessment

The air quality risk assessment is presented below in **Table 4-1.**

Table 4-1 Air quality risk and impact assessment

Activity	Construction aspect	Environmental aspect	Potential impact	Mitigation measures
Site establishment	Site and delivery vehicles travelling on unsealed roads	Dust generation	Excess dust generated and emitted to surrounding offsite receptors; dust on public roads	Refer to Section 4.1.1
	Topsoil stripping for compound footprint	Dust generation	Excess dust generated and emitted to surrounding offsite receptors	Refer to Section 4.1.1
	Construction and operation of compound	Dust and waste generation	Excess dust generated and emitted to surrounding offsite receptors	Refer to Section 4.1.1
	Delivery of heavy plant	Dust generation and sediment tracking	Excess dust generated and emitted to surrounding offsite receptors; dust on public roads	Refer to Section 4.1.1
	General waste handling	Dust and waste materials blowing through site	Excess dust generated and emitted to surrounding offsite receptors	Refer to Section 4.1.1
	Constructing and operating site access roads	Dust generation	Excess dust generated and emitted to surrounding offsite receptors; dust on public roads	Refer to Section 4.1.1
Removal of infill materials	Use of heavy plant / multiple plant use	Smoke and particulate emissions	Air pollution affecting air quality and local amenity at offsite receptors	Refer to Section 4.1.2
	Bulk topsoil stripping	Dust generation	Excess dust generated and emitted to surrounding offsite receptors	Refer to Section 4.1.1
	Vegetation clearing	Dust generation	Excess dust generated and emitted to surrounding offsite receptors	Refer to Section 4.1.1
	Stockpiling materials	Dust generation	Excess dust generated and emitted to surrounding offsite receptors	Refer to Section 4.1.1
	Slope or embankment creation / stabilisation processes	Dust generation	Excess dust generated and emitted to surrounding offsite receptors	Refer to Section 4.1.1
Excavation	Use of heavy plant / multiple plant use	Smoke and particulate Emissions	Air pollution affecting air quality and local amenity at offsite receptors	Refer to Section 4.1.2
	Bulk excavation / open excavations	Dust generation	Excess dust generated and emitted to surrounding offsite receptors	Refer to Section 4.1.1

4.1 Mitigation measures

4.1.1 Dust

Dust (including particulate matter, total suspended particulates, and deposited dust), which is released from excavation works and associated activities, plant equipment and heavy plant movement onsite, and wind movement across stockpiled material and exposed soil areas.

General mitigation measures are as follows:

- Ensure all exposed soil and any vehicle routes are regularly dampened (via hose, sprinklers, other water supply equipment);
- Using water and surfactant sprays to suppress dust in high-traffic areas, stockpiles kept onsite for more than 24 hours; and
- Plan activities in light of forecast weather conditions and cease working in high wind conditions.

4.1.2 Diesel exhaust emissions

Diesel exhaust emissions is produced from diesel-firing motors in plant equipment present onsite. These include particulate matter and gaseous emissions, including volatile organic compounds (VOC), and smoke. Diesel emissions can affect the air quality, aesthetic (i.e. aesthetic nuisance and nuisance odour) and local amenity at offsite receptors. General mitigation measures are as follows:

- Proper maintenance and tuning of engines
- Catalytic converters and exhaust filters (if available)
- Correct fuel specification
- Limiting idle time
- Avoid overloading
- Appropriate height of discharge above ground level
- Efficient combustion and proper dispersion
- Appropriate extraction of fumes and ventilation, and suitable discharge to aid dispersion and dilution of odours, where this activity is generating complaints;
- Plan activities in light of forecast weather conditions (consider wind speed and direction to help with dilution and dispersion away from nearby sensitive land uses);

4.1.3 Odours

Odours comprising volatile organic compounds (VOC) and semi volatile organic compounds SVOC) maybe released upon excavation of odorous soil. General mitigation measures follows

- Minimise surface area of a work zone;
- Minimise to the extent practicable amount of time required to excavate and remove contaminated soils from the site; and
- Cover the exposed area with a surfactant or physical barrier e.g. tarpaulin
- Apply liquid odour suppressants at the source or at the boundary via misting spray when required.

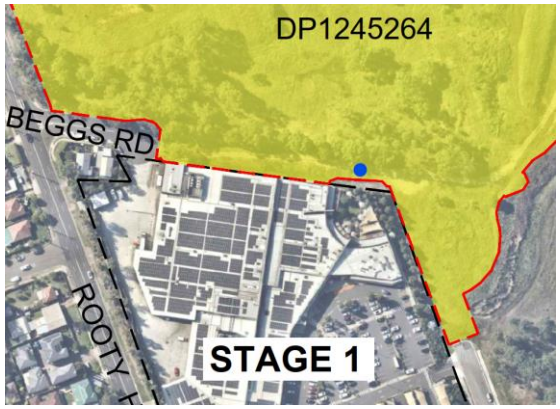
4.2 Trigger, Action and Response Plan (TARP)

The Trigger, Action and Response Plan provides an outline of remedial actions and responses for dealing with significant dust generating activities. The TARP is summarised in **Table 4-2** and proposed air quality monitoring is presented in **Table 4-3.**

Table 4-2 Air Quality Trigger, Action and Response Plan

Source	Trigger Criteria	Action Response	Responsibility
Weather forecast	Wind forecast to exceed 20 km/h Temperate forecast to exceed >30°C	Notification to site crews at daily prestart Review availability of controls Review planned works Inspection stockpile for dust generation and stabilise/cover (as per >50 km/h, below) if necessary	Site Manager in coordination with the HSEQ Manager as necessary
	Wind forecast to exceed 50 km/h	Notification to site crews Restrict earthworks and loading of trucks with spoil Minimise vehicular movements on unsealed surfaces All stockpiles stabilised or covered with geofabric (where volume permits), and biodegradable sealant applied to loose soil areas disturbed by construction works Reschedule work	Site Manager in coordination with the HSEQ Manager as necessary
Weather observation	Wind observations exceed 25 km/h	Notification to site crews Complete visual observations	Site Manager in coordination with the HSEQ Manager as necessary
	Wind observations exceed 50 km/h	Restrict earthworks and loading of trucks with spoil Minimise vehicular movements on unsealed surfaces	Site Manager
Visual observations	Dust being generated on site as a result of active works	Review controls Monitoring the project for onsite dust generation to observe whether dust is migrating offsite Increase frequency of water application	Site Manager
	Release of dust from the premises as a result of active works (caused by an incident or when wind speeds exceed 50 km/h)	Stop works Notify Environmental Coordinator Review controls Increase frequency of water application Report incident	Site Manager
	Dust being generated on site with no active works	Review controls Apply ground cover within current or next shift, or as soon as is practical	Site Manager
Visual observations	Release of dust from premises with no active works (incident)	Assess opportunity for preventative actions (e.g. water application) Notify Environmental Coordinator Apply ground cover on next shift Report incident	Site Manager
	Release of dust from the premises as a result of active works (no incident or wind speeds are less than 50 km/h)	Review controls Cease works and review work methodology and explore alternative methods Increase rate or frequency of watering	Site Manager
Plant inspections	Continuous visible vehicle / plant / equipment emissions for longer than 10 seconds	Turn off vehicle / plant / equipment Quarantine until maintenance service is completed	Site Manager
Community complaint regarding air quality	Any compliant, including odour	Visual inspection Review controls Assess opportunity for preventative actions (e.g. water application) Consider misting at site boundary	Site Manager in coordination with the HSEQ Manager as necessary
Incidents / non-compliance	Release of dust from the premises	Notify Environmental Site Supervisor Environmental Incident Report assess if Pollution Incident Response Management Plan is triggered and if so, Notify EPA, if material harm is caused	Site Manager in coordination with the HSEQ Manager as necessary

Table 4-3 Proposed Air Quality Monitoring

Air Quality Parameter	Instrument	Criteria	Responsibility	Corrective Actions
PM_{10}	Continuous, real time instrument e.g. dust trak ® at one location on boundary between site and Stage 1 ECQ. The proposed location of the particulate matter instrument is shown by the blue dot below. 	190 µg/m³ 1-hour average 50 µg/m³ 24-hour average 25 µg/m³ annual average.	Environmental Site Supervisor. Data to be reviewed daily and corrective actions implemented as required.	Review meteorological conditions, site operations generating dust emissions during the average period. Compare against background data sources, such as the nearest NSW EPA air quality. monitors Review operations and effectiveness of controls. Adjust operations to meet action response criteria. .
Odour and VOC	US EPA TO-15 (evacuated canister) for VOC/SVOC analysis	No offensive odour detectable off site from site derived odour source	Environmental Site Supervisor.	**Clarify potential health risk**: Off-site odour complaints for two consecutive complaints will trigger at least one boundary sampling event using an evacuated canister for VOC/SVOC analysis. Sample analysis to be compared to relevant criteria e.g. NSW EPA 2022 *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW.* **Survey odour to inform source emission reduction**. Until odour emission source is controlled and there is no detectable odour beyond the site boundary from site sources i.e. no odour complaints off site, then conduct daily site perimeter survey of odour. Surveys should measure odour character and intensity, wind speed and direction. This information can be used to inform the source and effectiveness of odour control measures. This can be performed by the Environmental Site Supervisor or a suitably qualified third party. Review meteorological conditions, site operations generating odour emissions. Review operations and effectiveness of controls. Adjust operations to meet action response criteria. .

5 Compliance Management

5.1 Roles and Responsibilities

Specific roles and responsibilities for the implementation of environmental controls are detailed in Section 5 of this Sub-Plan. Key roles which are relevant to the management of air quality are identified in **Table 5-1** below.

Table 5-1 Roles and responsibilities to the AQMP

Title	Responsibilities
Project Manager/ Site Manager	• Ensure that this AQMP and its management and control measures are adhered to during the proposed workers • Ensure that all licenses, clearances, permits, and approvals are in place as required • Ensure that any worker, contractor, and site maintenance personnel (who are under the control of the Principle Contractor) are aware of this AQMP and understand its requirements • Ensure that compliance with the AQMP is a condition of any works undertaken • Ensure any third parties commissioned are provided with this AQMP and required to adhere to its requirements • Complete daily toolbox talks • Complete daily pre-start equipment inspections • Complete regular visual inspections of the Site to determine compliance with this AQMP • Ensure subcontractors and vehicles used are appropriately licensed for carrying of designated plant, equipment etc. • REVIEW AND/OR UPDATE THE AQMP AS REQUIRED IF SITE CONDITIONS OR WORKS CHANGE, AND INFORM ALL PARTIES OF THE CHANGES
Sites Manager	• Assist the Environmental Site Supervisor with the daily inspections of environmental control measures • Notify the Principal Contractor of any non-conformances with this AQMP and the action needed and/or taken to rectify • Undertake relevant contingency corrective actions when required • REPORT TO THE PRINCIPAL CONTRACTOR
Site Manager in coordination with the HSEQ Manager as necessary	• Complete daily inspections of environmental control measures • Undertake relevant contingency corrective actions when required • Ensure records are kept on Site during the Works which will include documentation arising from the implementation of the CWMP and environmental management • Maintain a register of complaints and record any actions taken • Report non-conformances to the Site's Project Manager and Principal Contractor and record in a Non-Conformance and Corrective Action Report • Initiate corrective actions and record details in a Non-Conformance and Corrective Action Report • Notify the Project Manager of any complaints • Conduct environmental awareness training for all project personnel undertaking the Works on Site • REPORT TO THE PRINCIPAL CONTRACTOR AND THE SITE'S PROJECT MANAGER
Additional Contractors / Site Workers	• Comply with the AQMP for all Site Works including relevant legislation and guidance • Inform the Principle Contractor if conditions or Works change from those documented in the AQMP • Onsite implementation of the AQMP including monitoring schedule required for the works • TEMPORARY SUSPENSIONS OF RELEVANT SITE WORKS IF THE ENVIRONMENT IS AT RISK, AND NOTIFYING THE PRINCIPAL CONTRACTOR AND APPROPRIATE EXTERNAL BODIES (SUCH AS REGULATORY AUTHORITIES) IN THE EVENT OF AN ENVIRONMENTAL INCIDENT

5.2 Training and Induction

All project personnel (i.e. employees, subcontractors, and utility staff) will only be permitted to perform project works if they have the following training and signed a register of acknowledgement for each step. Each person has:

- Completed a full site-specific induction from Principal Contractor, including an environmental component;
- Acknowledged and understood the existence and requirements of this sub-plan;
- Agreed to work under the constraints of the AQMP;
- Have read and understood all relevant site-specific Safe Work Method Statement (SWMS) documents for the project site work; and
- Attended the daily pre-start toolbox talk where aspects of environmental protection and worker's safety are discussed.

The induction training will address elements related to soil and water management including:

- Relevant legislation
- EPL conditions (e.g. specifically dust management competency and maintenance of plant and equipment conditions)
- Roles and responsibilities for air quality management
- Air quality mitigation and management measures
- Procedure to be implemented in the event of an incident (e.g. release of dust or gaseous emissions from site).

Targeted training in the form of toolbox talks or specific training will also be provided to personnel with a key role in air quality management.

- Erosion and sediment control planning and installation methodology
- Lessons learnt from dusty periods, incidents and other events, e.g. low rainfall / high wind
- No burning of vegetative or other waste material
- Onsite storage of fuel
- Management of emissions

5.3 Communication

Air quality management information will be communicated to the community and stakeholders in accordance with the protocol presented in overall Construction Environment Management Plan (CEMP) for the site. The Principal Contractor will provide timely, accurate, relevant and accessible information about construction activities that may impact upon air quality, with provision for feedback through a complaints line, as presented in the following section.

5.4 Complaints

The Principal Contractor will manage air quality complaints in accordance with the protocols presented in the CEMP. This will include keeping of Complaints Register which will record the details of all complaints relating to the Project. The Complaints Register will record the details of all air quality complaints relating to the Project including the following as a minimum:

- Date and time of the complaint
- Method by which the complaint was made
- Any personal details of the stakeholder
- Number of people affected in relation to a complaint

- Nature of the complaint
- Action taken in relation to the complaint, means by which the complaint was addressed and any follow up
- Whether resolution was reached, with or without mediation
- If no action taken, reasons why
- The status of resolution of the complaint.

All complaints will be recorded in the Complaints Register within 24 hours and appropriate action assigned. Should investigation be identified in the Complaints Register, then the investigation will assess construction works or activities in relation to the complaint. The Principal Contractor (or their delegate) will advise each complainant of the results of its investigation of their complaint and any proposed remedial action.

5.5 Monitoring and Inspection

Regular monitoring and inspections will be undertaken during construction in accordance with the following **Table 5-2.**

5.6 Reporting

Reporting requirements relevant to the AQMP are identified in **Table 5-3.**

Table 5-2 Inspection and Monitoring Requirements

Monitoring Details	Record	Responsibility	Frequency	KPI
Meteorological data including daily rainfall, temperature relative humidity, wind (direction and speed) and barometric pressure	Weather forecasts from BOM Daily rainfall records	Environmental Site Supervisor	Daily	N/A
Complaints	Consultation Manager database	Environmental Site Supervisor	Daily	Repeated pollution complaints at the same location related to dust or mud on public roads
Visual observations during daily site inspections, including activities observed outside of the Project that may impact on dust levels near sensitive receivers • Observations for dust settlement on vehicles and the façade of adjacent properties • Observations of trafficable areas within and adjacent to the active worksite for evidence of mud tracking • Observations of plant and equipment for black emissions • Observations of dust generation for efficacy of dust suppression during high risk generating activities	Strong Wind Work Modification Record, where wind is in excess of 50 km/h Complaints records Daily diary	Site Manager Environmental Site Supervisor	Daily	Repeated observations of dust near worksite (and not near areas more than 100m from the active worksite)
Description of any third party activities, e.g. other projects or operations that have potential to generate dust	Daily diary	Environmental Site Supervisor	Daily	N/A

Table 5-3 Reporting requirements

Report	Scope	Timing	Frequency	Responsibility
Monthly Environmental Monitoring Report	• Weather observations • Dust observations • Summary of any third party activities • Key dust control measures and actions • Issues / incidents / non-compliances • Complaints	Within 7 days of the end of the month	Monthly	Site Manager in coordination with the HSEQ Manager as necessary

5.7 Audits

Audits (both internal and external) will be undertaken to assess the effectiveness of environmental controls, compliance with this sub-plan and other relevant approvals, licenses, and guidelines.

Audit requirements are detailed in the CEMP.

6 Review and Improvement

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

The continuous improvement process will be designed to:

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

This plan will be updated as required. Updates or revision of this Sub-plan may be triggered by:

- Any processes described in the EMS;
- Result of any investigations into any exceedances or non-conformances that determine changes to this plan are required to prevent reoccurrences;
- To take into account changes to the environment or generally accepted environmental management practices, new risks to the environment or changes in law;
- Where requested or required by the NSW Department of Planning, Industry and Environment or
- In response to internal or external audits.

The updated plan must be endorsed by the Environmental Site Supervisor and approved internally by the Project Manager. Minor changes may be approved by the Environmental Site Supervisor. Minor changes would typically include those that:

- Are editorial in nature (e.g. staff and agency/authority name changes);
- Do not increase the magnitude of impacts on the environment when considered individually or cumulatively;
- Do not compromise the ability of the project to meet approval or legislative requirements.

Where the Environmental and Sustainability Manager deems it necessary, the plan will be provided to relevant stakeholders for review and comment if required and forwarded to the Secretary of DPIE for approval under conditions C20. Where approval of the Secretary of DP&E is not required, a copy of the updated plan will be provided to the Secretary for information.

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Appendix A – Figures

REGIONAL MAP
SOURCE: http://www.whereis.com/

LEGEND

STAGE 3 SITE BOUNDARY

NOTE:
ALL LOCATIONS ARE APPROXIMATE
DIMENSIONS IN METRES.

AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM, 13 MAR 2024.

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	A	FIRST ISSUE	MC	EG	09/05/24

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project: AIR QUALITY MANAGEMENT PLAN
41 GRAND AVENUE, EASTERN CREEK, NSW

title: SITE LOCATION PLAN

project no: A1010240214.00 | figure no: FIGURE 1 | rev: A

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Appendix 1.4 – Construction Waste Management Sub Plan

Construction Waste Management Plan (CWMP)

Eastern Creek Quarter – Stage 3

Prepared for: Moits Pty Ltd.

Job Number: A101024.0214.00|CWMP| v1f **| Date:** 15/05/2024

ADE CONSULTING GROUP

Document Information

Report Title: Construction Waste Management Plan (CWMP)
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Version	Date	Author	Revision description	Reviewer
v0.1d	06/05/2024	Mubiana Matakala	Draft for internal review	Stephen Bowly
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For and on behalf of

ADE Consulting Group Pty Ltd

Prepared by:

Elin Griffiths

Associate Environmental Consultant

Reviewed and Issued by:

Stephen Bowly

Principal Consultant

Contents

Tables

Abbreviations

ACM	Asbestos-containing materials
ADE	ADE Consulting Group Pty Ltd
AF	Asbestos fines
CWMP	Construction Waste Management Sub-Plan
DCP	Development Control Plan
ECQ	Eastern Creek Quarter
EMP	Environmental Management Plan
EP&A Act	Environmental Protection
FA	Friable asbestos
NEPC	National Environmental Protection Councils

1 Introduction

1.1 Context

ADE Consulting Group Pty Ltd (ADE) was engaged by Moits Pty Ltd (Moits) to provide environmental management plans associated with the proposed development of the Stage 3 of the commercial/industrial Eastern Creek Quarter (ECQ) Retail Development (the site). The Eastern Creek Quarter redevelopment currently comprises three stages of development. Stages 1 and 2, comprising retail and entertainment areas, have been completed.

The Stage 3 site comprises an area of approximately 8 hectares (ha) and is located at Lot 3 of the Eastern Creek Business Hub, 141 Rooty Hill Road South, Eastern Creek, Blacktown NSW and is legally identified as part Lot 1 in DP1260111 and part Lot 12 in DP 1245264 The site was formerly used for livestock grazing, poultry farming, agricultural use, and rural residential purposes. Currently the site is understood to be vacant awaiting redevelopment. Stages 2 and 3 of the ECQ Retail Development have been the subject of a Site Audit Statement (SAS 0503-1301-AI, JBS&G 20171), certifying the site was suitable for commercial/industrial use.

It is understood that historic remediation undertaken at the site circa 2017 was related to fill impacted by asbestos containing materials (ACM), although potential for additional impacted areas to be encountered was noted in the Site Audit Report (SAR). An environmental management plan (EMP, WSP 2017) was prepared for the broader ECQ development site, in part, to ensure appropriate steps are followed in the event that further contamination is uncovered during the future site development and/or ground disturbance works following development. The provisions of the EMP are legally enforceable, since they form a condition of the Site Audit statement (SAS, JBS&G 2017).

The environmental investigations undertaken to date have suggested that contaminants on site primarily relate to asbestos. The management of asbestos will be documented in the site's Asbestos Management Plan (AMP).

This Construction Waste Management Plan (CWMP) has been developed to address the construction activities associated with the Stage 3 development. Construction wastes can include excavated materials such as soil, rocks, vegetation, building materials such as bricks, concrete, timber, fittings, plasterboard and also contaminated or dangerous materials such as asbestos and contaminated soils. Some of these wastes have particular handling, transport and disposal requirements, and all wastes have been identified by the NSW State government as having significant potential to contribute to the circular economy – recovering and recycling materials and reducing the need for virgin materials. As such, best practice waste management is required to not only comply with laws and guidelines, but also to contribute to improved environmental performance and also to reduce waste disposal costs.

Blacktown Development Control Plan (DCP 2015) also identified the importance of minimising waste to landfill and maximising recovery of resources from wastes from construction activities. As such, it is a requirement of Blacktown City Council to develop and submit a waste management plan that discusses waste minimisation, reuse, recycling and disposal options for all types of waste, and that the WMP must be implemented throughout the development process. During construction, the CWMP and proof of lawful waste disposal/recycling, must be retained on site in a Waste Data File. Proof is to include a logbook with associated receipts/invoices, waste classification and site validation certificates.

1.2 Objective

The objective of this CWMP is to ensure that all risks associated with construction waste management are considered and managed effectively during construction. This CWMP seeks to ensure that construction waste

is managed effectively to prevent any negative environmental impact on the surrounding environment or receiving resource recovery and waste facilities.

The objective of this CWMP is to outline the key management systems, procedures and controls that Moits will use to :

- Minimise the amount of waste generated
- Maximise the reuse, recycling and reprocessing of construction materials, and
- Minimise the volume of material disposed to landfill

This CWMP is a dynamic document and related to the construction phases only and does not include additional requirements during the operational phase of the development.

This sub-plan is to be read in conjunction with the Environmental Management Plan (EMP, WSP 2017) and the overarching Waste Management Plan (WMP, WSP 2022) for the greater ECQ Development.

1.3 Development Consent Requirements

Consent condition B1(e) of the development consent conditions (SSD 31515622) requires a Construction Environmental Management Plan (CEMP) to be prepared for the development including a construction waste management sub-plan. Consent condition C23 "construction waste management sub-plan", details the requirements of the document, as follows:

Table 1-1: Development Consent Conditions

Development Consent Conditions	Response
C23: Prior to the commencement of any earthwork or construction, the Applicant must submit to the Certifying Authority a Construction Waste Management Sub-Plan (CWMP) for the development. A copy of the CWMP must be submitted to the Planning Secretary and Certifying Authority. The Sub-Plan must include, as a minimum, the following elements	N/A
(a) require that all waste generated during the project is assessed, classified and managed in accordance with the EPA's "Waste Classification Guidelines Part 1: Classifying Waste"	Refer to Section 3 Waste Classification
(b) classifies fill material being imported or removed from the site in accordance with the EPA's excavated natural material order 2014	Refer to Section 5.1 Demolition Waste Volume and Management and Section 5.2Construction Waste Volumes and Management
(c) demonstrate that an appropriate area will be provided for the storage of bins and recycling containers and all waste and recyclable material generated by the works	Refer to Section 5.5 Location and Design of Waste Management Facilities, section 5.5.2-Waste and Recycling Receptacles and 5.5.6 -Proposed
(d) procedures for minimising the movement of waste material around the site and double handling	Refer to Section 4- General Waste Management and 5- Site Specific Wate Management Provisions
(e) waste (including litter, debris or other matter) is not caused or permitted to enter any waterways	Not specifically covered within the CWMP. General site erosion and sedimentation control measures are presented in EMP (WSP, 2017). This CWMP outlines the proper handling of waste to minimise the potential for waste material to enter environmental sensitive areas.
(f) any vehicle used to transport waste or excavation spoil from the site is covered before leaving the premises	Refer to 5.5.5 Section Servicing and Transport
(g) the wheels of any vehicle, trailer or mobilised plant leaving the site and cleaned of debris prior to leaving the premises	Refer to Section 5.5.5 - Servicing and Transport
(h) details in relation to the transport of waste material around the site (on-site) and from the site, including (at a minimum): *(i) a traffic plan showing transport routes within the site;* *(ii) a commitment to retain waste transport details for the life of the project to demonstrate compliance with the Protection of the Environment Operations Act 1997; and*	(i) Refer to 5.5.4 (ii)Refer to Section 4.2 (iii) Refer to Section 5.1, 5.2 and5.3

Development Consent Conditions	Response
(iii) the name and address of each licensed facility that will receive waste from the site (if appropriate)	

1.4 Site Description

The site location, site layout and associated cadastral boundaries are shown on **Figure 1** (**Appendix A**). The site details are summarised in **Table 1-2**Error! Reference source not found. and described in detail in the following sections.

Table 1-2: Summary Site Details

Lot/Deposited Plan	Part Lot 1 in DP1260111 and part Lot 12 in DP 1245264
Address	Lot 3 of the Eastern Creek Business Hub, 141 Rooty Hill Road South, Eastern Creek, Blacktown NSW
Local Government Authority	Blacktown City Council
Site Area	Approximately 8.0 hectares
Approximate MGA Coordinates (GDA94 – MGA56)	E: 301302 N: 6259915
Site Zoning	Unzoned Land — Western Parklands (2021).
Current Use	Vacant lot
Previous Use	Former market gardens and residential dwellings
Proposed Use	Commercial/retail precinct, carparking, and landscaping

The site comprises a large property of vacant land, gently sloping down from the northwest to southeast. The majority of the site comprised thickly vegetated undulating terrain with silty topsoils, with long grass and areas of dense tree and scrubland in the west and southern portions of the site. A substantial portion in the northwest of the site comprised bare ground with orange clay at the surface with sparse surface vegetation and a ground surface level approximately 0.3 m lower than surrounding areas.

Based on review of previous environmental reports and historic aerial imagery (JBS&G 2023), the lateral extents of this area were consistent with the former extent of remediation undertaken circa 2017. A constructed earthen watercourse, adjacent an access road and earthen mound were present in the south-western portion of the site abutting the ECQ Shopping centre. Several large stockpiles of material were observed, which are understood to have been generated as part of the previous stages of the ECQ development. These stockpiles were previously assessed in JBS&G (2021) and were not subject to further assessment in this investigation.

Several piles of building and demolition waste (sheet metal, metal pipes, bricks, timbers etc.) were observed, along with areas of dumped waste (fly-tipping along the site boundaries, particularly the Beggs Road, Rooty Hill South, and Church Street boundaries. A raised and levelled earthen area was observed in the middle portion of the site, with a row of trees along its eastern extent. The north-western and western extents were level with the surrounding ground surface, and the eastern and southeastern extents were raised by 1.5-2.5m above the surrounding ground surface.

Waste generated during construction will primarily be from civil works associated with site preparation, relocation of utilities, construction of Retail Outlet, car parks, road infrastructure, tree removals and landscaping. The management of these waste streams is presented in the following chapters.

1.5 Targets

The following waste management targets have been identified for the project:

- Recover and reuse waste products on-site where reasonable and practical
- Send all residual waste products to appropriately licensed destinations for recycling, reuse, treatment or disposal
- Ensure no contamination incident occurs from waste storage, transport or disposal
- Ensure no rejection of loads by the receiving facility for non-compliant wastes
- Store, transport, track and dispose of regulated wastes in compliance with legislation
- Ensure no construction waste/litter leaves the site in an uncontrolled manner
- Document the intended management strategy (for example, avoid, reduce, reuse, recycle or dispose) to ensure waste is managed in accordance with accepted standards and appropriately implemented waste control measures
- Implement waste minimisation initiatives where practical.

2 Environmental Requirements

The legislation and guidelines used to inform this CWMP include:

- Environmental Planning and Assessment Act 1997 (EP&A Act)
- Protection of the Environment Operations Act 1997 (POEO)
- Protection of the Environment Operations (General) Regulation 2009
- Protection of the Environment Operations (Waste) Regulation 2005
- Waste Avoidance and Resource Recovery Act 2001
- Contaminated Land Management Act 1997

The waste legislation and regulatory framework is outlined in Table 2-1 below.

Table 2-1: Regulatory Framework

Act or Regulation	Description
Waste Avoidance and Resource Recovery Act 2001	Establishes the waste hierarchy to ensure that resource management options are considered against the following priorities: • Avoidance which are actions to reduce the amount of waste generated and undertaking activities • Resource recovery which includes reuse, reprocessing, recycling and energy recovery, consistent with the most efficient use of the recovered resources • Disposal which is an end-of-pipe option that must be carefully undertaken to minimise any negative environmental outcomes. The NSW Government's priority areas and actions for waste avoidance and resource recovery is outlined in the Waste Strategy 2007 (an update of the Waste Strategy 2003). The four identified key target areas in the strategy are: • Preventing and avoiding waste • Increasing recovery and use of secondary materials • Reducing toxicity in products and materials • Reducing litter and illegal dumping
Protection of the Environment Operations Act 1997	All material that is imported to or exported from the project will be undertaken in strict accordance with the requirements of the Act including: • Ensuring waste is classified appropriately and in accordance with relevant guidelines • Disposing of waste materials correctly at the appropriately licensed facilities • Removing other materials to facilities lawfully able to accept such materials.
Protection of the Environment Operations (Waste) Regulation 2005	The proposed work will be undertaken in accordance with this regulation.
Waste Classification Guidelines, Part 1: Classifying Waste (NSW EPA 2014)	All wastes generated and proposed to be disposed off-site will be assessed, classified and managed in accordance with this guideline.
Asbestos Regulations	Asbestos-containing materials will be undertaken in accordance with the requirements of the: • Work, Health and Safety Act 2011 (NSW) • SafeWork NSW 2017, Work, Health and Safety Regulation • Safework NSW 2022. Code of Practice – How to manage and control asbestos in the workplace • Safework NSW 2022, Code of Practice – How to safely remove asbestos Waste Classification Guidelines, Part 1: Classifying Waste (NSW EPA 2014) This CWMP does not include for the management of asbestos. The management of asbestos is to be documented in an Asbestos Management Plan (AMP) and be prepared in accordance with Cl 429 if the Work Health and Safety Regulation 2017.

3 Waste Classification

Where waste cannot be avoided, reused, recovered or recycled it will be classified and disposed of appropriately. The classification of waste will be undertaken in accordance with the Waste Classification Guidelines Part 1: Classifying Waste (EPA, 2014) with appropriate records and disposal dockets retained for audit purposes. The EPA guidelines identify six classes of waste: Special, Liquid, Hazardous, Restricted Solid, General Solid (putrescible) and General Solid (non-putrescible) and describe a six-step process to classifying waste: A summary of NSW waste classification requirements is provided in **Table 3-1.** Further details on the classification of waste can be found in the NSW EPA (2014) Waste Classification Guidelines.

Table 3-1 Waste Classification Requirements

Waste Classification	Description
Step 1: **Is it Special Waste**	Special waste includes clinical and related waste, asbestos waste and waste tyres: • Asbestos waste means any material that contains the fibrous form of mineral silicates • Waste tyres is any used, rejected or unwanted tyres including shredded or tyre pieces
Step 2: **If not special, is it 'liquid waste'?**	Liquid waste means any waste that: • Has an angle of repose of less than 5°C • Becomes free flowing at or below 60°C or when it is transported • Is not generally capable of being picked up by a spade or shovel. Liquid wastes are sub-classified into: • Sewer and stormwater effluent • Trackable liquid waste according to Protection of the Environment Operations (Waste) Regulation 2005 Schedule 1 Waste, to which waste tracking requirements apply. • Non-trackable liquid waste.
Step 3: **If not special or liquid, has the waste already been pre-classified by the NSW EPA?**	If a waste is listed as 'pre-classified', no further assessment is required.
General Solid Waste (putrescible)	Household waste that contains putrescible organics waste from litter bins collected by local councils:
General Solid Waste (non-putrescible)	• Glass, plastic, rubber, plasterboard, ceramics, bricks, concrete or metal • Paper or cardboard • Grit, sediment, litter and gross pollutants from stormwater treatment devices, stormwater management systems that has no free liquids • Garden and wood waste • Containers previously containing dangerous goods, as defined under the Australian Code for the Transport of Dangerous Goods by Road and Rail, where residues have been appropriately removed by washing or vacuuming drained • Oil filters (mechanically crushed), rags and oil-absorbent materials that only contain non-volatile petroleum hydrocarbons and have no free liquids • Drained motor oil containers that do not contain free liquids Synthetic fibre waste from fibreglass, polyesters and other plastics and is packaged securely to prevent dust emissions, that is confirmed as not being asbestos waste • Building and demolition waste • Asphalt waste, including asphalt from road construction and waterproofing works • Cured concrete waste from batch plants • Fully cured and set thermosetting polymers and fibre-reinforcing resins, glues, paints, coatings and inks.
Step 4: **If not pre-classified, is the waste Hazardous?**	• Waste with pH ≤ 2.0 or ≥ pH 12.5 • Containers that have not been cleaned and that contained dangerous goods as described in the Australian Code for the Transport of Dangerous Goods by Road and Rail • Coal tar or coal tar pitch waste, which is the tarry residue from the heating, processing or burning of coal or coke, being materials comprising of more than 1% (by weight) of coal tar or coal tar pitch • Waste lead-acid or nickel-cadmium batteries, being waste generated or separately collected by activities carried out for business, other commercial or community services purposes

Waste Classification	Description
	• Lead paint waste other than solely from residential premises or educational or childcare institutions.
Step 5: **If the waste does not have hazardous characteristics, undertake chemical assessment to determine classification.**	If the waste does not possess hazardous characteristics, it must be chemically assessed to determine whether it is hazardous, restricted solid or general solid waste (putrescible or non-putrescible). If the waste is not chemically assessed, it must be treated as hazardous. Waste is assessed by comparing Specific Contaminant Concentrations of each chemical contaminant, and where required, the leachable concentration using the Toxicity Characteristics Leaching Procedure, against Contaminant Thresholds.
Step 6: **Is the general solid waste putrescible or non-putrescible?**	If the waste is chemically assessed as general solid waste, a further assessment is available to determine whether the waste is putrescible or non-putrescible. The assessment determines whether the waste is capable of significant biological transformation. If this assessment is not undertaken, the waste must be managed as general solid waste (putrescible).

4 General Waste Management

4.1 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 CWMP, 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. At present, it is proposed that this role will be undertaken by the Site Manager in coordination with the Health, Safety and Environment Manager (HSEQ) as necessary. The following table demonstrates the primary roles and responsibilities of the respective stakeholders:

Table 4-1 CWMP Responsibilities

Title	Responsibilities
Project Manager/ Site Manager	▪ Organising waste collections as required; ▪ Organising replacement or maintenance requirements for bins; ▪ Investigating and ensuring 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; ▪ Ensuring waste related equipment is well maintained; ▪ Accurate calculations ensuring only the required amount of materials are ordered; ▪ Ensuring segregation of materials to maximise reuse and recycling; ▪ Routine checking of waste sorting and storage areas for cleanliness, hygiene, contamination and OH&S issues; ▪ Ensuring that all monitoring and audit results are well documented and carried out as specified in the CWMP; ▪ Ensuring effective signage, communication and education is provided to site staff/contractors; ▪ Providing staff/contractors with equipment manuals, training, health and safety procedures, risk assessments, and PPE to control hazards associated with all waste management activities; ▪ Assessing any manual handling risks and prepare a manual handling control plan for waste and bin transfers; ▪ REVIEW AND/OR UPDATE THE CWMP AS REQUIRED IF SITE CONDITIONS OR WORKS CHANGE AND INFORM ALL PARTIES OF THE CHANGES.
Site Staff/ Contractor	▪ Ensuring adequate separation and disposal of waste streams in compliance with the CWMP ▪ Abiding by all relevant OH&S legislation, regulations, and guidelines; ▪ Attending training and inductions as required; ▪ Cleaning and transporting of bins as required; ▪ Daily visual inspections of waste storage areas; ▪ Organising, maintaining and cleaning the waste storage areas;
Site Manager in coordination with HSEQ Manager	▪ Approaching and establishing the local commercial reuse of materials where reuse on-site is not practical; ▪ Establishing separate skips and recycling bins for effective waste segregation and recycling purposes; ▪ Ensuring staff and contractors are aware of site requirements; ▪ Provision of training of the requirements of the WMP and specific waste management strategies adopted for the development; ▪ Contaminated waste management and approval of off-site waste transport, disposal locations and checking licensing requirements; ▪ Arranging assessment of suspicious potentially contaminated materials, hazardous materials and liquid waste; ▪ Monitoring, inspection and reporting requirement
Waste Collection Contractors	▪ Provide a reliable and appropriate waste collection service; ▪ Provide feedback to construction site management regarding contamination of waste streams; ▪ Work with construction site management to customise waste systems where possible.

4.2 Monitoring and Reporting

It is recommended that the following measures be taken to improve demolition and 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 CWMP 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 (**131 555**). Likely incidents to occur during the construction and demolition stage of the development may involve fuel or chemical spills, seepage or mishandling of hazardous waste, or unlicensed discharge of pollutants to environment.

4.3 Opportunities for Reuse and Recycling

There are many opportunities to reduce the volume of waste generated during demolition and 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 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. **Table 4-2** below gives examples of potential reuse and recycling options for the materials likely to be used/generated in construction and demolition at this development.

Table 4-2: 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	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	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, subject to waste classification testing (NSW EPA 2014)
Synthetic and 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, subject to classification testing.

4.4 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). Previous site assessments have identified Areas of Environmental Interest (AEIs) that may potentially contain asbestos, including historical structures and fill sites.

Removal of asbestos materials will be carried out by a licensed asbestos removalist (where required) holding a current licence issued by SafeWork NSW. Removal of asbestos materials will comply with the Work, Health and Safety Act 2019 and the SafeWork Australia code of practice for 'How to Safely Remove Asbestos'. Off-site disposal of the asbestos material will be at facilities legally authorised to accept such material.

Bonded asbestos containing materials (ACM) is to be encapsulated onsite in accordance with the RWP (JBS&G, 2023) in the form of a borrow pit. Should friable asbestos be encountered, this is to be managed under the asbestos management plan (AMP) and is to be removed off site to an appropriately licensed facility.

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 demolition or excavation works, the Site Manager is to stop work immediately 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 in an appropriate location protected from inclement weather, in accordance with the RWP (JBS&G; 2023)
- 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 suggested so that contaminated materials are not spread off-site.

4.5 Management of Illegal Waste Disposal

Illegally dumped waste is defined as the disposal of waste larger than litter on land or in water without the correct approvals (an EPL or planning approval). The Principal Contractor will actively inform NSW EPA and/or the local regional illegal dumping squad (RID Squad) of any potential fly-tipping and/or illegally dumping identified during construction.

4.6 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.

All excavated material generated on this site may be re-used in the landscaping or used on other sites as fill material, subject to appropriate prior material classification. 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;
- Bonded asbestos containing materials (ACM) are to be encapsulated on site in an on-site borrow pit, in accordance with the RWP (JBS&G,2023)
- 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.

5 Site Specific Wate Management Provisions

5.1 Demolition Waste Volume and Management

The demolition stage of the development provides the greatest opportunity for waste minimisation and resource recovery. No existing structures are present on site, however there is the potential for small amounts of residual demolition waste to be present. With careful on-site sorting and storage and by staging work programs it is possible to reuse many materials, either on or off-site.

Where possible, materials will be reused, such as crushing concrete for use as clean fill. However, the majority of the components of the building will either be reused for the same purpose or disposed of offsite.

A demolition contractor will be engaged during this phase of the project. The contractor will be responsible for ensuring all demolition activities are planned and undertaken in accordance with relevant waste minimisation policies and DA requirements.

Table 5-1: Demolition Waste Estimation

Material	Volume (m^3)	Approximate tonnes*	Approximate percentage recovered
Heavy recyclable materials (rubble, concrete)	TBA	4.15	100%
Heavy recyclable materials (rubble, brick)	TBA	2.15	100%
Light recyclables: (cardboard, timber, paper, plastic)	TBA	0.5	TBA
Metals (ferrous, non-ferrous)	TBA	2.3	100%
Putrescible waste (Green Waste)	TBA	7.3	100%
Asbestos contaminated soil**	TBA	10	NA
Other waste	TBA	TBA	TBA

*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 wal2708_construction_waste_a4_v2_singles.pdf (wastenet.net.au)

** Up to 5,000m3 of asbestos impacted soil is proposed to be contained on site (JBS&G,2023)

5.2 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 from the demolition stage of the development.

Table 5-2: Construction Waste Estimation

Material	Volume (m^3)	Approximate tonnes*	Approximate percentage recovered	Proposed Management Option (Onsite/ Offsite Facility
Heavy recyclable materials (rubble, concrete)	TBA	4.15	13	Rock & Dirt Recycling Windsor
Heavy recyclable materials (rubble, brick)	TBA	2.15	14	Rock & Dirt Recycling Windsor
Light recyclables: (cardboard, timber, paper, plastic)	TBA	0.5	Timber: 20 Plastic: 7	Bingo Industries Eastern Creek
Metals (ferrous, non-ferrous)	TBA	2.3	11	Metal Merchants Riverstone
Putrescible waste (Green Waste)	TBA	7.3	N/A	Northwest Recycling Riverstone
Asbestos contaminated soil**	5,000	10	N/A	To be encapsulated on site in accordance with the RWP (JBS&G 2023)

*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 wal2708_construction_waste_a4_v2_singles.pdf (wastenet.net.au)

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5.3 Recycling Directory

Construction and demolition 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. Refer to Home - Business Recycling for additional locations.

Table 5-3: Recycling Directory

Material	Business Name	Suburb	Distance (km)
Excavation material	Various	Sydney Metro	Up to 50
Green waste	Northwest Recycling Centre Riverstone	Riverstone	14.5
	SUEZ Eastern Creek	Eastern Creek	3.7
Bricks	Rock & Dirt Recycling Windsor	Clarendon	24
Tiles	Rock & Dirt Recycling Windsor	Clarendon	24
Concrete	Bingo Industries Eastern Creek	Eastern Creek	5.6
Timber	Bingo Industries Eastern Creek	Eastern Creek	5.6
Plasterboard	Bingo Industries Eastern Creek	Eastern Creek	5.6
Metals	Rock & Dirt Recycling Windsor	Clarendon	24
	SUEZ Eastern Creek	Eastern Creek	3.7

5.4 Operational Measures

5.4.1 Training/ Site Inductions

All staff employed during the demolition and construction stages 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).

5.4.2 Materials Selection and Ordering

- Moits will arrange for VENM material to be imported and will ensure the waste classification of materials is approved for proposed imported material to carry out bulk earthworks
- Materials requirements are to be accurately calculated to minimise waste from overordering;
- Safety Data Sheets (SDS) are to accompany all materials delivered to site, where required, to ensure that safe handling and storage procedures are implemented.

5.4.3 Waste Avoidance Opportunities

- Limiting unnecessary excavation;
- Selection of construction materials taking into consideration to their long lifespan and potential for reuse;
- Reuse of formwork;
- Planned work staging;
- 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;

5.4.4 Site Procedures

- Excavated materials will be used onsite where possible;
- 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;

5.5 Location and Design of Waste Management Facilities

5.5.1 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.

5.5.2 Waste and Recycling Receptacles

A sufficient quantity of skip bins should be provided for the separate storage of each type of construction 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.

Moits propose to adopt a traditional waste management strategy, whereby waste is deposited into a single comingled skip bins to be managed by the site team and sorted offsite.

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.

5.5.3 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:

Standard recycling signs (nsw.gov.au)

5.5.4 Space and Siting Requirements

The waste storage areas will be located to enable easy access and allow sufficient space for the required skip bins and servicing requirements.

The storage areas will also be flexible in order to cater for change of use throughout demolition and 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 areas 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

A traffic plan identifying transport routes within the site to mitigate double handling and ensure efficient movement of vehicles around the site is to be produced by the site contractor prior to commencing works on site.

5.5.5 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 Supervisor 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 to reduce spillage of waste while in transit.

All waste collection for construction works will be conducted between approved hours as per DA Consent Conditions (typically between 7am and 6pm Monday to Friday, and between 8am and 1pm on Saturdays).

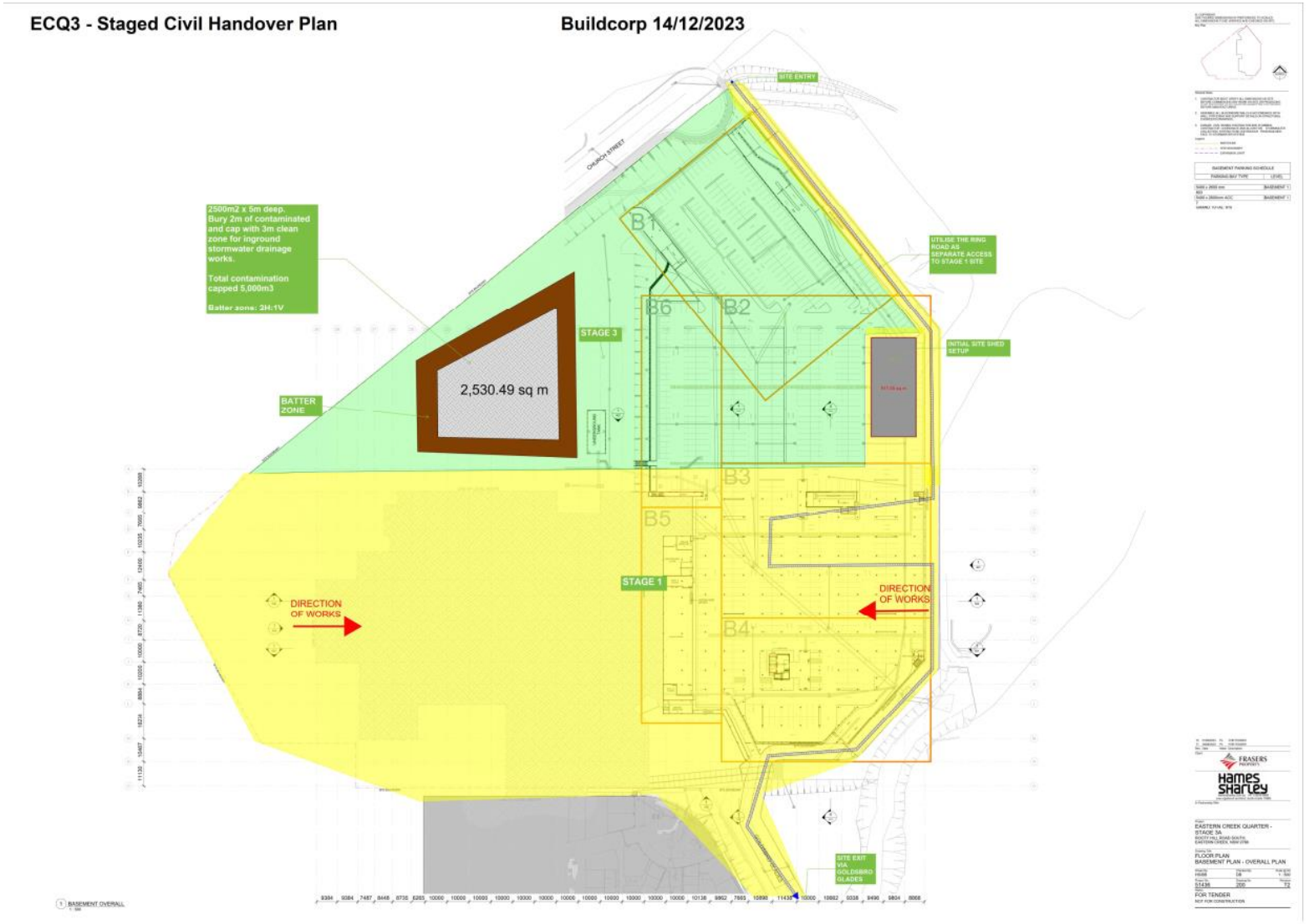
All waste generated on site will be transported to an approved and appropriately licensed resource recovery facility and/or landfill site and records kept using GPS trackers, NSW EPA WasteLocate (or similar) and waste

tracking. This excludes any bonded ACM, which is to be capped and contained in an onsite engineered containment cell (JBS&G, 2023).

The wheels of any vehicle, trailer or mobilised plant leaving the site are to be cleaned of debris prior to leaving the premises.

5.5.6 Proposed Staging Plan

The proposed staging plan is presented below, the area where approximately 5,000m^3 of asbestos impacted soil is proposed to be encapsulated on site is presented below.



6 Limitations and Disclaimer

This report has been prepared for the exclusive use of the client and is limited to the scope of the work agreed in the terms and conditions of contract (including assumptions, limitations and qualifications, circumstances and constraints). ADE has relied upon the accuracy of information and data provided to it by the client and others.

ADE has used a degree of care and skill ordinarily exercised in similar investigations by reputable members of the environmental industry in Australia. No other warranty, expressed or implied, is made or intended. No one section or part of a section of this report should be taken as giving an overall idea of this report. Each section must be read in conjunction with the whole of this report, including its appendixes and attachments. The report is an integral document and must be read in its entirety.

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This Limitation and Disclaimer must accompany every copy of this report.

7 References

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Appendix A – Figures

REGIONAL MAP
SOURCE: http://www.whereis.com/

LEGEND

STAGE 3 SITE BOUNDARY

NOTE:
ALL LOCATIONS ARE APPROXIMATE
DIMENSIONS IN METRES.

AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM, 13 MAR 2024.

revision	no.	description	drawn	approved	date
	A	FIRST ISSUE	MC	EG	09/05/24

0 50 100 150 200 250
SCALE 1:5000 @A3 METRES

drawn	MC
approved	EG
date	09/05/2024
scale	AS SHOWN
original size	A3

client: MOITS PTY LTD

project: CONSTRUCTION WASTE MANAGEMENT PLAN
41 GRAND AVENUE, EASTERN CREEK, NSW

title: SITE LOCATION PLAN

project no: A1010240214.00 | figure no: FIGURE 1 | rev: A

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Appendix B – Example Waste Management Register

Waste Type	Amount		Destination		
			Reuse and Recycling		Disposal
	Volume (cubic metres)	Weight (tonnes)	**Onsite (how will materials be reused and/or recycled on site?)**	**Offsite (Specify the contractors and the recycling facility)**	Specify the contractor and/or landfill site/ transfer station
Excavation material					
Garden waste					
Asbestos (include the WasteLocate consignment number from the asbestos transporter)					
Glass					
Bricks, Tiles and Concrete					
Timber					
Plasterboard					
Metals (specify)					
Carpets, paints, plastics, PVC tubing etc					
Other (specify)					
How and where will materials be stored onsite for reuse and recycling? (e.g. in skip bins located near entry)					
How will site operations be managed to ensure minimal waste creation and maximum reuse and recycling? (e.g. staff training, feedback from waste management service provider, ongoing check by site managers, separate area set aside for sorted wastes, clear signage for waste areas etc.)					
How will this plan be evaluated and who is responsible for the evaluation? (e.g. feedback from staff collected by the site manager).					

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Appendix 1.5 – Construction Soil & Water Management Sub Plan

Geotechnical Services
On Budget. On Time. Professional Service

Construction Soil and Water Management Sub-Plan

For

Moits Pty Ltd

At

Eastern Creek

Rooty Hill Road South NSW 2766

Report E11250-1

29th May 2024

Document Control

Eastern Creek Stage 3, Rooty Hill Road South NSW 2766

Prepared for: Moits

Revision	Date	Author	Reviewer
Rev 0	3rd May 2024	IK	Dr Jeffery Yu
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Report Issued: 29th May 2024

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Reviewed By:

Jeffrey YU
Principal Environmental Consultant

Revisions to this Construction Soil and Water Management Sub Plan shall be made as required to reflect the current system requirements or the requirements of the Principal Contractor.

Disclaimer: This Document is subject to Limitations Notes

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List of Abbreviations

- AHD – Australian Height Datum
- ANZECC – Australian and New Zealand Environment Conservation Council
- ARI – Average Recurrence Interval
- ASS – Acid Sulphate Soils
- BCC - Blacktown City Council

- BOM – Bureau of Meteorology
- CEMP - Construction Environmental Management Plan
- CLM Act – Contaminated Land Management Act 1997
- COPC – Contaminants of Potential Concern
- CSWMSP - Construction Soil and Water Management Sub Plan
- DEC – NSW Department of Environment and Conservation
- DPE – NSW Department of Planning and Environment
- DP – Deposited Plan
- DSI – Detailed Site Investigation
- EC – Electrical Conductivity
- ENM – Excavated Natural Material
- EPA – NSW Environmental Protection Authority
- EP&A Act – Environment Planning and Assessment Act 1999
- ESC - Erosion and Sediment Control
- ECQ – Eastern Creek Quarter
- ESL- Environmental Screening Levels
- LGA – Local government area
- NATA – National Association of Testing Authorities
- NEPC- National Environmental Protection Council
- NTU- Nephelometric Turbidity Units
- OEH – NSW Office of Environment and Heritage
- POEO Act – Protection of Environment Operations Act 1997
- PPE – Personal Protective Equipment
- RAP – Remediation Action Plan
- RWP – Remedial Works Plan
- SAP - Stabilized Access Points
- SOP – Standard operating procedure.
- TSS – Total Suspended Solids
- VENM – Virgin Excavated Natural Material

1 Introduction

1.1 Overview

Atlas Geotechnical Service Pty Ltd (AGS) was engaged by Moits Pty Ltd (the client), to prepare a Construction Soil and Water Management Sub Plan (CSWMSP) as part of the Construction Management Plan (CMP) for the development of Stage 3 of the commercial/industrial Eastern Creek Quarter (ECQ) Retail Development (the site – Appendix A – Figure 1).

The CSWMSP outlines the mitigation measures that will be implemented to prevent and minimize soil and surface water quality impacts from the activities as well as the monitoring and reporting requirements of the Project.

This Plan should be read in conjunction with the following plans:

- Construction Pedestrian and Traffic Management Sub-Plan
- Construction Noise and Vibration Management Sub-Plan
- Air Quality Management Sub-Plan
- Construction Waste Management Sub Plan
- Biodiversity Management Plan
- Vegetation Management Plan

This Sub-Plan has been prepared to address the requirements of the Development Consent in response to Application No - SSD 31515622.

1.2 Project Description

Development:

Construction and operation of Phase A of the retail outlet centre in accordance with Concept Plan (SSD-10457), including:

- a single-storey retail factory outlet centre with 101 tenancies
- extension of ECQ Social including a multi-purpose outdoor area with play spaces, passive recreation and alfresco dining;
- tree and vegetation clearing and associated landscaping works;
- signage zones;
- 1,171 car parking spaces (at-grade and basement);
- external infrastructure upgrades, including the upgrade of the Rooty Hill Road South / Church Street 4-way signalised intersection. (Construction Management Plan, Frasers Property Australia, August 2022).

2 Existing Environment

2.1 Site Description and Identification

The site comprises of large property of vacant land, gently sloping down from the northwest to the southeast.

The site locality is shown in Appendix A - Figure 1, summarised as follows:

- The site is identified as part of Lot 1 in Deposited Plan (DP) DP1260111 and part of Lot 12 in DP 1245264.
- The site covers an area of approximately 8 hectares (ha).
- The site currently resides in unzoned land – western Parklands.
- The site is currently vacant.
- The site has an elevation of approximately 8.5 m above sea level Australian Height Datum (AHD).
- The approximate geographic coordinates of the middle of the site, inferred from SIX Maps are -33.781804S 150.855244E.

2.2 Geology

An examination of the 1:250,000 Geological maps of Sydney sourced from the NSW Department of Mineral Resources reveals that the location is situated upon the Triassic-era Bringelly Shale subgroup within the Wianamatta Shale Group and Liverpool Subgroup (Rwl). This stratum is characterized as 'Shale with some sandstone beds'. It consists of black to dark alluvial and estuarine-derived grey shale and laminites, carbonaceous claystone, fine and medium-grained lithic sandstone, and infrequent occurrences of coal.

The eastern boundary of the site is located on Quaternary-era fluvial sediments consisting of fine-grained sand, silt, and clay. Winamatta Shale is anticipated to be encountered at depths ranging from approximately 10 to 20 meters below ground surface (m bgs), and it is underlain by Hawkesbury Sandstone.

Upon examining the Soil Landscape of Penrith 1:100,000 Sheet 9030 (NSW DP&E 20105), it is probable that the site encompasses the Blacktown Residual soil landscape predominantly in its western sector, transitioning into the South Creek soil landscapes towards the east. These are characterized by floodplains, valley flats, and drainage depressions associated with Eastern Creek. (JBS&G,2023)

Figure 2-1 – 1:250,000 Geological Map of the Syndey Region

2.3 Acid Sulphate Soils

A review of the Acid Sulphate Risk Maps sourced from eSPADE v2.2 indicates that the site lies within an area classed as 'No Known Occurrence' for which Acid sulphate soils (ASS) are not known or expected to occur in these environments.

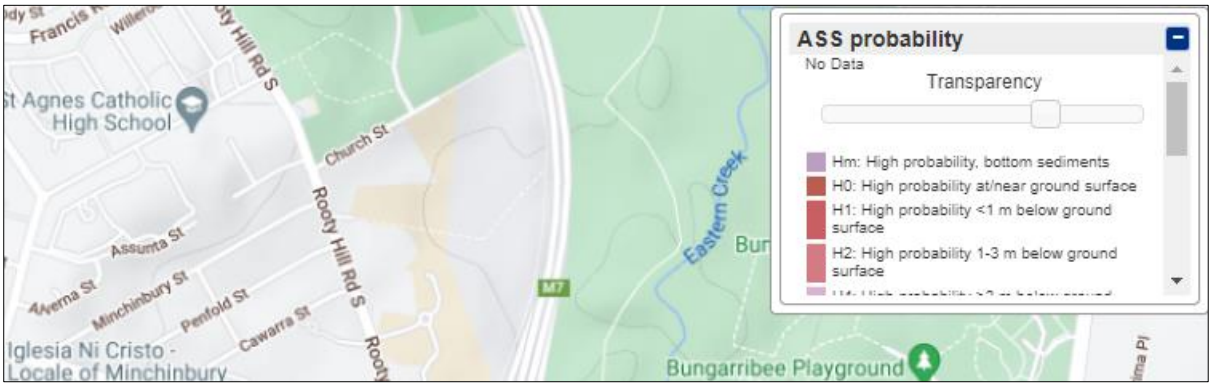

Figure 2-2 Acid Sulphate Risk Map

2.4 Topography

The site is generally flat and slightly undulating, and gently slopes down from the northwest to southeast. Elevation lies between 38 and 53 metres Australian Height Datum (m AHD). The site and surrounding regional area elevation gently declines from west to east towards Eastern Creek

2.5 Hydrology and Hydrogeology

The closest flowing surface water body is Eastern Creek, located approximately 300 m to the east of the site. Eastern Creek comprises a part of the Prospect Reservoir drainage line (located approximately 4 km to the southeast of the site, approximately 70 m AHD) which ultimately discharges at the Hawkesbury River (located approximately 20 km to the north of the site, approximately 9 m AHD). The Eastern part of the site near the M7 motorway lies in the Low- Medium Flood Risk zone as per the Blacktown City Council Flood Map of existing regional flood extents (Appendix A – Figure 3)

A review of the Water NSW Groundwater database indicated there are no registered groundwater monitoring bores located within a 500m radius of the site.

Localized surface water drainage channels were identified, featuring a narrow, deeper grass-covered open drainage channel traversing the central section of the premises. Additionally, a recently constructed stormwater drainage channel originating from the southwest corner of the site, adjacent to Beggs Rd cul-de-sac to the east, was noted.

Given the non-paved characteristics of the site surfaces, precipitation is anticipated to primarily permeate the soil, while any surplus rainfall will be collected within the surface drainage channels, directing flow towards the east and ultimately discharging into Eastern Creek. A vegetated area containing reeds is situated to the southeast, coinciding with the observed stormwater infrastructure. In areas of varying elevation where surface water accumulation is probable, mechanisms such as evaporation, evapotranspiration, and/or soil infiltration are anticipated to mitigate the buildup of surface water.

Furthermore, a man-made channel beneath the M7 Motorway facilitates drainage into Eastern Creek. (JBS&G 2023, JBS&G 2017).

3 Legislative and Regulatory Framework

3.1 Legislation

- Key legislation relevant to Soil and Water management includes:
- Environmental Planning and Assessment Act 1979 (EP&A Act)
- Environmental Planning and Assessment Regulation 2021
- Contaminated Land Management Act 1997 (CLM Act)
- Protection of the Environment Operations Act 1997 (POEO Act)
- Protection of the Environment Operations (General) Regulation 2021
- Water Management Act 2000
- Water Management (General) Regulation 2018

3.2 Guidelines and Standards

- Guidelines and standards relating to the management of soil and water include:
- Australian and New Zealand Guidelines for Fresh and Marine Water Quality (collectively known as the ‘ANZECC Guidelines’) (ANZECC 2000).
- Australian and New Zealand Guidelines for Water Quality Monitoring and Reporting (collectively known as the ‘ANZECC Guidelines’) (ANZECC 2000).
- Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2018 (ANZG 2018).
- Australian/New Zealand Standard 1547:2012 – On-site domestic wastewater management
- Australian Standard 1940-2004 – The storage and handling of flammable and combustible liquids

- Contaminated Land Guidelines - Consultants reporting on contaminated land (NSW EPA 2020)
- Floodplain Development Manual – The management of flood-liable land (NSW Department of Infrastructure, Planning and Natural Resources 2005)
- Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997 (EPA 2015)
- Guidelines for the NSW Site Auditor Scheme (3rd edition) (EPA, 2017)
- Managing Urban Stormwater: Soils and Construction (the 'Blue Book') (Landcom (2004)).
- Managing asbestos in or on soil (SafeWork NSW, 2014)
- Managing Land Contamination: Planning Guidelines SEPP 55 – Remediation of Land (Department of Urban Affairs and Planning & Environment Protection Authority 1998)
- WH&S Code of Practice How to Manage and Control Asbestos in the Workplace (SWNSW 2022a)
- Code of Practice – How to Safely Remove Asbestos (SWNSW 2022b).

3.3 Project Compliance Requirements

Prior to the commencement of this project, management sub-plans are implemented according to the SSD-10457 B6 Consent Conditions.

Table 3-1 Condition B6 Compliance Table

Condition	Condition Requirements	Document Reference
B6	Construction Soil and Water Management Sub-Plan (CSWMSP) which must be prepared by a suitably qualified expert, in consultation with Council	Appendix C
	Describe all erosion and sediment controls to be implemented during construction	Section 6.1
	Provide a plan of how all construction works will be managed in a wet weather event. (i.e. storage of equipment, stabilisation of the Site)	Section 6.3
	Detail all off-site flows from the Site	Section 6.4
	Describe the measures that must be implemented to manage stormwater and flood flows for small and large-sized events, including, but not limited to 1 in 1-year ARI, 1 in 5-year ARI and 1 in 100-year ARI.	Section 6.5

3.3.1 Objectives

The objectives of the Sub-Plan are to ensure:

- Compliance with the Development Consent;
- Appropriate erosion and sediment controls are implemented to minimise pollution of surface water;
- Appropriate controls are implemented to minimise leaks and spills, prevent pollution of groundwater and maintain the existing water quality of the receiving environment;

- Adequate processes are implemented to manage contaminated land and/or potentially contaminated groundwater in accordance with Detailed Site Investigations (DSIs) and Remediation Action Plans (RAPs) where applicable;
- Reasonable and feasible measures are implemented to reduce the potential for drawdown of surrounding groundwater resources.

4 Roles and Responsibilities

All project personnel including subcontractors have responsibilities in ensuring that the strategic plan of soil and water management is to be implemented during all construction works. The list is as follows:

Table 4-1 Roles and Responsibilities

Role	Responsibilities
Project Manager	• Coordinating CEMP activities of all personnel involved • Ensure appropriate resources are implemented and maintain soil and water management key objectives. • Adhering to the soil and water management sub-plan • Carrying out mitigation measures to ensure and promote soil and water controls are properly maintained
Environmental Management Representative	• Planning Environmental Controls • Manage the onsite application of soil and water management measures during the construction stage of the project. • Monitor and report on soil and water management during construction.
Senior Project Engineer	• Carry out reports and inspections • Liaising with the Project Manager of all mitigation measures are taken in accordance with the soil and water management sub-plan
Project/Site Engineers	• Ensure all appropriate measures are implemented and maintained on-site
All Construction Workers	• Notifying the site foreman of any soil and water management issues that appear • Carry out work in accordance with the requirements of this CEMP in conjunction with the latest drawings issued for construction • Immediately report all environmental incidents to Moits' representative

5 Environmental Aspects and Impacts

5.1 Construction Activities

Key aspects of the Project that could result in adverse impacts to soil and water include:

- Site establishment;
- Vegetation clearing and tree removal;
- Site access;
- Bulk and Detailed Earthworks;
- Cut and fill (with balance of import materials);
- Culvert and drainage works;
- Material stockpiles;
- Concrete activities;
- Construction discharges including surface water runoff and dewatering of sediment basins and farm dams; and
- Ancillary facility operation including fuel and chemical storage, refuelling and chemical handling.

5.2 Impacts

The potential for impacts on soil and water will depend on several factors. Primarily impacts will be dependent on the nature, extent and magnitude of construction activities and their interaction with the natural environment. Construction-related risks associated with climate change such as more frequent extreme rainfall events, extreme heat and wind conditions and increased bushfire risks may also exacerbate the below impacts.

Potential impacts to soil and water quality from construction are summarised in Table 5-1:

Table 5-1: Summary of potential construction soil and surface water quality impacts

Aspect	Potential Impact
Site establishment including setting up long-term facilities, and trenching to facilitate utility adjustments	• Potential for dust or sediment from construction materials to be blown offsite, impacting neighbours. • Transportation of soils, spoil, and construction products (such as sand and aggregates) into surface water runoff and surrounding watercourses
Clearing of vegetation and topsoil stripping during site establishment	• Potential for sediment-laden runoff to wash offsite into stormwater systems and the receiving environment
Temporary Site facilities – sewer connections and use of portable toilets	• Potential for sewer overflows to discharge into stormwater systems and receiving environment.
Storage and use of Hazardous substances near stormwater and waterways	• Contamination of receiving watercourse and stormwater systems as a result of a spill or leakage • Potential for soil contamination as a result of a spill

Operation and management of the site and heavy vehicles - use of plant and equipment - material/soil stockpiling loading and haulage	• Potential leak or spill, oils and fluids causing land and water contamination caused by the release of hydrocarbons. • Potential for tracking of sediment onto public roads, leading to traffic safety issues and pollution of stormwater systems and receiving waters. • Potential for dust to be generated off-site through tracking. • Potential for sediment to be washed into drainage systems and/or directly into receiving waters, causing pollution. • Potential road user safety risks from sediment and gravel on roads • Stockpiled soils migrating offsite
Discharge of sediment-laden water from wheel wash facilities.	• Migration of sediment into nearby stormwater systems and/or waterways
Discharge of water detained onsite following heavy rainfall / localised flooding	• Runoff entering drainage lines causing pollution and impacting aquatic life downstream • Discharge of turbid water from excavations and sediment basins impacting receiving waters.
Treatment of groundwater inflows and release to surface water	• Potential changes to surface water quality or quantity • Potential impacts on downstream water users.
Dewatering of excavations and from groundwater inflows and stormwater	• Turbid or saline water to enter stormwater systems and subsequently causing degradation of freshwater habitat and water quality
Impacts on groundwater levels and groundwater quality.	• Potential reduction in groundwater levels resulting in impacts on other groundwater users. • Potential for dewatering of surrounding aquifers. • Potential for groundwater drawdown-induced ground settlement impacts on properties and infrastructure.
Unexpected finds of contaminated spoil or groundwater during excavation at the worksites.	• Potential for contaminated soils to be encountered during excavation at the worksites • Potential for encountering contaminated groundwater • Potential for unexpected contamination finds, including asbestos
Known contaminated sites and spoil	• Potential for contaminated soils to be encountered during excavation • Potential for encountering contaminated groundwater • Potential for unexpected contamination finds, including asbestos • Potential for contaminants to enter drainage systems and • result in degradation of aquatic habitat and water quality

6 Soil and Water Mitigation and Management Factors

This section describes the measures that the Contractors will implement to minimise soil and water impacts produced by the construction activities of this project. All measures must be implemented, and any activities must be identified in accordance with the CEMP These control measures are in accordance with *Managing Urban Stormwater: Soils and Construction (Landcom, 2004).*

6.1 Soil Erosion control measures

This soil and water management sub-plan has been developed for the construction area to prevent further contaminations on site. The controls will adhere to the plan and be updated and reviewed frequently. Each control will be managed and installed before the beginning of the early works construction.

Prior to or concurrent with earthworks, temporary measures will be installed to prevent sediment-laden water from leaving the site and polluting clean water systems. These measures, outlined in the Blue Book, include sediment fences, sediment traps, and rock check dams. They serve as a short-term solution while more permanent erosion and sediment control structures are established or in emergencies where permanent solutions are impractical.

Erosion and Sediment Control Plans will, as appropriate include the following:

- Seek to divert ('clean') rainwater from interfacing with the construction site with soils and divert stormwater away from the construction site area;
- Maximum sediment capture through effective positioning of temporary erosion and sediment control structures;
- Use of water-efficient fittings and fixtures where reasonable and feasible for temporary site facilities;
- Any spillage or build-up of such material or debris would be cleaned up prior to rainfall or the end of each shift;
- Regular inspection and maintenance of all erosion and sediment controls to ensure they are effective.

Selected sediment control structures with function and design capacity are given in Table 6-1 below -

Table 6-1: Sediment control Structures

Sediment Control Structure	Function	Design Capacity
Upslope diversion drains	Reduce runoff from undisturbed areas onto disturbed areas	Peak now calculated for 1 in 10-year critical duration rainfall event (Landcom (2004), Section 5.4.3(b)-(d))
Downslope collection drains	Intercept and convey disturbed area runoff water to sediment dams/sumps	Peak now calculated for 1 in 10-year critical duration rainfall event (Landcom (2004), Section 5.4.3(b)-(d))

Sediment dams (Facilities)	Containment of sediment-laden runoff from disturbed areas with more than 150m^3/yr estimated soil loss (Landcom (2004), section 6.32(d))	**Settling Zone**: Capacity to store the runoff produced from the 85th percentile, 5-day rainfall event (Landcom (2004), Section 6.3.4(f) and (i)) **Sediment Zone**: Two months calculated soil loss estimated using RUSLE* (Landcom (2004), section 6.3.4(i))
Sediment fences and/or straw bale filters	Retention/filtration sediments of suspended	Limit flow to less than 50L/s in the design 1 in 10-year critical duration rainfall event (Landcom (2004), Section 6.3.7(e))

6.1.1 Stabilized Access Points (SAP/Rock Pads/Rumble Pad)

A stabilised means of access/egress for plant, machinery and vehicles intended to limit the transfer of dirt from the construction site to a road. (Appendix A - Figure 2)

SAPs must be –

- Installed prior to the start of the construction activity.
- Located at entry-exit points where vehicular traffic moves from sealed to unsealed surfaces.
- Constructed of sub-grad/base material. (e.g. 50 – 150mm rock ballast or clean recycled concrete. The size used is dependent on the weight of haulage vehicles.)
  Be wide enough to accommodate at least traffic flow (e.g. 3m for a single lane or 2.5 metres for each lane).
- Have a minimum thickness of 200mm.
- of sufficient length (minimum 15 metres) to ensure maximum roll-over capacity for the size of vehicular traffic leaving the site.
- regraded/have subgrade/base material replaced regularly to ensure continuing effectiveness.
- designed and constructed to ensure that construction entrances do not divert dirty water from the site onto the roadway.
- made safe for pedestrian access. (Cover relevant areas with 25-50mm aggregate.)

6.1.2 Silt/Sediment Fencing

Sediment filter fences, or other temporary controls as needed, will be strategically positioned downslope of disturbed areas to minimise sediment transport into receiving waterways. These fences are constructed according to Best Practice Erosion and Sediment Control Guidelines (Landcom, 2004) and typically consist of a temporary barrier of geotextile filter fabric supported by structural posts. (Appendix A - Figure 2)

Silt/Sediment fencing should be –

- installed prior to the start of construction activity. (Note: The area below a silt fence should remain undisturbed or stabilised).
- Remain in place until all sediment-creating activities have been completed.
- installed within the site boundary.
- installed to ensure that surface water flows through and not underneath the fence.
- installed with a stable outlet or overflow point in case the flow rates exceed the fence's capacity to filter water.
- Follow the natural contours of the land. Installation must consider any stormwater concentration.
- Not run downslope without regular 'turn outs', as this will concentrate water flows along the fence and create scour/erosion.
- trenched in at least 150 mm and buried so the water flows through and not underneath.
- 1.5-metre-long posts into the ground, maximum 3 metres apart.
- inspected regularly (especially after storms) and maintained in a serviceable condition. (e.g. trapped sediments removed, posts/pickets straightened, filter cloth resecured and tightened and reinstalled/rectified).

6.1.3 Kerb Inlet Sediment Control

A temporary barrier is used to trap sediment upslope of a roadside kerb inlet. Sediment is mainly captured by the settling process due to gravity in the transient pond that forms around the inlet. (Appendix A - Figure 2)

- Should be installed prior to the start of the construction activity;
- Remain in place until all sediment-creating activities have been completed;
- Be installed with an overflow point in case the flow rates exceed the bag's capacity to filter water;
- The key design element is the sediment barrier's height, which determines the ponding's depth and spread;
- The sediment barrier should be placed with a minimum spacing of 125mm from the side entry kerb inlet;
- It is recommended that the sediment barrier should be 150mm high;
- The suggested size for aggregate ranges from 15mm to 25mm;
- Sandbags as sediment traps on open public roads are not recommended;
- Be installed to ensure the safety of road users and pedestrians;
- Not extend more than 1 metre into a trafficable road;
- Be inspected regularly (daily) and maintained in a serviceable condition. (e.g. trapped sediment removed, broken bags replaced, bags realigned/repositioned, etc.).

6.1.4 Soil Stripping and Stockpiling

- Stockpile areas should be established in approved, low-hazard locations away from watercourses, stormwater drainage lines, culverts, and outside the dripline of any retained trees where feasible and practical;
- Diversion drains or bunds must be installed on the upslope side of stockpiles to mitigate potential impacts from runoff;
- Stockpiles containing contaminated materials (e.g., asbestos, contaminated soil) must be covered while on-site. Short-term material stockpiles with potential dust generation should be either wetted down or covered to control fugitive dust emissions and prevent runoff during wet conditions. Long-term stockpiles (exceeding 30 days) should be stabilized and/or covered as per the guidelines outlined in the "Blue Book";
- Topsoil stockpiles should be constructed with a maximum height of 4 meters where possible;
- Stockpiles must be situated at least 5 meters away from areas of concentrated water flow and more than 10 meters from any watercourse;
- The maximum height of stockpiles should not exceed 4 meters, and slopes should be no steeper than a 2:1 ratio (Appendix B – Erosion and Sediment Control Details/Plan);
- Appropriate sediment control measures must be implemented before the commencement of stockpiling activities;
- Stockpiles intended to remain in place for more than 20 days, or those susceptible to wind or water erosion, must be covered or otherwise protected from erosion within 10 days of their formation.

6.2 Sediment Control

Sediment basins are designed to capture and provide settlement time for colloidal suspended particles with treatment. These basins are located to achieve maximum water flows from the disturbed catchments only and require other controls to ensure that clean water from undisturbed catchments is not directed to these basins.

6.2.1 Sediment Basins/traps

- Sediment basins must be fully functional and operational before any soil disturbance commences within their catchment area (Appendix A – Figure 5).
- The controlled discharge (e.g., dewatering activities from excavations and sediment basins) of any water, including groundwater or sediment-laden water, from the site during construction shall comply with the following water quality objectives:
    - Total Suspended Solids (TSS): Maximum 50mg/L
    - Water pH: Between 6.5 and 8.5, unless otherwise specified by the Local Authority/council.
    - Turbidity: Maximum 60 Nephelometric Turbidity Units (NTU)
    - Electrical Conductivity (EC): Levels no greater than background levels.
- In anticipation of any predicted weather event with a high likelihood of generating sediment-laden runoff on the site, existing detention basins or traps will be proactively dewatered. This

action will ensure sufficient capacity to capture the anticipated sediment-laden water during the weather event.

- The flocculant or coagulant used in Type D basins to treat captured turbid water must be applied at concentrations sufficient to meet the Local Authority's water quality objectives, as outlined in these conditions. This treatment shall achieve the required water quality within X days following a rainfall event, which corresponds to the rainfall depth used to determine the basin's capacity.
- All manufacturer's instructions for the on-site use of chemicals or agents must be strictly followed unless otherwise approved by the designated responsible person or a relevant Local Authority/Council Officer.
- Adequate quantities of chemicals or agents for treating turbid water shall be strategically positioned to ensure thorough mixing with incoming basin/sediment trap water before it enters the basin/trap.
- Once captured water within a basin meets the Local Authority's water quality objectives outlined in these conditions, the basin should be dewatered as soon as practicable.
- In instances where multiple development stages occur concurrently, or where a stage commences before the full completion of the preceding one, the sediment basin(s) serving these stages must possess sufficient capacity to accommodate drainage from all areas directed towards them.
- Settled sediment must be removed from any sediment basin as soon as reasonably practicable under the following circumstances:
    - Impending Storm Event: If the next anticipated storm event is likely to cause sediment to accumulate above the basin's designated sediment storage zone.
    - Full Sediment Storage Zone: If the level of settled sediment exceeds the top of the basin's designated sediment storage zone.
    - Sediment Marker Exceeded: If the level of settled sediment surpasses the established sediment marker line within the basin.
- Sediment basins will be installed as necessary to capture and treat sediment-laden runoff from disturbed areas before release off-site. The use of flocculants or other ameliorative agents to reduce suspended sediment concentrations will be assessed on a project-by-project basis.
- The design of sediment basins will adhere to the methodology and parameters outlined in Landcom (2004). Specifically, Equations 1, 2, and 3 below can be used to calculate the required settling zone capacity, sediment storage zone capacity, and consequently, the overall basin capacity.

    - Settling Zone Capacity (m^3) = $V_{settling} = 10 \times C_v \times A_1 \times R_{(y\ \%ile,\ 5\ day)}$ (1)
      where:
        - 10 is a unit conversion factor.
        - C_v is a volumetric runoff coefficient, defined as that proportion of rainfall that runs off as stormwater {to be calculated from Appendix F – Table F2 – (Landcom 2004)}. [Based on the 85^{th} %ile 5-day rainfall depth for Blacktown

(32.2mm) the volumetric runoff coefficient can be taken as 0.64 with high runoff potential.]

- A_1 is the catchment area of the basin (hectares).
- $R_{(y\ \%ile,\ 5\ day)}$ is the 5-day total rainfall depth (mm) that is not exceeded in y per cent of rainfall events. The 80th, 85th, and 90th percentile 5-day rainfall event, which can be used in determining the sediment basin settling zone capacity are 24.6mm, 32.2mm, and 43.2 mm respectively from the values of Blacktown as given in Table 6.3a in Landcom (2004).

- Sediment Zone Capacity (m^3) = $V_{sediment} = \frac{0.17 \text{ x } (A2)\ [R*K*LS*P*C]}{1.3}$ or 50 per cent of the capacity of the settling zone whichever is higher.
  - 0.17 is a factor to convert the annual calculated soil loss to the 2-month soil loss;
  - A2 is the Disturbed Catchment Area (ha);
  - R is the RUSLE R-factor (rainfall erosivity factor); Appendix A2 – Landcom 2004;
  - K is the RUSLE K-factor (soil erodibility factor); Appendix A3 – Landcom 2004;
  - LS is the RUSLE LS-factor (slope length/gradient factor); Appendix A4 – Landcom 2004;
  - P is the RUSLE P-factor (erosion control practice factor); Appendix A5 – Landcom 2004;
  - C is the RUSLE C-factor (ground cover and management factor); Appendix A6 – Landcom 2004;
  - 1.3 is a factor to convert tonnes to cubic metres, assuming a typical density of saturated sediment of 1.3;

- Required Basin Capacity (m^3) = $V_{total} = V_{settling} + V_{sediment}$ (3)

Where; $V_{settling}$= Settling Volume
$V_{sediment}$= Sediment Volume
V_{total} = Total Volume
A = catchment area of the sediment basin (ha)

Temporary Construction Sediment Basin – Type "D" Soils – (Subject to Change)
Basin Volume = Settling Zone Volume + Sediment Storage Zone

Settling Zone Volume:

The settling zone volume for Type-D soils is calculated to provide capacity to contain all run-off expected from up to the 85th percentile rainfall event.

Volume (V) = 10*C_v*A*R(85%ile 5 Day) m³

Catchment Area – Assumed 2 ha
C_v = 0.64
A = 2.00 ha
R = 32.2 mm

Settling Zone Requirement
$V_{settling}$ = 412 m³/ha

Sediment Storage Zone Volume:

The sediment storage zone is the soil loss from the disturbed area of the catchment & is determined as being the greater of :-
* 50% of the settling zone volume
* volume determined by the revised universal soil loss equation (RUSLE).

Volume (V) = 0.17*A*(R*K*LS*P*C) m³
Area = Disturbed catchment area
R = R (Rainfall Erosivity Value) – Appendix B – BlueBook
K = S (Soil Erodibility Factor) – Appendix C – BlueBook
LS = LS (Slope Length/Gradient factor) – Appendix A – Bluebook
P = P (Erosion Control Practice Factor) – Appendix A – Bluebook
C = C (Cover Factor) – Appendix A – Bluebook
1.3 =Constant to convert tonnes to cubic metres Based on a typical density of saturated sediment of 1.3

A = 2.00 ha
R = 2500
K = 0.038
LS = 5% - 2.00
P = 1.3
C = 1

Sediment Storage Zone Volume
$V_{storage}$ = 84 m³
$V_{storage}$ < 0.5 $V_{settling}$
Adopt = 206 m³

Total Sediment Storage Requirement:
V_{total} = 618 m³/ha

Figure 6-1 Interim design calculations for Sediment Basin

- It is important to note that the interim design calculations provided in Figure 6-1 is for informational purposes only. The final, approved design for the sediment basin will be provided by Henry & Hymas.
- The cut-and-fill plan used in Appendix B - Sediment and Erosion Control Details was initially designed by Henry and Hymas.

6.3 Wet weather conditions

Climate data was obtained from the Bureau of Meteorology (BOM) website for Prospect Reservoir station 067019 for all available years. The weather monitoring station is less than 8km from the Project site location.

Data is presented in Table 6-2, showing that temperatures are warm in summer, with mild winters. Rainfall occurs throughout the year with slight summer dominance. The mean annual rainfall is 879.6 mm/yr.

Table 6-2 Annual average climate data for Prospect Reservoir Station (067019)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean Max Temperature (°C)	28.5	28.1	26.4	23.8	20.4	17.4	16.9	18.7	21.5	24.0	25.6	27.6	23.2
Mean Min Temperature (°C)	17.7	17.8	16.2	13.0	9.9	7.5	6.1	6.8	9.4	12.1	14.4	16.4	12.3
Mean Rainfall (mm)	95.2	99	102.5	75.5	68.5	75.5	57.8	50.2	46.3	59.9	73	75.7	879.6
Mean Rain days (>1mm)	8.1	8.2	8.6	7.1	6.4	7.0	5.7	5.7	6.1	6.9	7.3	7.6	84.7

Red = highest value Blue = lowest value

The annual average rainfall at the weather station is 879.6mm. There is a slight tendency for higher rainfall to occur in the summer months than in winter. December to March are the wettest months on average with the corresponding highest number of rain days exceeding 1mm, while the driest months are July to September.

A plan must be implemented to control how all construction works will be managed. The table below indicates the measures taken if weather conditions change:

Table 6-3: Measures to take in case of wet weather conditions

Description	Action
Daily Weather Forecast	Using daily weather updates from the Bureau of Meteorology (BOM) provides information to construction managers and project managers to plan appropriate mitigation measures in the event of wet weather conditions.
Pre-Rainfall event inspection	This inspection should be conducted prior to a rainfall event where it is a >80% probability of a 10mm or greater rainfall event on the BOM rainfall forecast. It includes – relocation of materials which can cause environmental incidents onto higher ground away from flood prone areas. This inspection is done to ensure that all erosion/sediment control measures and stabilization control measures are in place and in effective working order.
Inspections during rainfall events	Inspections of the site daily during a prolonged rainfall event to ensure that all erosion/sedimentation and stabilisation controls are functioning effectively, and no emergency repairs or maintenance is required.

	Note that this inspection during rainfall is subject to obtaining safe access to the site and should not occur if it will increase the environmental or safety risk, such as, mud tracking on public roads.
Post Rain Inspection	Post-rainfall inspection should be conducted after a rainfall event >10mm has occurred. These inspections should occur within 24 hours after the rainfall event and any maintenance requirements for the erosion/sedimentation and stabilisation controls should be identified. These inspections will also identify dewatering requirements onsite including testing and treatment of water captured in construction sediment basins and sumps.
Storage of Equipment	Site sheds and chemical stores should be constructed above the 10-year ARI level. Sufficient storage capacity should be available in the event of wet weather conditions which will include: - Sheds and containers will be placed in existing handstand pavements
Stabilisation of the site	• Excavation activities should be monitored so that if pumping is required this can take place to prevent spill-over in an uncontrolled manner. • All disturbed areas where works are complete must be progressively stabilised so that no completed areas remain exposed to potential erosion damage. • Unstable areas should be regularly stabilised with a biodegradable soil polymer or similar proactive ground cover to reduce the amount of sediment mobilised during rainfall. • Temporary ground covers such as hydraulic soil stabilisers or geotextile fabric will be used as much as possible to stabilise batters, stockpiles and large surface areas. • Rumble bar cattle grid is to be installed as the indicative stabilised site accessway for all construction workers driving into the site. This ensures that soil will not attach to truck wheels and end up on public roads.

It is important to note that, at the time of reporting, no flood models or past flood management reports were provided to AGS for review and reference.

6.4 All off-site flows from the site

Significant off-site flows, particularly concentrated flows, draining onto disturbed areas or slopes require control measures. These measures can include continuous berms, earth dikes, drainage swales, and lined ditches. Their purpose is to facilitate the controlled passage or containment of these flows, thereby minimising the risk of erosion on the disturbed areas (Appendix A – Figure 4).

Offsite flows/water runoff from the site will be directed to the proposed swale, then to the down-gradient basin, and finally to the Eastern creek. Any solids in the water will be collected and disposed of in a bin which will be emptied at a licensed waste facility.

To minimise or eliminate sediment discharge from disturbed areas or slopes that drain towards neighbouring properties, storm drain inlets, or receiving waterways during active construction, temporary linear control measures should be implemented. These measures can include continuous berms, silt fences, or sandbags. Additionally, the contractor must be prepared to stabilise these exposed soils with appropriate erosion-prevention techniques before any anticipated rainfall.

A vehicle wash-down area will be located at exit driveways to remove any soil or debris from vehicles before exiting the site. This will prevent tracking on the road networks. Cattle grids installed on top of the DGB will be located at the exits and water will drain in through the DGB into the ground (Appendix B).

6.4.1 Surface Water Management

- **Reuse**
  Where practicable, any water collected in excavations/work sites will be reused within the premises (e.g. dust suppression, watering retained vegetation). Approval must first be obtained from the Project's Environmental Coordinator prior to any discharge off the premises, or reuse within the premises, to ensure that water is suitable for reuse or discharge.

  For reuse of water onsite, the following criteria must be met:
  - pH – 6.5 to 8.5
  - No visible oil and grease
  - No potential for water to leave the premises
  - No surface runoff will be generated from the reuse (reuse includes dust suppression, watering retained vegetation etc.)
  - No potential for water to reach any watercourse.
- **Offsite Discharge**
  No water is to be discharged off-site until it is tested. Water is to be tested and treated as necessary to meet the following water quality criteria:
  - TSS: ≤ 50mg/L (~Turbidity 30NTU). If this cannot be achieved though natural settling, then the trapped sediment-laden water is to be flocculated with gypsum applied at a rate of approx. 40kg/100m3.
  - pH: Between 6.5 and 8.5
  - No visible oil and grease

6.5 Stormwater and Flood Flow Control Measures

The erosion and sediment control plans have been designed in accordance with the requirements of the NSW Department of Planning and Environment Manual, "Managing Urban Stormwater Soil & Construction" 2004 (Blue Book).

The terrain of the specified site slopes gently towards the southeast. As per the Blacktown City Council map (Appendix A – Figure 3), a portion of the site's eastern section falls within the Low to Medium Flood Risk Precinct. This classification applies to land situated below the 100-year flood level and is associated with a low hydraulic hazard, in accordance with the criteria outlined in the NSW Government Floodplain Development Manual of 2005.

Surface flows generated during storm events up to the 1 in 10-year storm event are treated by the sediment and erosion control measures implemented on site. Storm events greater than 1 in 10 years will overwhelm temporary control measures which are not typically sized to cater for such events in the Blue Book. Flows from larger events will flow to Eastern Creek.

During construction, stormwater runoff must be disposed of in a controlled manner that is compatible with the Erosion and Sediment Control (ESC) on the site. Immediately upon completion of any impervious areas on the site including roofs, driveways, paving) and where the final drainage system is incomplete, the necessary temporary drainage systems must be installed to reasonably manage and control runoff as far as the approved point of stormwater discharge.

The following mitigation measures will be implemented for the following scenarios:

General Management

- Storage of hazardous materials away from flow paths and known drainage channels;
- Layout of site compound facilities to take into consideration of the flow paths;
- Ensure evacuation routes are kept clear during high risk periods;
- Ensure loose materials, fuel, chemicals and equipment can either be secured or removed during a flood event if required.

1-year ARI

- Brief personnel at prestart;
- Review all current measures and controls;
- Stormwater would be managed using the following controls;
    - Silt Fencing
    - Diversion bunds
    - Coir logs/ sandbags/ silt socks

5 Year ARI

- Implement as above for the 1-year ARI event;
- Ensure all plant and equipment are removed from areas of concentrated flow;

100 Year ARI

- Implement as above for the 1-year ARI event;
- Remove all plant and equipment from site areas where there is potential for inundation;
- Perimeter controls are expected to be breached;

6.6 Water Testing and Monitoring Strategies

Water quality monitoring will take place for all dewatering works in accordance with the ANZG water quality guidelines. Where practicable any water collected in excavations/site works will be used within the premises (e.g. dust suppression, watering retained vegetation).

For reuse of water onsite, the following criteria must be met:

- pH – 6.5 to 8.5;
- No visible oil and grease;
- No potential for water to leave the premises;
- No surface runoff will be generated from the reuse (reuse includes dust suppression, watering retained vegetation etc.);
- No potential for water to reach any watercourse.

If stormwater is collected within the sediment storage basin and cannot be beneficially reused onsite, then the following water quality objectives in accordance with the ANZG water quality guidelines for freshwater 95% percentile are required prior to discharge:

- pH – 6.5 to 8.5
- Total Suspended Solids (TSS) <50mg/L
- No visible oil and grease

Treatment, validation, and discharge are required within 5 days of rainfall causing run-off that exceeds the sediment storage basin zone.

6.7 Contamination Management

Any contaminated/fill materials identified as not suitable for onsite management or is surplus to construction requirements are to be remediated by offsite disposal. Materials shall be classified in accordance with EPA (2014) Waste Classification Guidelines, or an appropriate exemption as created under the Protection of the Environment Operations (Waste) Regulation 2014

To ensure the fill is being taken to the correct landfill the subcontractor transporting the waste should provide details of the landfill site, the EPA licence details and confirmation that the landfill is authorised to receive that waste. Trucking docket records are to be kept on-site to check that fill material is going to the nominated landfills.

Any fill material requiring excavation within the site footprint should be reused, where suitable, on the site as engineering or landscaping fill as part of the remediation options for fill and Asbestos Contaminated Materials (ACM) as discussed in the Remedial Works Plan (RWP) (JBS&G, August 2023).

In the event of unexpected finds of contamination, the following will be implemented (in brief):

- Cease work in the area of concern immediately.

- Isolate the area with barrier tape or any other physical barrier to prevent workers from entering the potentially contaminated location.
- Report the area of concern to the Environment Manager and WHS Manager immediately. Nearby work groups would be notified.
- The Environment Manager will engage a suitably qualified contamination consultant to inspect the site and carry out an initial assessment of the nature and extent of the contamination.
- The Contamination Consultant will advise what management is required in accordance with this plan, any Planning Approval requirements and the contamination report prepared.
- Hazardous materials surveys would be undertaken during detailed design for utility adjustments as required.

Where contamination is encountered, workers will apply the appropriate Personal Protective Equipment (PPE). The appropriate PPE will depend on the contaminant type and the work to be undertaken. Appropriate PPE will be decided upon in consultation with an Occupational Hygienist.

6.7.1 Remediation and Validation

It is assumed that the remediation works will commence with AEC1 areas followed by AEC2 zones from the western boundary of the subject site area towards Rooty Hill Road South and Church Street (Appendix A – Figure 6).

Remediation works were undertaken in 2017 to consolidate known bonded and friable asbestos contamination within a containment cell in the broader ECQ development boundary to the east of the site (external to the site boundary), as documented in the EMP (WSP, 2017), (Appendix A- Figure 7).

AEC 1

Before starting any earthworks or remediation, the contractor must thoroughly inspect visible asbestos-containing material (ACM) across the designated areas on the ground surface, considering the fragments observed throughout the site. This inspection should include areas marked for future ground disturbance works (cut/fill works), as indicated in Appendix B, with concurrent slashing and inspection for bonded asbestos outlined in the RWP (JBS&G, August 2023).

Grass slashing, emu picking, and clearance inspection works are required to be completed under asbestos conditions SafeWork NSW, WH&S Code of Practice How to Manage and Control Asbestos in the Workplace (SWNSW 2022a), and Code of Practice – How to Safely Remove Asbestos (SWNSW 2022b).

AEC 2

As per the RWP (JBS&G, August 2023) soils found to be contaminated in AEC2 are suggested to remain onsite, with suitable physical separation to eliminate complete exposure pathways between the

source and receptors. This plan is contingent upon implementing proper physical segregation and maintaining management controls over time.

Where asbestos-contaminated soils are excavated and relocated to a containment location/borrow-pit on the site instead of leaving contaminated soils in situ, the remedial contractor, in consultation with the client and Environmental Consultant shall determine the appropriate location or locations for retained contaminated material. References can be made to the proposed containment cell location provided in the Sediment and Erosion Details/Plan (Appendix B).

The final placement location(s) are required to be surveyed and documented in accordance with the RWP (JBS&G, August 2023).

6.8 Temporary Stockpile Management

All excavated material is stored temporarily at the proposed stockpile location given in Appendix B. This proposed stockpile storage location will be used for temporary storage of –

- Excavated material unsuitable for reuse on the project;
- Excavation and temporary stockpiling of contaminated soils for further inspection or relocation;
- Site-won topsoil/natural material from the selected borrow pit/s locations will be excavated and temporarily stockpiled on the site for future use for filling in other areas of the site;
- Imported sands, soils, aggregates, recycled concrete products, topsoils, rock and engineered fills for use on the project;
- Vegetation waste post slashing of grass cover.

Cover asbestos-contaminated stockpiles with impermeable covers securely anchored to prevent exposure to air and water. Regularly inspect these covers for damage or dislocation.

Air Quality Monitoring: Set up air monitoring stations to continuously assess the levels of asbestos fibres in the air around the stockpile areas.

Documentation: Maintain detailed records of asbestos management activities, including material quantities, handling methods, worker training, and environmental monitoring results.

Place excavated contaminated materials on temporary, impermeable barriers (e.g. builders' plastic) or pavement to protect underlying surface soils from potential cross-contamination.

6.9 Environmental Protection Measures for the Bio-Basin

To ensure the integrity of the bioretention basin during the construction phase, a temporary protection strategy can be implemented. This involves laying a suitable geotextile membrane over the basin surface, followed by a thin layer of topsoil (approximately 25mm deep) and the installation of instant turf. This temporary solution serves two key purposes. Firstly, it safeguards the essential infrastructure of the bioretention basin from potential damage. Secondly, it acts as a temporary

erosion and sediment control measure throughout the building phase, thereby protecting downstream ecosystems.

In most bioretention applications stormwater flows will enter the bioretention basin as concentrated flow (piped, channel or open channel) and as such is it important to slow and spread flows using appropriate scour (rock) protection.

Erosion protection measures are essential for concentrated inflows entering bioretention basins. These inflows typically originate from either surface flow systems (such as roadside kerbs or open channels) or piped drainage systems. Rock beaching offers a straightforward method for dissipating the energy of concentrated inflows.

However, for bioretention basins receiving piped stormwater flows, particularly from larger catchment areas, more robust energy dissipation techniques may be necessary to prevent the scouring of the filter media. In most cases, this can be achieved through rock protection. Strategically placing several large rocks within the flow path can effectively reduce velocities and spread the flow. As illustrated in Figure 6-2 (where 'D' represents the pipe diameter), these rocks can be incorporated seamlessly into the bioretention basin's landscape design.

Install silt fences around the Bioretention Basin to prevent sediment from entering system and to keep construction vehicles off the basin.

Upon completion of the construction phase, the temporary safeguards protecting the functional elements of the bioretention facilities can be removed. This process should include the removal of any accumulated sediment, followed by planting the system in accordance with the design schedule.

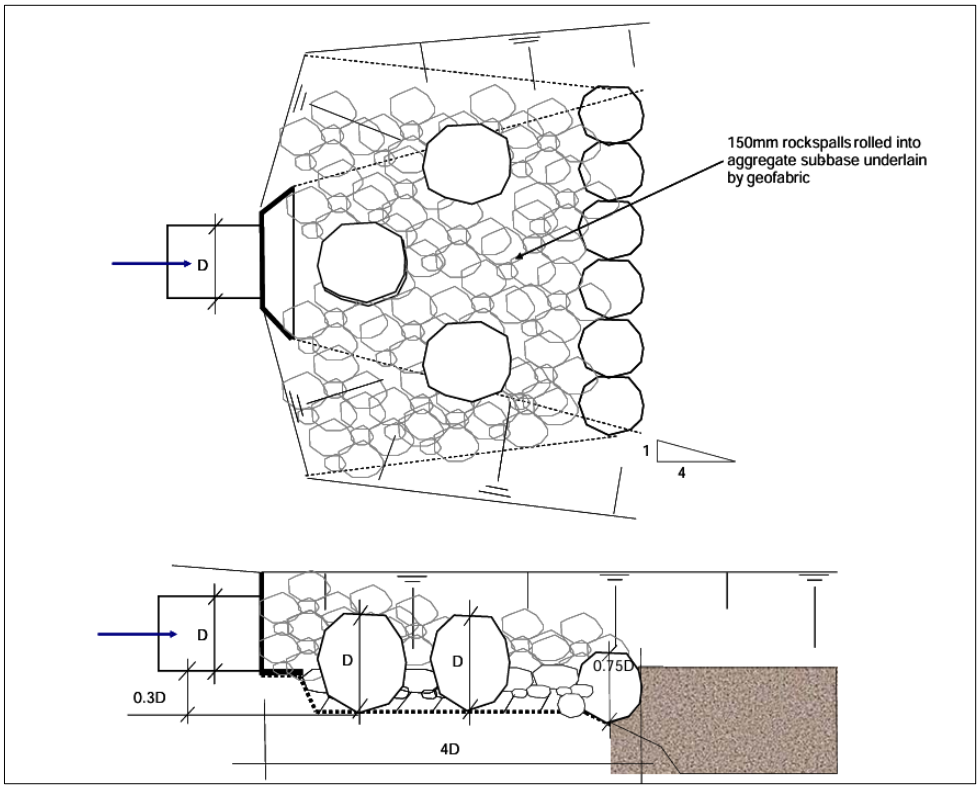

Figure 6-2 Typical Inlet Scour Protection Detail for Bioretention Basins Receiving Piped Flows

7 Material Importation

Should materials be proposed to be imported to the site, for balance of cut and fill soil material quantities, in accordance with current EPA policy, the only material that does not represent an environmental or health risk at the receiving site may be considered for importation to the site. Imported materials will only be accepted to the site if they meet the restrictions placed on these materials and meet the definition of:

- VENM as defined in the Protection of the Environment Operations Act (1997) Schedule 1;
- Excavated Natural Material (ENM) as defined in the ENM Exemption/Order; or
- Resource recovery materials as per NSW EPA exemption.

All material imported onto the site is required to be accompanied by appropriate documentation that has been verified by the appointed site contamination (environmental) consultant, prior to importation to the site.

7.1 Virgin Excavated Natural Material (VENM)

For VENM sourced from another site, the environmental consultant will be required to review source site documentation with regard to the VENM definition provided to the POEO Act (1997). Where source site documentation cannot adequately demonstrate materials comply with the definition of VENM without chemical testing, then chemical sampling will be requested as per the sampling frequencies and validation criteria mentioned in the RWP (JBS&G, August 2023).

7.2 Excavated Natural Material (ENM)

Where quarried ENM is proposed to be imported to the site, the source site shall provide documentation verifying the material is consistent with the ENM Order (NSW EPA 2014c) for review by the Environmental Consultant. Where the documentation is able to demonstrate satisfaction of the ENM Order, the materials will be inspected at the source site and upon arrival at the site by the Environmental Consultant to ensure consistency with the supplier documentation and source materials. (JBS&G, August 2023)

7.3 Recycled Materials

Materials proposed to be imported for use under a Resource Recovery Exemption/Order will be subject to review and endorsement by the environmental consultant prior to the importation of materials to the site.

For recycled materials, sampling of materials as per an EPA exemption is required to be undertaken by the facility in accordance with the exemption. In addition, where materials are proposed to be imported to the site under a NSW EPA exemption, the material will need to be further assessed by Environmental Consultant for land use suitability in accordance with the validation requirements, with minimum analytes and sampling frequencies per RWP (JBS&G, August 2023).

8 Compliance Management

8.1 Training, Monitoring, and Reporting

8.1.1 Training

All personnel working on site will undergo site induction training relating to soil and water issues.

The training will cover the following issues such as:

- Legislative requirements (POEO Act, EPL).
- Erosion and sedimentation control planning and hold points.
- Duty to notify of environmental harm (or the potential for it) including chain of reporting.
- Spill containment and management procedure.
- Storage and use of hazardous substances.
- Water discharge and reuse procedure.
- Maintenance of environmental controls (e.g. erosion and sediment controls).
- Contamination and Unexpected Finds.

Detailed training will be provided to key personnel regarding erosion and sediment control. This training will include:

- Legislation as it applies to erosion and sediment control;
- Basics of soil management, handling, and stockpiling;
- Appropriate use, installation and maintenance of various erosion and sediment control techniques;
- Effective site rehabilitation and stabilisation;
- Use of erosion control techniques such as geotextiles, organic fibre mats, mulches, and soil polymer stabilisers;
- Preparing, reading, and interpreting Erosion and Sediment Control Plans;
- Typical controls around existing drains and maintenance of controls;
- Relevant sampling, testing, and reporting requirements;
- Toolbox talks will also be used to further reinforce awareness of Soil and Water issues.

8.1.2 Monitoring and Reporting

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

Construction personnel will receive training on the requirements to follow the CSWMP on the project. Construction personnel are also responsible to monitor and report any other issues that may appear outside of the control perimeters of the CSWMP. This is to ensure an active soil and water management plan, which will minimise potential impacts to the local community.

Regular inspections of erosion and sediment controls will be undertaken weekly and will be prioritised before, during, and after significant rainfall events exceeding 32.2mm* over 24 hours. These inspections aim to confirm the adequacy and functionality of the controls.

If any off-site water discharge is required, monitoring of the surface water quality will be mandatory. This water quality must comply with the Australian and New Zealand Guidelines for Fresh and Marine Water (ANZG Water Quality Guidelines) or other approved guidelines.

Rainfall measurements will be conducted on-site and recorded in millimetres (mm) on a daily basis (24-hour period) at a consistent time throughout the project duration. This will commence upon the establishment of the site office associated with the activities.

To facilitate review and audit of management systems and procedures, the contractor shall maintain a robust documentation and record system that supports the monthly reporting requirements of this Construction Site Water Management Sub Plan (CSWMSP).

Monthly reports will encompass relevant soil and water data, a comprehensive summary, and any reported incidents or instances of non-compliance.

*Adopted from Landcom (2004) Table 6.3a 75th, 80th, 85th, 90th and 95th-percentile 2 and 5-day rainfall depths for 59 sites in New South Wales for Blacktown

Table 7-1: Soil and water management monitoring register

Activity	Aspect	Resource	Responsibility	Action Required
Visual check ups	Sediment Control Water Quality Controls	Supervisor Report Log	All construction personnel	Daily Monitoring of control plans
Wet Weather Conditions	All soil and water management plans affected job site	Supervisor Report Log	Supervisor and all construction workers	Supervisor and all construction workers to withhold all construction works

8.1.3 Review and Improvement

Continuous improvement of this Sub-plan will be secured through ongoing evaluation of environmental management performance. This evaluation will compare actual performance against established environmental policies, objectives, and targets. This comparison will be used to identify areas for improvement.

Monthly reviews conducted by the Moits Health Safety Environment and Quality Manager and Quarterly management reviews will provide focused opportunities to identify enhancements within the environmental management system and this plan.

The CSWMP will be reviewed on an annual basis and earlier if required taking into account below:

- Changes in the design, delivery and operations processes and conditions;
- The adaptive Water Quality Monitoring Program and results;
- Changes in other related Project Plans;
- Requirements and matters not covered by the existing Project Plans;
- Changes to Project Plans as directed by Moits' Representative;
- Where deemed appropriate in relation to items raised within inspections or audits;
- Lessons learnt from incidents, events or near misses;
- Feedback from Compliance Tracking Reports;
- Feedback on Construction Monitoring Program results.

9 Assumptions and References

- Sediment Basin Design Assumptions (Appendix B):
    - The interim calculations for the sediment basin design presented in Appendix B - Sediment and Erosion Control Plan are based on assumptions regarding the catchment-to-basin area ratio.
- Site Layout Assumptions:
    - The location of the site entrance and temporary stockpile area have been assumed for the purposes of this CSWMP. These locations may be subject to change based on further planning and approvals.
- Remediation Staging:
    - It is assumed that the site will undergo a staged remediation process followed by a validation procedure before any major construction or earthworks activities commence.
- Cut and Fill Plan:
    - The cut and fill plan included within this CSWMP is based on the initial design provided by Henry and Hymas; ref: DWG No 20224_DA_BE50; REV 01, dated Dec 2023
- Remedial Works Plan (JBS&G 64722 | 153,987, 17 August 2023)
- Additional Contamination Assessment (JBS&G 64722 | 153,559, 28 July 2023).
- Construction Management Plan (Frasers Property Australia, August 2022)
- Construction Environment Management Plan (Moits, 24002, August 2023)
- Western Sydney Parklands Trust Eastern Creek Business Hub Site Environmental Management Plan (WSP Australia Pty Ltd, August 2017)

10 Limitations

This Construction soil and water management sub-plan is prepared for the client's exclusive use for the construction phase only while attention shall be paid to promptly update the environmental management plan during the stage and progressive construction works.

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It is important to note that the referred plans and documents, including but not limited to the Cut/Fill Plan, Construction Management Plan, and Construction Environment Management Plan are updated or finalised, this document shall be revised and updated accordingly.

Should further information become available regarding conditions at the Site including previously unknown sources of contamination, AGS reserves the right to review the document in the context of the additional information.

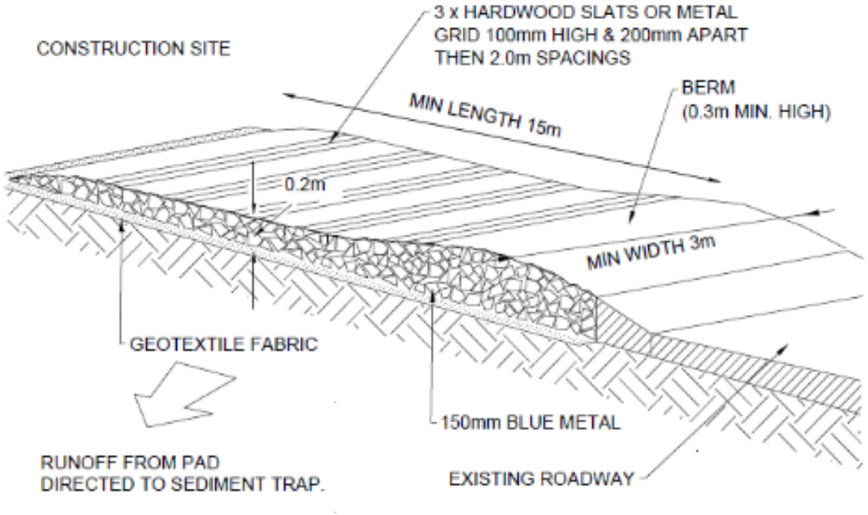
APPENDIX A

FIGURES

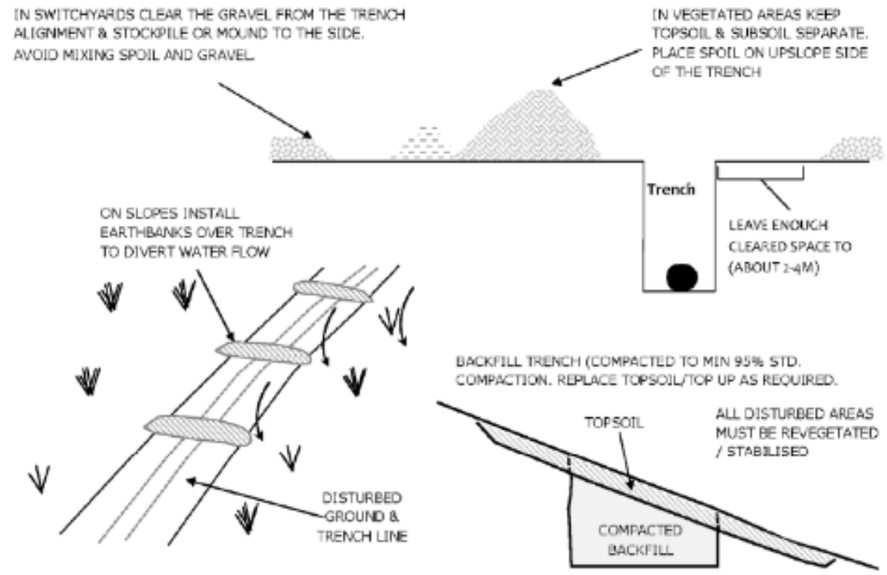
ATLAS Geotechnical Services
On Budget. On Time. Professional Service

ABN: 67 626 182 349
W: www.atlasgeoservice.com.au
E: info@atlasgeoservice.com.au
A: Unit 49, 93-97 Newton Road, Wetherill Park NSW 2164

Client:	Project Name:	Report No:		Figure No:	Figure Title:
MOITS	Commercial Development	E11250-1		Figure 1	Subject Site Area
	Project Address: Rooty Hill Road South, Eastern Creek NSW 2766	Figure Date: 30/04/2024			



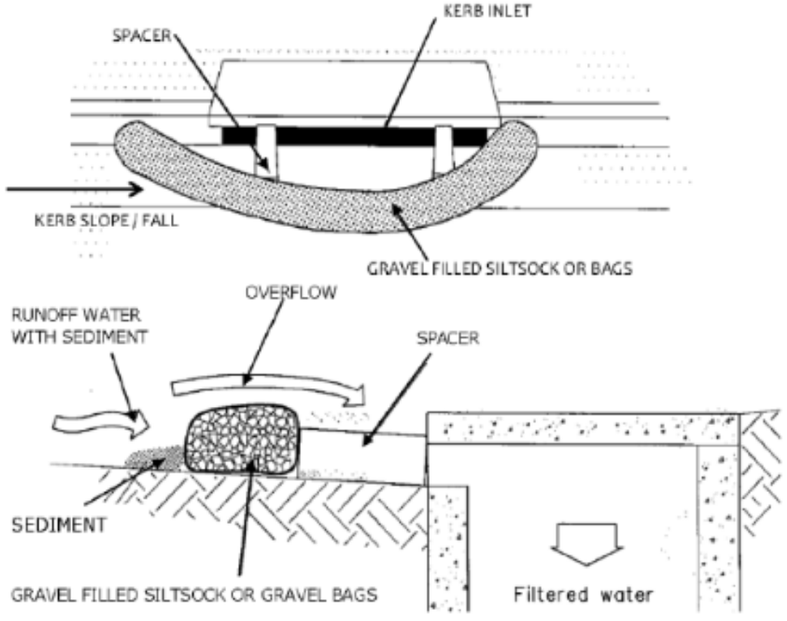
TEMPORARY CONSTRUCTION EXIT



TRENCHING NOTES

1. DO NOT PLACE SPOIL ON SWITCHYARD GRAVEL (UNLESS ON GEOFABRIC) OR WITHIN 10M OF STORMWATER DRAINAGE I.E. NEXT TO KERB AND GUTTER (UNLESS OPERATIONS WILL ONLY OCCUR DURING DRY WEATHER).
2. INSTALL SEDIMENT FILTERS AT THE ENDS OF SPOIL BUNDS ON SLOPING SITES TO FILTER DIVERTED WATER.
3. TRENCHES RUNNING DOWN GRADE MAY REQUIRE WEIRS OR TRENCH STOPS (USE GRAVEL OR SAND BAGS) IN THE TRENCH TO PREVENT WATER RUNNING DOWN THE TRENCH.

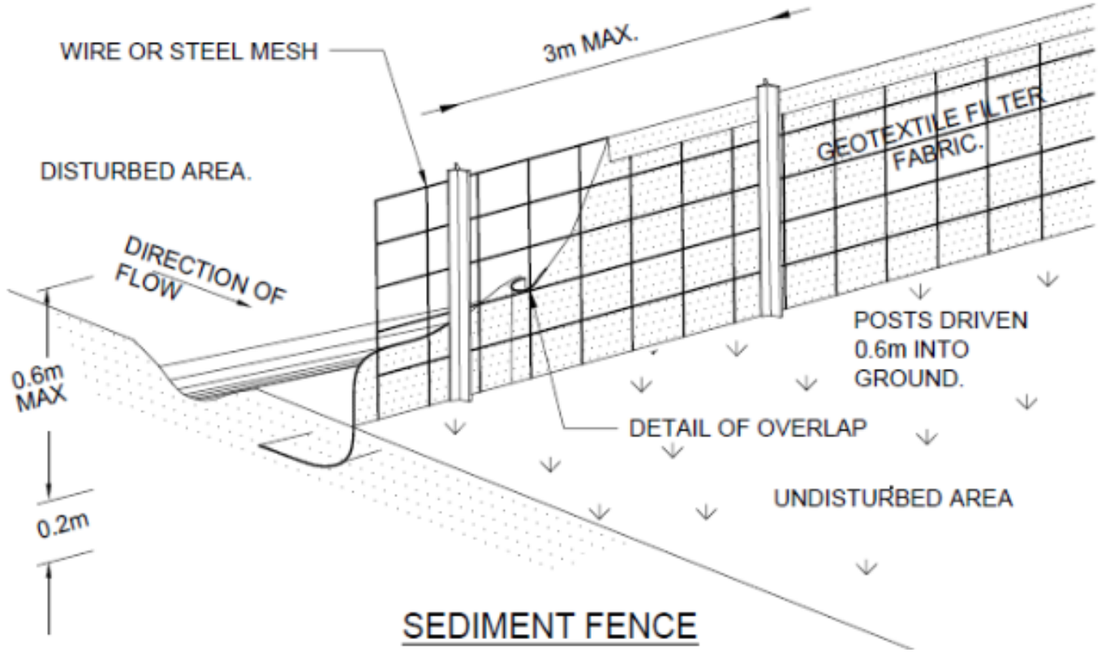
INLET SEDIMENT CONTROL (GENERAL)



INLET FILTER NOTES

1. FABRICATE FILTER LONGER THAN PIT & USE 20-40MM GRAVEL.
2. INSTALL WITH ELLIPTICAL CROSS-SECTION ABOUT 150MM HIGH.
3. USE SPACERS IF REQUIRED TO PREVENT BLOCKAGE.

DRAINAGE AREA 0.6ha. MAX. SLOPE GRADIENT 1:2 MAX.
SLOPE LENGTH 60M MAX.



SEDIMENT FENCE

ATLAS Geotechnical Services On Budget. On Time. Professional Service ABN: 67 626 182 349 W: www.atlasgeoservice.com.au E: info@atlasgeoservice.com.au A: Unit 49, 93-97 Newton Road, Wetherill Park NSW 2164	Client: MOITS	Project Name: Commercial Development	Report No: E11250-1		Figure No: Figure 2	Figure Title: Sediment control (general)
		Project Address: Rooty Hill Road South, Eastern Creek NSW 2766	Figure Date: 30/04/2024			

1 in 10,000 to a 1 in 10,000,000 chance.

High Flood Risk Precinct

The High Flood Risk Precinct is the land subject to a high hydraulic hazard (in accordance with the provisional criteria outlined in the N.S.W. Government Floodplain Development Manual 2005) in a 100 year flood event and/or subject to potential evacuation difficulties during a flood.

Medium Flood Risk Precinct

The Medium Flood Risk Precinct is the land below the 100 year flood level subject to a low hydraulic hazard (in accordance with the provisional criteria outlined in the N.S.W. Government Floodplain Development Manual 2005).

Low Flood Risk Precinct

The Low Flood Risk Precinct is all land within the floodplain, ie within the extent of the Probable Maximum Flood (PMF) but not identified as either a high flood risk or medium flood risk precinct. Therefore the Low Flood Risk Precinct is all the land between the 100 year and the PMF flood extents.

Local Overland Flooding- Major Drainage

The floodplains of original watercourses (which may be piped, channelized or diverted), or sloping areas where overland flows develop along alternative paths once the system capacity has been exceeded and/or water depths generally in excess of 0.3 metres for the critical 100 year storm

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Client:	Project Name:	Report No:		Figure No:	Figure Title:
MOITS	Commercial Development	E11250-1		Figure 3	Flood Risk Precinct
	Project Address: Rooty Hill Road South, Eastern Creek NSW 2766	Figure Date: 30/04/2024			

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THICKNESS SET DOWNS USED FOR CALCULATIONS

BUILDING PAD THICKNESS - 250mm
BASEMENT CARPARK - 250mm
ON-GRADE CARPARK - 350mm
PEDESTRIAN FOOTPATHS - 220mm
LANDSCAPING - 200mm
LOADING DOCKS - 280mm
MAINTENANCE TRACK - 450mm
BIKE PATH - 150mm
CHURCH STREET ROAD PAVEMENT - 780mm
BEGGS ROAD PAVEMENT - 780mm
COMMERCIAL LAYBACK + DRIVEWAY - 325mm

EARTHWORKS QUANTITIES

(APPROXIMATE ONLY)
NOT TO BE USED FOR CONTRACTUAL PURPOSES. TENDERERS TO DETERMINE VOLUMES USING THEIR OWN METHOD OF CALCULATION.

- EARTHWORKS QUANTITIES - TOTAL AREA (7.2 ha)	
CUT	21360m³
FILL	54375m³
REMOVAL OF EXISTING STOCK PILE	540m³
EXCESS OF FILL	32485m³
TOPSOIL STRIPPING "100mm" OF 7200m² NOT INCLUDED IN CALCULATION	

DEPTH RANGE Lower_value		Upper_value	Colour
-6	to	-4	Meters
-4	to	-2	Meters
-2	to	-1	Meters
-1	to	-.8	Meters
-.8	to	-.6	Meters
-.6	to	-.4	Meters
-.4	to	-.2	Meters
-.2	to	-.1	Meters
-.1	to	-.05	Meters
-.05	to	.0	Meters
.0	to	.05	Meters
.05	to	.1	Meters
.1	to	.2	Meters
.2	to	.4	Meters
.4	to	.6	Meters
.6	to	.8	Meters
.8	to	1	Meters
1	to	2	Meters
2	to	4	Meters
4	to	6	Meters

LEGEND

- EXISTING BOUNDARY
- EXTENT OF EXISTING CUMBERLAND WOOD PLAINS TO BE REMOVED
- 0.50 DEPTH CONTOUR FOR FILL
- 0.50 DEPTH CONTOUR FOR CUT
- PROPOSED SEDIMENTATION FENCE
- PROPOSED HAYBALE FILTER
- EXISTING BATTER LINE
- PROPOSED BATTER LINE
- DIVERSION CATCH DRAIN
- RW PROPOSED RETAINING WALL

NOTES:

CONTOURS SHOW LEVEL DIFFERENCE BETWEEN STRIPPED "100mm" EXISTING SURFACE LEVELS AND BULK EARTHWORKS LEVELS

0 15 30 45 60 75m
15 10 5
SCALE 1:750

BULK EARTH WORKS - EARLY WORKS - CUT AND FILL PLAN
SCALE 1:750

FOR CC/TENDER 50%

SURVEY INFORMATION
SURVEYED BY LANDPARTNERS
DATUM: AHD
ORIGIN OF LEVELS: PM68227 RL 41.544

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
A	ISSUED FOR CC/TENDER 50%	MS	TD	21.06.2023

Client: FRASER PROPERTY AUSTRALIA
Architect: HAMES SHARLEY ARCHITECTS

Suite 2.01
828 Pacific Highway
Gordon NSW 2072
Telephone +61 2 9417 8400
Facsimile +61 2 9417 8337
Email email@hhconsult.com.au
Web www.henryandhymas.com.au

H&H JOB No. 20224

DRAWING TO BE PRINTED IN COLOUR

Project: PROPOSED STAGE 3 ECQ PRECINCT
ROOTY HILL ROAD SOUTH, EASTERN CREEK NSW
Title: BULK EARTH WORKS - EARLY WORKS CUT AND FILL PLAN

Drawn	Designed	Date
L.Caha	L.Caha	DEC 2020
Checked	Approved	Scale
T.Dempsey	A.Francis	1:750 @ A1

Drawing number: ECQ-C-BE50
Revision: A

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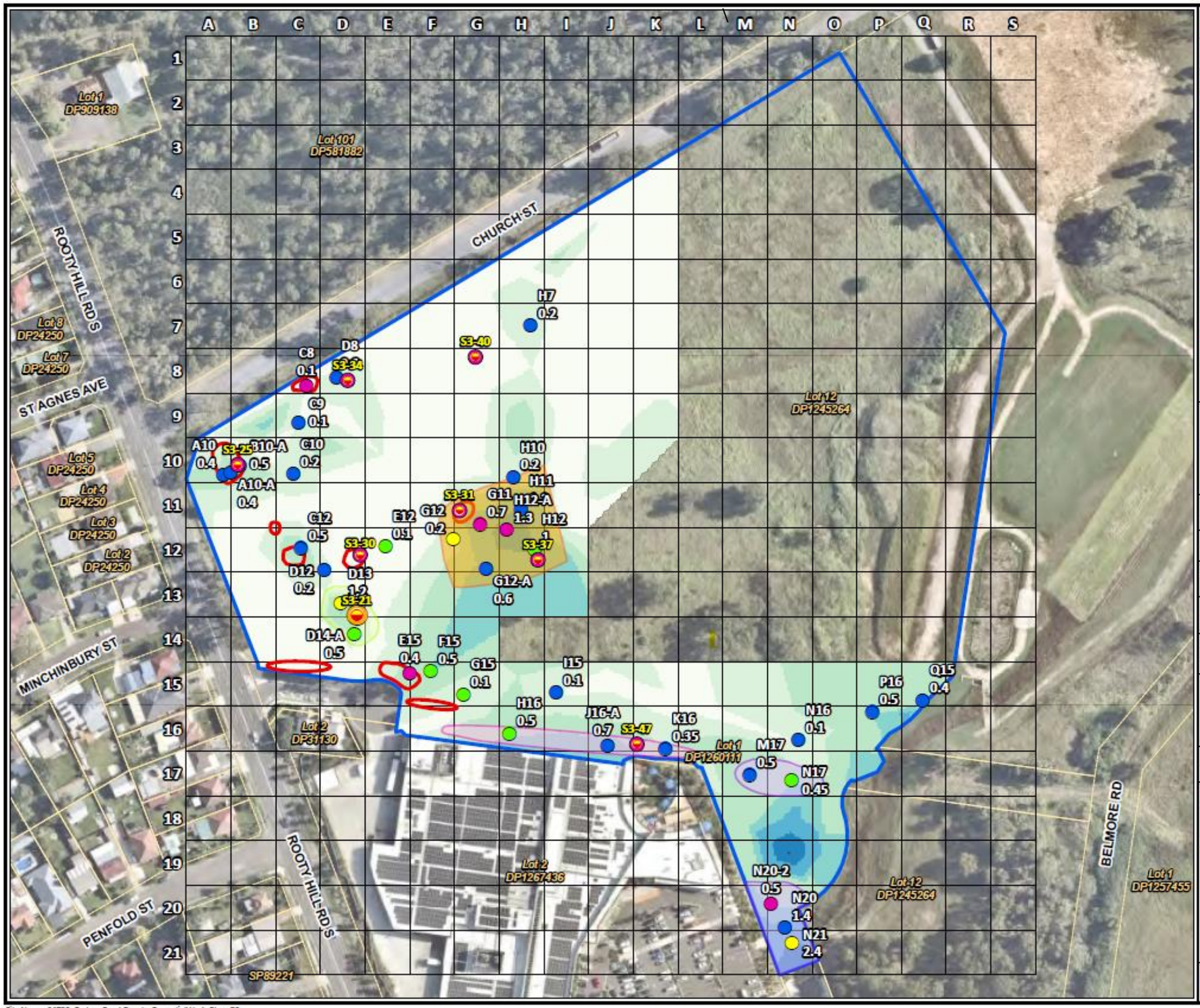
Client:	Project Name:	Report No:		Figure No:	Figure Title:
MOITS	Commercial Development	E11250-1		Figure 7	Cut and Fill Plan (Henry and Hymas)
	Project Address: Rooty Hill Road South, Eastern Creek NSW 2766	Figure Date: 30/04/2024			



Legend
- Approximate Site Boundary
- NSW Cadastre
- AEC1: Ground Surface/Near-Surface Fill with Bonded ACM/B&D Waste
- AEC2: Fill Material of Unknown Origin
  - Area 1
  - Area 2
  - Area 3
  - Area 4
- Previous Investigation Locations (JBSG, 2021)
  - ACM Fragments Observed
  - HSL-D Exceedance
- Current Investigation Locations (JBSG, 2023)
  - ACM & B&D Observed
  - ACM Fragments Observed
  - B&D Observed
  - HSD-D Exceedance
- Depth to Fill
  - 0 - 0.1
  - 0.1 - 0.3
  - 0.3 - 0.5
  - 0.5 - 1.0
  - 1.0 - 2.0
  - 2.0 - 3.0
  - >3

JBS&G

Job No: 64722

Client: Frasers Property Australia

Version: R01 Rev A | Date 16/08/2023

Drawn By: IA | Checked By: TF

Scale 1:2,300

0 20 40
metres

Coord. Sys. GDA 1994 MGA Zone 56

Eastern Creek Quarter
Eastern Creek, NSW

Areas of Environmental Concerns

FIGURE 4

File Name: 64722_EasternCreekQuarterRemedialWorksPlan_R0
Reference: Nearmap - www.nearmap.com (Capture Date: 07/02/2022)

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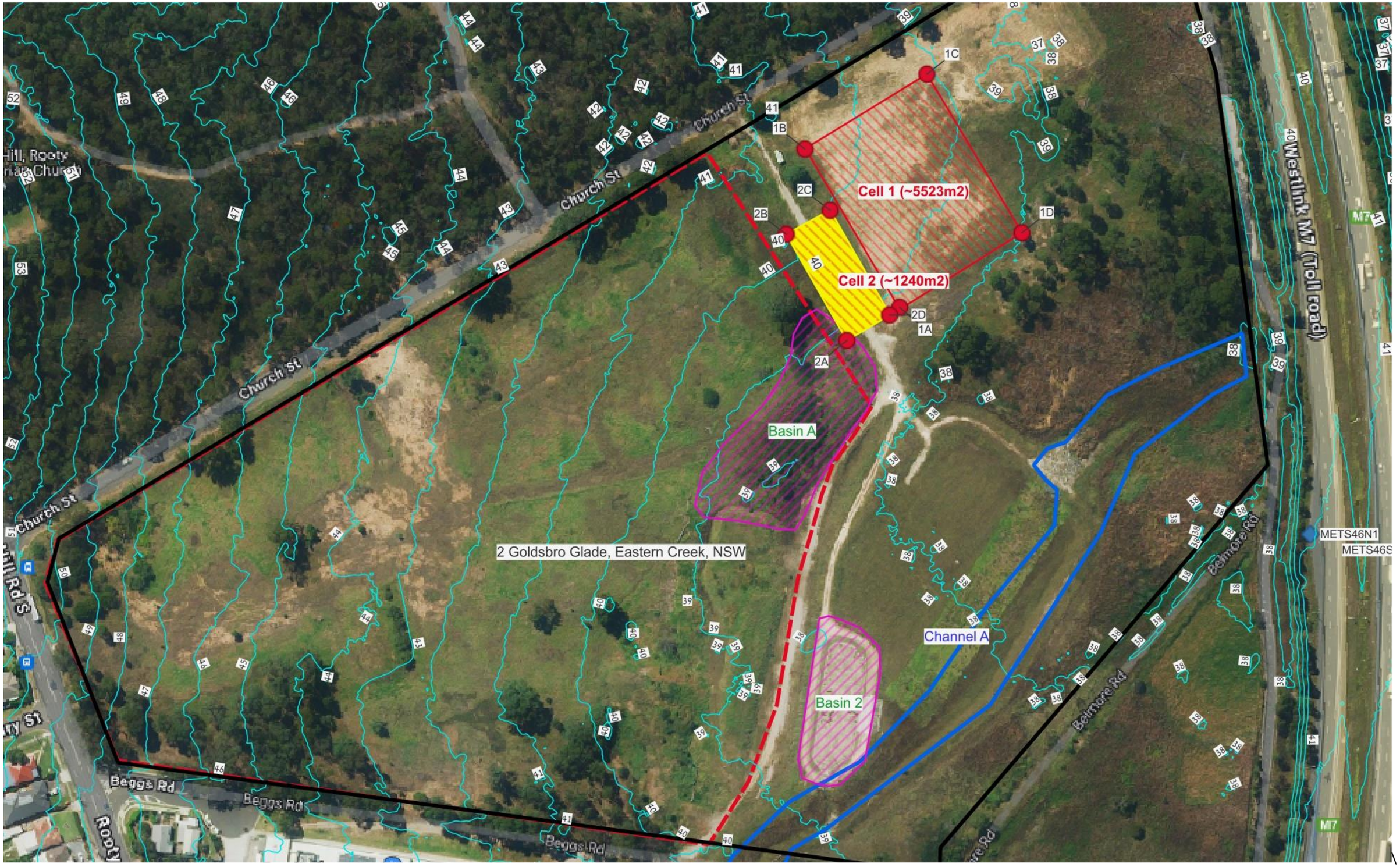
Client:	Project Name:	Report No:		Figure No:	Figure Title:
MOITS	Commercial Development	E11250-1		Figure 6	AECs (JBS&G, 2023)
	Project Address: Rooty Hill Road South, Eastern Creek NSW 2766	Figure Date: 30/04/2024			



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APPENDIX B

SEDIMENT AND EROSION CONTROL DETAILS/PLAN

NOTES:

1. ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE LANDCOM'S MANUAL "MANAGING URBAN STORMWATER" 4TH EDITION AUGUST 2004 .
2. EROSION AND SEDIMENT CONTROL MEASURES AFFECTED BY WORKS ARE TO BE RE-ESTABLISHED PRIOR TO THE COMPLETION OF EACH DAY'S WORK.
3. DUST CONTROL MEASURES SHALL BE IMPLEMENTED CONTINUOUSLY DURING CONSTRUCTION WORKS. SUCH MEASURES ARE TO BE TO THE SATISFACTION OF THE SUPERINTENDENT AND COUNCIL.
4. ALL SITE ACCESS TO BE ACHIEVED FROM DESIGNATED SITE ACCESS ONLY UPON SITE ESTABLISHMENT.
5. THE CONTRACTOR IS TO ENSURE STORMWATER RUN-OFF IS DIRECTED TO THE SEDIMENT BASINS WITH PLACEMENT OF TEMPORARY DIVERSION MOUNDS OR THE FORMATION OF OVERLAND FLOW PATHS.
6. DIVERSION MOUNDS & FLOW PATHS ARE TO BE ADJUSTED AS FILLING LAYERS PROGRESS & SURFACE LEVELS RISE.
7. SEDIMENT IS TO BE REMOVED SUCH THAT NOT LESS THAN 70% OF THE DESIGN CAPACITY IS AVAILABLE AT ALL THE TIMES. MARKERS WITH DEPTH INDICATORS ARE TO BE PLACED IN EACH BASIN TO INDICATE WHEN SEDIMENT ACCUMULATION.
8. BASINS ARE TO BE FLOCCULATED WITH GYPSUM WHEN SUSPENDED SOLID CONCENTRATION EXCEEDS 50 *milligrams per litre*. SPREADING RATE TO BE DETERMINED AFTER TESTING AND ANALYSIS OF THE INITIAL STORM EVENT. FIRST APPLICATION IS TO BE *30 kilograms GYPSUM PER 100 cum.* OF STORED WATER & THEREAFTER AS DETERMINED BY TESTING. REFER LANDCOM SOIL & CONSTRUCTION - "MANAGING URBAN STORMWATER" MANUAL - APPENDIX E
9. IMPORTED FILL TO BE CERTIFIED AS V.E.N.M. & FREE OF SLAG, HAZARDOUS, CONTAMINATED, TOXIC, PUTRESCIBLE OR RADIO-ACTIVE MATTER & INDUSTRIAL WASTE & BUILDING DEBRIS. THE ORIGIN OF FILL PROPOSED TO BE IMPORTED & THE ABOVE CERTIFICATION TO BE REVIEWED & APPROVED BY COUNCIL PRIOR TO ANY IMPORTED FILL ARRIVING ON SITE.

DEPTH RANGE Lower_value		Upper_value	Colour
-6	to	-4	Meters
-4	to	-2	Meters
-2	to	-1	Meters
-1	to	-.8	Meters
-.8	to	-.6	Meters
-.6	to	-.4	Meters
-.4	to	-.2	Meters
-.2	to	-.1	Meters
-.1	to	-.05	Meters
-.05	to	.0	Meters
.0	to	.05	Meters
.05	to	.1	Meters
.1	to	.2	Meters
.2	to	.4	Meters
.4	to	.6	Meters
.6	to	.8	Meters
.8	to	1	Meters
1	to	2	Meters
2	to	4	Meters
4	to	6	Meters

LEGEND

- EXISTING BOUNDARY
- EXTENT OF EXISTING CUMBERLAND WOOD PLAINS TO BE REMOVED
- 0.50 DEPTH CONTOUR FOR FILL
- -0.50 DEPTH CONTOUR FOR CUT
- PROPOSED SEDIMENTATION FENCE
- PROPOSED HAYBALE FILTER
- EXISTING BATTER LINE
- PROPOSED BATTER LINE
- DIVERSION CATCH DRAIN
- 2 PROPOSED INSTALLATION OF SAND BAGS/INLET SEDIMENT CONTROL TO PREVENT STORMWATER POLLUTION
- 1 ASSUMED SITE ENTRANCE- INSTALL STABILISED SITE ACCESS
- ASSUMED LOCATION FOR TEMPORARY STOCKPILE
- ASSUMED SITE ENTRANCE
- PROPOSED EARTH MOUND TO DIVERT UP-CATCHMENT FLOW TO CHURCH STREET FOLLOWED TO THE BASIN

EARTHWORKS QUANTITIES

(APPROXIMATE ONLY)

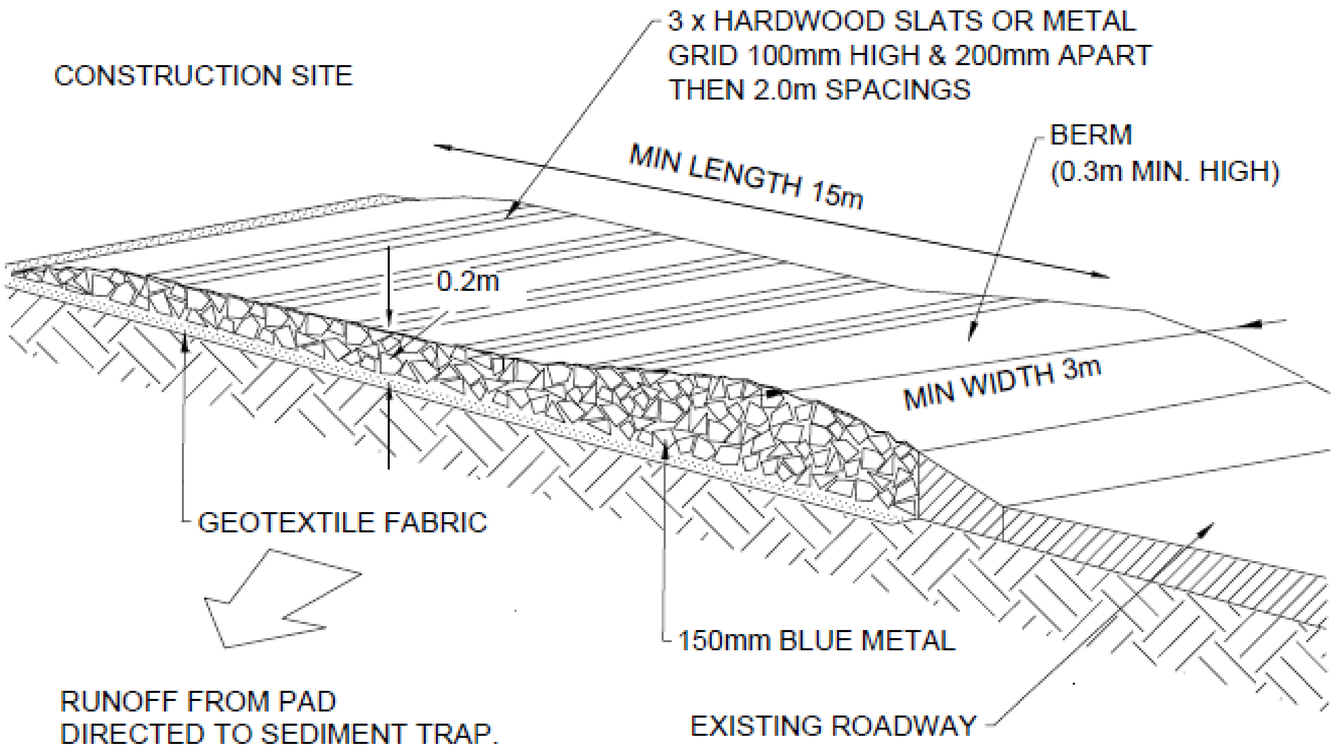
NOT TO BE USED FOR CONTRACTUAL PURPOSES. TENDERERS TO DETERMINE VOLUMES USING THEIR OWN METHOD OF CALCULATION.

- EARTHWORKS QUANTITIES - TOTAL AREA (7.2 ha)	
CUT	21350m³
FILL	54375m³
REMOVAL OF EXISTING STOCK PILE	540m³
EXCESS OF FILL	32485m³
TOPSOIL STRIPPING "100mm" OF 7200m² NOT INCLUDED IN CALCULATION	

PROPOSED CATCH DRAIN
PROPOSED EARTH MOUND
PROPOSED SEDIMENT FENCE
PROPOSED LOCATION FOR CONTAINMENT CELL
PROPOSED SEDIMENT FENCE
EXISTING STOCKPILE TO BE REMOVED
PROPOSED SEDIMENT BASIN 1.5m DEEP WITH 0.3m FREEBOARD VOLUME 420m³ MIN. CATCHMENT AREA TO BASIN = 3.5Ha
PROPOSED SEDIMENT BASIN 1.5m DEEP WITH 0.3m FREEBOARD VOLUME 460m³ MIN. CATCHMENT AREA TO BASIN = 3.8Ha
EXISTING HEADWALL TO BE RETAINED
EXISTING BASIN
PROPOSED SEDIMENT FENCE
PROPOSED CATCH DRAIN
EXISTING WATER QUALITY BASIN
EXISTING OPEN CHANNEL
CHURCH STREET
EXISTING SITE BOUNDARY
APPROVED SUBDIVISION BOUNDARY
MATCH EXISTING LEVELS LIMIT OF WORKS
ROOTY HILL ROAD SOUTH
BEGGS ROAD
EXISTING SUPERMARKET FFL 44.30
EXISTING HEADWALL TO BE RETAINED
ASSUMED LOCATION FOR TEMPORARY STOCKPILE
FUTURE ACCESS ROAD
O/F
D BE52
A BE51
B BE51

EARLY WORKS - CUT AND FILL PLAN

TEMPORARY CONSTRUCTION ENTRY/EXIT (GENERAL)



CONSTRUCTION NOTES

1. STRIP THE TOPSOIL, LEVEL THE SITE AND COMPACT THE SUB-GRADE.

2. COVER THE AREA WITH GEOTEXTILE FABRIC.

3. CONSTRUCT A 200mm THICK PAD OVER THE GEOTEXTILE FABRIC USING 50-150mm BLUE METAL OR ROCK BALLAST.

4. ENSURE THE STRUCTURE IS AT LEAST 15m LONG OR TO BUILDING ALIGNMENT AND MINIMUM 3m IN WIDTH.

5. COVER PEDESTRIAN ACCESS/RELEVANT AREA WITH 35-50mm AGGREGATES.

6. MINIMUM THICKNESS SHOULD BE 200mm.

INLET SEDIMENT CONTROL/SANDBAGS (GENERAL)

CONSTRUCTION NOTES

1. THE SEDIMENT BARRIER SHOULD BE PLACED WITH A MINIMUM SPACING OF 125mm FROM THE SIDE ENTRY KERB INLET.

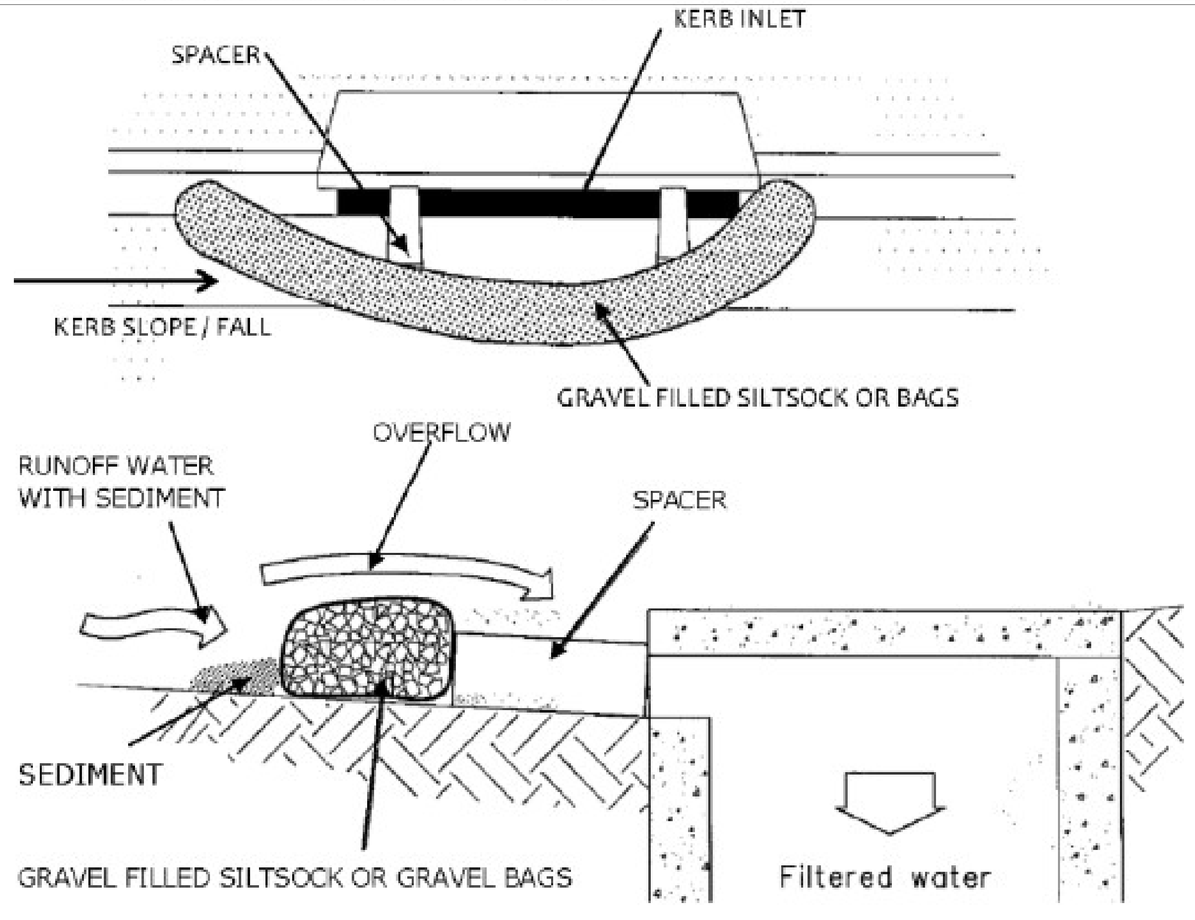
2. FABRICATE FILTER LONGER THAN PIT AND USE 15-25mm AGGREGATES.

3. INSTALL WITH ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH.

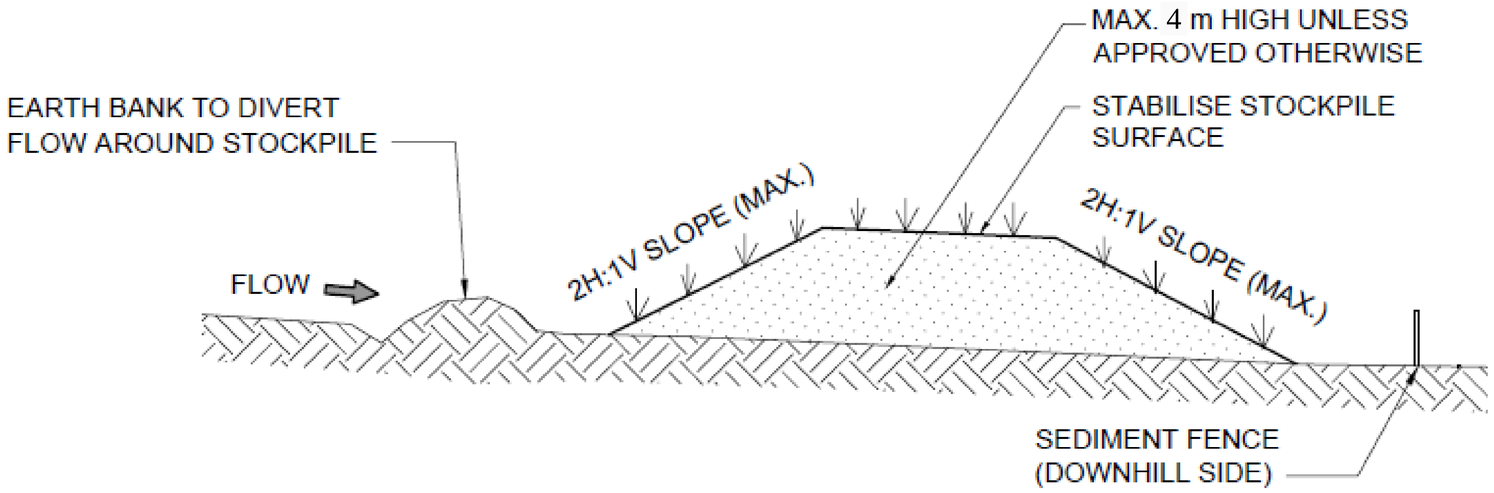
4. USE SPACERS IF REQUIRED TO PREVENT BLOCKAGE.

5. SEAL ENDS TO KERB TO PREVENT BYPASS.

6. NOT EXTEND MORE THAN 1m INTO A TRAFFIC-ABLE ROAD.



STOCKPILE (GENERAL)



CONSTRUCTION NOTES

1. PLACE STOCKPILES >10m FROM DRAINAGE OR HAZARD AREAS.

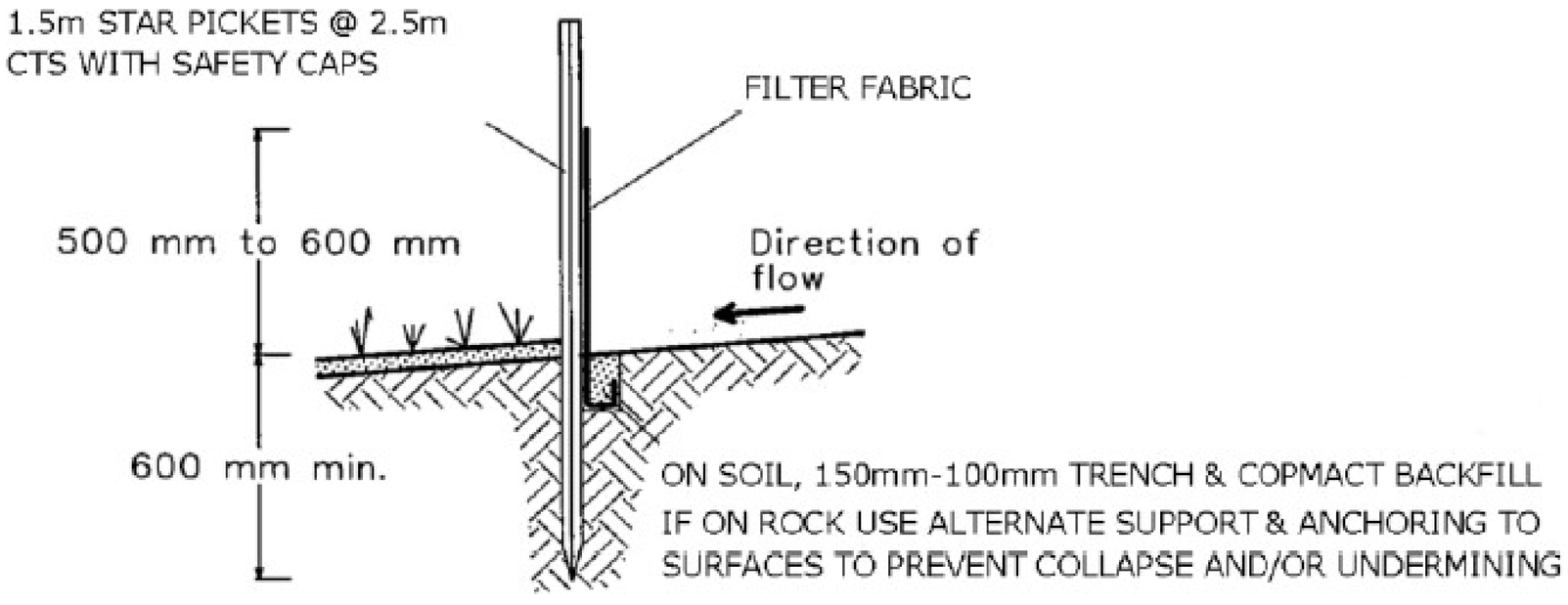
2. CONSTRUCT ON CONTOUR IN LOW FLAT MOUND (<4m).

3. DIVERT 'CLEAN WATER' AROUND WHERE NECESSARY.

4. STOCKPILES INTENDED TO REMAIN IN PLACE FOR MORE THAN 20 DAYS, OR THOSE SUSCEPTIBLE TO WIND OR WATER EROSION, MUST BE COVERED OR OTHERWISE PROTECTED FROM EROSION WITHIN 10 DAYS OF THEIR FORMATION.

5. THE MAXIMUM HEIGHT OF STOCKPILE SHOULD NOT EXCEED 4 METER, AND SLOPES BE NO STEEPER THAN A 2:1 RATIO.

SEDIMENT FENCE (GENERAL)



CONSTRUCTION NOTES

1. INSTALL AS CLOSE AS POSSIBLE TO PARALLEL TO SITE CONTOURS.

2. USE 1.5 m STAR PICKETS @2.5 m CTS WITH SAFETY CAPS.

3. DIG 150 mm DEEP 100 mm WIDE TRENCH ALONG THE LINE OF THE FENCE FOR THE BOTTOM OF THE FILTER FABRIC.

4. BACKFILL AND COMPACT TRENCH.

5. FIX FILTER FABRIC TO UPSLOPE SIDE OF PICKETS WITH WIRE TIES OR AS RECOMMENDED BY MANUFACTURER.

6. JOINS/OVERLAPS SHOULD BE AT A POST AND MINIMUM 0.5 M TO PREVENT BYPASS.

APPENDIX C

CONSULTATION FOR PREPARATION OF THE CSWMP

Table C-1: Log of engagement with Blacktown City Council

Agency	Person Contacted	Comment	Status
Blacktown City Council (BCC)	BCC Representative	Construction Soil and Waster management Sub Plan prepared and BCC Representative notified via phone and followed up on the email request for updates.	Open

From: Flood Advice
To: Isha Kothari
Subject: Rooty Hill Road South Rooty Hill - Flood Map Enquiry
Date: Wednesday, 29 May 2024 3:56:07 PM
Attachments: image002.png
image008.png
image009.png

Hi Isha,

Thank you for your email and for your time on the phone earlier.

As discussed, the maps which are available on our website are our most up to date adopted flood maps. We recently updated these maps in October of 2023.

We hope this provides some assistance.

Kind Regards

Flood Advice at Blacktown City Council

9839 6350
floodadvice@blacktown.nsw.gov.au
PO Box 63 Blacktown NSW 2148
blacktown.nsw.gov.au

We acknowledge the Darug as the First People of the Blacktown City region

Follow us on social media

From: Isha Kothari <isha@atlasgeoservice.com.au>
Sent: Friday, 24 May 2024 10:08 AM
To: Blacktown Council <Blacktown.Council@blacktown.nsw.gov.au>
Cc: rishabh@atlasgeoservice.com.au
Subject: Consultation - Construction soil and water management sub-plan
Importance: High

Hi

We are preparing a construction soil and water management sub plan for a site located at Rooty Hill Road Southeastern Creek NSW 2766.

As part of the document, we are referring to Blacktown City Council's current online flood mapping of the site area https://maps.blacktown.nsw.gov.au/. Are the flood maps up to date and relevant to be included as part of the construction soil and water management sub plan?

Should there be any issues, please don't hesitate to get in touch.

Regards,

Isha Kothari
Environmental Engineer
M. Eng (Environment)
Atlas Geotechnical Services Pty Ltd

NATA Accreditation No: 20498

E: isha@atlasgeoservice.com.au
W: www.atlasgeoservice.com.au
M: 0474137807
P: Unit 49/93-97 Newton Road
Wetherill Park NSW 2164

Appendix 1.6 – Biodiversity Management Plan

Eastern Creek Business Hub Stage 3 Biodiversity Management Plan

Frasers Property

ecological AUSTRALIA
A TETRA TECH COMPANY

1300 646 131
www.ecoaus.com.au

DOCUMENT TRACKING

Project Name	Eastern Creek Business Hub Stage 3 Biodiversity Management Plan
Project Number	24SYD5722
Project Manager	Belinda Failes
Prepared by	Kody Kemp, Taylor Benny
Reviewed by	Belinda Failes
Approved by	David Bonjer
Status	**Final**
Version Number	**V4**
Last saved on	**22 May 2024**

This report should be cited as 'Eco Logical Australia 2024. *Eastern Creek Business Hub Stage 3 Biodiversity Management Plan*. Prepared for Frasers Property.'

ACKNOWLEDGEMENTS

This document has been prepared by Eco Logical Australia Pty Ltd with support from Frasers Property

Template 2.8.1

Contents

List of Figures

List of Tables

Abbreviations

Abbreviation	Description
AIA	Arboricultural Impact Assessment
BC Act	NSW *Biodiversity Conservation Act 2016*
BDAR	Biodiversity Development Assessment Report
BMP	Biodiversity Management Plan
Commonwealth DCCEEW	Commonwealth Department of Climate Change, Energy, the Environment and Water
BCC	Blacktown City Council
CPLS	Cumberland Plain Land Snail
CPW	Cumberland Plain Woodland
NSW DCCEEW	NSW Department of Climate Change, Energy, the Environment and Water
DPE	Department of Planning and Environment (now NSW DCCEEW)
ELA	Eco Logical Australia Pty Ltd
EP&A Act	NSW *Environmental Planning and Assessment Act 1979*
EPBC Act	Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*

Abbreviation	Description
PCT	Plant Community Type
SSDA	State Significant Development Application
SVTM	State Vegetation Type Map
TPP	Tree Protection Plan
VMP	Vegetation Management Plan
WSPT	Western Sydney Parklands Trust

1. Introduction

This Biodiversity Management Plan (BMP) has been prepared by Eco Logical Australia Pty Ltd (ELA) on behalf of Frasers Property for the proposed Stage 3 Early works within the State Significant Development Application (SSDA #31515622) of the Eastern Creek Business Hub (2 Goldsboro Glade Eastern Creek, NSW, 2766) (Figure 1and Figure 2).

This BMP has been prepared to satisfy the requirements of the SSDA (SSDA #31515622), the Biodiversity Development Assessment Report (BDAR) (ELA 2023) and the NSW Government Code of Practice for Injured, Sick and orphaned Protected Fauna (2011). The proposed development under SSDA #31515622 includes Construction and Operation of Phase A of the retail outlet centre in accordance with Concept Plan (SSD-10457), including:

- a single storey retail factory outlet centre with 101 tenancies
- extension of ECQ Social including a multi-purpose outdoor area with play spaces, passive recreation and alfresco dining;
- tree and vegetation clearing and associated landscaping works
- signage zones;
- 1,171 carparking spaces (at-grade and basement)
- external infrastructure upgrades, including the upgrade of the Rooty Hill Road South / Church Street intersection and an upgrade of Church Street.

1.1. Location

The Biodiversity Management Plan (BMP) boundary applies to the Stage 3 works of the Eastern Creek Business Hub, 2 Goldsbro Glade Eastern Creek, NSW, 2766 (Lot 12 DP 1245264 and the southwest portion of Lot 101 DP581882) (Figure 1). The location of the native vegetation retained for conservation and for habitat restoration is located within the Vegetation Management Plan (VMP) boundary adjacent to the BMP site (Figure 2). This conservation area is located within 100 m of the BMP area and provides a suitable location for the release of native fauna and reuse of habitat features described in this BMP.

1.2. Consent

SSDA #5175 for the Concept Plan for the Eastern Creek Business Hub was granted by the NSW Government Department of Planning, Housing and Infrastructure. A Concept Plan for Stage 3 was lodged for Stage 3 works (SSDA 10457) which included additional road and intersection works required by Transport for NSW and Blacktown City Council. A new SSD for the detailed design and operation of the outlet centre at Lot 3 was submitted as SSDA 31515622. Consent for SSD 31515622 was granted 19 February 2024.

The conditions of this consent that apply to this BMP can be found in Table 1. This Biodiversity Management Plan (BMP) has been prepared in accordance with the NSW DPE *Code of Practice for Injured, Sick and Orphaned Protected Fauna 2011* and the Biodiversity Development Assessment Report (ELA 2023) and in consultation with Blacktown City Council (BCC) to satisfy the condition B38. ELA contacted the BCC Senior Biodiversity Officer Alison Hewitt (on 22 March 2024) to discuss the

requirements of this BMP. A review of the draft BMP was also conducted by Alison prior to the release of the final BMP.

Figure 1: Extent of work encompassed by this BMP

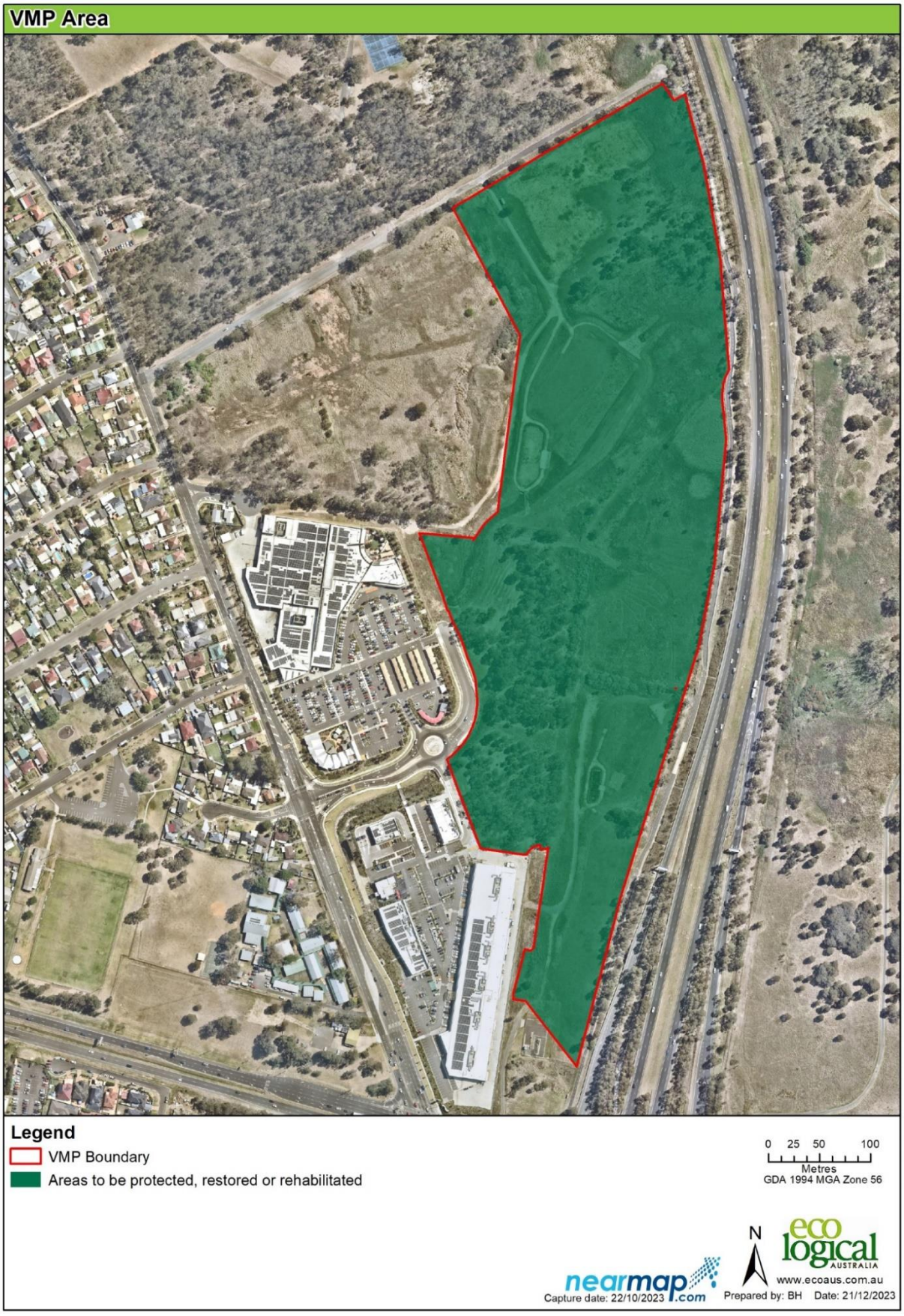


Figure 2: Vegetation Management Plan boundary, suitable for release of native fauna and reuse of habitat features

Table 1: Biodiversity Management Plan requirements (SSDA 31515622)

Condition	Description	Relevant item
B38	*Prior to the issue of CC4, a Biodiversity Management Plan (BMP) for the development must be prepared by a suitably qualified person and in consultation with Council and include the following details:*	This document has been prepared by Kody Kemp who is a Restoration Ecologist with two years of experience. It has been reviewed by Belinda Failes who is a Senior Ecologist. ELA prepared this BMP in consultation with BCC. Belinda Failes (ELA) discussed the requirements of this BMP with Alison Hewitt (BCC) (on 22 March 2024). A review of the Draft BMP was conducted on 17 May 2024 and a final review was conducted 22 May 2024.
B38. A	A detailed site plan	Appendix A
B38. B	The recommendations of the Biodiversity Development Assessment Report, prepared by Ecological Australia, dated 27 June 2023	Table 2
B38. C	The Tree Protection Plan within the Eastern Creek Business Hub Stage 3 Arboricultural Impact Assessment, Version 12, dated 1 September 2023 prepared by Eco Logical Australia	Table 2 Items 1.2-1.8, Appendix C Appendix D
B38. D	Biodiversity management strategies for pre-construction, construction and post construction activities including environmental control measures for the pre-clearing process.	Table 2
B38. E	Appropriate controls manage exposed soil surfaces and stockpiles to prevent sediment discharge into waterways	Table 2 Item 3.3,3.4
B38. F	Fencing to protect significant environmental features	Table 2 Item 1.2
B38. G	Staff training and site briefing to communicate environmental features to be protected and measures to be implemented	Table 2 Item 1.1
B38. H	A fauna rescue and release procedure. Where tree removal is required, a licensed wildlife carer or ecologist must be on site as a fauna handler during tree removal works	Table 2 Items 2.1-2.4
B38. I	A release site within 100 m of the site must be nominated by the project ecologist prior to clearing.	Table 2 Items 2.2, 2.8, Appendix I Figure 13
B38. j	Removal of trees with habitat hollows and / or nests must be undertaken at a time that minimises impact to fauna, particularly threatened	Table 2 Items 2.2, 2.3

Condition	Description	Relevant item
	fauna that could breed and or hibernate within hollows/nests on site.	
B38. K	A procedure for controlling the introduction and spreading of weeds and pathogens, including hygiene protocols and the arrangements for monitoring	Table 2 Item 3.1, 3.2, 3.4
B38. L	Strategies for re-use of tree hollows, logs, coarse woody debris and bush rock: *i.* All identified tree hollows proposed to be removed, are to be salvaged and placed in onsite retained or nearby bushland areas under the direction of an ecologist. *ii.* all tree hollows unable to be salvaged must be replaced with nest boxes or artificial hollows with three nest boxes/ artificial hollows for every one hollow removed.	Table 2 Items 2.2-2.8
B38. m	A procedure for dealing with unexpected threatened species finds. The procedure must include, as a minimum, the following: *iii.* Stop work arrangements in the immediate area of the threatened species; *iv.* Notification and communication protocol; *v.* Consultation with the specialists to assess the significance of the find; and (iv) A list of approvals, licences or permits likely required prior to recommencing works.	Table 2 Item 2.11, Appendix J
B38. n	Procedures and methods for identifying and protecting the any trees and areas of vegetation identified for retention in accordance with Australian standard (as) 4970 – 2009 protection of trees on development sites. The BMP must be submitted to and approved by the Planning Secretary prior to the issue of CC4.	Table 2 Item 1.2-1.7, Appendix C and Appendix D

This BMP has been prepared in accordance with the NSW DPE *Code of Practice for Injured, Sick and Orphaned Protected Fauna 2011* and the Biodiversity Development Assessment Report (ELA 2023).

2. Biodiversity values

Vegetation and targeted species credit species surveys within the BMP boundary were undertaken as part of the Biodiversity Development Assessment Reports (BDAR) for the concept plan for Stage 3 works (ELA 2022) and detailed design (Appendix A). The BDARs have utilised data collected from various surveys conducted throughout the immediate surrounding area in 2009, 2012, 2020 and 2022. These surveys consisted of vegetation validation, targeted microchiropteran bat surveys, opportunistic diurnal bird surveys, habitat assessment and targeted surveys for ecosystem and species credit species. Vegetation surveys were conducted across the broader site to determine the vegetation type, composition and structure. The collected floristic data was used to determine whether the vegetation present on site was consistent with the definition of an EPBC threatened ecological community. Threatened species searches were undertaken through microchiropteran surveys, diurnal bird surveys, snail surveys *(Meridolum corneovirens and Pommerhelix duralensis)* and flora surveys consistent with the methodology outlined by the appropriate guidelines, refer to *Eastern Creek Business Hub Stage 3 – Early works BDAR* (ELA 2023) for more information.

2.1. Vegetation communities

One (1) Plant Community Type (PCT) was previously mapped to be present within the BMP boundary. The PCT present on site is PCT 849 *Grey Gum – Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin Bioregion* (Figure 3). The PCT presented is in good condition, with all strata present and medium occurrence of exotic species.

In 2022, updates occurred to the Department of Planning and Environment State Vegetation Type Map (SVTM), which replaced the previous used PCT codes. PCT 849 was decommissioned and the new correlating PCT 3320 *Cumberland Shale Plains Woodland* was established. However, as the vegetation validation and the BDARs were prepared prior to the release of the SVTM new PCTs the vegetation within the BMP boundary has been mapped as PCT 849.

PCT 849 conforms to the critically endangered ecological community listed under the NSW *Biodiversity Conservation Act 2016* (BC Act) as *Cumberland Plain Woodland in Sydney Basin Bioregion.* Vegetation mapped as part of PCT 849 also satisfied Condition A of the criteria for listing under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Figure 3: Plant Community Type present within the BMP boundary

2.2. Threatened Flora and Fauna species

Threatened species surveys conducted in 2012, 2020 and 2022 identified the presence of the following species within the BMP boundary:

- Threatened microbats:
    - *Falsistrellus tasmaniensis* (Eastern False Pipistrelle)
    - *Micronomus norfolkensis* (Eastern Coastal Free-tail Bat)
    - *Miniopterus orianae oceansis* (Large Bent-winged Bat)
- Threatened invertebrate:
    - *Meridolum corneovirens* (Cumberland Plain Land Snail)

No hollow-bearing trees were previously recorded within the BMP boundary. However, the Eastern False Pipistrelle and Eastern Coastal Free-tail Bat may roost under the bark of trees. A pre-clearance survey is required to inspect the trees for hollows or suitable loose bark and other habitat features such as bird nests. Replacement nest boxes will be installed, which are suitable for microbats as per Section 7.

The presence of Cumberland Plain Land Snail (CPLS) habitat within the BMP boundary is provided in Figure 4. Prior to vegetation and construction activites commencing within the outlined CPLS species polygon, a target preclearance survey in accordance with Table 2 Item 2.4 and Appendix I must be undertaken to identify and relocate CPLS individuals found within the outlined CPLS species polygon within the BMP boundary (Figure 4).

Figure 4: Cumberland Plain Land Snail Habitat within the BMP boundary

3. Implementation and Operation

3.1. Biodiversity Management Plan

Safeguards to manage potential biodiversity impacts are detailed in Table 2, together with who is responsible for their implementation and at what stage of works.

Person responsible for implementation: PM – Project Manager; SS – Site Supervisor; SE – Site Ecologist; BC – Bushfire Consultant; All – All Site Personnel (not BC).

Table 2: BMP Mitigation Measures

Item	Environmental Action	Timeframe	Monitoring	Responsible person
	Objective: General			
1.1	All project staff and contractors will be inducted on the biodiversity sensitivities of the work site(s) and relevant safeguards prior to commencement	Prior to works	Induction Records	PM, SS
1.2	Work site to be delineated and 'no go' zones around the perimeter of the project site will be marked prior to commencement of works. Exclusion fencing must be as per the AS4970 to ensure the protection of significant environmental features across the site. Refer to Appendix B Figures 1-3 of the AIA (ELA 2023b)	Prior to works	Weekly checklist, after rainfall or changed in site conditions	PM, SS
1.3	Trees to be removed and retained on site must be clearly marked prior to vegetation clearing works	Prior to works	Weekly checklist, after rainfall or changed in site conditions	PM, SS
1.4	Trees proposed for retention as per (AIA ELA 2022) are to be protected in accordance with AS4970-2009 Protection of Trees on Development sites. At a minimum a 1.8 m high chain-wire fence is to be erected at least three metres from the base of each tree and is to be in place prior to works commencing. All areas within the root protection zone are to be mulched with composted leaf mulch to a depth of no less than 100 mm. a sign is to be erected indicating the trees are protected.	Prior to works	Weekly checklist, after rainfall or changed in site conditions	PM, SS
1.5	Tree Protection zones and exclusion fencing to be prominently signed with 300 mm x 400 mm signs stating "No Access – Tree Protection Zone"	Prior to works	Weekly checklist, after rainfall or	PM, SS

Item	Environmental Action	Timeframe	Monitoring	Responsible person
			changed in site conditions	
1.6	Where necessary install protection on the trunks and branches of retained trees	Prior to works	Weekly checklist, after rainfall or changed in site conditions	PM, SS
1.7	Where machinery access required through TPZ's install adequate root protection barries in accordance with the AIA and AS 4970	Prior to works	Weekly checklist, after rainfall or changed in site conditions	PM, SS
1.8	No plant, equipment, or stockpile to be placed under the drip line of retained trees	During construction	Weekly checklist, after rainfall or changed in site conditions	All
1.9	All building refuse, machinery and vehicles associated with the development to remain within the development footprint	During construction	Weekly checklist, after rainfall or changed in site conditions	All
1.10	Dust suppression measure in place and actively maintained	During construction	Weekly checklist, after rainfall or changed in site conditions	PM, SS
1.11	All works must not proceed unless NSW Department of Planning, Housing and Infrastructure has given notice that this BMP has been approved	Prior to works	Written Approval	PM, SS
1.12	Blacktown City Council will be notified immediately of any complaints in relation to management of biodiversity issues.	As required	Complaint Register	SS
1.13	All fencing is to be suitable for exclusion of macropods to be installed and maintained during the construction period. The fencing should be a minimum 1.8 m high using chain-link fence. To prevent injury to macropods during construction, fencing should be covered with shade cloth and contain soft corners such as 45 degree within the development site.	Prior to works and during construction	Weekly checklist, after rainfall or change in site conditions	PM, SS

Item	Environmental Action	Timeframe	Monitoring	Responsible person
	Objective: Biodiversity Values			
2.1	Future landscaping contractors to undertake an environmental awareness induction prior to commencement of works.	Prior to works	Induction records, weekly checklist	SS, SE
2.1	Prior to the clearance of the vegetation in the development footprint, collectable floristic material such as native species seed stock and woody fruit of all native species should be collected and taken to the BCC authorised city council nursery (Blacktown Council Nursery 52B Kent Street, Blacktown NSW 2148).	Prior to clearing works	Weekly checklist	SE
2.2	Survey efforts did not identify hollow bearing trees to be removed within the construction footprint. However, a suitably qualified ecologist must undertake a preclearance survey of trees to be removed (AIA ELA 2023), to identify fauna habitat within trees to be removed, viable material (large woody debris, logs, tree hollows, bush rock etc.) suitable for re-use, suitable fauna relocation site and to determine the appropriate clearing methodology based on the below methodology to ensure that trees with hollows and nests are removed at a time that minimises biodiversity impacts. All viable material will be relocated within the VMP area (Figure 2)(ELA 2024).	Prior to clearing works	Weekly checklist	SE
2.3	Trees to be removed containing fauna or fauna habitat should be removed in the following manner; • Vegetation clearing should be undertaken in periods of low roosting activity i.e. during migration, outside of hibernation periods and outside of young rearing periods. The proposed timing for vegetation clearing to be undertaken throughout the site to avoid these parameters is preferably March - April or September – October. • Check for fauna in the zone of disturbance prior to clearing and scare or capture prior to clearing begins. • Remove all non-habitat bearing vegetation (including understorey) at least 24 hrs prior to clearing habitat bearing trees, to allow fauna to self-relocate. • Before felling stag/habitat tree, tap along trunk using an excavator or loader to scare fauna from the openings. Repeat several times until fauna has evacuated the habitat feature and or no further visual signs of fauna are recorded. The aim of this procedure is to 'substantially' shake the tree. The majority of fauna will exit the tree during this process. If vegetation clearing is to be undertaken outside of the aforementioned periods then a climbing arborist must inspect all habitat features following disturbance but prior to felling to ensure no fauna is present within the habitat feature. • Felling of stag/habitat trees must be undertaken using "soft felling" methodologies to ensure the safety of any remaining fauna within identified and unidentified habitat features. Soft felling methods can be conducted in a multitude of ways i.e. o utilising a climbing arborist with or without an EWP to check habitat features (using an endoscope prior) to sectioning out and lower branches/trunks using ropes,	During clearing works	Weekly checklist	SE

Item	Environmental Action	Timeframe	Monitoring	Responsible person
	○ utilising a Sennabogen which allows for sectioning of trees via machinery, ○ utilising an excavator with a pick to dig around the base of the tree, exposing the roots, then pushing the tree over with the pick placed in a fork of the tree to allow for the slow release of the tree as it is pushed over. • Re-check after felling stag/habitat tree to ensure no fauna have become trapped or injured during clearing operations. Any uninjured fauna found should be safely located to nearby habitat. Injured fauna is to be taken to a local vet by the onsite ecologist. • Fell stags/habitat trees into the zone of disturbance to avoid damaging adjacent vegetation. • Take care when moving equipment near vegetation to be retained. • Rather than mulching or burning cleared vegetation, logs from the felled trees should be distributed into areas of vegetation to be retained (such as within the VMP area) where it would not be considered a fire hazard. This would provide additional potential habitat for ground dwelling fauna such as reptiles and small mammals. • If native fauna is identified within the project site, the Fauna Rescue and Release Procedure found in Appendix I must be adhered to.			
2.4	Addition to the above preclearance survey, a targeted survey must be undertaken to identify and relocate Cumberland Plain Land Snails within the development footprint. This survey must be undertaken prior to vegetation removal and in accordance with the NSW NPWS Cumberland Plain Large Land Snail guideline (NSW NPWS 2000).	Prior to clearing works	Weekly checklist	SE
2.5	Prior to vegetation clearing all identified tree hollows will be replaced by nest boxes or artificial hollows at a ratio of 1:3, including nest boxes suitable for microbat roosting habitat. The ecologist conducting the preclearance survey will identify and outline the appropriate nest boxes required to effectively offset the loss the of these habitat features based on habitat feature type, size and observed/recorded species within the subject site. A suitably qualified ecologist and arborist will install these nest boxes throughout the adjacent VMP area, prior to vegetation clearing. However, if additional hollows outside of those identified within the preclearance survey are discovered during vegetation clearance these hollows will also require replacement. Replacement of additional discovered hollows must be undertaken immediately following vegetation pending availability and installation timing. Nest boxes should include specific microbat hanging boxes and possum and parrot boxes to replace hollows previously identified within the site.	Prior to clearing works	Weekly checklist	SE
2.6	During vegetation clearance a suitably qualified ecologist or fauna handler should be present during all clearing activities. Clearing of hollow bearing trees should utilise soft felling methods to ensure that the identified hollows	During clearing works	Weekly checklist	SE

Item	Environmental Action	Timeframe	Monitoring	Responsible person
	remain intact and suitable for re-use			
2.7	Following vegetation clearing a suitably qualified ecologist will supervise the salvage and placement of material suitable for reuse within the adjacent VMP area.	During clearing works	Weekly checklist	SE
2.8	A short report detailing the pre-clearance survey and clearance works will be provided to Western Sydney Parklands Trust (WSPT) and Blacktown City Council (BCC) and NSW DCEEW fourteen days following completion	Following clearing works	Weekly checklist	SE, PM, SS
2.9	Morning machinery checks of machinery for fauna completed during prestart checks	During all works	Weekly checklist	All
2.10	All revegetation to be consistent with the existing Vegetation Management Plan (ELA 2024)	Following construction	Weekly checklist	PM, SS, SE
2.11	An Unexpected finds procedure(Appendix J) must be implemented across the site and all staff must be aware of the implications of this order. If an unexpected find occurs within the site, all works must be stopped to ensure to safeguard against further impacts. Once works have been stopped the ecologist will determine through expert consultation the actions that must be taken.	During clearing and construction works	Weekly checklist	All
2.12	Fauna vehicle strike is possible within the development site, an appropriate speed limit within the site and along adjacent roads (Church Street and Rooty Hill Road South) must be applied during construction works	During clearing and construction works	Weekly checklist	All
	Objective: Reduce Spread of Priority weeds			
3.1	To reduce the spread of pathogens and diseases, ensure Arrive Clean, Leave Clean Guidelines (Department of the Environment, 2015) are adhered to: • Ensure all clothing, hats, footwear, tools, equipment, machinery and vehicles are free of mud, soil and organic matter before entering and exiting bushland • Ensure any soil, plants or other materials entering the site are certified free of weeds and pathogens. A dedicated washdown location, at the entry/exit of the site is to be determined prior to construction works. If weeds or pathogens are known to be present within the development site, Appendix K must be adhered to.	Installed prior to works, maintained throughout works	Weekly checklist	All
3.2	All weeds are to be treated prior to becoming an environmental threat according to best management practices.	During construction works	Weekly checklist	PM, SS, SE
3.3	All sediment fencing and erosion controls in place and maintained	During construction works	Weekly checklist	PM,SS
3.4	All stockpiles weed free and sediment controls maintained	During construction works	Weekly checklist	PM, SS

Item	Environmental Action	Timeframe	Monitoring	Responsible person
	Objective: Reduce Potential Noise Impacts to native fauna			
4.1	If practical, avoid simultaneous operation of noisy plant within discernible range of retained vegetation.	During construction works	Weekly checklist	All
4.2	Works will only occur during the following times: Monday to Friday 7:00 am to 5:00 pm, Saturday 8:00 am to 1:00 pm. Works will not operate after sunset to minimise indirect impacts to threatened fauna species in proximity. In addition, site lighting is to be minimised to reduce indirect impacts to threatened fauna species in proximity to the site.	During construction works	Weekly checklist	SS, PM
4.3	Maximise the distance between noisy plant items and nearby residential receivers and potential fauna habitat.	During construction works	Weekly checklist	All
4.4	Orient equipment such as offensive noise carriers away from residential receivers and potential fauna habitat.	During construction works	Weekly checklist	All
4.5	Plant used intermittently is to be throttled or shut down when not required.	During construction works	Weekly checklist	All

3.2. Structure and Responsibility

The organisation chart outlined in Figure 5, identifies the reporting lines for the key contractor and sub-contractor personnel responsible for environmental management, as well as the DPE interface. Details of personnel responsibilities are outlined in Table 3. Contact details for these personnel are included in Appendix E

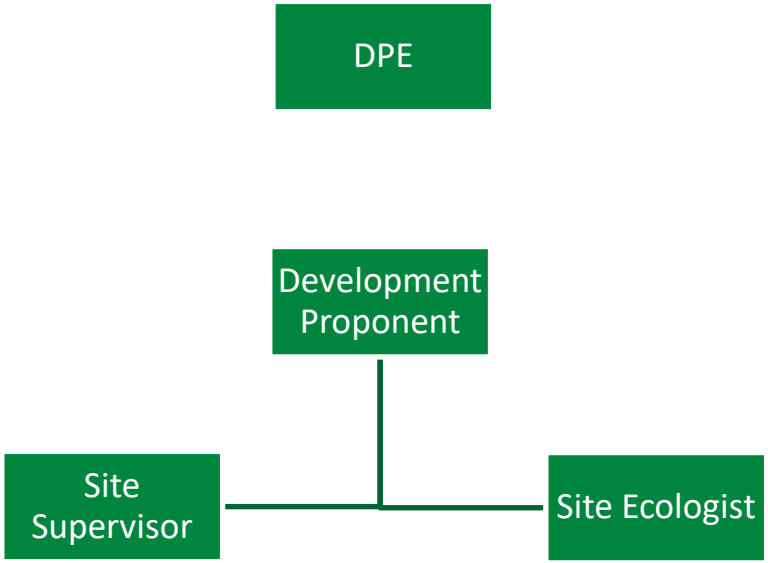


Figure 5: Organisation chart

Table 3: Responsible personnel

Role	Name, Position and Company	Responsibility
Project manager		• Reviews DA Conditions of Consent and BMP. • Notifies DPE of changes to the project scope of works and updates the BMP, if required. • Requires the contractor to adhere to the approved works. • Accountable for contractor's and subcontractor's environmental performance. • Reports any non-compliance to DPE.
Site Supervisor	**Construction Contractor**	• Issues stop work orders, if required. • Records any community complaints (Appendix F) and notifies Project Manager. • Responsible for site management, BMP compliance, including subcontractors. • Facilitates environmental induction and toolbox talks for site personnel. • Undertakes minimum of weekly environmental inspections (or after environmental conditions change). • Ensures proponent, DPE and community are notified of commencement of works. • Initiates corrective actions. • Reports BMP non-conformances to the Project Manager. • Reports incidents. • Notifies the Project Manager if the BMP needs revising.
Staff	**Construction Contractor & Ecological Contractor**	• Comply with the BMP. • Monitor and maintain controls. • Report breaches of the BMP and potential / actual incidents to Site Supervisor • Report incidents. • Stop work and reports to Site Supervisor in the event of unexpected finds (e.g. native fauna). • Record any community complaints and notify the Site Supervisor (Appendix F).

3.3. Staging of works

Stage	Required actions
Preapproval	Preparation of BMP
Approval – Immediately following	1. Inductions and weekly checklists completed 2. Installation of exclusion, macropod, sediment fencing 3. Marking of trees to be retained 4. Tree protection installation 5. Preclearance survey - Marking of re-use material - Identification of floristic material collection - Identification of required nest boxes 6. Floristic material collection 7. Nest box installation 8. Nest box installation report 9. Preclearance report 10. Installation of designated washdown location
Vegetation clearance	1. Inductions and weekly checklists completed 2. Morning machinery checks for fauna 3. Targeted preclearance survey completed immediately prior to clearance 4. Supervision of vegetation clearance 5. Removal and placement of re-use material 6. Clearance report 7. Weed treatment and removal
Construction – All stages	1. Inductions and weekly checklists completed 2. TPZ maintained 3. Exclusion, macropod, sediment fencing installed and maintained 4. Morning machinery checks for fauna 5. Continual weed treatment and removal 6. Rubbish removal 7. Revegetation in accordance with the adjacent VMP (ELA 2024)
Post construction	1. Inductions and weekly checklists completed 2. Removal of TPZs 3. Removal of macropod, exclusion and sediment fencing 4. Revegetation consistent with the VMP (ELA 2024) 5. Weed treatment and removal 6. Rubbish removal

References

Eco Logical Australia 2023a. Eastern Creek Business Hub Stage 3 Early Works Biodiversity Development Assessment Report. Prepared for Frasers Property Pty Ltd.

Eco Logical Australia 2023b. Eastern Creek Business Hub Stage 3 Arboricultural Impact Assessment. Prepared for Frasers Property Pty Ltd

Eco Logical Australia 2022a. Eastern Creek Business Hub Stage 3 Biodiversity Development Assessment Report. Prepared for Frasers Property Pty Ltd

Eco Logical Australia 2022b. Eastern Creek Business Hub Vegetation Management Plan. Prepared for Western Sydney Parklands Trust

NSPW 2000. Environmental Impact Assessment Guidelines - Cumberland Plain Large Land Snail

Appendix A Blacktown City Council Correspondence

Thanks Belinda.

I can now confirm that we (Blacktown Council) have been consulted in development of the Biodiversity Management Plan and Council are satisfied that Version 4 addresses all of council's requirements.
Please update the Version number on the latest amended report from 3 to 4.

Regards,
Alison

Blacktown City Council

Alison Hewitt
Senior Biodiversity Officer (Ecologist)

Appendix B Detailed design

Figure 6: Detailed Design (ELA 2024)

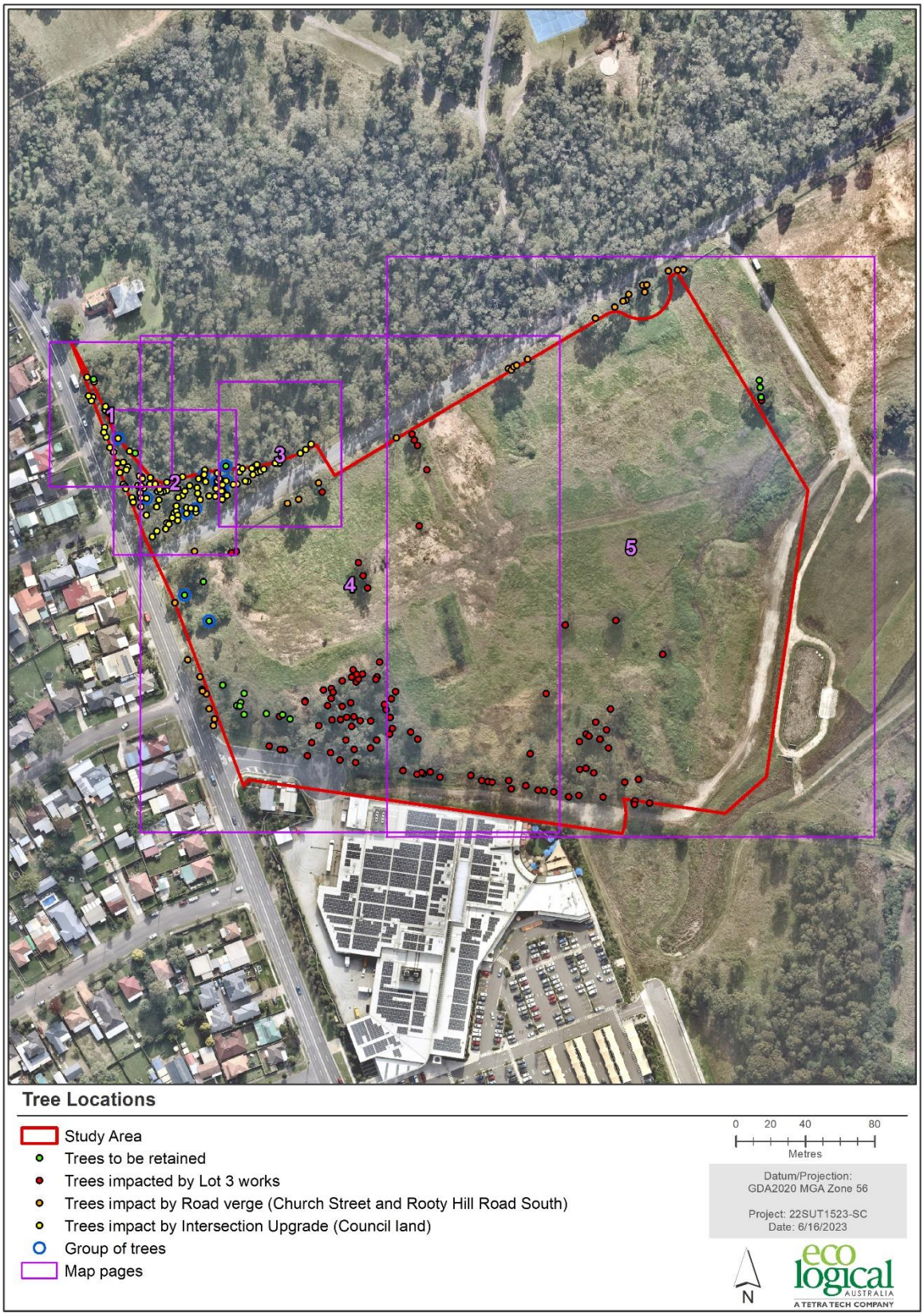


Figure 7: Detailed Tree Removal plan

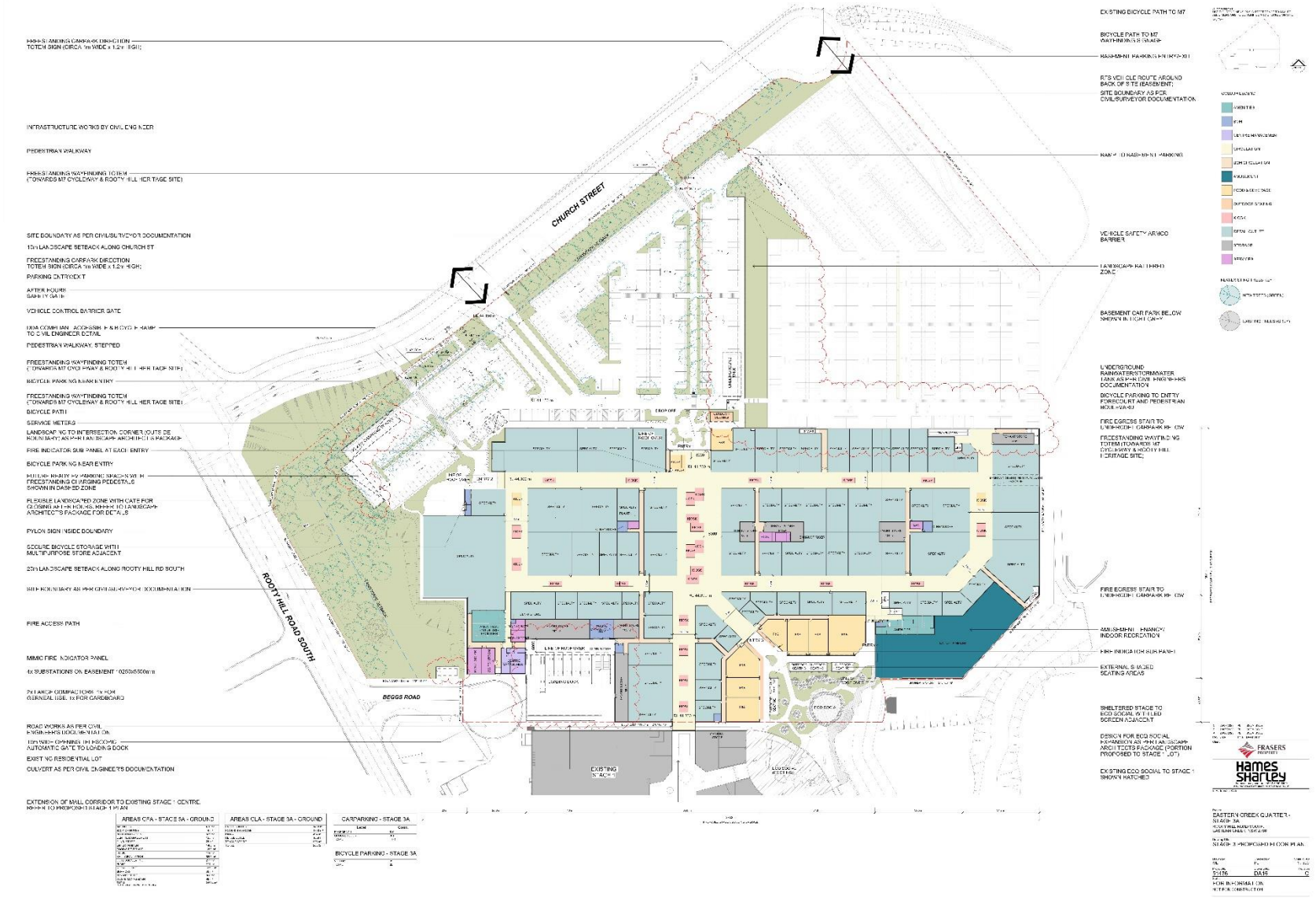


Figure 8: Detailed design

Tree	Botanical name	Trees in group	Height (m)	Spread (m)	Health	Structure	ULE	Landscape significance	Retention value	DBH (mm)	DAB (mm)	TPZ (m)	SRZ (m)	Sum of TPZ% encroachment	Impact to SRZ	Impacts	Impact Notes	Impact summary	Tree location notes	General notes
1	*Eucalyptus moluccana*	1	14	10	Poor	Good	Short (5-15 years)	Medium	Low	650	650	7.8	2.8	72	Yes	High Impact: >20%	Road verge (Rooty Hill Rd South) (71.64%)	Removal - Road verge (Rooty Hill Rd South)	Tree moved to survey point	mistletoe throughout
2	*Eucalyptus moluccana*	1	23	10	Fair	Good	Medium (15-40 years)	High	High	480	480	5.8	2.4	94	Yes	High Impact: >20%	Road verge (Rooty Hill Rd South) (93.6%)	Removal - Road verge (Rooty Hill Rd South)	Tree moved to survey point	branch dieback, start of mistletoe
3	*Eucalyptus moluccana*	1	20	7	Fair	Good	Medium (15-40 years)	High	High	400	400	4.8	2.3	99	Yes	High Impact: >20%	Road verge (Rooty Hill Rd South) (99.28%)	Removal - Road verge (Rooty Hill Rd South)	Tree moved to survey point	dieback
4	*Eucalyptus moluccana*	1	20	10	Fair	Good	Medium (15-40 years)	High	High	850	850	10.2	3.1	66	Yes	High Impact: >20%	Road verge (Rooty Hill Rd South) (66.28%)	Removal - Road verge (Rooty Hill Rd South)	Tree moved to survey point	branch dieback
5	*Eucalyptus tereticornis*	1	20	12	Fair	Good	Long (>40 years)	High	High	680	680	8.2	2.8	79	Yes	High Impact: >20%	Road verge (Rooty Hill Rd South) (79.47%)	Removal - Road verge (Rooty Hill Rd South)	Tree moved to survey point	some branch dieback
6	*Eucalyptus moluccana*	1	19	12	Fair	Good	Medium (15-40 years)	High	High	900	900	10.8	3.2	52	Yes	High Impact: >20%	Road verge (Rooty Hill Rd South) (52.13%)	Removal - Road verge (Rooty Hill Rd South)	Tree moved to survey point	some canopy dieback, multitrunk
7	*Eucalyptus moluccana*	1	16	7	Fair	Good	Medium (15-40 years)	High	Medium	400	400	4.8	2.3	100	Yes	High Impact: >20%	Road verge (Rooty Hill Rd South) (99.92%)	Removal - Road verge (Rooty Hill Rd South)	Tree moved to survey point	epicormic throughout, major branch dieback
8	*Eucalyptus moluccana*	1	12	6	Fair	Fair	Medium (15-40 years)	Medium	Medium	300	300	3.6	2.0	0	No	High Impact: >20%	HV line (18%)	Removal – Lot 3	Tree moved to survey point	mistletoe, trunk damage
9	*Eucalyptus moluccana*	1	15	6	Good	Fair	Medium (15-40 years)	High	High	450	450	5.4	2.4	12	Yes	High Impact: >20%	Substations (11.8%), HV line (8.2%)	Removal - Lot 3	Tree moved to survey point	trunk damage
10	*Eucalyptus moluccana*	1	17	7	Fair	Fair	Medium (15-40 years)	Medium	Medium	400	400	4.8	2.3	20	Yes	High Impact: >20%	Substations (20.31%), HV line (7.7%)	Removal - Lot 3	Tree moved to survey point	soil level changed, trunk dieback
11	*Eucalyptus moluccana*	1	18	10	Fair	Good	Medium (15-40 years)	High	High	550	550	6.6	2.6	40	Yes	High Impact: >20%	Batters (4.37%) Building footprint (35.56%)	Removal - Lot 3	Tree moved to survey point	trunk damage, mistletoe
12	*Eucalyptus moluccana*	1	17	8	Fair	Fair	Medium (15-40 years)	Medium	Medium	320	320	3.8	2.1	63	Yes	High Impact: >20%	Building footprint (63.19%)	Removal - Lot 3	Tree moved to survey point	trunk damage, codominent dead
13	*Eucalyptus moluccana*	1	16	8	Poor	Fair	Short (5-15 years)	Medium	Medium	800	800	9.6	3.0	94	Yes	High Impact: >20%	Building footprint (94.45%)	Removal - Lot 3	Tree moved to survey point	major dieback, epicormic, major trunk wound
14	*Eucalyptus tereticornis*	1	22	12	Fair	Good	Medium (15-40 years)	High	High	1000	1000	12.0	3.3	75	Yes	High Impact: >20%	Batters (16.73%) Building footprint (55.12%) Substations (3.5%)	Removal - Lot 3	Tree moved to survey point	some branch dieback, multi stem stable union
15	*Eucalyptus moluccana*	1	12	6	Good	Good	Long (>40 years)	High	High	320	320	3.8	2.1	0	No	No Impact: 0%		Retain	Tree moved to survey point	semi mature tree in good health

Tree	Botanical name	Trees in group	Height (m)	Spread (m)	Health	Structure	ULE	Landscape significance	Retention value	DBH (mm)	DAB (mm)	TPZ (m)	SRZ (m)	Sum of TPZ% encroachment	Impact to SRZ	Impacts	Impact Notes	Impact summary	Tree location notes	General notes
16	*Eucalyptus moluccana*	1	16	8	Good	Good	Long (>40 years)	High	High	350	350	4.2	2.1	0	No	No Impact: 0%		Retain	Tree moved to survey point	crowded
17	*Eucalyptus tereticornis*	1	20	10	Fair	Fair	Medium (15-40 years)	Medium	Medium	900	900	10.8	3.2	11	No	Medium Impact: <20%	Batters (11.14%)	Removal - Lot 3	Tree moved to survey point	basal wound, madeira vine, weak branch union
18	*Eucalyptus tereticornis*	1	17	8	Fair	Fair	Medium (15-40 years)	Medium	Medium	550	550	6.6	2.6	0	No	No Impact: 0%		Retain	Tree moved to survey point	codominant stem, poor union, mistletoe,
19	*Eucalyptus tereticornis*	1	19	9	Good	Good	Long (>40 years)	High	High	480	480	5.8	2.4	0	No	No Impact: 0%		Retain	Tree moved to survey point	semi mature
20	*Eucalyptus tereticornis*	1	18	6	Good	Good	Long (>40 years)	High	High	300	300	3.6	2.0	0	No	No Impact: 0%		Retain	Tree moved to survey point	semi mature
21	*Eucalyptus tereticornis*	1	13	6	Fair	Fair	Medium (15-40 years)	Medium	Medium	320	320	3.8	2.1	0	No	No Impact: 0%		Retain	Tree moved to survey point	basal wound, thining canopy, crowded
22	*Eucalyptus tereticornis*	1	19	6	Good	Fair	Medium (15-40 years)	High	High	350	350	4.2	2.1	0	No	No Impact: 0%		Retain	Tree moved to survey point	multi trunk, semi mature
23	*Eucalyptus tereticornis*	1	11	7	Good	Good	Long (>40 years)	High	High	300	300	3.6	2.0	0	No	No Impact: 0%		Retain	Tree moved to survey point	semi mature
24	*Eucalyptus moluccana*	1	18	7	Fair	Poor	Medium (15-40 years)	Medium	Medium	550	550	6.6	2.6	5	No	Low Impact: <10%	Road verge (Rooty Hill Rd South works) (4.66%)	Retain	Tree moved to survey point	group of 8 trunks, some dead, live trunks measured
25	*Eucalyptus moluccana*	1	16	7	Fair	Fair	Medium (15-40 years)	Medium	Medium	500	500	6.0	2.5	94	Yes	High Impact: >20%	Road verge (Rooty Hill Rd South) (93.89%)	Removal - Road verge (Rooty Hill Rd South)	Tree moved to survey point	major mistletoe, multitrunk, some trunks dead
26	*Ligustrum sinense*	5	7	10	Good	Fair	Medium (15-40 years)	Low	Low	300	300	3.6	2.0	0	No	No Impact: 0%		Retain (3/5 trees in group) as per section 3	Group tree, unsurveyed. Moved to centre of group	weed, hedge of 5 privet shrubs.
27	*Quercus robur*	2	6	10	Fair	Fair	Medium (15-40 years)	Low	Low	350	350	4.2	2.1	7	No	Low Impact: <10%	Road verge (Rooty Hill Rd South works) (7.19%)	Retain	Tree moved to survey point	group of two, epicormic regrowth
28	*Melaleuca decora*	1	10	9	Good	Good	Medium (15-40 years)	High	High	500	500	6.0	2.5	85	Yes	High Impact: >20%	Road verge (Rooty Hill Rd South) (85.07%)	Removal - Road verge (Rooty Hill Rd South)	Tree moved to survey point	Multi trunked
29	*Ulmus parvifolia*	1	11	10	Good	Good	Medium (15-40 years)	Low	Low	450	450	5.4	2.4	0	No	No Impact: 0%		Retain	Tree moved to survey point	weedy, self seeded saplings nearby
30	*Ulmus parvifolia*	1	8	8	Fair	Fair	Medium (15-40 years)	Low	Low	420	420	5.0	2.3	95	Yes	High Impact: >20%	Batters (87.82%) Carpark and pavement (7.58%)	Removal - Lot 3	Tree moved to survey point	weedy, dieback and poor form
31	*Fraxinus excelsior*	1	9	7	Poor	Fair	Medium (15-40 years)	Low	Low	350	350	4.2	2.1	92	Yes	High Impact: >20%	Batters (68.66%) Carpark and pavement (23.14%)	Removal - Lot 3	Tree moved to survey point	poor form
32	*Eucalyptus*	1	10	5	Fair	Fair	Medium	Medium	Medium	320	320	3.8	2.1	100	Yes	High Impact:	Building footprint	Removal - Lot 3	Tree moved to	multitrunk, mistletoe,

Tree	Botanical name	Trees in group	Height (m)	Spread (m)	Health	Structure	ULE	Landscape significance	Retention value	DBH (mm)	DAB (mm)	TPZ (m)	SRZ (m)	Sum of TPZ% encroachment	Impact to SRZ	Impacts	Impact Notes	Impact summary	Tree location notes	General notes
	moluccana						(15-40 years)									>20%	(100%)		survey point	trunk dieback
33	*Eucalyptus moluccana*	1	14	7	Good	Fair	Medium (15-40 years)	Medium	Medium	450	450	5.4	2.4	100	Yes	High Impact: >20%	Building footprint (99.83%) Flexible Landscaped Zone (0.16%)	Removal - Lot 3	Tree moved to survey point	multitrunk, epicormic, wound, decay
34	*Eucalyptus moluccana*	1	18	10	Fair	Good	Medium (15-40 years)	High	High	700	700	8.4	2.8	100	Yes	High Impact: >20%	Building footprint (44.35%) Carpark and pavement (28.64%) Flexible Landscaped Zone (27.02%)	Removal - Lot 3	Tree moved to survey point	occluding trunk and basal wound, good form
35	*Morus sp.*	1	7	6	Poor	Fair	Short (5-15 years)	Low	Low	350	350	4.2	2.1	100	Yes	High Impact: >20%	Carpark and pavement (100%)	Removal - Lot 3	Tree moved to survey point	major dieback
36	*Jacaranda mimosifolia*	1	7	5	Poor	Fair	Medium (15-40 years)	Low	Low	300	300	3.6	2.0	100	Yes	High Impact: >20%	Carpark and pavement (100%)	Removal - Lot 3	Tree moved to unsurveyed tree using aerial imagery	deciduous
37	*Eucalyptus sp.*	1	13	6	Poor	Poor	Remove (<5 years)	Low	Low	400	400	4.8	2.3	100	Yes	High Impact: >20%	Road verge (Church St) (60.19%) Carpark and pavement (39.8%)	Removal - Road verge (Church St)	Tree moved to survey point	dead
38	*Eucalyptus fibrosa*	1	15	10	Good	Good	Medium (15-40 years)	High	High	330	330	4.0	2.1	100	Yes	High Impact: >20%	Road verge (Church St) (100%)	Removal - Road verge (Church St)	Tree moved to survey point	
39	*Eucalyptus sp.*	1	10	5	Fair	Fair	Medium (15-40 years)	Medium	Medium	350	350	4.2	2.1	91	Yes	High Impact: >20%	Road verge (Church St) (90.63%)	Removal - Road verge (Church St)	Tree moved to survey point	deadwood, epicormic
40	*Eucalyptus moluccana*	1	12	7	Fair	Fair	Medium (15-40 years)	Medium	Medium	350	350	4.2	2.1	100	Yes	High Impact: >20%	Road verge (Church St) (100%)	Removal - Road verge (Church St)	Tree moved to survey point	major trunk cavity, multiple trunk wounds
41	*Eucalyptus tereticornis*	1	15	6	Fair	Good	Medium (15-40 years)	Medium	Medium	340	340	4.1	2.1	94	Yes	High Impact: >20%	Batters (94.19%)	Removal - Lot 3	Tree moved to survey point	occluding trunk wound
42	*Eucalyptus tereticornis*	1	14	7	Good	Good	Long (>40 years)	High	High	330	330	4.0	2.1	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree position as collected by arborist, unclear w*	semi mature
43	*Eucalyptus tereticornis*	1	15	6	Fair	Fair	Medium (15-40 years)	Medium	Medium	280	280	3.4	1.9	99	Yes	High Impact: >20%	Batters (99.39%)	Removal - Lot 3	Tree moved to survey point	Leaning
44	*Eucalyptus tereticornis*	1	22	9	Good	Good	Medium (15-40 years)	High	High	650	650	7.8	2.8	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree position as collected by arborist, unclear w*	occluding trunk wound, dominant
45	*Eucalyptus tereticornis*	1	13	5	Good	Good	Long (>40 years)	High	High	259	259	3.1	1.9	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree position as collected by arborist, unclear w*	semi mature
46	*Eucalyptus tereticornis*	1	9	6	Fair	Good	Medium (15-40 years)	High	High	300	300	3.6	2.0	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree position as collected by arborist, unclear w*	deadwood

Tree	Botanical name	Trees in group	Height (m)	Spread (m)	Health	Structure	ULE	Landscape significance	Retention value	DBH (mm)	DAB (mm)	TPZ (m)	SRZ (m)	Sum of TPZ% encroachment	Impact to SRZ	Impacts	Impact Notes	Impact summary	Tree location notes	General notes
47	*Eucalyptus tereticornis*	1	21	5	Fair	Good	Medium (15-40 years)	High	High	430	430	5.2	2.3	100	Yes	High Impact: >20%	Building footprint (99.99%)	Removal - Lot 3	Tree position as collected by arborist, unclear w*	deadwood, tall slender
48	*Eucalyptus tereticornis*	1	20	7	Fair	Good	Long (>40 years)	High	High	400	400	4.8	2.3	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree position as collected by arborist, unclear w*	some deadwood, good form
49	*Eucalyptus tereticornis*	1	22	4	Fair	Good	Medium (15-40 years)	High	Medium	450	450	5.4	2.4	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree position as collected by arborist, unclear w*	deadwood, epicormic throughout
50	*Eucalyptus tereticornis*	1	18	5	Fair	Fair	Medium (15-40 years)	Medium	Medium	200	200	2.4	1.7	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree position as collected by arborist, unclear w*	multitrunk, deadwood, epicormic
51.1	*Eucalyptus tereticornis*	1	18	7	Good	Good	Long (>40 years)	High	High	320	320	3.8	2.1	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree position as collected by arborist, unclear w*	semi mature, good form
51.2	*Eucalyptus sp.*	1	18	6	Poor	Fair	Remove (<5 years)	High	Priority for removal	450	450	5.4	2.4	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree position as collected by arborist, unclear w*	dead
52	*Eucalyptus tereticornis*	1	19	6	Good	Fair	Medium (15-40 years)	High	High	400	400	4.8	2.3	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree position as collected by arborist, unclear w*	Multiple trunks
53	*Eucalyptus tereticornis*	1	20	7	Good	Fair	Medium (15-40 years)	Medium	Medium	450	450	5.4	2.4	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree moved to survey point	multi trunk
54	*Eucalyptus tereticornis*	1	20	6	Good	Fair	Medium (15-40 years)	High	High	420	420	5.0	2.3	100	Yes	High Impact: >20%	Building footprint (99.99%)	Removal - Lot 3	Tree position as collected by arborist, unclear w*	Multiple trunks
55	*Eucalyptus tereticornis*	1	14	6	Fair	Good	Medium (15-40 years)	Medium	Medium	400	400	4.8	2.3	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree moved to survey point	leaning, madeira vine, deadwood
56	*Eucalyptus tereticornis*	1	16	5	Fair	Poor	Short (5-15 years)	Medium	Low	350	350	4.2	2.1	100	Yes	High Impact: >20%	Building footprint (99.99%)	Removal - Lot 3	Tree moved to survey point	multitrunk, extensive dead and broken branches, epicormic throughout, madeira vine invading
57	*Eucalyptus tereticornis*	1	18	6	Fair	Good	Medium (15-40 years)	High	High	370	370	4.4	2.2	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree moved to survey point	madeira vine invading
58	*Eucalyptus tereticornis*	1	17	8	Fair	Good	Medium (15-40 years)	High	High	550	550	6.6	2.6	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree moved to survey point	multitrunk, good union, madeira vine
59	*Eucalyptus tereticornis*	1	20	7	Good	Good	Long (>40 years)	High	High	640	640	7.7	2.7	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree moved to survey point	dominent tree

Tree	Botanical name	Trees in group	Height (m)	Spread (m)	Health	Structure	ULE	Landscape significance	Retention value	DBH (mm)	DAB (mm)	TPZ (m)	SRZ (m)	Sum of TPZ% encroachment	Impact to SRZ	Impacts	Impact Notes	Impact summary	Tree location notes	General notes
60	*Eucalyptus tereticornis*	1	23	10	Good	Good	Long (>40 years)	High	High	900	900	10.8	3.2	100	Yes	High Impact: >20%	Building footprint (99.99%)	Removal - Lot 3	Tree moved to survey point	multitrunk, dominant tree
61	*Eucalyptus moluccana*	1	12	8	Fair	Fair	Medium (15-40 years)	Medium	Medium	380	380	4.6	2.2	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree moved to survey point	mistletoe throughout, multitrunk
62	*Eucalyptus moluccana*	1	16	9	Fair	Fair	Medium (15-40 years)	High	Medium	450	450	5.4	2.4	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree moved to survey point	mistletoe throughout, multitrunk
63	*Eucalyptus tereticornis*	1	18	12	Fair	Good	Medium (15-40 years)	High	High	700	700	8.4	2.8	0	No	Low Impact: <10%	Carpark and pavement (0.04%), retaining wall (1%)	Retain	Tree moved to survey point	good form, codo with good union, deadwood,
64	*Eucalyptus punctata*	1	10	4	Fair	Fair	Medium (15-40 years)	Medium	Medium	359	359	4.3	2.2	0	No	No Impact: 0%		Retain	Tree moved to survey point	supressed, multitrunk, one trunk dead
65	*Eucalyptus punctata*	1	12	7	Fair	Poor	Medium (15-40 years)	Medium	Medium	359	359	4.3	2.2	1	No	Low Impact: <10%	Carpark and pavement (0.54%), retaining wall (3.5%)	Retain	Tree moved to survey point	multitrunk, supressed by tree 66
66	*Melaleuca decora*	1	13	13	Good	Fair	Medium (15-40 years)	High	High	700	700	8.4	2.8	26	No	High Impact: >20%	Carpark and pavement (26.14%), retaining wall (4%)	Removal - Lot 3	Tree moved to survey point	fence wire around trunk, tree 65 crowding
67	*Melaleuca decora*	1	14	10	Good	Good	Medium (15-40 years)	High	High	800	800	9.6	3.0	13	No	High Impact: >20%	Carpark and pavement (13.27%)	Removal - Road verge (Church St)	Tree moved to survey point	good form, 1m from fence
68	*Eucalyptus sp.*	1	8	6	Fair	Poor	Medium (15-40 years)	Medium	Medium	400	400	4.8	2.3	0	No	High Impact: >20%	Within Church Street road works footprint	Removal - Road verge (Church St)	Tree moved to survey point	multitrunk, wire fence in trunk, dead middle trunk, supressed
69	*Eucalyptus moluccana*	1	17	8	Good	Good	Long (>40 years)	High	High	390	390	4.7	2.2	4	No	High Impact: >20%	Carpark and pavement (4.09%)	Removal - Road verge (Church St)	Tree moved to survey point	good form, under wires, 3m from fence
70	*Eucalyptus moluccana*	1	18	7	Good	Fair	Medium (15-40 years)	High	High	500	500	6.0	2.5	0	No	High Impact: >20%	Within Church Street road works footprint	Removal - Road verge (Church St)	Tree moved to survey point	multitrunk, under wires, 3m from fence
71	*Eucalyptus moluccana*	1	12	6	Good	Fair	Medium (15-40 years)	High	High	350	350	4.2	2.1	0	No	High Impact: >20%	Within Church Street road works footprint	Removal - Road verge (Church St)	Tree moved to survey point	multitrunk, under wires, 4m from fence
72	*Eucalyptus moluccana*	1	14	6	Good	Fair	Medium (15-40 years)	High	High	380	380	4.6	2.2	0	No	High Impact: >20%	Within Church Street road works footprint	Removal - Road verge (Church St)	Tree moved to survey point	multitrunk, 70cm from fence
73	*Eucalyptus moluccana*	1	15	6	Fair	Fair	Medium (15-40 years)	High	High	450	450	5.4	2.4	0	No	High Impact: >20%	Within Church Street road works footprint	Removal - Road verge (Church St)	Tree moved to survey point	multitrunk, under wires, 3m from fence
74	*Eucalyptus moluccana*	1	15	6	Good	Fair	Medium (15-40 years)	High	High	320	320	3.8	2.1	0	No	High Impact: >20%	Within Church Street road works footprint	Removal - Road verge (Church St)	Tree moved to survey point	under wires, crowded, 3m from fence
75	*Eucalyptus moluccana*	1	14	6	Good	Good	Medium (15-40 years)	High	High	280	280	3.4	1.9	0	No	High Impact: >20%	Within Church Street road works footprint	Removal - Road verge (Church St)	Tree moved to survey point	supressed, 2m from fence
76	*Eucalyptus moluccana*	1	16	10	Fair	Good	Medium (15-40	High	High	700	700	8.4	2.8	32	Yes	High Impact: >20%	Carpark and pavement (32%)	Removal - Lot 3	Tree moved to survey point	good form, bee hive in trunk wound, 1m from

Tree	Botanical name	Trees in group	Height (m)	Spread (m)	Health	Structure	ULE	Landscape significance	Retention value	DBH (mm)	DAB (mm)	TPZ (m)	SRZ (m)	Sum of TPZ% encroachment	Impact to SRZ	Impacts	Impact Notes	Impact summary	Tree location notes	General notes
							years)													fence
77	*Eucalyptus tereticornis*	1	18	12	Good	Good	Medium (15-40 years)	High	High	870	870	10.4	3.1	47	Yes	High Impact: >20%	Carpark and pavement (46.52%)	Removal - Lot 3	Tree moved to survey point	good form, canopy under wires, 1m from fence,
78	*Eucalyptus tereticornis*	1	16	10	Good	Fair	Medium (15-40 years)	High	High	480	480	5.8	2.4	48	Yes	High Impact: >20%	Road verge (Church St) (48.25%)	Removal - Road verge (Church St)	Tree moved to survey point	multitrunk, 50cm from fence
79	*Eucalyptus moluccana*	1	18	10	Good	Good	Long (>40 years)	High	High	650	650	7.8	2.8	47	Yes	High Impact: >20%	Road verge (Church St) (46.81%)	Removal - Road verge (Church St)	Tree moved to survey point	good form, 50cm from fence
80	*Eucalyptus tereticornis*	1	14	5	Good	Fair	Medium (15-40 years)	High	High	320	320	3.8	2.1	40	Yes	High Impact: >20%	Road verge (Church St) (40.1%)	Removal - Road verge (Church St)	Tree moved to survey point	supressed
81	*Eucalyptus moluccana*	1	17	8	Good	Fair	Medium (15-40 years)	High	High	450	450	5.4	2.4	55	Yes	High Impact: >20%	Road verge (Church St) (55.17%)	Removal - Road verge (Church St)	Tree moved to survey point	20cm from fence
82	*Eucalyptus tereticornis*	1	20	8	Good	Fair	Medium (15-40 years)	High	High	630	630	7.6	2.7	41	Yes	High Impact: >20%	Road verge (Church St) (40.64%)	Removal - Road verge (Church St)	Tree moved to survey point	multitrunk, 1.5m from fence
83	*Eucalyptus moluccana*	1	16	7	Poor	Fair	Remove (<5 years)	Low	Low	450	450	5.4	2.4	51	Yes	High Impact: >20%	Road verge (Church St) (51.49%)	Removal - Road verge (Church St)	Tree moved to survey point	dying
84	*Eucalyptus moluccana*	1	15	8	Fair	Good	Medium (15-40 years)	High	High	450	450	5.4	2.4	52	Yes	High Impact: >20%	Road verge (Church St) (41.56%) Intersection upgrade (10.87%)	Removal - Road verge (Church St)	Tree moved to survey point	dieback, good form, 2m from fence
85	*Eucalyptus moluccana*	1	24	12	Good	Good	Long (>40 years)	High	High	850	850	10.2	3.1	79	Yes	High Impact: >20%	Batters (4.93%) Batters/Church St works (53.62%) Carpark and pavement (2.09%) Church St upgrade (external works) (18.04%)	Removal - Road verge (Church St)	Tree moved to survey point	multitrunk, good union, 20cm from fence, good form,
86	*Eucalyptus moluccana*	1	15	7	Good	Good	Long (>40 years)	High	High	380	380	4.6	2.2	101	Yes	High Impact: >20%	Batters (18.29%) Batters/Church St works (34.76%) Church St upgrade (external works) (47.68%)	Removal - Road verge (Church St)	Tree moved to survey point	crowded by privet, good form, 2m from fence
87	*Eucalyptus moluccana*	1	21	15	Fair	Good	Medium (15-40 years)	High	High	700	700	8.4	2.8	93	Yes	High Impact: >20%	Batters (15.51%) Church St upgrade (external works) (77.82%)	Removal - Road verge (Church St)	Tree moved to survey point	some mistletoe, pruning wound, dominant, 3m from fence
88	*Eucalyptus tereticornis*	1	20	9	Fair	Good	Medium (15-40 years)	High	High	600	600	7.2	2.7	100	Yes	High Impact: >20%	Building footprint (99.99%)	Removal - Lot 3	Tree moved to survey point	madeira vine
89	*Eucalyptus moluccana*	1	9	5	Good	Good	Long (>40 years)	Medium	High	180	180	2.2	1.6	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree point moved to canopy from open area using a*	young
90	*Eucalyptus tereticornis*	1	8	4	Fair	Fair	Medium (15-40 years)	Medium	Medium	260	260	3.1	1.9	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree point moved to canopy from	overlaping multi branches, dieback

Tree	Botanical name	Trees in group	Height (m)	Spread (m)	Health	Structure	ULE	Landscape significance	Retention value	DBH (mm)	DAB (mm)	TPZ (m)	SRZ (m)	Sum of TPZ% encroachment	Impact to SRZ	Impacts	Impact Notes	Impact summary	Tree location notes	General notes
																			open area using a*	
91	*Eucalyptus moluccana*	1	19	8	Good	Good	Long (>40 years)	High	High	480	480	5.8	2.4	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree position as collected by arborist, unclear w*	good form
92	*Eucalyptus moluccana*	1	19	5	Poor	Fair	Short (5-15 years)	Medium	Medium	400	400	4.8	2.3	100	Yes	High Impact: >20%	Building footprint (99.99%)	Removal - Lot 3	Tree position as collected by arborist, unclear w*	large basal cavity, epicormic throughout trunk
93	*Eucalyptus tereticornis*	1	12	6	Fair	Good	Long (>40 years)	High	High	300	300	3.6	2.0	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree position as collected by arborist, unclear w*	young, lower branch dieback
94	*Eucalyptus tereticornis*	1	14	4	Poor	Fair	Medium (15-40 years)	Medium	Medium	240	240	2.9	1.8	100	Yes	High Impact: >20%	Building footprint (99.99%)	Removal - Lot 3	Tree position as collected by arborist, unclear w*	branch dieback
95	*Eucalyptus tereticornis*	1	14	5	Fair	Good	Medium (15-40 years)	High	Medium	380	380	4.6	2.2	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree position as collected by arborist, unclear w*	lower branch die back
96	*Eucalyptus moluccana*	1	16	5	Fair	Good	Long (>40 years)	High	High	320	320	3.8	2.1	77	Yes	High Impact: >20%	Building footprint (76.82%)	Removal - Lot 3	Tree moved to survey point	lower branch dieback
97	*Eucalyptus tereticornis*	1	23	10	Fair	Good	Medium (15-40 years)	High	High	650	650	7.8	2.8	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree moved to survey point	branch tip dieback, dominant
98	*Eucalyptus moluccana*	1	12	6	Good	Fair	Medium (15-40 years)	High	Medium	300	300	3.6	2.0	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree position as collected by arborist, unclear w*	supressed
99	*Eucalyptus tereticornis*	1	19	8	Fair	Fair	Medium (15-40 years)	High	Medium	500	500	6.0	2.5	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree position as collected by arborist, unclear w*	multitrunk, branch dieback
100	*Eucalyptus moluccana*	1	16	5	Fair	Good	Long (>40 years)	High	High	300	300	3.6	2.0	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree position as collected by arborist, unclear w*	young, lower branch dieback, room to grow
101	*Eucalyptus tereticornis*	1	14	5	Good	Fair	Medium (15-40 years)	High	Medium	300	300	3.6	2.0	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree position as collected by arborist, unclear w*	mukti trunk, supressed by 99
102	*Eucalyptus tereticornis*	1	14	5	Good	Fair	Medium (15-40 years)	Medium	Medium	280	280	3.4	1.9	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree position as collected by arborist, unclear w*	supressed, leaning, lower branch dieback
103	*Eucalyptus tereticornis*	1	10	7	Fair	Fair	Medium (15-40 years)	Medium	Medium	350	350	4.2	2.1	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree moved to survey point	branch dieback, canker

Tree	Botanical name	Trees in group	Height (m)	Spread (m)	Health	Structure	ULE	Landscape significance	Retention value	DBH (mm)	DAB (mm)	TPZ (m)	SRZ (m)	Sum of TPZ% encroachment	Impact to SRZ	Impacts	Impact Notes	Impact summary	Tree location notes	General notes
104	*Eucalyptus tereticornis*	1	8	5	Fair	Fair	Medium (15-40 years)	Medium	Medium	280	280	3.4	1.9	100	Yes	High Impact: >20%	Building footprint (99.99%)	Removal - Lot 3	Tree moved to survey point	lower branch dieback, crossing branches, wound
105	*Eucalyptus moluccana*	1	22	10	Fair	Good	Medium (15-40 years)	High	High	500	500	6.0	2.5	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree position as collected by arborist, unclear w*	lower branch dieback, good form
106	*Eucalyptus tereticornis*	1	14	6	Fair	Good	Medium (15-40 years)	High	High	450	450	5.4	2.4	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree moved to survey point	semi mature
107	*Eucalyptus moluccana*	1	19	7	Good	Fair	Medium (15-40 years)	High	High	480	480	5.8	2.4	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree moved to survey point	dead tree hanging in branch, lower branches deadwood
108	*Eucalyptus moluccana*	1	20	14	Good	Fair	Medium (15-40 years)	High	High	500	500	6.0	2.5	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree moved to survey point	wire fence around trunk, slight lean
109	*Eucalyptus moluccana*	1	12	6	Fair	Good	Medium (15-40 years)	High	High	300	300	3.6	2.0	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree moved to survey point	semi mature, good form, mistletoe,
110	*Eucalyptus moluccana*	1	16	5	Good	Fair	Medium (15-40 years)	High	High	350	350	4.2	2.1	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree moved to survey point	semi mature, crowded
111	*Eucalyptus moluccana*	1	10	6	Good	Fair	Medium (15-40 years)	High	High	270	270	3.2	1.9	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree moved to survey point	supressed
112	*Eucalyptus moluccana*	1	9	6	Good	Poor	Medium (15-40 years)	Medium	Medium	300	300	3.6	2.0	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree moved to survey point	supressed, crowded,
113	*Eucalyptus moluccana*	1	18	7	Good	Fair	Medium (15-40 years)	Medium	Medium	350	350	4.2	2.1	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree moved to survey point	torn branch, hanger, crowded
114	*Eucalyptus moluccana*	1	13	5	Good	Fair	Medium (15-40 years)	Medium	Medium	250	250	3.0	1.8	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree moved to survey point	young tree, good extension growth, pruned multi trunks
115	*Eucalyptus moluccana*	1	20	11	Good	Good	Long (>40 years)	High	High	460	460	5.5	2.4	100	Yes	High Impact: >20%	Building footprint (99.99%)	Removal - Lot 3	Tree moved to survey point	good form, good health
116	*Eucalyptus moluccana*	1	18	5	Fair	Fair	Medium (15-40 years)	Medium	Medium	230	230	2.8	1.8	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree moved to survey point	crowded
117	*Eucalyptus moluccana*	1	20	6	Good	Good	Medium (15-40 years)	High	High	300	300	3.6	2.0	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree moved to survey point	good health, narrow form
118	*Eucalyptus moluccana*	1	17	4	Fair	Good	Medium (15-40 years)	Medium	Medium	300	300	3.6	2.0	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree moved to survey point	lower branch die back, crowded
119	*Eucalyptus tereticornis*	1	19	7	Fair	Fair	Medium (15-40 years)	Medium	Medium	550	550	6.6	2.6	100	Yes	High Impact: >20%	Building footprint (99.99%)	Removal - Lot 3	Tree moved to survey point	multitrunk, good union, previous failure, large occluding wound
120	*Eucalyptus*	1	20	8	Fair	Fair	Medium	Medium	Medium	600	600	7.2	2.7	100	Yes	High Impact:	Building footprint	Removal - Lot 3	Tree moved to	multi trunk, wounds,

Tree	Botanical name	Trees in group	Height (m)	Spread (m)	Health	Structure	ULE	Landscape significance	Retention value	DBH (mm)	DAB (mm)	TPZ (m)	SRZ (m)	Sum of TPZ% encroachment	Impact to SRZ	Impacts	Impact Notes	Impact summary	Tree location notes	General notes
	tereticornis						(15-40 years)									>20%	(50.56%) ECQ Social Expansion (49.44%)		survey point	thining canopy
121	*Eucalyptus tereticornis*	1	17	6	Fair	Good	Medium (15-40 years)	High	High	400	400	4.8	2.3	100	Yes	High Impact: >20%	Building footprint (96.46%) ECQ Social Expansion (3.48%)	Removal - Lot 3	Tree moved to survey point	broken branches lower trunk
122	*Eucalyptus tereticornis*	1	20	14	Good	Poor	Medium (15-40 years)	High	High	800	800	9.6	3.0	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree moved to survey point	3 trunks, middle trunk poor union,
124	*Eucalyptus moluccana*	1	12	6	Fair	Fair	Medium (15-40 years)	Medium	Medium	300	300	3.6	2.0	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Multi-trunk tree moved to middle between two surv*	midtletoe throughout, multi trunk
125	*Eucalyptus tereticornis*	1	20	9	Fair	Poor	Medium (15-40 years)	Medium	Medium	400	400	4.8	2.3	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree moved to survey point	large trunk wound, lower branch die back
126	*Eucalyptus tereticornis*	1	17	12	Fair	Fair	Medium (15-40 years)	Medium	Medium	700	700	8.4	2.8	100	Yes	High Impact: >20%	Building footprint (99.99%)	Removal - Lot 3	Tree moved to survey point	good form, thining canopy, multibranched
127	*Eucalyptus moluccana*	1	9	7	Fair	Poor	Medium (15-40 years)	Medium	Medium	350	350	4.2	2.1	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree moved to survey point	part trunk torn, multitrunk, deadwood
128	*Eucalyptus tereticornis*	1	15	7	Fair	Fair	Medium (15-40 years)	Medium	Medium	430	430	5.2	2.3	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree moved to survey point	thining canopy, multitrunk, deadwood
129	*Eucalyptus tereticornis*	1	17	9	Fair	Fair	Medium (15-40 years)	Medium	Medium	480	480	5.8	2.4	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree moved to survey point	thining canopy, codom with fair union
130	*Eucalyptus tereticornis*	1	14	5	Fair	Fair	Medium (15-40 years)	Medium	Medium	280	280	3.4	1.9	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree moved to survey point	trunk wound, deadwood, pruning cuts
131	*Eucalyptus tereticornis*	1	13	6	Fair	Fair	Medium (15-40 years)	Medium	Medium	370	370	4.4	2.2	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree moved to survey point	multitrunk, fair union, thining canopy, trunk swellingc
132	*Eucalyptus tereticornis*	1	15	8	Fair	Good	Medium (15-40 years)	High	High	380	380	4.6	2.2	100	Yes	High Impact: >20%	Building footprint (99.99%)	Removal - Lot 3	Tree moved to survey point	good form, semi mature, occluding branch wound
133	*Eucalyptus tereticornis*	1	16	7	Fair	Fair	Medium (15-40 years)	Medium	Medium	370	370	4.4	2.2	100	Yes	High Impact: >20%	Building footprint (80.56%) ECQ Social Expansion (19.44%)	Removal - Lot 3	Tree moved to survey point	trunk wounds, deadwood, lean
134	*Eucalyptus moluccana*	1	15	8	Poor	Poor	Remove (<5 years)	Low	Low	380	380	4.6	2.2	100	Yes	High Impact: >20%	Building footprint (65.31%) ECQ Social Expansion (34.7%)	Removal - Lot 3	Tree moved to survey point	dying
135	*Eucalyptus tereticornis*	1	13	6	Poor	Fair	Short (5-15 years)	Medium	Low	370	370	4.4	2.2	100	Yes	High Impact: >20%	Building footprint (52.29%) ECQ Social Expansion (47.71%)	Removal - Lot 3	Tree moved to survey point	trunk wounds, broken limb, multi trunk, mistletoe
136	*Eucalyptus moluccana*	1	17	5	Fair	Fair	Medium (15-40 years)	Medium	Medium	350	350	4.2	2.1	100	Yes	High Impact: >20%	Building footprint (100%)	Removal - Lot 3	Tree moved to survey point	Multi trunked. Raise rootball
137	*Eucalyptus*	1	14	6	Fair	Fair	Medium	Medium	Medium	400	400	4.8	2.3	100	Yes	High Impact:	Building footprint	Removal - Lot 3	Tree moved to	multitrunk, deadwood, fair

Tree	Botanical name	Trees in group	Height (m)	Spread (m)	Health	Structure	ULE	Landscape significance	Retention value	DBH (mm)	DAB (mm)	TPZ (m)	SRZ (m)	Sum of TPZ% encroachment	Impact to SRZ	Impacts	Impact Notes	Impact summary	Tree location notes	General notes
	moluccana						(15-40 years)									>20%	(54.52%) ECQ Social Expansion (45.37%)		survey point	union
138	*Eucalyptus moluccana*	1	21	15	Fair	Fair	Medium (15-40 years)	High	High	700	700	8.4	2.8	91	Yes	High Impact: >20%	Building footprint (34.56%) Carpark and pavement (55.97%)	Removal - Lot 3	Tree moved to survey point	dominent tree, mistletoe throughout, fair trunk union, deadwood
139	*Eucalyptus moluccana*	1	11	4	Good	Fair	Long (>40 years)	Medium	High	300	300	3.6	2.0	100	Yes	High Impact: >20%	Carpark and pavement (100%)	Removal - Lot 3	Tree moved to survey point	semi mature, partly supressed, good foliage density
140	*Eucalyptus tereticornis*	1	19	8	Fair	Fair	Medium (15-40 years)	Medium	Medium	500	500	6.0	2.5	100	Yes	High Impact: >20%	Building footprint (28.64%) Carpark and pavement (71.23%)	Removal - Lot 3	Tree moved to survey point	trunk wound, weak branch union, poor form
141	*Eucalyptus tereticornis*	1	18	6	Poor	Fair	Medium (15-40 years)	Medium	Medium	370	370	4.4	2.2	100	Yes	High Impact: >20%	Building footprint (13.51%) Carpark and pavement (86.49%)	Removal - Lot 3	Tree moved to survey point	major trunk wound, deadwood, crowded
142	*Eucalyptus moluccana*	1	20	10	Fair	Good	Medium (15-40 years)	High	High	800	800	9.6	3.0	100	Yes	High Impact: >20%	Carpark and pavement (14.68%) ECQ Social Expansion (85.32%)	Removal - Lot 3	Tree moved to survey point	mistletoe, multitrunk good union
143	*Eucalyptus tereticornis*	1	9	5	Good	Good	Long (>40 years)	Medium	High	300	300	3.6	2.0	100	Yes	High Impact: >20%	ECQ Social Expansion (100%)	Removal - Lot 3	Tree moved to survey point	semi mature with room to grow
145	*Eucalyptus moluccana*	1	19	8	Fair	Good	Medium (15-40 years)	Medium	Medium	450	450	5.4	2.4	100	Yes	High Impact: >20%	ECQ Social Expansion (100%)	Removal - Lot 3	Tree moved to survey point	mistletoe throughout, two trunks, deadwood
146	*Eucalyptus tereticornis*	1	19	7	Fair	Fair	Medium (15-40 years)	High	High	380	380	4.6	2.2	100	Yes	High Impact: >20%	ECQ Social Expansion (99.99%)	Removal - Lot 3	Tree moved to survey point	occluding trunk wound, multitrunk good union, lower branches deadwood
147	*Eucalyptus tereticornis*	1	22	10	Good	Good	Medium (15-40 years)	High	High	439	439	5.3	2.3	100	Yes	High Impact: >20%	ECQ Social Expansion (100%)	Removal - Lot 3	Tree moved to survey point	deadwood lower branches
148	*Eucalyptus tereticornis*	1	24	10	Good	Good	Medium (15-40 years)	High	High	490	490	5.9	2.5	100	Yes	High Impact: >20%	Building footprint (14.74%) ECQ Social Expansion (85.17%)	Removal - Lot 3	Tree moved to survey point	Multi trunked. Raise rootball
149	*Eucalyptus moluccana*	1	8	3	Good	Good	Long (>40 years)	Low	Low	140	180	2.0	1.6	99	Yes	High Impact: >20%	Intersection upgrade (99.17%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	Twin stemmed, plus one dead stem. Other dead trees nearby not recorded
150	*Acacia binervia*	1	6	4	Good	Good	Medium (15-40 years)	Low	Low	160	200	2.0	1.7	100	Yes	High Impact: >20%	Intersection upgrade (100%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	Dead leaning tree nearby, not recorded
151	*Eucalyptus moluccana*	1	5	1	Good	Good	Long (>40 years)	Low	Low	90	120	2.0	1.5	100	Yes	High Impact: >20%	Intersection upgrade (100%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	
152	*Eucalyptus moluccana*	1	25	15	Fair	Good	Medium (15-40 years)	High	High	660	750	7.9	2.9	91	Yes	High Impact: >20%	Intersection upgrade (90.51%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	Sparse canopy, Minor canopy dieback
153	*Acacia binervia*	1	6	3	Good	Good	Medium (15-40 years)	Low	Low	140	170	2.0	1.6	100	Yes	High Impact: >20%	Intersection upgrade (100%)	Removal - Intersection upgrade	GPS	

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																		(Council land)		
154	*Eucalyptus moluccana*	1	8	3	Good	Good	Long (>40 years)	Low	Low	120	150	2.0	1.5	100	Yes	High Impact: >20%	Intersection upgrade (100%)	Removal - Intersection upgrade (Council land)	GPS	
155	*Eucalyptus moluccana*	1	5	1	Good	Good	Long (>40 years)	Low	Low	60	100	2.0	1.5	100	Yes	High Impact: >20%	Intersection upgrade (99.99%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	
156	*Eucalyptus moluccana*	1	15	6	Good	Fair	Long (>40 years)	Medium	Medium	250	300	3.0	2.0	100	Yes	High Impact: >20%	Intersection upgrade (100%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	And Deadwood, other small dead trees nearby, not recorded
157	*Eucalyptus moluccana*	1	16	6	Good	Fair	Long (>40 years)	Medium	Medium	220	270	2.6	1.9	45	Yes	High Impact: >20%	Intersection upgrade (44.67%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	Minor decay in low limb
158	*Eucalyptus moluccana*	1	14	7	Good	Good	Long (>40 years)	Medium	Medium	300	320	3.6	2.1	36	Yes	High Impact: >20%	Intersection upgrade (36%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	Minor decay on low limb, dead wood
159.1	*Eucalyptus moluccana*	1	5	1	Good	Good	Long (>40 years)	Low	Low	50	80	2.0	1.5	100	Yes	High Impact: >20%	Intersection upgrade (99.99%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	Group of four small trees
159.2	*Eucalyptus moluccana*	1	5	1	Good	Good	Long (>40 years)	Low	Low	50	80	2.0	1.5	100	Yes	High Impact: >20%	Intersection upgrade (100%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	Group of four small trees
159.3	*Eucalyptus moluccana*	1	5	1	Good	Good	Long (>40 years)	Low	Low	50	80	2.0	1.5	100	Yes	High Impact: >20%	Intersection upgrade (99.99%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	Group of four small trees
159.4	*Eucalyptus moluccana*	1	5	1	Good	Good	Long (>40 years)	Low	Low	50	80	2.0	1.5	100	Yes	High Impact: >20%	Intersection upgrade (99.99%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	Group of four small trees
160	*Eucalyptus moluccana*	1	14	5	Good	Good	Long (>40 years)	Medium	Medium	210	250	2.5	1.8	100	Yes	High Impact: >20%	Intersection upgrade (100%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	Minor decay in trunk
161	*Eucalyptus moluccana*	1	22	14	Good	Good	Long (>40 years)	High	High	640	800	7.7	3.0	1	Yes	High Impact: >20%	Intersection upgrade (1.16%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	
162	*Dead tree*	1	18	12	Poor	Poor	Remove (<5 years)	Low	Priority for removal	650	850	7.8	3.1	6	Yes	High Impact: >20%	Intersection upgrade (5.85%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	Large dead tree
163	*Eucalyptus moluccana*	1	10	4	Good	Fair	Long (>40 years)	Medium	Medium	290	320	3.5	2.1	5	Yes	High Impact: >20%	Intersection upgrade (5.41%)	Removal - Intersection upgrade	GPS	Tree has been lopped

Tree	Botanical name	Trees in group	Height (m)	Spread (m)	Health	Structure	ULE	Landscape significance	Retention value	DBH (mm)	DAB (mm)	TPZ (m)	SRZ (m)	Sum of TPZ% encroachment	Impact to SRZ	Impacts	Impact Notes	Impact summary	Tree location notes	General notes
																		(Council land)		
164	*Eucalyptus moluccana*	1	16	8	Good	Fair	Long (>40 years)	Medium	Medium	490	600	5.9	2.7	32	Yes	High Impact: >20%	Intersection upgrade (32.49%)	Removal - Intersection upgrade (Council land)	GPS	Large dead stubs from previous lopping
167	*Eucalyptus moluccana*	1	16	5	Fair	Fair	Long (>40 years)	Medium	Medium	340	400	4.1	2.3	75	Yes	High Impact: >20%		Removal - Intersection upgrade (Council land)	Tree moved to survey point	Large dead branches, Sparse canopy
173	*Eucalyptus moluccana*	1	6	2	Good	Good	Long (>40 years)	Low	Low	80	100	2.0	1.5	69	Yes	High Impact: >20%		Removal - Intersection upgrade (Council land)	GPS	
174	*Eucalyptus moluccana*	1	15	4	Good	Good	Long (>40 years)	Low	Low	190	250	2.3	1.8	100	Yes	High Impact: >20%	Intersection upgrade (75.3%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	
175	*Eucalyptus moluccana*	1	6	2	Good	Good	Long (>40 years)	Low	Low	110	140	2.0	1.5	100	Yes	High Impact: >20%		Removal - Intersection upgrade (Council land)	Tree moved to survey point	
176	*Eucalyptus moluccana*	1	12	4	Good	Good	Long (>40 years)	Medium	Medium	220	250	2.6	1.8	100	Yes	High Impact: >20%		Removal - Intersection upgrade (Council land)	GPS	
177	*Eucalyptus moluccana*	1	15	4	Good	Good	Long (>40 years)	Medium	Medium	300	340	3.6	2.1	100	Yes	High Impact: >20%		Removal - Intersection upgrade (Council land)	Tree moved to survey point	
178	*Eucalyptus moluccana*	1	6	2	Good	Good	Long (>40 years)	Low	Low	120	180	2.0	1.6	72	Yes	High Impact: >20%		Removal - Intersection upgrade (Council land)	GPS	
180	*Eucalyptus moluccana*	1	10	4	Good	Good	Long (>40 years)	Low	Low	130	160	2.0	1.5	50	Yes	High Impact: >20%		Removal - Intersection upgrade (Council land)	Tree moved to survey point	
181	*Eucalyptus moluccana*	1	15	5	Good	Good	Long (>40 years)	Medium	Medium	230	260	2.8	1.9	30	Yes	High Impact: >20%	Intersection upgrade (68.88%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	Bifurcation of main stem
185	*Eucalyptus tereticornis*	1	18	4	Fair	Good	Long (>40 years)	Medium	Medium	310	360	3.7	2.2	56	Yes	High Impact: >20%	Intersection upgrade (100%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	Sparse canopy
186	*Eucalyptus moluccana*	1	12	6	Good	Good	Long (>40 years)	Medium	Medium	200	220	2.4	1.8	39	Yes	High Impact: >20%	Intersection upgrade (100%)	Removal - Intersection upgrade (Council land)	GPS	
188	*Eucalyptus tereticornis*	1	7	2	Good	Good	Long (>40 years)	Low	Low	100	120	2.0	1.5	100	Yes	High Impact: >20%	Intersection upgrade (100%)	Removal - Intersection upgrade	Tree moved to survey point	

Tree	Botanical name	Trees in group	Height (m)	Spread (m)	Health	Structure	ULE	Landscape significance	Retention value	DBH (mm)	DAB (mm)	TPZ (m)	SRZ (m)	Sum of TPZ% encroachment	Impact to SRZ	Impacts	Impact Notes	Impact summary	Tree location notes	General notes
																		(Council land)		
189	*Eucalyptus moluccana*	1	8	5	Good	Fair	Long (>40 years)	Low	Low	240	280	2.9	1.9	92	Yes	High Impact: >20%	Intersection upgrade (99.99%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	Previously lopped
190	*Eucalyptus moluccana*	1	20	10	Good	Good	Long (>40 years)	Medium	Medium	390	440	4.7	2.3	88	Yes	High Impact: >20%	Intersection upgrade (71.69%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	
191	*Eucalyptus moluccana*	1	12	5	Good	Good	Long (>40 years)	Low	Low	180	200	2.2	1.7	100	Yes	High Impact: >20%		Removal - Intersection upgrade (Council land)	GPS	
192	*Eucalyptus moluccana*	1	7	4	Good	Good	Long (>40 years)	Low	Low	120	150	2.0	1.5	100	Yes	High Impact: >20%	Intersection upgrade (49.71%)	Removal - Intersection upgrade (Council land)	GPS	
193	*Eucalyptus moluccana*	3	8	3	Good	Good	Long (>40 years)	Low	Low	100	120	2.0	1.5	100	Yes	High Impact: >20%	Intersection upgrade (30.22%)	Removal - Intersection upgrade (Council land)	GPS	Group of three small trees
194	*Eucalyptus moluccana*	2	8	3	Good	Good	Long (>40 years)	Low	Low	100	120	2.0	1.5	1	No	Low Impact: <10%		Retain	GPS	Two trees growing close together
195	*Eucalyptus moluccana*	1	18	7	Good	Good	Long (>40 years)	Medium	Medium	300	350	3.6	2.1	100	Yes	High Impact: >20%		Removal - Intersection upgrade (Council land)	Tree moved to survey point	
196	*Eucalyptus moluccana*	1	7	2	Good	Good	Long (>40 years)	Low	Low	80	100	2.0	1.5	100	Yes	High Impact: >20%		Removal - Intersection upgrade (Council land)	GPS	
197	*Eucalyptus moluccana*	3	6	1	Good	Good	Long (>40 years)	Low	Low	50	80	2.0	1.5	100	Yes	High Impact: >20%	Intersection upgrade (55.58%)	Removal - Intersection upgrade (Council land)	GPS	Group of three small trees
198	*Eucalyptus moluccana*	1	7	2	Good	Good	Long (>40 years)	Low	Low	80	100	2.0	1.5	100	Yes	High Impact: >20%	Intersection upgrade (38.55%)	Removal - Intersection upgrade (Council land)	GPS	
199	*Eucalyptus moluccana*	3	7	2	Good	Good	Long (>40 years)	Low	Low	80	100	2.0	1.5	100	Yes	High Impact: >20%		Removal - Intersection upgrade (Council land)	Tree moved to survey point	Three small trees close together by Tree 200. Dead stems
200	*Eucalyptus moluccana*	1	12	5	Good	Good	Long (>40 years)	Medium	Medium	240	300	2.9	2.0	100	Yes	High Impact: >20%	Intersection upgrade (100%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	
201	*Eucalyptus moluccana*	1	5	2	Fair	Fair	Medium (15-40 years)	Low	Low	140	190	2.0	1.6	90	Yes	High Impact: >20%	Intersection upgrade (91.75%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	Dead top

Tree	Botanical name	Trees in group	Height (m)	Spread (m)	Health	Structure	ULE	Landscape significance	Retention value	DBH (mm)	DAB (mm)	TPZ (m)	SRZ (m)	Sum of TPZ% encroachment	Impact to SRZ	Impacts	Impact Notes	Impact summary	Tree location notes	General notes
202	*Eucalyptus moluccana*	1	18	12	Good	Good	Long (>40 years)	Medium	Medium	380	450	4.6	2.4	100	Yes	High Impact: >20%	Intersection upgrade (87.53%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	
203	*Eucalyptus moluccana*	1	5	2	Fair	Fair	Short (5-15 years)	Low	Low	70	100	2.0	1.5	100	Yes	High Impact: >20%	Intersection upgrade (99.99%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	Wound on trunk
204	*Eucalyptus moluccana*	1	9	4	Good	Good	Long (>40 years)	Low	Low	150	180	2.0	1.6	77	Yes	High Impact: >20%	Intersection upgrade (100%)	Removal - Intersection upgrade (Council land)	GPS	
205	*Eucalyptus moluccana*	1	7	2	Good	Good	Long (>40 years)	Low	Low	70	100	2.0	1.5	100	Yes	High Impact: >20%	Intersection upgrade (100.01%)	Removal - Intersection upgrade (Council land)	GPS	
206	*Eucalyptus moluccana*	1	10	5	Good	Good	Long (>40 years)	Medium	Medium	210	240	2.5	1.8	100	Yes	High Impact: >20%	Intersection upgrade (0.86%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	
207	*Eucalyptus moluccana*	1	6	2	Good	Good	Long (>40 years)	Low	Low	90	110	2.0	1.5	100	Yes	High Impact: >20%	Intersection upgrade (100.03%)	Removal - Intersection upgrade (Council land)	GPS	
208	*Eucalyptus moluccana*	1	7	2	Fair	Fair	Short (5-15 years)	Low	Low	100	120	2.0	1.5	86	Yes	High Impact: >20%	Intersection upgrade (99.99%)	Removal - Intersection upgrade (Council land)	GPS	Wound on trunk
209	*Eucalyptus moluccana*	1	12	4	Good	Good	Long (>40 years)	Low	Low	190	200	2.3	1.7	100	Yes	High Impact: >20%	Intersection upgrade (99.99%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	
210	*Eucalyptus moluccana*	1	5	1	Fair	Fair	Long (>40 years)	Low	Low	90	120	2.0	1.5	100	Yes	High Impact: >20%	Intersection upgrade (100%)	Removal - Intersection upgrade (Council land)	GPS	
211	*Eucalyptus moluccana*	1	5	1	Fair	Fair	Long (>40 years)	Low	Low	60	100	2.0	1.5	100	Yes	High Impact: >20%	Intersection upgrade (100%)	Removal - Intersection upgrade (Council land)	GPS	
212	*Eucalyptus moluccana*	1	10	3	Good	Good	Long (>40 years)	Low	Low	150	180	2.0	1.6	100	Yes	High Impact: >20%	Intersection upgrade (99.99%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	
213	*Eucalyptus moluccana*	1	16	12	Good	Good	Long (>40 years)	Medium	Medium	430	500	5.2	2.5	100	Yes	High Impact: >20%	Intersection upgrade (90.34%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	
214	*Eucalyptus moluccana*	2	7	2	Good	Good	Long (>40 years)	Low	Low	100	120	2.0	1.5	100	Yes	High Impact: >20%	Intersection upgrade (100.02%)	Removal - Intersection upgrade (Council land)	GPS	Two trees growing close together near Tree 213

Tree	Botanical name	Trees in group	Height (m)	Spread (m)	Health	Structure	ULE	Landscape significance	Retention value	DBH (mm)	DAB (mm)	TPZ (m)	SRZ (m)	Sum of TPZ% encroachment	Impact to SRZ	Impacts	Impact Notes	Impact summary	Tree location notes	General notes
215	*Eucalyptus moluccana*	1	10	3	Poor	Fair	Short (5-15 years)	Medium	Low	210	290	2.5	2.0	100	Yes	High Impact: >20%	Intersection upgrade (100%)	Removal - Intersection upgrade (Council land)	GPS	Moderate canopy dieback
216	*Eucalyptus moluccana*	1	5	1	Good	Good	Long (>40 years)	Low	Low	50	90	2.0	1.5	100	Yes	High Impact: >20%	Intersection upgrade (77.12%)	Removal - Intersection upgrade (Council land)	GPS	
217	*Eucalyptus moluccana*	2	5	1	Fair	Good	Long (>40 years)	Low	Low	50	70	2.0	1.5	100	Yes	High Impact: >20%	Intersection upgrade (100%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	Two small trees growing close together near tree 218
218	*Eucalyptus moluccana*	1	8	2	Fair	Fair	Long (>40 years)	Low	Low	160	180	2.0	1.6	100	Yes	High Impact: >20%	Intersection upgrade (100%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	Moderate canopy dieback
219	*Eucalyptus moluccana*	1	15	7	Good	Good	Long (>40 years)	Medium	Medium	210	250	2.5	1.8	100	Yes	High Impact: >20%	Intersection upgrade (100%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	
220	*Eucalyptus moluccana*	1	5	3	Poor	Fair	Short (5-15 years)	Low	Low	100	180	2.0	1.6	100	Yes	High Impact: >20%	Intersection upgrade (85.82%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	Dead top, Dad trunk nearby, not recorded
221	*Eucalyptus moluccana*	1	14	3	Good	Good	Long (>40 years)	Low	Low	160	200	2.0	1.7	100	Yes	High Impact: >20%	Intersection upgrade (100%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	
222	*Eucalyptus moluccana*	1	12	4	Good	Good	Long (>40 years)	Low	Low	150	190	2.0	1.6	100	Yes	High Impact: >20%	Intersection upgrade (100%)	Removal - Intersection upgrade (Council land)	GPS	
223	*Eucalyptus moluccana*	1	12	3	Good	Good	Long (>40 years)	Low	Low	140	160	2.0	1.5	100	Yes	High Impact: >20%	Intersection upgrade (100%)	Removal - Intersection upgrade (Council land)	GPS	
224	*Acacia binervia*	1	6	4	Good	Good	Medium (15-40 years)	Low	Low	150	200	2.0	1.7	100	Yes	High Impact: >20%	Intersection upgrade (100%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	
225	*Eucalyptus moluccana*	1	3	1	Fair	Fair	Short (5-15 years)	Low	Low	100	180	2.0	1.6	100	Yes	High Impact: >20%	Intersection upgrade (100%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	Wounding on trunk
226	*Eucalyptus moluccana*	1	10	3	Good	Good	Long (>40 years)	Low	Low	190	220	2.3	1.8	100	Yes	High Impact: >20%	Intersection upgrade (100%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	
227	*Acacia binervia*	1	7	3	Good	Good	Medium (15-40 years)	Low	Low	110	140	2.0	1.5	100	Yes	High Impact: >20%	Intersection upgrade (100%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	

Tree	Botanical name	Trees in group	Height (m)	Spread (m)	Health	Structure	ULE	Landscape significance	Retention value	DBH (mm)	DAB (mm)	TPZ (m)	SRZ (m)	Sum of TPZ% encroachment	Impact to SRZ	Impacts	Impact Notes	Impact summary	Tree location notes	General notes
228	*Eucalyptus moluccana*	1	12	4	Good	Good	Long (>40 years)	Medium	Medium	270	320	3.2	2.1	100	Yes	High Impact: >20%	Intersection upgrade (100%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	
229	*Eucalyptus moluccana*	1	15	15	Poor	Poor	Short (5-15 years)	Medium	Low	650	700	7.8	2.8	84	Yes	High Impact: >20%	Intersection upgrade (100%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	Significant dieback
230	*Eucalyptus moluccana*	10	5	2	Good	Good	Long (>40 years)	Low	Low	100	150	2.0	1.5	100	Yes	High Impact: >20%	Intersection upgrade (100%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	Group of 10 small trees growing close together
241	*Eucalyptus moluccana*	1	10	8	Poor	Poor	Short (5-15 years)	Low	Low	500	300	6.0	2.0	36	Yes	High Impact: >20%	Intersection upgrade (100%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	Multi stemmed, large dead stems
242	*Eucalyptus moluccana*	2	7	2	Good	Good	Long (>40 years)	Low	Low	100	110	2.0	1.5	95	Yes	High Impact: >20%	Intersection upgrade (100%)	Removal - Intersection upgrade (Council land)	GPS	Two small trees growing close together
251	*Eucalyptus moluccana*	1	8	3	Fair	Good	Long (>40 years)	Low	Low	150	160	2.0	1.5	99	Yes	High Impact: >20%	Intersection upgrade (100%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	
252	*Dead tree*	1	12	8	Poor	Poor	Remove (<5 years)	Low	Medium	280	350	3.4	2.1	100	Yes	High Impact: >20%	Intersection upgrade (100%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	Dead tree, retain lower trunk for habitat
253	*Eucalyptus moluccana*	1	8	2	Good	Good	Long (>40 years)	Low	Low	100	120	2.0	1.5	67	Yes	High Impact: >20%	Intersection upgrade (100%)	Removal - Intersection upgrade (Council land)	GPS	
254.1	*Eucalyptus moluccana*	1	6	1	Good	Good	Long (>40 years)	Low	Low	100	120	2.0	1.5	85	Yes	High Impact: >20%	Intersection upgrade (100%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	Three small trees growing close together
254.2	*Eucalyptus moluccana*	1	6	1	Good	Good	Long (>40 years)	Low	Low	100	120	2.0	1.5	89	Yes	High Impact: >20%	Intersection upgrade (100%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	Three small trees growing close together
254.3	*Eucalyptus moluccana*	1	6	1	Good	Good	Long (>40 years)	Low	Low	100	120	2.0	1.5	83	Yes	High Impact: >20%	Intersection upgrade (100%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	Three small trees growing close together
254.4	*Eucalyptus moluccana*	1	4	1	Good	Good	Long (>40 years)	Low	Low	50	80	2.0	1.5	100	Yes	High Impact: >20%	Intersection upgrade (100%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	Group of five small trees growing close together
254.5	*Eucalyptus moluccana*	1	4	1	Good	Good	Long (>40 years)	Low	Low	50	80	2.0	1.5	100	Yes	High Impact: >20%	Intersection upgrade (100%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	Group of five small trees growing close together

Tree	Botanical name	Trees in group	Height (m)	Spread (m)	Health	Structure	ULE	Landscape significance	Retention value	DBH (mm)	DAB (mm)	TPZ (m)	SRZ (m)	Sum of TPZ% encroachment	Impact to SRZ	Impacts	Impact Notes	Impact summary	Tree location notes	General notes
254.6	*Eucalyptus moluccana*	1	4	1	Good	Good	Long (>40 years)	Low	Low	50	80	2.0	1.5	100	Yes	High Impact: >20%	Intersection upgrade (83.62%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	Group of five small trees growing close together
254.7	*Eucalyptus moluccana*	1	4	1	Good	Good	Long (>40 years)	Low	Low	50	80	2.0	1.5	100	Yes	High Impact: >20%	Intersection upgrade (99.99%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	Group of five small trees growing close together
254.8	*Eucalyptus moluccana*	1	4	1	Good	Good	Long (>40 years)	Low	Low	50	80	2.0	1.5	100	Yes	High Impact: >20%		Removal - Intersection upgrade (Council land)	Tree moved to survey point	Group of five small trees growing close together
256	*Eucalyptus moluccana*	1	7	3	Good	Fair	Long (>40 years)	Low	Low	170	240	2.0	1.8	43	Yes	High Impact: >20%		Removal - Intersection upgrade (Council land)	Tree moved to survey point	
257	*Eucalyptus moluccana*	1	14	8	Good	Good	Long (>40 years)	Medium	Medium	430	600	5.2	2.7	50	Yes	High Impact: >20%		Removal - Intersection upgrade (Council land)	Tree moved to survey point	
258	*Eucalyptus moluccana*	1	4	2	Good	Good	Long (>40 years)	Low	Low	80	100	2.0	1.5	27	Yes	High Impact: >20%		Removal - Intersection upgrade (Council land)	GPS	Multi trunked
259	*Eucalyptus moluccana*	1	12	6	Good	Good	Long (>40 years)	Medium	Medium	420	550	5.0	2.6	48	Yes	High Impact: >20%		Removal - Intersection upgrade (Council land)	Tree moved to survey point	Moderate decay on trunk plus large dead limbs
260	*Eucalyptus moluccana*	1	16	8	Good	Fair	Long (>40 years)	Medium	Medium	420	450	5.0	2.4	56	Yes	High Impact: >20%		Removal - Intersection upgrade (Council land)	GPS	Moderate decay in trunk
261	*Eucalyptus moluccana*	1	13	6	Good	Good	Long (>40 years)	Medium	Medium	350	420	4.2	2.3	60	Yes	High Impact: >20%		Removal - Intersection upgrade (Council land)	Tree moved to survey point	
262	*Eucalyptus moluccana*	1	18	9	Good	Good	Long (>40 years)	High	High	460	520	5.5	2.5	45	Yes	High Impact: >20%		Removal - Intersection upgrade (Council land)	Tree moved to survey point	Low dead stem
263	*Eucalyptus moluccana*	1	20	8	Fair	Fair	Medium (15-40 years)	High	High	540	650	6.5	2.8	44	Yes	High Impact: >20%		Removal - Intersection upgrade (Council land)	Tree moved to survey point	Twin stemmed, one stem is dead
264	*Eucalyptus moluccana*	1	17	9	Good	Good	Long (>40 years)	High	High	450	460	5.4	2.4	42	Yes	High Impact: >20%		Removal - Intersection upgrade (Council land)	Tree moved to survey point	
265	*Eucalyptus moluccana*	1	14	6	Poor	Fair	Short (5-15 years)	Medium	Medium	380	480	4.6	2.4	58	Yes	High Impact: >20%	Intersection upgrade (36.16%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	Moderate canopy dieback, moderate decay in trunk

Tree	Botanical name	Trees in group	Height (m)	Spread (m)	Health	Structure	ULE	Landscape significance	Retention value	DBH (mm)	DAB (mm)	TPZ (m)	SRZ (m)	Sum of TPZ% encroachment	Impact to SRZ	Impacts	Impact Notes	Impact summary	Tree location notes	General notes
266	*Eucalyptus moluccana*	1	18	14	Good	Good	Long (>40 years)	High	High	570	1000	6.8	3.3	32	Yes	High Impact: >20%	Intersection upgrade (95.46%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	Three large stems, possibly three separate trees but recorded as one tree
267	*Eucalyptus moluccana*	1	15	9	Poor	Poor	Short (5-15 years)	Medium	Low	470	500	5.6	2.5	31	Yes	High Impact: >20%		Removal - Intersection upgrade (Council land)	Tree moved to survey point	Has moderate to severe decay on trunk, and moderate canopy dieback
268	*Geijera parviflora*	1	8	8	Good	Good	Medium (15-40 years)	Medium	Medium	240	260	2.9	1.9	61	Yes	High Impact: >20%		Removal - Intersection upgrade (Council land)	Tree moved to survey point	Multi trunked
272	*Eucalyptus moluccana*	1	16	8	Good	Good	Long (>40 years)	Medium	Medium	400	420	4.8	2.3	36	Yes	High Impact: >20%		Removal - Intersection upgrade (Council land)	Tree moved to survey point	Large mainstem plus small secondary stem
273	*Eucalyptus moluccana*	1	11	5	Good	Good	Long (>40 years)	Low	Low	180	200	2.2	1.7	5	No	Low Impact: <10%	Intersection upgrade (5%)	Retain	Tree moved to survey point	
274	*Eucalyptus moluccana*	1	14	5	Good	Good	Long (>40 years)	Medium	Medium	240	280	2.9	1.9	21	Yes	High Impact: >20%		Removal - Intersection upgrade (Council land)	Tree moved to survey point	
279	*Dead tree*	1	12	8	Poor	Poor	Remove (<5 years)	Low	Low	300	350	3.6	2.1	25	Yes	High Impact: >20%		Removal - Intersection upgrade (Council land)	Tree moved to survey point	Dead tree, could retain lower trunk for habitat
280	*Olea africana*	1	4	1	Good	Good	Remove (<5 years)	Low	Low	80	120	2.0	1.5	34	Yes	High Impact: >20%		Removal - Intersection upgrade (Council land)	Tree moved to survey point	Usually considered a weed
281	*Eucalyptus moluccana*	1	16	5	Good	Good	Long (>40 years)	Medium	Medium	260	280	3.1	1.9	5	No	Low Impact: <10%	Intersection upgrade (5%)	Retain	Tree moved to survey point	Multi stemmed, one main stem, one small a stem, one dead stem
292	*Eucalyptus moluccana*	4	5	1	Good	Good	Long (>40 years)	Low	Low	50	80	2.0	1.5	54	Yes	High Impact: >20%		Removal - Intersection upgrade (Council land)	Tree moved to survey point	For small trees growing close together
293	*Eucalyptus moluccana*	1	18	6	Good	Good	Long (>40 years)	Medium	Medium	300	350	3.6	2.1	43	Yes	High Impact: >20%		Removal - Intersection upgrade (Council land)	Tree moved to survey point	
295	*Eucalyptus moluccana*	1	8	4	Poor	Poor	Short (5-15 years)	Low	Low	220	240	2.6	1.8	4	No	Low Impact: <10%	Intersection upgrade (4%)	Retain	Tree moved to survey point	Tree is almost dead
298	*Eucalyptus moluccana*	1	4	2	Good	Good	Long (>40 years)	Low	Low	50	80	2.0	1.5	100	Yes	High Impact: >20%	Intersection upgrade (100%)	Removal - Intersection upgrade (Council land)	GPS	
299	*Eucalyptus moluccana*	1	10	3	Fair	Good	Long (>40 years)	Low	Low	140	180	2.0	1.6	100	Yes	High Impact: >20%	Intersection upgrade (66.6%)	Removal - Intersection upgrade	Tree moved to survey point	Sparse canopy

Tree	Botanical name	Trees in group	Height (m)	Spread (m)	Health	Structure	ULE	Landscape significance	Retention value	DBH (mm)	DAB (mm)	TPZ (m)	SRZ (m)	Sum of TPZ% encroachment	Impact to SRZ	Impacts	Impact Notes	Impact summary	Tree location notes	General notes
																		(Council land)		
300	*Eucalyptus moluccana*	1	7	4	Good	Good	Long (>40 years)	Low	Low	120	150	2.0	1.5	100	Yes	High Impact: >20%	Intersection upgrade (85.35%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	Twin stems
301	*Eucalyptus moluccana*	1	6	2	Good	Good	Long (>40 years)	Low	Low	80	140	2.0	1.5	100	Yes	High Impact: >20%	Intersection upgrade (89.12%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	
302	*Eucalyptus moluccana*	1	10	4	Good	Good	Long (>40 years)	Medium	Medium	220	250	2.6	1.8	100	Yes	High Impact: >20%	Intersection upgrade (83.39%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	
303	*Eucalyptus moluccana*	1	12	5	Good	Good	Long (>40 years)	Medium	Medium	350	420	4.2	2.3	100	Yes	High Impact: >20%	Intersection upgrade (100%)	Removal - Intersection upgrade (Council land)	Tree moved to survey point	

Appendix D Eastern Creek Business Hub Tree Protection Plan

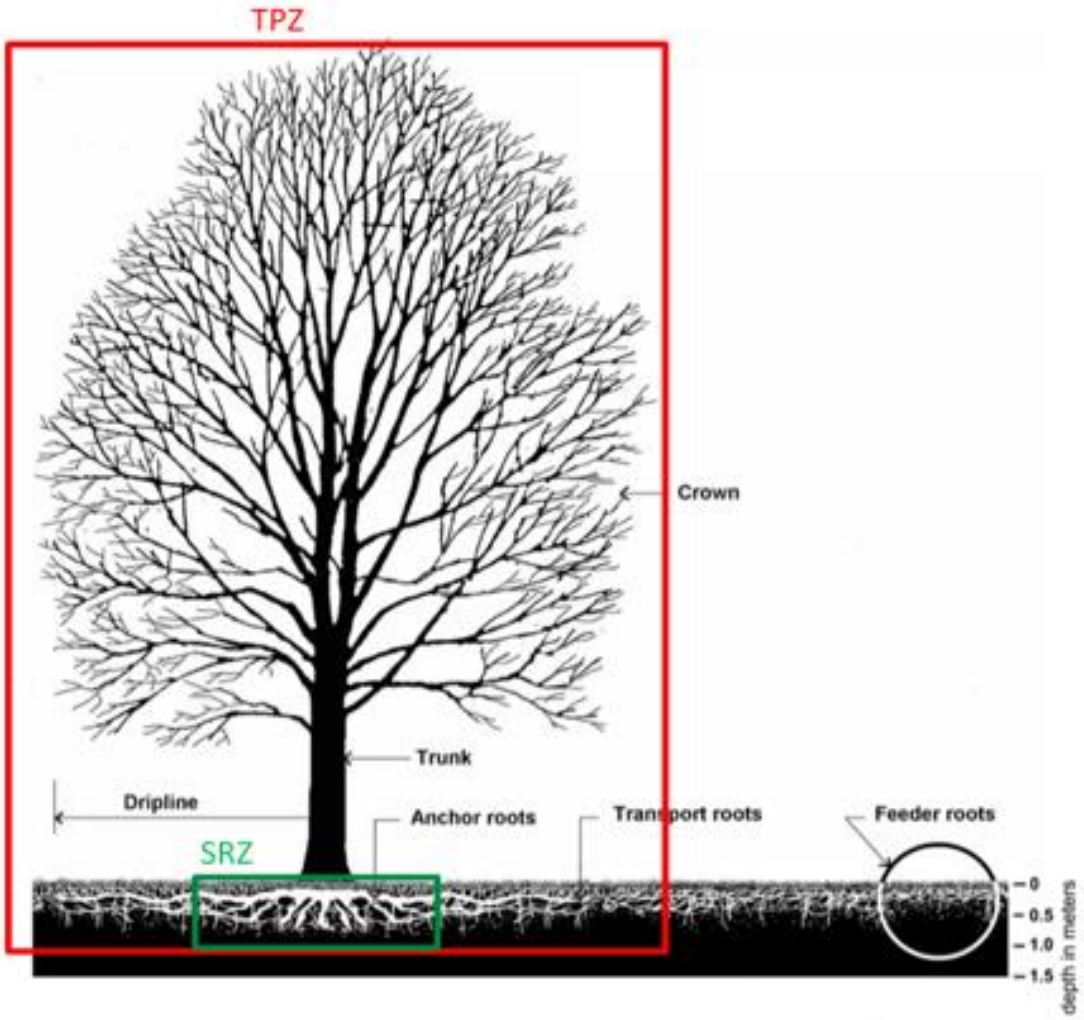

Figure 9: Representative tree structure and indicative TPZ and SRZ

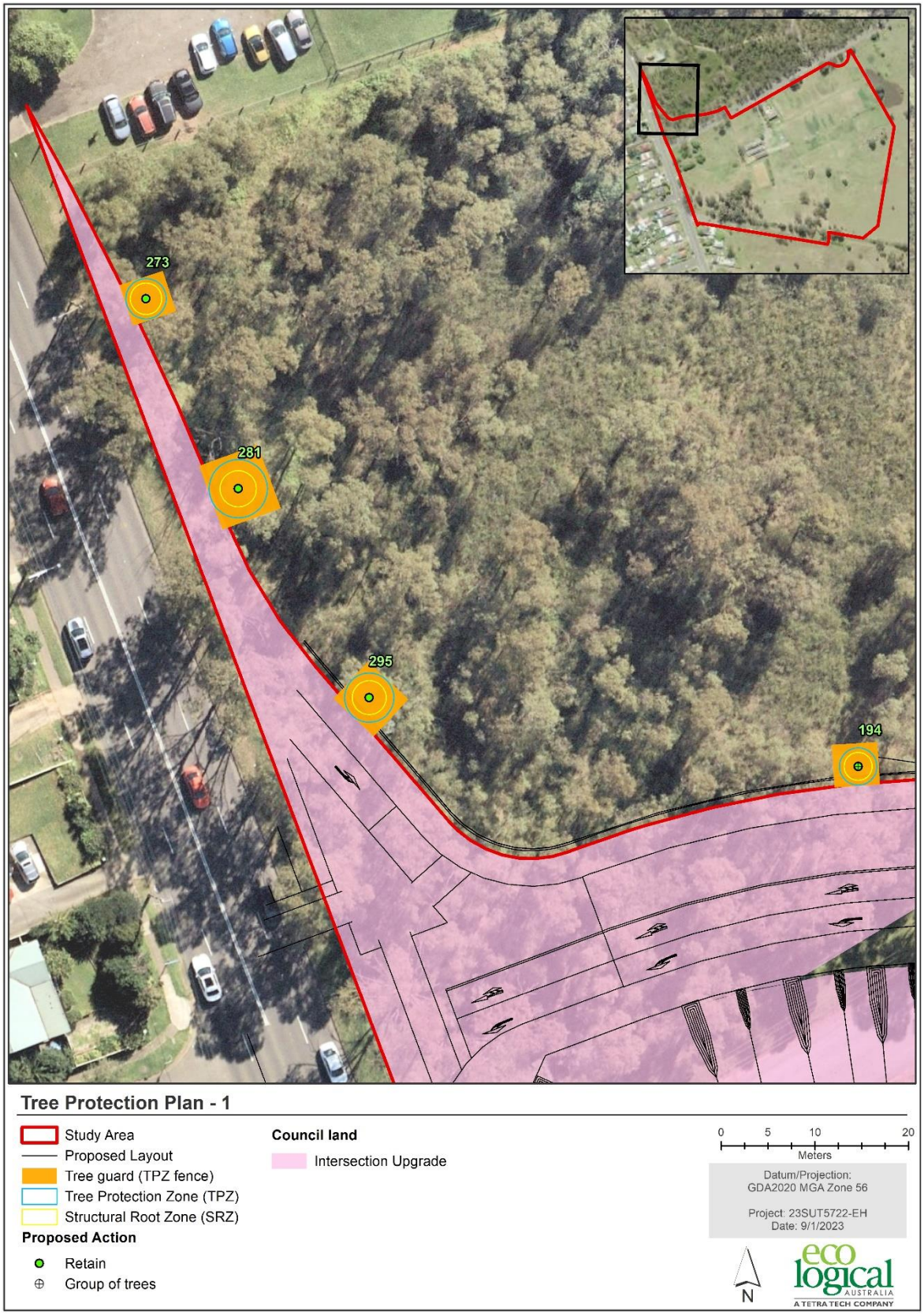

Figure 10. Tree Protection Plan, page 1 (from Tree Protection Plan 1 September 2023)

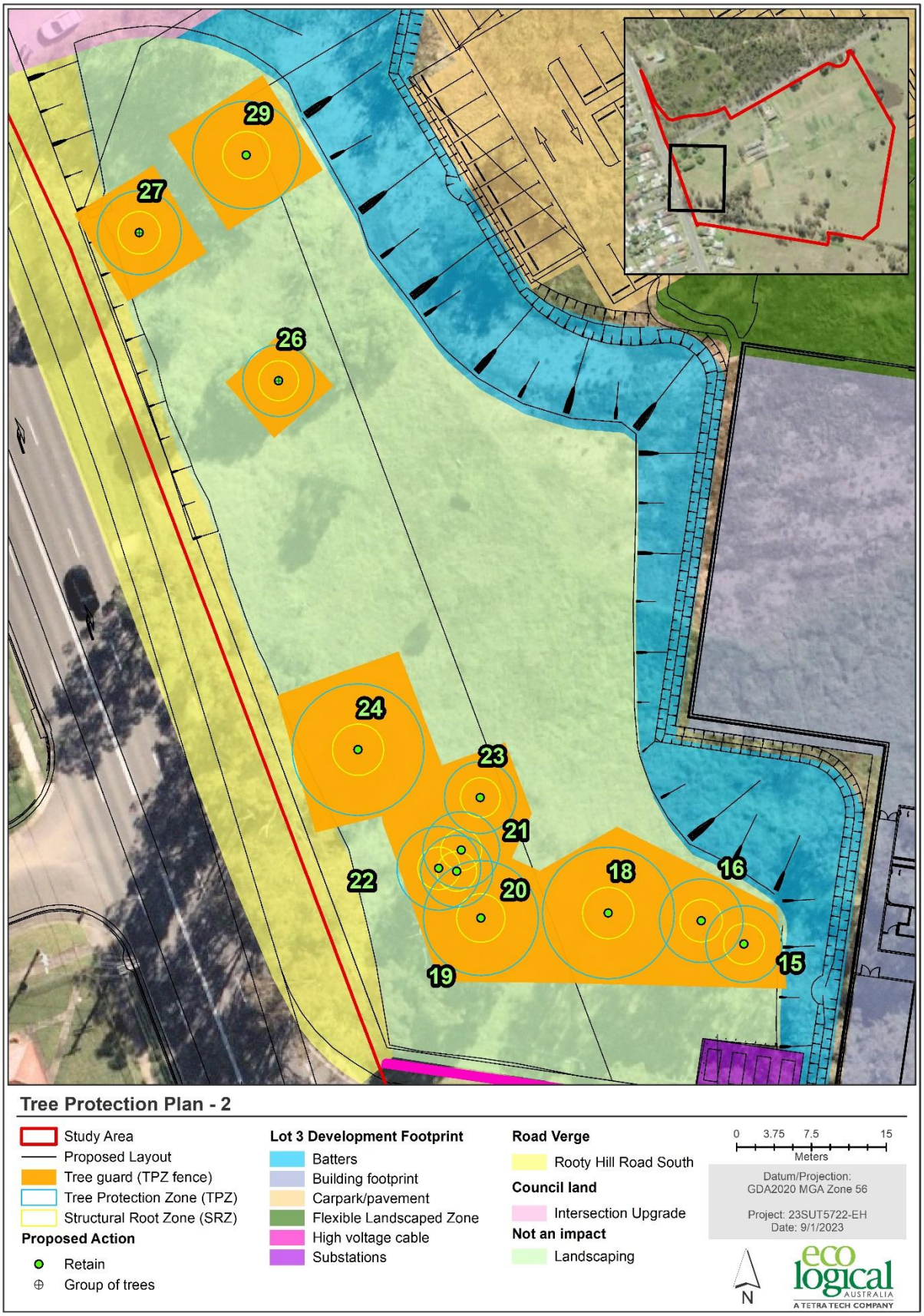

Figure 11: Tree Protection Plan, page 2

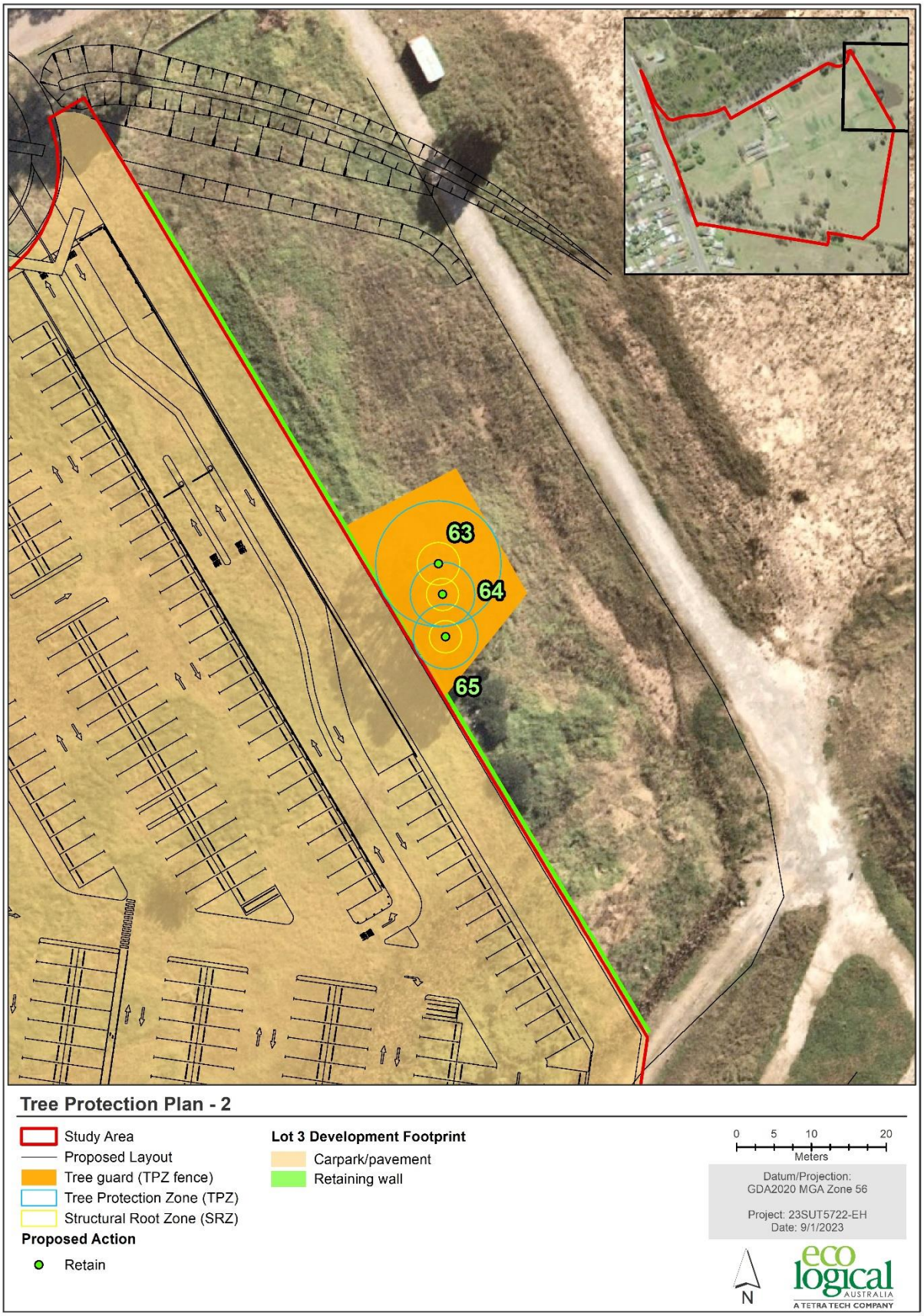

Figure 12: Tree Protection Plan, page 3

Appendix E Team Induction Sign-off Sheet

The following personnel certify the works will be carried out in accordance with this BMP.

Name	Position / Company	Signature	Date
	Project Manager		
	Site Supervisor / Contractor		
	Staff		
	Staff		
	Staff		
	Staff		
	Staff		
	Staff		
	Staff		
	Staff		
	Staff		
	Staff		
	Staff		
	Staff		
	Staff		
	Staff		
	Site Ecologist		

Appendix F Complaints Recording Template

Date	Received by phone / email / letter	Complaint	Name	Address	Contact	Follow-up Actions	Date Complete

Appendix G Phone and Emergency Contact List

Organisation	Name	Position	Contact Number
Project Contacts			
		Project Manager	
		Site Supervisor	
		Site Ecologist	
DPE			
Emergency Contacts			
Emergency Services	-	-	000
Minchinbury Community Hospital	-	-	(02) 9625 2222
Blacktown City Council		Natural Resources Department	02 9839 6000
Environment Protection Authority	-	-	131 555
SafeWork NSW	-	-	131 050
Fire and Rescue NSW	-	-	02 9265 2999
State Emergency Services (SES)			132 500
WIRES	-	-	1300 094 737
Origin Energy			132 461
Energy Australia			133 466
Transgrid System Operations			1800 027 253 / 9284 300
Police Assistance Line (PAL)			131 444
Gas – Agility			131 909
Poisons Information			131 126
Telstra			132 200
RMS			132 213

Appendix H Site Biodiversity Inspection checklist

Constructor Details	Site Supervisor - Environmental Checklist	
Project Title: Eastern Creek Business Hub Stage 3 Site Inspected: Eastern Creek Business Hub Stage 3		
Time & Date:	Weather:	
	General	
•	All staff inducted and on the Team Induction Sign-off Sheet	☐
•	All exclusion fencing and Tree protection fencing installed and maintained	☐
•	All Signage in place and maintained	☐
•	Dust suppression installed and maintained	☐
•	All sediment controls installed and maintained	☐
	Biodiversity	
•	All trees to be removed clearly marked	☐
•	Pre-clearance survey and targeted surveys undertaken	☐
•	All collectable floristic material such as native vegetation seed stock, woody debris and bush rock has been collected for use in landscaping or relocation to nearby Council reserves.	☐
•	No plant, equipment or stockpiles are positioned under the drip line of retained trees.	☐
•	The Site Ecologist was present during stag/habitat tree removal and displaced fauna has been relocated (attach details if required)	☐
•	Nest boxes installed and maintained	☐
•	Morning machinery checks undertaken	☐
•	Unexpected finds protocols (add comment)	☐
•	Notification of fauna vehicle strikes (add comment)	☐
	Priority Weeds	
•	Equipment and vehicles have been washed down prior to and after use, to manage the introduction and spread of weed propagules and pathogens in accordance with Appendix K	☐
•	Weed management as per best practices is being undertaken across the site	☐
•	All stockpiles weed free	☐
	Noise	
•	Works only being undertaken in the approved times	☐
•	Overnight lighting minimised	☐
•	Simultaneous operation of noisy plants within discernible range of a sensitive receiver has been avoided.	☐
•	The distance between noisy plant items and nearby residential receivers and potential fauna habitat has been maximised.	☐

Constructor Details	Site Supervisor - Environmental Checklist	
•	Equipment such as offensive noise carriers have been oriented away from residential receivers and potential fauna habitat.	☐
•	Plants used intermittently have been throttled or shut down when not required.	☐
Inspected by:	Signature:	
Actions:	By Who:	Date Completed:

Appendix I Fauna Rescue and Release Procedure

The following Fauna Rescue and Release Procedure has been prepared in accordance with the NSW Department of Planning, Industry and Environment *Code of Practice for Injured, Sick and Orphaned Protected Fauna 2011.*

To handle and rescue and handle native fauna and collect native flora, a business must be registered as an 'Animal Research Establishment' under the NSW *Animal Research Act 1985* and hold a Biodiversity Conservation Licence under Part 2, Division 3 of the *Biodiversity Conservation Act 2016*.

NATIVE FAUNA ENCOUNTER

If native fauna is encountered during pre-clearance or clearance surveys, the decision tree outlined in Table 4 should be adhered to.

Table 4: Decision tree on how to respond to a native fauna encounter

Is the animal sick, injured, likely to have been injured or an orphan?			
YES		**NO**	
Is death imminent or highly likely regardless of the care available?		Is the animal creating a nuisance for the public or in a dangerous location?	
YES	**NO**	**YES**	**NO**
Arrange for the animal to be humanely euthanised by a suitably qualified person.	Rescue the animal and arrange for a vet or experienced fauna rehabilitator to assess it.	Advise people to avoid the animal or relocate it to a suitable nearby location.	Do not intervene.

RESCUING OF NATIVE FAUNA

If rescuing of the animal is chosen to be the most suitable option, the following must be adhered to:

- Assessment of all risk to fauna from environmental hazards and from capture.
- Confirmation that the correct rescue equipment for the type and size of fauna is at hand.
- Confirmation that a sufficient number of trained personnel for that species and size are present.

TRANSPORTATION OF RESCUED NATIVE FAUNA

When transporting the rescued native fauna to a veterinary surgery or rehabilitation facility such as WIRES, the following must be adhered to:

- Ensure transport methods and container sizers are appropriate for the species, size, strength and temperament of fauna. This may include incorporating padding walls and ensuring no ingestible surfaces are present. Containers must also be designed and positioned so breathing is not restricted.

- Transportation containers are kept as an appropriate temperature for the species (note a range of 25 – 27◦C is appropriate for most species and ages; 31◦C is appropriate for unfurred joeys and 21◦C is appropriate for echidnas, platypuses and frogs).
- Transportation containers are well ventilated.
- Ensure containers holding snakes and bats include a visible warning label outlining the danger.
- Ensure transportation containers are not left in the back of uncovered utility vehicles or car boots.
- During transportation, adult fauna should not be fed or watered during trips lasting less than a few hours. Dependent young may require feeding during shorter trips.
- Attain approval by a veterinarian before use of medication to facilitate transport.
- Ensure fauna transport is the sole purpose of the trip.

RELOCATION OF NATIVE FAUNA

If the encountered native fauna is not injured, but is required to be relocated outside of the construction site, the following must be adhered to:

- A suitable environment must be identified prior to relocation, this is one that:
    - Contains appropriate habitat and adequate good resources.
    - Is occupied by members of the same species.
    - Does not place the animal at a high risk of injury.
    - Is not outside of an area which the fauna would not normally cross (i.e. brush-tail possums rarely move more than 50 m; however, wombats have a radius of approximately 50 km).
- The proposed relocation points for captured native fauna is Morreau Reserve for vegetation to be removed from Church Street and the adjacent VMP area for vegetation removed along Beggs Road (Figure 13).

Figure 13: Fauna Relocation Points

Appendix J Unexpected Threatened Species Find Procedure

If previously unrecorded threatened flora or fauna species are identified during pre-clearing surveys, clearing activities or construction activities a qualified ecologist will be engaged to determine the significance of impacts and provide advice on approval requirements.

Works in these areas, where potential impacts to threatened species are identified, will not be undertaken until authorisation to proceed is provided by the relevant authority. Clearing of vegetation is to occur outside of significant lifecycle events such as breeding season, hibernation, or nesting with young. Vegetation clearing should preferably occur during March, April, September, or October.

Four (4) threatened fauna species were identified to be present within the study area during targeted species searches undertaken in 2012, 2020 and 2022.These are:

- Threatened microbats:
    - *Falsistrellus tasmaniensis* (Eastern False Pipistrelle)
    - *Micronomus norfolkensis* (Eastern Coastal Free-tail Bat)
    - *Miniopterus orianae oceansis* (Large Bent-winged Bat)
- Threatened invertebrate:
    - *Meridolum corneovirens* (Cumberland Plain Land Snail)

Several threatened flora species were identified to be potentially within the study area, of these species none were identified to be present on site however a *Pimelea* sp. was submitted for identification which was confirmed to be a non-threatened species.

Details on the threatened fauna species present on site and the two Pimelea species habit and ecology are provided below (Table 5 - Table 8) to assist potential identification. Where the above and other species are discovered, the below methodology (Table 11) should be followed.

Table 5: Falsistrellus tasmaniensis (Eastern False Pipistrelle)

Species name	***Falsistrellus tasmaniensis* (Eastern False Pipistrelle)**
Species kingdom & family	Fauna – Microchiroptera (microbats)
Listing status	Vulnerable (BC Act)
Habit and Ecology	The Eastern False Pipistrelle is roughly 65mm in lengths with a dark to reddish-brown above and paler grey on the underside of its body. This species occurs within moist habitats with trees taller than 20m tall. This species primarily roosts within Eucalyptus hollows but has also been found under decorticating bark and in buildings. This species hunts flying insects above the tree canopy in the evenings and will hibernate over the winter months.

Species name	*Falsistrellus tasmaniensis* (Eastern False Pipistrelle)
Example	

Table 6: *Micronomus norfolkensis* (Eastern Coastal Free-tail Bat)

Species name	*Micronomus norfolkensis* (Eastern Coastal Free-tail Bat)
Species kingdom & family	Fauna – Microchiroptera (microbats)
Listing status	Vulnerable (BC Act)
Habit and Ecology	The Eastern Coastal Free-tailed Bat is approximately 30-40 mm long with dark brown to reddish-brown fur on its back with a slightly paler below and a bare tail. This species occurs within dry sclerophyll forests, woodlands, swamps and mangroves along the east coast of NSW and southern Queensland. This species is usually solitary but has been found roosting communally. This species is often found roosting primarily within tree hollows however will also roost under decorticating bark and man made structures.
Example	

Table 7: *Miniopterus orianae oceansis* (Large Bent-winged Bat)

Species name	*Miniopterus orianae oceansis* (Large Bent-winged Bat)
Species kingdom & family	Fauna – Microchiroptera (microbats)
Listing status	Vulnerable (BC Act)
Habit and Ecology	Large Bent-winged bats is approximately 60mm in length with chocolate to reddish-brown fur on its back with a slightly lighter coloured fur on its underside. This species primarily roost within caves, and manmade structure such as derelict mines, water tunnels and buildings. This species forms small populations within suitable habitat and have shown movement between habitat locations with a region. This species is a migratory species and will generally migrate to the maternity caves from October to May. This species hunts in forested areas catching flying insects above the tree tops at night and will return to the roost prior to dawn.
Example	

Table 8: *Meridolum corneovirens* (Cumberland Plain Land Snail)

Species name	*Meridolum corneovirens* (Cumberland Plain Land Snail)
Species kingdom & family	Fauna – Gastropoda
Listing status	Endangered (BC Act)
Habit and Ecology	Similar to the exotic garden snail (*Helix aspera)*, the shell of this species is approximately 25-30mm in diameter with uniform colouration and a flattened shell compared to the exotic garden snail. Primarily inhabiting areas of Cumberland Plain Woodland, this species lives under leaf litter, bark, leaves and logs or shelters in loose soil around clumping grasses. This species is generally nocturnal.
Example	

Table 9: *Pimelea curviflora var. curviflora*

Species name	*Pimelea curviflora var. curviflora*
Species kingdom & family	Flora - Thymelaeaceae
Listing status	Vulnerable (BC Act and EPBC)
Habit and Ecology	A much-branched subshrub or shrub 20 to 120cm high with hairy stems. Flowers are red to yellow, hairy and occur in terminal heads of 4 - 12 flowers. Leaves are 5 - 10 mm long, 2 - 4 mm wide, with a sparsely hairy lower surface. The curved fruit is 2 - 4 mm long. This species has an inconspicuous cryptic habit as it is fine and scraggly and often grows amongst dense grasses and sedges This species is found on shalely/lateritic soils over sandstone and shale/sandstone transition soils on ridgetops and upper slopes amongst woodlands. Flowering time of this species occurs form October to May.
Example	

Table 10: *Pimelea spicata* (Spiked Rice Flower)

Species name	*Pimelea spicata* (Spiked Rice Flower)
Species kingdom & family	Flora - Thymelaeaceae
Listing status	Endangered (BC Act and EPBC)
Habit and Ecology	The Spiked Rice-flower is a shrub to 50 cm tall that may be erect or somewhat spreading in habit. The leaves are opposite and elliptical, to 20 mm long by 8 mm wide, and usually held outwards from the stem. The white, pink-tinged flowers are tubular, to 10 mm long, with four spreading petals. They may appear at any time of the year, but are mostly seen in summer as they are probably related to rainfall. Inflorescences start as dense clusters (like most rice flowers) and then extend along an elongating stem as the inflorescences age (the only species of Pimelea in Greater Sydney to do this). This species is found within the Cumberland Plain and Illawarra environments, found on well structured soils. Flowering times for this species vary throughout May – January in response to rainfall events.
Example	

Table 11: Unexpected finds Protocol

YES

STOP WORK and notify the Site Supervisor and Project Manager. The Project Manager is to notify and seek confirmation on the identification of the threatened species discovered from a specialist that holds a Scientific and ethics license. Once confirmed the Project manager must inform DPE of the discovery.

Implement exclusion zone around identified threatened species, to ensure no machinery or personnel can enter the exclusion zone, during decision making process.

Consult and inform specialists about the unexpected threatened species found. Discuss relevant protection measures, staging of works.

Is an impact likely to occur?

YES

Consult with DPE and obtain approvals, licenses or permits as appropriate (i.e. Translocation license, License to harm threatened biodiversity.)

Recommence works once advice is sought from DPE and specialists and the necessary approvals, licenses and permits are obtained

NO

Recommence work and maintain regular inspections

Appendix K Introduction and Spread of Weed and Pathogens Procedure

Construction works on development sites have the potential to introduce and promote the spread of weed species. This procedure is intended to prevent or minimise the spread of priority weed species. During construction, the Project Manager and Site Supervisor should adhere to best practice methods for weed management, which include:

- Mowing or slashing areas infested with weeds before they seed. This may reduce the propagation of new plants.
- Program works from least to most weed infested areas.
- Clean machinery, vehicles and footwear before moving to a new location.
- Securely cover loads of weed-contaminated material to prevent weed plant material falling or blowing off vehicles.
- Dispose of weed-contaminated soil at an appropriate waste management facility.
- Remove weeds immediately onto suitable trucks and dispose of without stockpiling.

WEED MANAGEMENT PLAN

If the development site is highly infested, a Weed Management Plan may be warranted as a sub-plan to the Construction Environmental Management Plan, which may include:

- Identification and description of weed infested areas within the site.
- Recommendations for managing weeds.
- Weed control methods.
- Measures to prevent the spread of weeds.
- A monitoring program to measure the success of weed management.
- Communication strategies to improve contractor awareness of weeds and weed management.

Pathogens are agents such as bacterium, virus or fungus that cause disease in flora and fauna, which are be spread on footwear, vehicles or machinery. The four most common pathogens found in NSW include:

- **Phytophthora (*Phytophthora cinnamomi*):** A soil-borne fungus that attacks the roots of native plant species, causing them to rot and eventually die.
- **Chytrid fungus (*Batrachochytrium dendrobatdis*):** A waterborne fungus that affects native frog species.
- **Myrtle rust (*Uredo rangelli*):** An introduced fungus that attacks young leaves, shoot tips and stems of Myrtaceous plants (such as Bottle Brush, Tea Tree, Lilly Pilly and Turpentine), eventually killing the plant.

Construction works on development sites have the potential to promote the spread of pathogens. This procedure is intended to prevent or minimise the spread of pathogens if they have been identified within the development site. If the occurrence of pathogens is known within the locality, a test for presence through soil or water tests should fire be undertaken. If pathogens are present, during construction, the Project Manager and Site Supervisor should adhere to best practice methods for pathogens (Table 12).

Table 12: Best practice hygiene protocols to prevent the spread of pathogens

Pathogen	Best Practice Hygiene Protocols
Phytophthora	• Minimise work during excessively wet or muddy conditions. • Programming of works should always move from uninfected areas to infected areas. • Set up exclusion zones with fencing and signage to restrict access into contaminated areas. • All personnel (including visitors) to be inducted on Phytophthora management measures for the site. Provide vehicle wash down facility. • Restrict vehicles to designated tracks, trails and parking areas. • Provide parking and turn-around points on hard, well-drained surfaces. • Provide boot wash down facility. • Restrict personnel to designated tracks and trails. • Use a certified supply of plants and soil that is disease-free. • Retain all potentially affected materials within the contaminated area. • Ensure stockpiles of mulch, topsoil and fill material are separated to avoid potential contamination and spread.
Chytrid Fungus	• Minimise work during excessively wet or muddy conditions. • Programming of works should always move from uninfected areas to infected areas. • Set up exclusion zones with fencing and signage to restrict access into contaminated areas. • All personnel (including visitors) to be inducted on chytrid management measures for the site. • Provide vehicle wash down facility. • Restrict vehicles to designated tracks, trails and parking areas. • Provide parking and turn-around points on hard, well-drained surfaces. • Provide boot wash down facility. • Disinfect with cleaning products containing benzalkonium chloride or 70% methylated spirits in 30% water. • Disinfect hands or change gloves between the handling of individual frogs and between each site. • Only handle frogs when necessary. Use the 'one bag-one frog' approach. • To avoid cross contamination, generally avoid transferring water between two or more separate waterbodies.

Myrtle Rust	• To determine if Myrtle Rust is known within the locality of the development site, the following should be undertaken:
	  ○ Use of The DPI Myrtle Rust Management Zone map (www.dpi.nsw.gov.au/biosecurity/plant/myrtle-rust/zones)
	  ○ Consultation with Blacktown City Council for additional rust records and risk assessments.
	  ○ Photograph potentially infected plants and send to: biosecurity@industry.nsw.gov.au for confirmation.
	• Programming of works should always move from uninfected areas to infected areas.
	• Set up exclusion zones with fencing and signage to restrict access into contaminated areas.

Pathogen	Best Practice Hygiene Protocols
	• All personnel (including visitors) to be inducted on Myrtle rust management measures for the site. • Provide vehicle wash down facility. • All vehicles and machinery to be washed with Truckwash® (or equivalent). • Restrict vehicles to designated tracks, trails and parking areas. • For medium-long term projects, install a concrete wash down bay which will capture the water in a trench or bunded area. • Water used for wash downs must not be used for dust control. • Personnel working in an infected site should shower and launder clothes (especially hats) before moving to another bushland site. • Provide boot wash down facility. • Footwear and equipment to be cleaned of soil/mud then sprayed with 70% methylated spirits in 30% water. • Use a certified supply of plants and soil that is disease-free (the Australian Nursery Industry *Myrtle Rust Management Plan* (McDonald 2011) provides best practice Myrtle rust management that is to be expected from suppliers). • Plant material should be buried on site if possible. • Do not dispose of waste at another bushland site. • Buried material sites must be mapped to prevent re-exposure, especially if located near utility easements. • If material cannot be buried advice should be sought from Blacktown City Council.

Appendix M Re-Use of Floristic Material and Native Habitat Features Strategy

COLLECTION OF FLORISTIC MATERIAL

The vegetation onsite conforms to one critically endangered ecological community (Cumberland Plain Woodland). Therefore, if required, native seed collection may be required prior to construction to later be used in the adjacent Vegetation Management Plan. If this is the case, the following should be adhered to:

- Seed should first be collected from all areas that are to be cleared as part of the project. By selecting a seed source that is from plants growing in similar environmental conditions nearby, the plants should be naturally adapted to local conditions and more likely to survive and prosper in proposed re-use areas.
- Carry out all seed collection in accordance with the Florabank Guidelines (Florabank, 2000) and Model Code of Practice (Mortlock, 1998). Experienced and licensed seed collectors should carry out the seed collection.

RELOCATION OF WOODY DEBRIS AND BUSH ROCK

Many native fauna species utilise wood debris and bush rock for shelter, basking to hide from predators, find food and avoid extreme weather. When woody debris and bush rock are required to be removed from a development site, consideration should be given to finding suitable locations for re-use of these important habitat features. The proposed installation locations of all available woody debris and bush rock is shown in (Figure 14).

Term	Definition
Woody Debris	Trees and wood, whether living or dead, at least 100 mm in diameter and 500 mm long, including hollows.
Bush Rock	Loose rock occurring on rock or soil surfaces.

Relocation of woody debris and bush rock should be undertaken under the supervision of the site ecologist and in accordance with Figure 7 for re-use and to ensure it does not have a negative impact on the receiving environment. For example, in areas of high-quality bushland, there may already be enough suitable hollows, fallen logs or bush rock and adding more may cause unnecessary disturbance e or create a fire hazard.

The following best practice methods are to be undertaken during relocation:

- Removal, stockpiling, transportation and relocation of woody debris and/or bush rock is carried out in a manner that minimises disturbance to native vegetation (including the canopy, shrubs, dead trees, fallen timber and groundcover species) or bush rock.
- The spread of any weeds or pathogens that may be in the soil is avoided when relocating woody debris and bush rock from stockpiles.
- The Site Ecologist is consulted with to provide advice on positioning woody debris and bush rock in designated relocation areas.

- Topsoil disturbance is kept to a minimum and is not heaped up against woody debris or bush rock because of the potential to provide habitat for rabbits.
- Woody debris is placed evenly across the site.
- Where woody debris is to be mulched the Project Manager and/or Site Supervisor should ensure that weeds are separated from native vegetation.

USE OF NEST BOXES

Nest boxes provide supplementary breeding habitat and shelter for hollow-dependant fauna where hollows have been removed. If hollow-bearing trees are proposed for removal, nest boxes are required to be installed as a replacement of similar entrance diameter to impacted hollow. Nest boxes are to be installed by a suitably qualified climbing arborist under the supervision of a suitably qualified ecologist. The installation of three nest boxes for every hollow removed is enforced on this development. Nest boxes are proposed to be installed throughout the adjacent VMP area and within 100 m radius of the hollow bearing tree being removed.

If the installation of nest boxes is required, the following must be considered in consultation with the Site Ecologist:

- The target species.
- The tree hollow preferences of native hollow-dependant fauna known or likely to occur in the locality.
- The sizes, types and quantities of potential tree hollows to be removed (Table 13 and Table 14).
- The sizes, types and quantities of tree hollows existing in adjacent areas.
- The design, materials and quantity of nest boxes required.
- Whether the nest boxes are required to fill a short-term gap in the availability of hollows (e.g. during construction) or to compensate for the long term reduced availability of hollows.
- Monitoring and maintenance of the nest boxes.

Table 13: Target species nest box dimensions

Target Species	Entrance diameter(cm)	Internal dimensions (cm)	Depth/height of chamber (cm)	Height above (m)	Additional comments
Microbat species	3 (hole) 2 (slot)	n/a	40	3-5	Bottom opening Hang shadecloth inside
Owlet nightjar	6.5	15x15	30	3-6	Short horizontal spout entrance for sunning
Cockatoo species	20	30x40	120	8-10	Ferocious chewer, angled spout entrance nest box should be made of PVC not timber
Large forest owls	10-15	40x40	60-75	4-6	Short horizontal spout entrance

Table 14: Hollow size and suggested targeted species type of nest box

Hollow size	Recommended nest box

Hollow size	Recommended nest box
Decorticating bark	Microbats
0-5 cm	Pardalote, Microbats
5-10 cm	Treecreeper, Nightjar, Small Parrot, Glider, Rosella
10-20 cm	Wood duck, Cockatoo, Brushtail possum, large forest owls, Large parrot,
	*Dependant on hollow sizes and species found on site

Figure 14: Log Relocation areas

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Appendix 1.7 – Vegetation Management Plan

Eastern Creek Business Hub

Vegetation Management Plan

Prepared for
Western Sydney Parklands Trust

April 2024

DOCUMENT TRACKING

Item	Detail
Project Name	Eastern Creek Retail Centre Vegetation Management Plan
Project Number	23SYD5722
Project Manager	David Bonjer (02) 8536 8668
Prepared by	David Brennan, Alex Gorey
Reviewed by	Andrew Whitford
Approved by	David Bonjer
Status	FINAL
Version Number	9
Last saved on	23 April 2024
Cover photo	Area of remnant CPW forest. Taken by David Brennan. 04.05.2016

This report should be cited as 'Eco Logical Australia 2022. *Eastern Creek Retail Centre Vegetation Management Plan*. Prepared for Western Sydney Parklands Trust.'

VERSION CONTROL

This update has been prepared by ELA with support from Frasers Property and Western Sydney Parklands Trust (ABN 85 202 544 800). This update has been undertaken to reflect the s143 variation under EPBC 2012-6617 to remove the need to manage 0.73 ha of Cumberland Plain Wodland which was management zone 1a in version 8 of the Vegeation Management Plan.

DECLARATION OF ACCURACY

In making this declaration, I am aware that section 491 of the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) makes it an offence in certain circumstances to knowingly provide false or misleading information or documents to specified persons who are known to be performing a duty or carrying out a function under the EPBC Act or the Environment Protection and Biodiversity Conservation Regulations 2000 (Cth). The offence is punishable on conviction by imprisonment or a fine, or both. I am authorised to bind the approval holder to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration.

Signed

Full name (please print)

Organisation (please print)

Date

ACKNOWLEDGEMENTS

This document has been prepared by Eco Logical Australia Pty Ltd with support from David Kirkland and Nicholas Ko (WSPT) and Angela Wang (Frasers).

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Abbreviations

Abbreviation	Description
APZ	Asset Protection Zone
AW	Alluvial Woodland
BC Act	NSW *Biodiversity Conservation Act 2016*
BCAM	Biodiversity Certification Assessment Methodology
BCC	Blacktown City Council
CMP	Construction Management Plan
CPW	Cumberland Plain Woodland and Shale-Gravel Transition Forest
DA	Development Application
DAWE	Department of Agriculture, Water and Environment
DC	Development Consent
DPE	Department of Planning and Environment
DPI	Department of Primary Industries
EA	Environmental Assessment
ECA	Eastern Conservation Area
ELA	Eco Logical Australia Pty Ltd
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPBC Act	Commonwealth *Environment Protection & Biodiversity Conservation Act 1999*
OEH	NSW Office of Environment and Heritage
OEMP	Operational Environmental Management Plan
OSD	Onsite Stormwater Detention
RFEF	River-flat Eucalypt Forest
SPW	Shale Plains Woodland, a component of Cumberland Plain Woodland
SSD	State Significant Development
VMP	Vegetation Management Plan
WCMS	Water Cycle Management Strategy
WoNS	Weed of National Significance
WSP	Western Sydney Parklands
WSPT	Western Sydney Parklands Trust
WSUD	Water sensitive urban design

1 Introduction

This Vegetation Management Plan (VMP) has been prepared by Eco Logical Australia Pty Ltd (ELA) on behalf of Western Sydney Parklands Trust (WSPT) for the protection, restoration and rehabilitation of Cumberland Plain Woodlands and Shale-Gravel Transition Forest ecological community (CPW - also termed native vegetation herein) associated within the proposed development of the Eastern Creek Retail Centre, Eastern Creek.

1.1 Background

The subject site is part of the Western Sydney Parklands, managed by the Western Sydney Parklands Trust (WSPT). WSPT have been managing bushland in the Parklands since 2009 and continue to manage the broad scale restoration of Cumberland Plain Woodland and other western Sydney ecological communities. This plan aims to satisfy the requirements of the Australian Government's Environmental Management Plan Guidelines, 2014 while overarchingly meeting the requirements and strategies of the Western Sydney Parklands Trust under the *Western Sydney Parklands Act 2006* (NSW), the *Western Sydney Parklands Plan of Management 2020*, which provides the approach to managing and developing all the parklands, and the *Western Sydney Parklands Biodiversity Strategy 2012 – 2020*, which is the focus for the Trust to meet its function under Section 12(2)(a) of the Act "to conserve, restore and enhance the natural environment of the Parklands" . WSPT has over 1,000 hectares of natural bushland assets and has a target to expand to 2,000 hectares through regeneration and revegetation.

This site is part of WSPT's long term project of biodiversity restoration works and this VMP will be incorporated into ongoing bushland management contracts and WSPT's long term management program.

1.1.1 Development scope and approvals history

The proposed development will provide a new retail centre comprising 52,800m² gross floor area including 'bulky goods premises'; 'large format retail premises', 'supermarket premises' and 'specialty shops/business premises'.

The development is listed as a State Significant Development under Part 4 (Division 4.1) of the *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act). The Minister for Planning approved this State Significant Development (SSD) on the 7th of January 2015.

A Section 96s Modification of Development Consent was approved by a delegate of the Minister for Planning on the 28th of April 2016.

The proposed development was determined to be a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) due to its impacts on the listed critically endangered Cumberland Plain Woodlands and Shale-Gravel Transition Forest ecological community. The development was approved by the Commonwealth Minister's delegate on 18 May 2015, subject to conditions.

This VMP was submitted to the then Department of Environment and Energy (DotEE) for approval, consistent with condition 2 of the condition of approval (EPBC 2012/6617). The VMP was approved by the Minister on 25 September 2018.

A subsequent variation to EPBC 2012-6617 was sought to remove the need to manage 0.73 ha of CPW (management zone 1a).

1.1.2 Previous reports

This VMP has been prepared upon the basis of reports prepared for the EPBC Act assessment, the SSD application and the Section 96s modification, including:

- *Ecological Assessment* (EA) *for the Eastern Creek Business Hub SSD* (ELA 2012)
- *Bushfire Protection Assessment – Subdivision & Early Works, Eastern Creek Business Hubs* (ELA 2012)
- *Eastern Creek, EPBC Assessment Report* (EPBC 2012/6617) (ELA 2014)
- *Easter Creek, Operation Environmental Management Plan (OEMP)* (ELA 2016)
- *Eastern Creek Construction Management Plan* (J. Wyndham Prince 2012a)
- *Eastern Creek, Water Cycle Management Strategy* (WCMS) *Report Incorporating Water Sensitive Urban Design Techniques* (J. Wyndham Prince 2012b)
- *Modification Request, Secretary's Environmental Assessment Report Section 96(2)* (DPI 2016)
- *Eastern Creek Business Hub Addendum to Ecological Assessments in support of s96 Application* (ELA 2015)

The VMP is also based off plans drawn after the DA by Henry and Hymas (2016) included herein as **Appendix A**.

1.1.3 Conditions of consent

This VMP has been prepared to meet both the Commonwealth and the State approval conditions identified below:

Condition B10: Vegetation Management Plan (VMP) under the Modification Request (s96) approval under the NSW *Environmental Planning & Assessment Act 1979* from 28th of April 2016, states:

> *Prior to the commencement of works, a VMP shall be provided to the Certifying Authority addressing the restoration and rehabilitation of the conservation areas including:*
>
> - *The eastern part of the site;*
> - *The existing man-made drainage channel 01 to basin 1 including endemic riparian native plants*
> - *Outside the development area including endemic native plants and additional Cumberland Plains Woodland; and*
> - *The retained woodland in the developable areas of the site.*
>
> *The VMP shall be in accordance with the criteria identified in the Vegetation Management Plan Guidelines, prepared by the Department of Water and Energy (February 2008) (note now outdated). The VMP is to be prepared by a suitably qualified person and should address but not be limited to the following:*
>
> *a) Provide details of vegetation to be retained and measures to protect vegetation during the construction and operation phases of the development;*
> *b) Identify areas to be rehabilitated and details of the vegetation species, composition, planting layout and densities of plants to revegetate these areas;*
> *c) Outline ongoing management arrangements, including but not limited to responsibilities, funding and long term maintenance; and*
> *d) Provide details of monitoring and timing of revegetation works within the retained vegetation and the areas to be revegetated.*

The plan is to span the entire project duration from pre-construction through to construction and post construction.

Condition 2 of the Commonwealth approval under the (EPBC Act) dated 18 May 2015, states:

To protect the remaining CPW on the project site, the approved holder must prepare and submit a management plan for the Minister's approval. The approval holder must not commence the action unless the Minister has approved the management plan. The approved management plan must be implemented prior to the commencement of the action. The plan must include actions to:

a) protect the remaining CPW from indirect impacts as a result of the action;
b) rehabilitate and restore remaining CPW on site; and
c) produce conservation outcomes to the benefit of CPW on the project site and the adjoining bushland.

Note: The management play may be included within a broader Western Sydney Parklands Trust plan of management.

1.2 Objectives of the VMP

The overarching objective of the VMP is to protect, rehabilitate and restore the native vegetation of the study area. The conservation of native vegetation in the VMP areas is to be undertaken in perpetuity, this VMP encompasses the pre-construction, construction and post construction stages, expected to be undertaken over a period of ten years or until performance criteria outlined in this VMP are met. Once performance criteria outlined in this VMP are met, the site will remain under management of the broader WSPT plan of management, including its Biodiversity Strategy, which will provide ongoing protection and management of the area.

Objectives are detailed in **Table 1**.

Table 1: VMP objectives

Objectives (environmental outcomes)	Approach
Improve ecological health and integrity	Control woody weeds and noxious weeds Revegetate with appropriate native species in keeping with the CPW ecological community Maintenance of weed control and gradual reduction to >40% of weed and exotic plant cover in 10 years Rectify poor drainage and hydrology to prevent further tree deaths Management of threats
Maintain and enhance habitat values	Protect existing native vegetation Weed control and gradual reduction to >10% of weed and exotic plant cover Increase native plant cover Management of threats

Objectives (environmental outcomes)	Approach
Stabilise creek bed and banks and maintain water quality	Minimise impacts of construction activities Ensure water quality is maintained Minimise the loss of native plant cover Utilise native vegetation planting to assist in stabilisation Management of threats

1.3 Implementation of works

WSPT have been managing bushlands on the Cumberland Plain since 2009, with extensive experience in the management of contractors undertaking bush regeneration and ecological restoration works. VMP implementation works will be undertaken within the WSPT wider program of bush regeneration / restoration works across the parklands. This VMP directs the first stage over works, with on-going works to be included within the WSPT program of CPW restoration and revegetation works within the parklands.

The implementation of this VMP and ongoing management is to be undertaken by experienced bush regeneration practitioners. Practitioners are to have team leaders / site supervisors having a minimum TAFE Certificate III in Land Management and membership of the Association of Australian Bush Regenerators (or having the necessary prerequisite qualifications and experience for membership).

The person managing the project will have a minimum of five years' experience in managing natural areas, have a relevant university degree or have access to such a qualified and experienced person for advice and guidance to ensure the implementation proceeds according to this VMP.

The responsibility for ensuring this VMP is implemented will be on WSPT. Roles and responsibilities for sub-contractors have been identified in the OEMP (ELA 2014) (refer Section 4 herein).

1.4 Responsibility

This section provides an overview of roles and responsibility with respect to the VMP (Table 2).

Table 2: Responsibilty for VMP works

Role	Responsibility
Western Sydney Parklands Trust Project Manager / Owner	• Overall responsibility for environmental management of the site • Communication of environmental features and VMP no-go areas to all contractors during procurement, induction, construction and maintenance • Review VMP monitoring and reporting • Responsible for rik management • Consult impacted community members prior to works • Manage and report complaints • Consult impacted community members prior to works (where applicable) • Respond to and report incidents
Principal Contractor	• Responsibility for environmental management of the site, as it relates to the construction of the stormwater infrastructure • Communication environmental features and mitigation measures to all sub-contractors during procurement, induction and works phase

Project Manager for construction	• Supervise sub-contractors to ensure implementation if in accordance with the VMP • Consult impacted community members prior to works • Manage staff and sub-contractors • Manage and report complaints • Respond to and report incidents
All contractor and sub-contractors	• All staff and sub-contractors are to complete site induction • Responsibility for carrying out works in accordance with this VMP • Monitoring and reporting of VMP implementation • Manage and report complaints to the Principal Contractor • Respond to and report incidents.

2 Description of the environment

2.1 Location

The site is bounded by the M7 Motorway to the East, the Great Western Highway to the South, Rooty Hill Road South to the West and Church Street to the North. The site lies within the suburb of Eastern Creek, in Blacktown Local Government Area. The site is part of the Rooty Hill Precinct, forming part of Western Sydney Parklands, which totals over 5,000 hectares of land at present.

The VMP area includes all vegetated areas to be managed under this VMP (Figure 1)**.**

2.2 Site description and previous land use

The VMP area, an area of 16.87 ha is largely flat and includes several remnant bushland areas, large open grasslands – the constructed drainage channel forms part of the development area, the eastern portion of the channel is existing and remains untouched. The two 'access roads' in the eastern portion of the site are maintenance tracks and can be assumed to be part of the VMP area not the development area. The majority of the open grassland areas have been utilised for grazing purposes and are heavily disturbed resulting to the prevalence of exotic pasture grasses and herbaceous weeds.

A high pressure gas main associated with the Jemena Gas Trunk Receiving Station in the south eastern corner of the site, traverses the site (**Figure 3**). The easement above the pipeline is managed by Jemena. Note that canopy trees in all adjacent VMP areas will require on-going management to ensure no branches encroach into the easement.

Two un-formed roads, Beggs Road and Belmore Road, are present. An application for closure of the Beggs and Belmore Roads easements has been submitted to *NSW Trade and Investment Crown Lands*.

2.3 Drainage and hydrology

As described in the Water Cycle Management Plan (J. Wyndham Prince 2012), the VMP area is generally low relief with a gradual grade from west to east. No naturally occurring waterways or drainage channels are retained onsite.

An existing man-made drainage channel which traverses the site from east to west, partially conveys flows from the upstream catchment under Rooty Hill Road South, across the VMP area and out via a culvert underneath the M7 via a culvert, eventually discharging into Eastern Creek. In larger events, flows will exceed the capacity of the culvert and surcharge across Rooty Hill Road South and the site (J. Wyndham Prince 2012). To the north, a smaller portion of the upstream catchment, discharges across the site, via no formalised channel, eventually discharging via the northern culvert underneath the M7. The existing hydrology onsite as mapped by J. Wyndham Prince is included in **Appendix B**.

Due to the impact on the hydrology of the site from the construction of the M7 and the cycleway, the eastern edge of the area includes several lower lying boggy areas, receiving runoff from the impermeable surfaces of the cycleway and the M7 motorway, as a result of impacted hydrology resulting from the installation of the M7.

At the time of the site inspection (4 May 2016) these areas contained standing water and were typically distinguished from surrounding pasture areas as they contained water tolerant species such as *Persicaria* spp. It was noted in the EA (ELA 2012) that several canopy trees have died as a result of the poor

drainage in these areas, these stags were evident on the day of the site inspection. The altered hydrology onsite has therefore impacted on the CPW in the north eastern portion of the site (Zone 1a).

2.4 Vegetation communities

Field studies undertaken by ELA in the preparation of the EA (ELA 2012) identified two native vegetation communities within the VMP area (**Figure 2**):

- Shale Plains Woodland (SPW), a component of Cumberland Plain Woodland (CPW)
- Alluvial Woodland (AW), a component of River-Flat Eucalyptus Forest (RFEF).

CPW is listed a 'Critically Endangered Ecological Community' under both the NSW *Biodiversity Conservation Act 2016* (NSW) (BC Act), replacing the former *Threatened Species Act 1995* and the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act).

RFEF is listed as an 'Endangered Ecological Community' under the TSC Act.

Not all of the CPW identified onsite meets EPBC criteria for Cumberland Plain Woodland (ELA 2012), those areas that do are identified in **Figure 2**. Areas that don't meet the EPBC criteria meet the TSC criteria for CPW. Vegetation management zones identified in this VMP have incorporated the original vegetation mapping (ELA 2012) and more recent observations of the condition of vegetation in the study area (ELA 4 May 2016). The more recent observations were utilised to ensure that the management techniques specified in this VMP were best suited to the condition of the vegetation present.

2.5 Weed species

The *Biosecurity Act 2015* (NSW) and regulations provide specific legal requirements for state level priority weeds (**Table 3**). Under the Act all plants are regulated with a general biosecurity duty to prevent, eliminate or minimise any biosecurity risk they may pose. Any person who deals with any plant, who knows (or ought to know) of any biosecurity risk, has a duty to ensure the risk is prevented, eliminated or minimised, so far as is reasonably practicable.

Specific legal requirements apply to State determined priorities under the *Greater Sydney Regional Strategic Weed Management Plan 2017-2022*. Weeds listed as 'other weeds of regional concern' under the plan warrant resources for local control or management programs and are a priority to keep out of the region. Inclusion in this list may assist Local Control Authorities and/or land managers to prioritise action in certain circumstances where it can be demonstrated the weed poses a threat to the environment, human health, agriculture etc.

Of the 39 weeds recoded onsite in the EA (ELA 2012), nine species are listed as state level weeds and as Weeds of National Significance (WoNS), with a further three listed as weeds of regional concern, as presented in **Table 3**.

Table 3: Priority weeds, identifying Weeds of National Significance (WoNS)

Scientific name	Common name	*Biosecurity Act 2015*	WoNS
State level priority weeds (whole of state)			
Alternanthera philoxeroides	Alligator Weed	Containment	Yes
Anredera cordifolia	Madeira vine	Asset Protection	Yes
Asparagus aethiopicus	Ground asparagus	Asset Protection	Yes

Scientific name	Common name	*Biosecurity Act 2015*	WoNS
State level priority weeds (whole of state)			
Asparagus asparagoides	Bridal Creeper	Asset Protection	Yes
Lantana camara	Lantana	Asset Protection	Yes
Lycium ferocissimum	African Boxthorn	Asset Protection	Yes
Opuntia stricta	Common Prickly Pear	Asset Protection	Yes
Rubus fruticosus agg. spp.	Blackberry	Asset Protection	Yes
Senecio madagascariensis	Fireweed	Asset Protection	Yes
Other weeds of regional concern			
Cortaderia selloana	Pampas Grass	Asset Protection	-
Hypericum perforatum	St John Wort		-
Ligustrum sinense	Narrow-leaf Privet		-

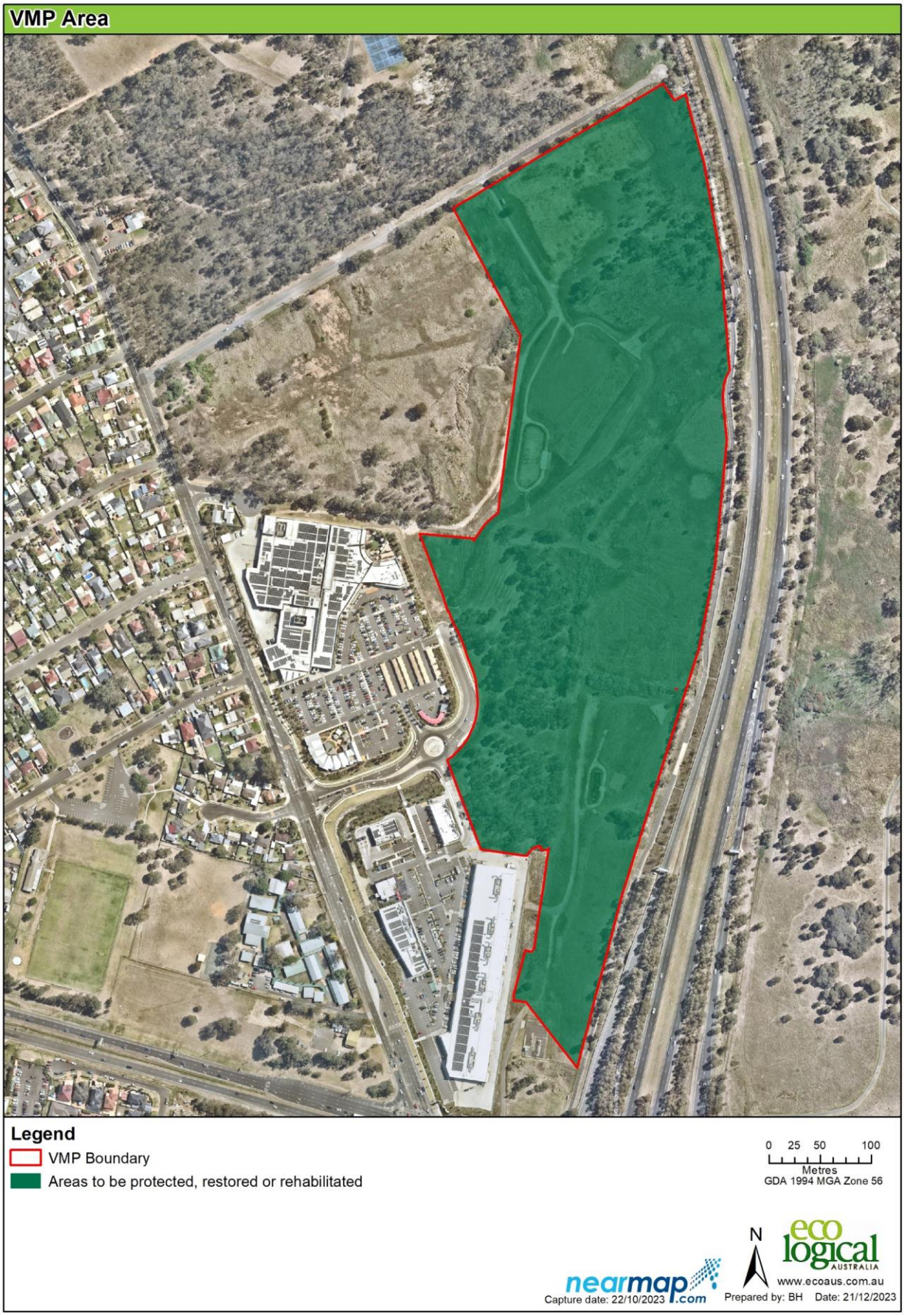

Figure 1 - VMP Area

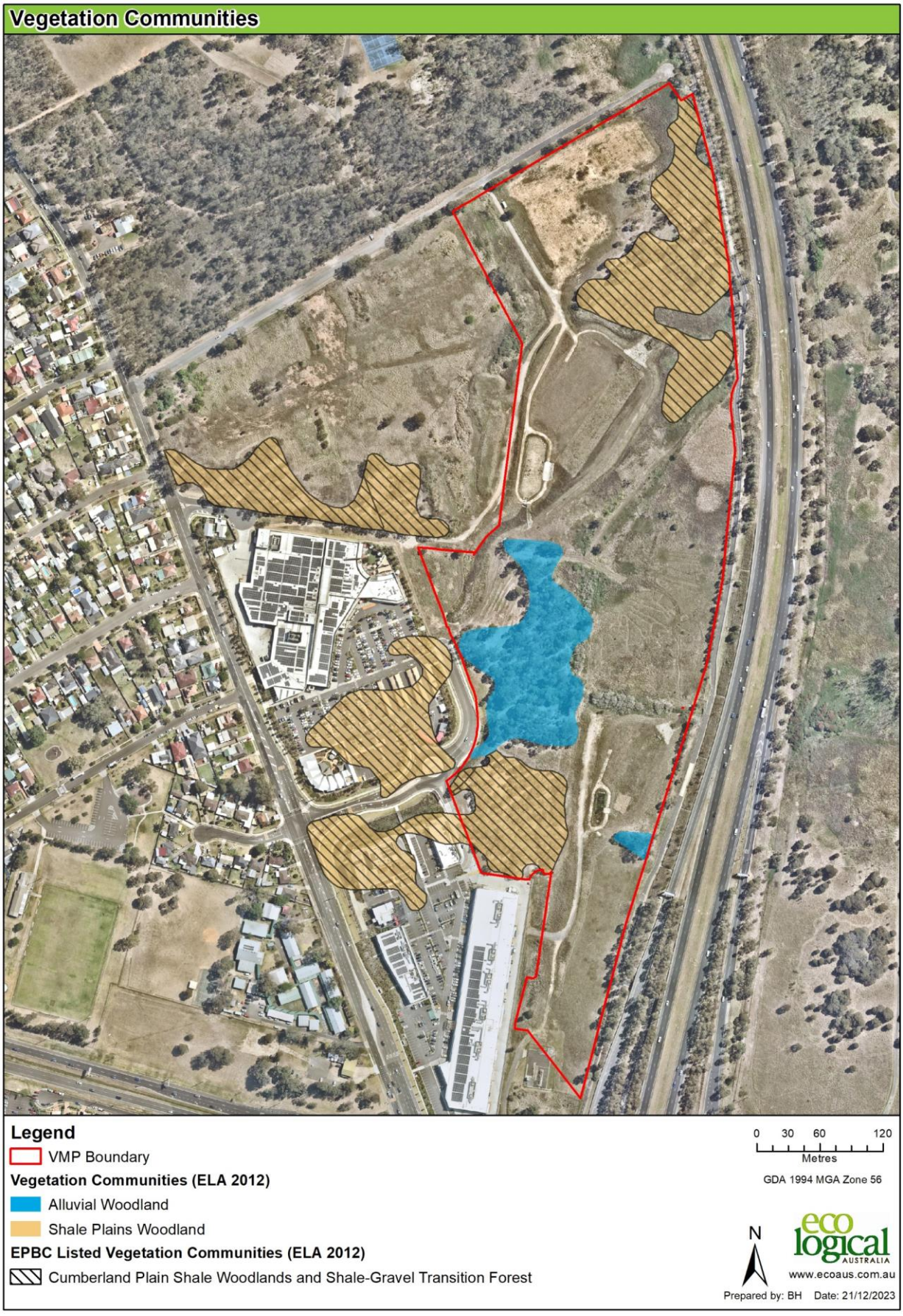

Figure 2: Ecological communities

3 Existing and potential future impacts to CPW

3.1 Existing impacts to CPW

As identified in the EA (ELA 2012) & EPBC Act assessment report (ELA 2014), the existing CPW onsite is generally found to be in a stressed state. A total of 63 flora species were identified, of which 35 were native and 28 were exotic or introduced. The CPW is highly fragmented in its current form, aerial photos from 1943 show the site was largely cleared and as such the CPW onsite is largely comprised of regrowth. Overall the CPW onsite scored a BCAM score of 4/10, as a result of:

- Psyllid induced Grey Box dieback
- Periods of drought followed by heavy rains and subsequent waterlogging
- Historic landuse – clearing and grazing
- Proliferation of priority / exotic weeds
- Fragmentation of habitat
- Environmental stochasticity
- Compaction and erosion of topsoil
- Vicinity to residential development and infrastructure
- Increased accumulation of sediment and nutrient within drainage depressions
- Limited mature vegetation, primarily regrowth only on site

3.2 Potential direct and indirect impacts on CPW resulting from proposed development

3.2.1 Direct impacts

Direct impacts on vegetation cover and loss of CPW and habitat has been evaluated in the EPBC Assessment Report (ELA 2014), and include the complete loss of up to, but no more than, 2.1 ha of CPW.

3.2.2 Indirect impacts

Indirect impacts of the development as identified in the EPBC assessment report (ELA 2014) on the retained CPW include:

- Weed invasion
- Noise pollution and vibration
- Light pollution
- Edge effects, including
    - Runoff from construction containing nutrients, sediments and other pollutants
    - Inappropriate water, sewer and stormwater management leading to erosion
    - Unauthorised access into conservation areas machinery from construction
    - Introduction and spread of weeds and exotic species
    - Unauthorised access into conservation areas increased disturbance from pedestrian access
    - Spread of litter and rubbish

4 Management of construction impacts

4.1 Responsibility

The responsibility for ensuring this VMP is implemented will be on WSPT. Roles and responsibilities for sub-contractors have been identified in the OEMP (ELA 2014).

4.2 Management of construction impacts

Construction management actions to be undertaken by the successful civil construction company under the direction of WSPT are provided below.

4.2.1 Edge effects

The management of edge effects will focus on buffering retained / remaining areas of native vegetation (classified as Zone 1 in **Figure 3**) from construction impacts. This will include:

- Fencing off retained areas of native vegetation during construction, to ensure no impacts from machinery
- Sediment and erosion control
- Installation of WSUD designs to reduce flooding
- Weed control
- Revegetation activities will focus on lining isolated vegetation stands, including planting a dense buffer around retained CPW areas with Bladey Grass (*Imperata cylindrica*), Tall Sedge (*Carex appressa)* or similar robust species from the CPW ecological community.

4.2.2 Fencing

Temporary construction fencing

WPST and its contractors shall be responsible for the installation of all temporary construction fencing to ensure construction activities do not impact onto conservation areas. Temporary construction fencing is to adhered to *AS4970 – 2009 Protection of trees on development sites*. Temporary fencing to be comprised of temporary stakes and high vis. Orange 'para webbing' or similar to clearly identify the boundary between construction activities and vegetation management works and around trees to be retained in the construction area. The aim of this is to prevent any damage to native vegetation in the VMP area from construction activities and excludes all construction machinery, activities, materials and staff from the VMP area. The developer shall also be responsible for the removal of all construction fencing after construction works are completed.

Permanent fencing & signage

As identified in the EPBC Act assessment report (ELA 2014), once temporary fencing is removed, permanent fencing will be immediately established around the perimeter of the VMP area to stop illegal access and dumping. Fencing of internal zones such as the gas easement will not be required. Perimeter fencing will allow access for WSPT parkland manager and sub-contractors and emergency vehicles only. The fencing style will at a minimum consist of rural style fencing and gates, consisting of treated timber posts set into concrete flooring and star picket posts with 3 or 4 strands of galvanised wire running between as indicated in the WSP Design Manual. Signage will state that the VMP areas are restricted access and only authorise personnel are permitted entry.

All fencing will be monitored and maintained as required to ensure it controls access to vehicles, grazing animals and the general public. Monitoring would occur when the VMP is being implemented. Broken

fence pailings, wires or holes in the fence that would allow unauthorised persons into the VMP area would require maintenance.

4.2.3 Sediment and erosion control

Sediment and erosion control will be implemented as per the CMP (J. Wyndham Prince 2012a), the OEMP (ELA 2016) and as per the *Managing Urban Stormwater – Soils and Construction Volume 1 2004* (Landcom) 'The Blue Book'.

4.2.4 WSUD design and stormwater asset management

It is expected that the installation and management of water management infrastructure be created as per the WCMS and modifications included in 96s approval. Bulk earth work plans have been included, which show earthworks required for stormwater infrastructure as **Appendix A** (Henry & Hymas 2016).

Water sensitive urban design (WSUD) features have been incorporated into the development including:

- Vegetated swales incorporated into general landscape
- Vegetated filter strips located within open areas / parks adjacent to and upslope of riparian corridors
- Gross Pollutant Traps (GTP's) strategically located at outlet of stormwater drainage systems
- Bio-retention (filtration) basins
- Rehabilitation of natural drainage channels incorporating stormwater treatment measures

The WCMS (J. Wyndham Prince, 2012b) identifies that post development, the installation of WSUD designs including retention and bio retention basins would largely ameliorate the impacts from the development on the stormwater entering into the VMP area and downstream into Eastern Creek, and would ensure:

- 90% reduction of average annual gross pollutant load (>5mm)
- 85% reduction of average annual Total Suspended Solids (TTS) load
- 65% reduction of average annual load of Total Phosphorus (TP)
- 45% reduction of average annual load of Total Nitrogen (TN)
- 90% reduction of average annual Total Hydorcarbons load

Previous development and construction of the M7 motorway has affected the water flow within the locality which has caused water logging in some isolated areas. These drainage measures are designed to alleviate the water logging and redirect overland flows through/under the M7. These measures would significantly reduce the amount of standing water onsite and contribute to ameliorating poor drainage issues. These measures would improve drainage onsite generally by improving the holding capacity of existing channels and formalising drainage channels through the ECA area. Coupled with the planting of specific tolerant species in areas that would be subjected to increased water flow (basins, swales and channels) these measures would mitigate the impacts of water inundation.

The installation of these basins is expected to occur within the initial establishment period of works, with revegetation immediately following creation, as identified in **Table 5**. The expected construction timeframe of the Northern Basin will be completed with opening of Lot 2 (estimated Jan 2020), with Southern Basin completed concurrently.

All WSUD basins, swales and channels within the VMP area will be revegetated with native sedges and rushes, to form native wetlands as per specifications included in **Section 5.3.**

Note that the existing man made channel running through the site would be retained, and as such the *Erythrina crista-galli* (Coral Tree) will need to be appropriately treated once removed, with no mulch to be retained onsite.

4.2.5 Weed control & revegetation

Weed control and revegetation is detailed further in **Section 5**.

4.3 Other management actions

Other management actions that do not form part of the VMP, but that are expected to support the objectives of the VMP areas are identified below.

4.3.1 Bushfire risk management / APZ vegetation management

Asset Protection Zones (APZ) are excluded from the VMP area, and no management of the VMP area for bushfire risk is required Bushfire Protection Assessment (ELA, 2012).

4.3.2 Community education and involvement

Community and school students involvement in bushland management will be incorporated in WSPT's programs as part of any wider Parklands programs, which provide a forum for the community to actively participate in caring for their local bushland.

4.3.3 Psyllid die back

Eucalyptus moluccana (Grey Box) die back has been previously experienced onsite and throughout the greater western Sydney area as a result of Psyllid infestations. Improvement of the condition onsite for Grey Box and other CPW canopy species including improvements to drainage, weed control are expected to improve the onsite condition for these trees. To ensure the native canopy is not lost in any future die back events, Grey Box is to make up no more than 35% of planting mix as per the WSPT Biodiversity Strategy.

4.3.4 Earthworks and habitat management

When clearing areas of existing vegetation within the development footprint, all earthworks and tree removal must be undertaken by an experienced contractor and as per the Operational Environmental Management Plan (OEMP) (ELA 2016). All native timber is to be retained onsite, with mulch stockpiled for use within conservation areas, all viable seed collected and all timber cut into logs to be utilised as habitat for native fauna. All nest boxes are to be installed into Zone 1.

4.3.5 Pest control

Control of *Vulpes vulpes* (European Red Fox), *Oryctolagus cuniculus* (European Rabbit) and domestic cats, will be undertaken by WSPT if/where required. These species have been previously recorded in WSP (WSP 2013), but not specifically on site. Control measures would be undertaken as needed by WSPT/contractors and would be in accordance with the WSPT Biodiversity Strategy in consultation with Local Land Services (LLS). WSP would employ contractors to specifically control the European Rabbit to prevent damage to new groundcover plantings or regrowth. Foxes are not considered a concern to the implementation of the VMP given the major threat presented by foxes is predation of native fauna.

5 Vegetation management zones and works

Three vegetation management zones have been identified based upon works required (**Figure 3**):

- Zone 1: Regeneration (restoration)
- Zone 2: Revegetation
- Zone 3: Revegetation - wetlands

Zone 1 includes the areas specified in Annexure 1 of the EPBC approval notice as “CPW to be conserved” and “CPW to be restored”.

All CPW regeneration, revegetation and maintenance works are to be undertaken as per best practice techniques including the *Cumberland Plain: Best Practice guidelines for the management and restoration of Bushland* (Department of Conservation 2005) and the *National standards for the practice of ecological restoration in Australia* (Society of Ecological Restoration, 2017).

Further description of these areas and works required is provided below.

5.1 Zone 1: Regeneration (restoration)

Zone 1, an area of 4.95 ha comprises bushland remnants within the VMP area, to be regenerated to RFEF and CPW ecological communities. Weed levels are moderate to low within these areas. The zone has been sub-divided into five zones, which have been further described in greater detail below:

5.1.1 EPBC and BC listed vegetation

Undertaking works in these areas will satisfy the EPBC Act and BC approval conditions:

Zone 1a

Deleted

Zone 1b

Zone 1b comprises a 1.46 ha remnant patch of CPW in poor to moderate condition. Native canopy trees are present, native mid-storey species and native groundcovers.

Weeds in this area are present mainly in the lower strata layers including but not limited to Blackberry, Bridal veil creeper, Cobblers pegs, Paspalum, Pigeon grass, Purpletop. Weeds comprised < 50% of the groundcover in this zone (ELA 2012).

Zone 1c

Zone 1c, comprises a 2.17 ha CPW remnant, largely in good condition. Native canopy trees are young appearing to be recovering from an unknown disturbance event, *Bursaria spinosa* is present in the mid-storey and native grasses are present, including *Brunoniella australis*, *Dichondra repens, Microlaena stipoides* and *Themeda australis.*

The main weeds within the area are brambly woody weeds, climbers, exotic grasses and herbaceous groundcovers including *Asparagus plumosus* (Climbing asparagus), *Cynodon dactylon* (Couch), *Setaria* spp. (Pigeon grass), *Sida rhombifolia* (Paddy’s Lucerne), *Paspalum dilatatum* (Paspalum), *Verbena bonariensis* (Purpletop), *Solanum pseudocapsicum* (Winter Cherry), *Eragrostis curvula* (African Love

Grass), *Rubus fruticosus* agg. spp. (Blackberry) and *Rosa rubiginosa* (Sweet Briar). Weeds comprised > 50% of the groundcover in this zone (ELA 2012).

Some old fencing is present throughout the area.

5.1.2 BC listed CPW & RFEF:

Undertaking works in these areas will complete BC conditions, EPBC conditions do not apply to these areas:

Zone 1d

Zone 1d comprises a 1.23 ha RFEF in moderate / good condition. Native canopy trees are present including *Melaleuca sp.* and includes native mid-storey species and native groundcovers.

Weeds in this area are present mainly in the lower strata layers including but not limited to Blackberry, Bridal veil creeper, Cobblers pegs, Paspalum, Pigeon grass, Purpletop. The man-made drainage channel running through the zone is dominated by *Erythrina crista galli* (Cockspur coral tree) and *Cardiospermum grandiflorum* (Balloon vine).

Zone 1e

Zone 1e comprises a 0.12 ha 'island' remnant of RFEF, surrounded by pasture areas (Zone 2). The zone is in good condition with *Melaleuca decora, Eucalyptus eugenioides* in the canopy, *Bursaria spinosa* in the mid-storey and *Microlaena stipoides* as groundcover. The zone is threatened by weed invasion from pasture areas, from weeds such as Kikuyu, Paspalum and Rhodes grass.

5.1.3 Weed control

Weed control will be required to enable native species to regenerate. The site currently retains approximately eight (8) noxious weed species, along with a further thirty-one (31) exotic species known to occur on site at time of survey. The majority of noxious weeds (Lantana, Blackberry and Pampas) were recorded in the exotic pasture zones, while one species (African Boxthorn) was recorded in the patch of Alluvial Woodland in the middle o the site. Weed control measures have been based on the type of weeds present and their abundance in each zone. In general works in these areas will include:

- Priority weed control, particularly of Blackberry in the spring /summer months
- Primary weed control of all woody and vine weeds, drilling and filling Coral trees along the man-made drainage channel
- Implementation of a regular program of works targeting exotic groundcovers

The principles of weed control / bush regeneration and techniques to trigger natural regeneration are to be in accordance with the Bradley Method and as described in Buchanan (2000) and the National Trust's *Bush Regenerator's Handbook* (Brodie 2012). Weed control actions and timeframes will be undertaken as part of the wider site management regime. New and emerging weed control techniques may be used if they are showing success in other parts of the parklands.

5.1.4 In-fill and buffer planting

After initial weed control activities, these areas are expected to naturally regenerate with native species and this is expected to take a very long period of time (at least 10 years). However as they have been degraded for a long period of time it is expected that many species, in particular from the shrub and ground layers will not naturally regenerate. Therefore, these will be introduced back into the area either as niche or direct seeding or in-fill plantings.

At the completion of primary and secondary weed control, i.e. at the end of Year 3, WSPT and the bush regeneration contractor will assess the need for revegetation to ensure the site is progressing to the long term site average BioMetric benchmarks. Required plantings will be installed in the shoulder months (Spring and Autumn) of Year 4 & Year 5 and target gaps in diversity and cover of species such that the zone will achieve an average site score of BioMetric Benchmark 2 (refer Table 4).

Around the areas of remaining CPW, where adjoining areas of disturbance such as the gas easement or development works, at the completion of development and removal of construction fencing and sediment control fencing, dense *Imperata cylindrica* (Bladey grass) (or similar robust and dense growing species from the CPW ecological community) is to be planted to provide a vegetative buffer to the CPW as a "make good" following the removal of the development controls. The vegetative buffer would assist in mitigating any indirect impacts (such as weed invasion) that may occur as a result of the development or management of neighbouring easements.

All plantings will be matched to the corresponding ecological community as identified in **Figure 2**, from the planting list contained in **Appendix C**. If practitioners wish to change species from this list, they need to provide a justifiable and scientifically based explanation for doing so to the WSPT for its consideration and approval. For areas subject to the EPBC approval (zones 1a, 1b and 1c), species will not deviate from what is acceptable for the *Cumberland Plain Woodlands and Shale-Gravel Transition Forest* ecological community.

5.2 Zone 2: Revegetation

Zone 2, an area of 9.59 ha comprises the areas of site that will require revegetation, including proposed batters, the gas line easement and areas currently dominated by pasture grass, with few native shrubs or trees present. These areas will complete BC conditions only.

These areas are currently largely comprised of exotic pasture grasses and are in very poor condition, with very few native species present. Exotic grass weeds include *C. dactylon*, *C. gayana, E. curvula, P. clandestinum* and *P. dilatatum* and annual and perennial herbaceous weeds including *B. pilosa, S. rhombifolia, Senecio madagascariensis* and *V. bonariensis.*

The gas line easement is largely devoid of native trees and shrubs, which have been and will continue to be cleared of shrub and tree vegetation by external contractors.

5.2.1 Revegetation and weed control

Priority weeds will be controlled in this zone, particularly Blackberry which is to be treated when actively growing in spring /summer. Exotic grasses and annual and perennial herbaceous weeds will be controlled prior to seed set. To be achieved by slashing, spraying or a combination of both techniques. Weed control techniques will be utilised in conjunction with revegetation strategy (below) to improve the zone from pasture to Cumberland Plain ecological communities. All weed control activities will be undertaken as per Brodie (2012) and Buchanan (1990).

Given the low resilience in this zone, revegetation will be required. Several potential weed control and revegetation techniques will be undertaken within this area, and it shall be left to the bush regeneration contactor in consultation with WSPT, and as directed by the WSPT *Biodiversity Strategy*, to determine the technique or techniques to be used based on the conditions at the time of works.

The revegetation strategy decided upon, will work towards achieving a sustainable level of native vegetation, as measured using the BioMetric benchmarks (**Table 4**) for the relevant vegetation type. Revegetation efforts will also focus on the connection of isolated vegetation islands (Zone 1). This will

be undertaken by planting in dense nodes or corridors to facilitate connectivity for native fauna and flora, which will be undertaken over a number of consecutive years, in order to progressively increase the converage of native vegetation onsite.

A range of methodologies are emerging for successful revegetation on the Cumberland Plain and contractors are developing their own specific expertise and techniques. No one technique is prescribed in this VMP, however best practice will be applied as noted above. Three potential methodologies have been identified as below:

1. Direct seeding with an integrated mulch matrix product
2. Tubestock planting of trees, shrubs and groundcovers
3. Tubestock planting of trees and shrubs only

This last approach may be undertaken to shade out exotic pasture species and change the habitat to promote native groundcover regeneration. This is a longer term strategy (i.e. 10 years) and also assumes that there is sufficient native seed present in the soil profile to respond to the changing conditions. Allowance will be made for supplementing native seed if this is not the case. If sufficient native seed is not present in the soil profile, planting would be supplemented by tubestock planting (as per (2) above) and/or introduction of native seed from commercial sources.

Prior to revegetation site preparation works will be required, as identified below:

1. Direct seeding with an integrated mulch matrix product would require:
    a. Scraping the top 100 mm of soil and pasture weeds
       Note. These techniques require earth moving machinery.
2. Tubestock planting of trees, shrubs and groundcovers would require:
    a. Scraping or spraying all pasture grasses and weeds
    b. Mulching the planting areas with at least 100 mm of native mulch
3. Tubestock planting of trees and shrubs would require:
    a. Clearance of pasture areas by slashing and spraying, plants to be installed as either individual plantings or as clumps of plantings

Prior to revegetation, the relevant practitioner is to visually assess the soil. If soil is comprised of heavy clay, it is recommended that for methods 1 and 2, after scraping / spraying, the soil is ripped and tilled, with addition of gypsum as required to break up the clay and to allow the roots to penetrate. Whilst, best practice guidelines for recovering CPW do not identify ripping for the recovery of CPW, ELA's and WSPT extensive experience in the Cumberland Plain have identified that soil improvement actions including ripping, in heavily degraded areas, as in areas dominated exclusively by exotic pasture is crucial in the success of CPW restoration programs.

All areas will need to be revegetated with species from the appropriate vegetation community being emulated as shown in **Appendix C.**

5.2.2 Gas line easement

The gas line easement will be weeded principally via spot spraying to ensure the exotic species within the area do not become a source of weed invasion into other areas and to facilitate native grass regeneration to achieve a CPW Derived Native Grassland (DNG) condition. As required, native grass regeneration / recruitment will be enhanced with broadcasting seeding onto bare areas. No soil disturbance is recommended in this area, any soil disturbance in the gas line easement would require a '*Dial before you dig*' search.

5.3 Zone 3: Revegetation - wetlands

Zone 3, an area of 2.35 ha comprises the areas to be constructed and revegetated to native wetland including the channel base within constructed creek swales and the base of the OSD (onsite stormwater detention) / Bioretention basins. These areas will complete BC conditions only.

5.3.1 Site preparation and erosion control

The civil contractor will be responsible for ensuring that the final landforms are to design and of a soft friable top soil or alternative substrate suitable for planting into.

This zone will be covered in heavy weight jute matt (>850g/m2) in swales and areas of high erosion potential. Within the bio retention basin, jute matting is not to be used as it interferes with filtration. Jute matt is to have a minimum 150mm overlap with overlaps facing downstream.

5.3.2 Revegetation & weed control

These areas will be revegetated with native sedges and rushes, reminiscent of the Freshwater Wetlands vegetation community as identified in **Appendix C.**

Planting is to occur immediately after the construction of these areas, requiring a high level of maintenance within the first two to three years post planting.

Figure 3: Vegetation management zones

6 Project staging and performance criteria

6.1 Timeframes and staging

The VMP area is to be managed for conservation purposes in perpetuity. The VMP covers a 10 year period, commencing from January 2021 and expected to be complete in December 2030, divided into an establishment period for the first three years, followed by maintenance. Construction is expected to be undertaken in stages as identified in the EPBC assessment report (ELA 2014).

Once the VMP is approved, the Trust's current bush regeneration practitioner will incorporate a program of works into the Trust's existing Bushland Management contract to meet the performance criteria listed below. The program of works will be guided by the development works at the site, the term of the Trust's Bushland Management contract, the methodology chosen by the contractor in consultation with the Trust and this ten year VMP.

An indicative timeframe for the first five years has been shown in **Table 5**, further management would largely concentrate on maintenance weed control and monitoring at identified periods, and taking corrective/adaptive management actions as necessary (for example re-establish any unsuccessful revegetation attempts).

6.2 Performance criteria

The performance criteria to be achieved by end of the establishment period and by the end of maintenance period of this ten year VMP works are identified in **Table 6** and **Table 7**. The maintenance period provides for bi-annual targets to allow for native resilience and provide flexibility in the on-ground approach. Adaptive management techniques will be used to ensure that longer term maintenance targets can be delivered in a manner that meets the overarching strategy outcomes, while accounting for the likely changes to the vegetation in the site once drainage affected areas are managed (namely the ECA).

If monitoring indicates that the VMP tasks are not resulting in achievement of the performance criteria, the task program or methodology will be revised to ensure achievement of these performance criteria.

6.2.1 Biometric benchmarks

Native Vegetation Integrity Benchmarks (or Biometric benchmarks) have been developed by OEH for the composition, structure and function of vegetation communities, based upon the best-on-offer condition for the same vegetation type in the contemporary landscape.

Biometric benchmarks for the two ecological communities identified onsite are identified in **Table 4**.

WPST are committed to achieving Biometric benchmark 2 conditions, i.e. achievement of between 50% - 100% of the benchmarks for all of their precincts within their Biodiversity Strategy. Further commitments to achieving biometric benchmarks for this site are identified in **Table 6**.

Table 4: Biometric benchmark

PCT	Vegetation Community	Vegetation species richness*			Vegetation cover (%)*		
		Canopy	Shrub	Groundcover	Canopy	Shrub	Groundcover
849	Shale Plains Woodland	5	8	34	52%	18%	77%
835	River Flat Eucalypt Forest	4	8	20	21%	21%	78%

* *Based on monthly average following average rainfall year. Note: groundcovers include grasses and forbs but does not include ferns or other vegetation types within the groundstorey strata.*

Table 5: Indicative schedule of VMP works (first five years)

Zone	Treatment	Establishment												Maintenance							
		Year 1				Year 2				Year 3				Year 4				Year 5			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
All zones	Install construction fencing																				
	Install sediment and erosion control																				
	Install permanent fencing																				
	Seed collection																				
	Habitat enhancement																				
	Progress reporting																				
	Monitoring and reporting	BL																			
Zone 1: Regen	Primary weed control																				
	Secondary weed control																				
	Revegetation assessment																				
	Infill planting *as required*																				
	Maintenance weed control																				
Zone 2: Revege.	Priority weed control																				
	Site preparation																				
	Revegetation*																				
	Irrigation																				
	Revegetation maintenance																				

Zone	Treatment	Establishment												Maintenance							
		Year 1				Year 2				Year 3				Year 4				Year 5			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Zone 3: Revege - Wetlands	Construction																				
	Site preparation & jute matting																				
	Revegetation																				
	Irrigation																				
	Revegetation maintenance																				

**following revegetation in Zone 3 to ensure all major earthworks are off site*

Table 6: Performance criteria – establishment

Treatment Zones	Establishment		
	Year 1	Year 2	Year 3
All	Commencement or completion of all tasks outlined in the VMP Management of priority weeds as per statutory regulations. No Blackberry patches over 4 m² Revegetation is to be undertaken with a minimum of 60% of the benchmark levels for species diversity provided in **Appendix C** At one year post planting, a minimum of 80% survival rate of all vegetation strata planted in each zone (e.g. tree, shrub and groundcover) Any localised plant failure within planting areas are addressed with no area larger than 2 m x 2 metres without surviving plants at one year post planting; Maintenance replanting is to replace plants with the same growth form (i.e. tree for tree etc.) and must not decrease species diversity. Any new species to be planted must be from the community being emulated and of local provenance or of provenance for climate change adaptation if required. Monitoring and reporting undertaken in accordance with **Section 7**		
	100% initial treatment of woody and exotic weed species.	Woody weeds and exotic vines to be less than 10% cover, not allowed to set seed and no establishment of new species	Woody weeds and exotic vines to be less than 5% cover, not allowed to set seed and no establishment of new species
	Exotic ground covers 70% of original extent	Exotic ground covers 65% of original extent	Exotic ground covers 60% of original extent
	Native vegetation cover no less than 40% of biometric benchmark	Native vegetation cover no less than 50% of biometric benchmark	Native vegetation cover no less than 60% of biometric benchmark

Table 7: Performance criteria - maintenance

Treatment Zones	Maintenance*			
	Year 4	Year 6	Year 8	Year 10
All	Commencement or completion of all tasks outlined in the VMP Management of priority weeds as per statutory regulations. No Blackberry patches over 4 m² Revegetation is to be undertaken with a minimum of 60% of the benchmark levels for species diversity provided in **Appendix C** At one year post planting, a minimum of 80% survival rate of all vegetation strata planted in each zone (e.g. tree, shrub and groundcover) Any localised plant failure within planting areas are addressed with no area larger than 2 m x 2 metres without surviving plants at one year post planting; Maintenance replanting is to replace plants with the same growth form (i.e. tree for tree etc.) and must not decrease species diversity. Any new species to be planted must be from the community being emulated and of local provenance or of provenance for climate change adaptation if required. A demonstrated increase in native cover and diversity and a demonstrated decrease in exotic cover and diversity by the end of the maintenance period Monitoring and reporting undertaken in accordance with **Section 7**			
	Woody weeds and exotic vines to be less than 2% cover, not allowed to set seed and no establishment of new species	Woody weeds and exotic vines to be less than 2% cover, not allowed to set seed and no establishment of new species	Woody weeds and exotic vines to be less than 2% cover, not allowed to set seed and no establishment of new species	No woody weeds or exotic vines present and no establishment of new species
	Exotic ground covers 55% of original extent	Exotic ground covers 50% of original extent	Exotic ground covers 45% of original extent	Exotic ground covers 40% of original extent
	Native vegetation cover no less than 65% of biometric benchmark	Native vegetation cover no less than 70% of biometric benchmark	Native vegetation cover no less than 75% of biometric benchmark	Native vegetation cover and species diversity no less than 80% of biometric benchmark

**bi-annually to coincide with vegetation monitoring periods*

7 Monitoring and reporting

Monitoring and reporting is to be incorporated into the Trust's wider program of restoration and revegetation which is to be undertaken in perpetuity. Information gained through the monitoring and reporting process will identify works that have and have not been successful, and the reasons for their success or failure.

The aim of monitoring is to measure the effectiveness of the VMP actions being undertaken to achieve the desired objectives It will identify non-conformance and provide the land manager with the ability to implement corrective actions. Information derived from the results of monitoring will also be used in adaptive management (i.e. learning from past experience to inform future priorities and work plans). For example, as annual grass weeds are removed, herbaceous and perennial weeds may establish.

Finally, monitoring and reporting will help determine and quantify the costs related to weed management and the cost effectiveness of the VMP works.

7.1 Monitoring

Monitoring will be undertaken by vegetation surveys and photo monitoring. Monitoring will be undertaken prior to works being commenced to establish a benchmark for performance, and then will formally occur yearly through the establishment period (Year 1 to 3) then bi-annually until the VMP is fully implemented (Years 4 - 10). More frequent monitoring for years 1 to 3 is not recommended because the implementation of the management actions take time to take effect, and bi-annual monitoring would not reflect any changes in the community or results of implementing the VMP. Monitoring through contractual management and to assist adaptive management is to occur during summer (from November) approximately two weeks after a substantial rain event (25mm min). Monitoring will be undertaken and results will be included in reporting of the wider Western Sydney Parklands Biodiversity Monitoring Program.

Vegetation surveys recording native and weed species richness and abundances will be undertaken within permanent plots within the work site at regular intervals during the contract period to track the progress of works and trigger any necessary changes in management technique where required.

Module 1 of the NSW Native Vegetation Interim Type Standards methodology will be used.

Photo monitoring points will be set-up using a permanent reference point to provide a visual reference of changes in the vegetation. Additional photo monitoring is to occur prior to and on completion of any major intervention or activity such as primary weed clearing or revegetation as a record of work undertaken.

The vegetation survey data will be stored in the VIS Flora Survey database which is available on-line as a module of the new NSW Wildlife Atlas. In addition to the above, bush regeneration site supervisors are required to have traversed all reaches of the site annually and include any erosion points, weed infestations or other management issues.

The monitoring reports would be appended to the annual compliance report submitted each year.

7.2 Progress reports

Progress reports on the implementation of this VMP will be developed in accordance with Module 1 of the NSW Native Vegetation Interim Type Standards and would be published on an annual basis until the

completion of the project. Progress reports are provided by the contractor responsible for implementing the VMP. This reporting includes the implementation of the monitoring actions specified in **Section 7.1**. In addition to a description of the works (revegetation and revegetation activities) that have been undertaken, the progress report is to address the following:

- What VMP activities have been successfully completed?
- What are the outcomes of the management activities?
- What measures, if any, were required as adaptive management?
- What outstanding and or new issues need to be addressed and how they will be addressed?
- What is next year's annual program, including any adaptive management actions?

7.3 Adaptive management

As this is a long term project that will be implemented over a number of years, an adaptive management approach will be implemented that enables the successful practitioner to learn from and respond to successful and unsuccessful techniques used on the site. In its simplest form this may include the substitution of species identified in the planting table or for undertaking advanced direct seeding techniques in place of manual planting techniques for revegetation.

Practitioners have the flexibility to implement different techniques to those specified here providing that the objectives and the performance criteria are met within the ten year timeframe.

In accordance with Condition 9 of the Commonwealth approval, if WSPT or contractors wish to carry out any activity otherwise than in accordance with this management plan once approved by the Minister, then WSPT must submit to the Department for the Minister's written approval, including a revised version of the management plan. The varied activity (major departure) shall not commence until the Minister has approved the revised plan unless the revised plan would result in an equivalent or improved environmental outcome over time.

7.4 Corrective actions and VMP review

If monitoring indicates that performance criteria are not being met then WSPT as the approval holder will be required to ensure that corrective actions are taken to ensure that the performance criteria can be met. Any variance to performance criteria would be seen as a major departure from the Ministers approval of this plan and would require revision of approval as noted above.

At the conclusion of the ten year VMP period, this VMP will be reviewed, and management approach will be incorporated into ongoing bushland management contracts and WSPT's long term management program.

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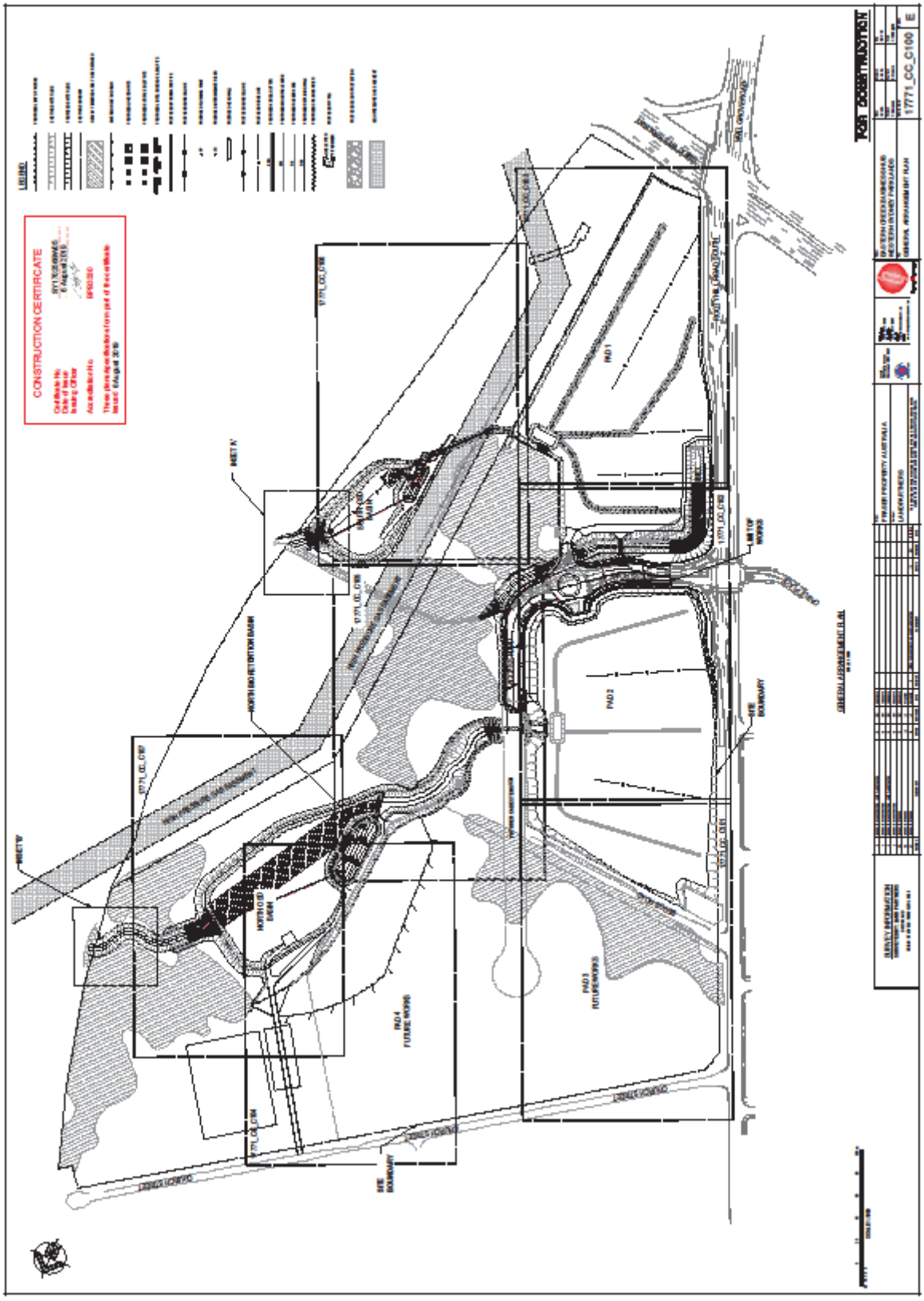
Appendix A Bulk earthworks plan (Henry & Hymas 2019)


CONSTRUCTION CERTIFICATE
LEGEND
PAD 1
PAD 2
PAD 3
FUTURE WORKS
PAD 4
FUTURE WORKS
NORTH DETENTION BASIN
SOUTH DETENTION BASIN
SITE BOUNDARY
SITE BOUNDARY
17771_CC_C100

Appendix B : Existing drainage onsite (J. Wyndham Prince 2012)

Appendix C Planting list

Type	Scientific name	Common name	Vegetation Communities		
			FW	AW	SPW
Tree Canopy Species (>6m)	*Angophora floribunda*	Rough-barked Apple		X	X
	Angophora subvelutina	Broad-leaved Apple		X	X
	Casuarina cunninghamiana subsp. *Cunninghamiana*	River Oak		X	
	Casuarina glauca	Swamp Oak		X	
	Eucalyptus amplifolia	Cabbage Gum		X	X
	Eucalyptus crebra	Narrow-leaved ironbark			X
	*Eucalyptus moluccana**	Grey Box		X	X
	Eucalyptus tereticornis	Forest Red Gum		X	X
Small Trees / Shrub Species (1.5-6m)	*Acacia implexa*	Lightwood			X
	Acacia floribunda	White Sally		X	
	Acacia parramattensis	Parramatta Wattle		X	
	Breynia oblongifolia	Coffee Bush		X	
	Bursaria spinosa	Blackthorn		X	X
	Daviesia ulicifolia	Gorse bitter pea			X
	Dodonaea viscosa subsp. cuneata	Wedge-leaf Hop-bush			X
	Indigofera australis	Australian Indigo		X	X
	Melaleuca decora	-		X	
	Melaleuca styphelioides	Prickly-leaved Tea Tree		X	
	Ozothamnus diosmifolius	Rice Flower		X	
	Trema tomentosa var. aspera	Native Peach		X	
Sedges, Rushes, Reeds & Grasses	*Aristida ramosa*	Purple Wiregrass			X
	Aristida vagans	Threeawn Speargrass			X
	Baumea articulata	Jointed Twig-rush	X		
	Bolboschoenus caldwellii	Salt Club-rush	X	X	
	Bolboschoenus fluviatilis	Marsh Club-rush	X	X	

Type	Scientific name	Common name	Vegetation Communities		
			FW	AW	SPW
	Carex appressa	Tall sedge	X	X	
	Chloris truncata	Windmill Grass			X
	Cymbopogon refractus	Barbed-wire Grass		X	X
	Cyperus gracilis	Slender Flat-sedge			X
	Dianella longifolia	Blueberry Lily			X
	Dichelachne micrantha	Shorthair Plumegrass		X	X
	Echinopogon caespitosus var. caespitosus	Tufted Hedgehog Grass		X	X
	Echinopogon ovatus	Forest Hedgehog Grass		X	X
	Juncus usitatus	Common Rush	X		X
	Lomandra filiformis	-			X
	Lomandra multiflora subsp. multiflora	-			X
	Lomandra longifolia	Spiny-head Mat-rush		X	
	Microlaena stipoides var. stipoides	Weeping Meadow Grass		X	X
	Persicaria decipiens	Slender knotweed	X		
	Poa labillardieri var. labillardieri	Tussock Grass			X
	Themeda australis	Kangaroo Grass		X	X
	Schoenoplectus mucronatus	-	X		
Groundcover Species (~0-1.5m) & Vines/Scramblers	*Brunoniella australis*	Blue Trumpet			X
	Centella asiatica	Indian Pennywort		X	X
	Clematis glycinoides	Old Man's Beard		X	X
	Commelina cyanea	Creeping Christian		X	X
	Desmodium varians	Slender Tick-trefoil		X	X
	Dichondra repens	Kidney Weed		X	X
	Einadia hastata	Berry Saltbush		X	X
	Einadia polygonoides	-		X	X
	Einadia trigonos	Fishweed		X	X

Type	Scientific name	Common name	Vegetation Communities		
			FW	AW	SPW
	Geranium solanderi	Native Geranium		X	X
	Glycine clandestina	Twining Glycine		X	X
	Hardenbergia violacea	Purple Coral Pea		X	X
	Pratia purpurascens	Whiteroot		X	X
	Plectranthus parviflorus	Cockspur flower		X	X
	Veronica plebeia	Creeping Speedwell		X	X
	Wahlenbergia gracilis	Sprawling Bluebell		X	X

**E. moluccana is to make up no more than 35% of canopy planting mix, as per the WSPT Biodiversity Strategy 2012 – 2020, to ensure buffering against species specific impacts such as the Grey Box Pysllid infestation*

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Appendix 1.8 – Unexpected Finds Protocol (Contamination)

Unexpected Finds Protocol - Contamination (UFP - Contamination)

Eastern Creek Quarter – Stage 3

Prepared for: Moits Pty Ltd

Job Number: A101024.0214.00 v1F | **Date:** 15/05/2024

ADE CONSULTING GROUP

Document Information

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v0.1d	06/05/2024	Dr Santo Ragusa	Draft for internal review	Stephen Bowly
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v1f	15/05/2024	Elin Griffiths	Final for issue	Stephen Bowly

For and on behalf of

ADE Consulting Group Pty Ltd

Prepared and issued by:

Elin Griffiths

Associate Environmental Consultant

Reviewed by:

Stephen Bowly

Principal Environmental Consultant

Contents

Tables

Figures

1 Introduction and Background

1.1 Context

ADE Consulting Group Pty Ltd (ADE) was engaged by Moits Pty Ltd (the client) to provide environmental management plans associated with the proposed development of the Stage 3 of the commercial/industrial Eastern Creek Quarter (ECQ) Retail Development (the site). The Eastern Creek Quarter redevelopment currently comprises three stages of development. Stages 1 and 2, comprising retail and entertainment areas, have been completed.

The Stage 3 site comprises an area of approximately 8 hectares (ha), and is located at 141 Rooty Hill Road South , Eastern Creek and is legally identified as part Lot 1 in DP1260111 and part Lot 12 in DP 1245264. The site location and layout are shown on **Figure 1** (**Appendix A**). The site was formerly used for livestock grazing, poultry farming, agricultural use and rural residential purposes (JBS&G, 2023). Currently the site is understood to be vacant awaiting redevelopment.

The Stage 3 site has been the subject of various planning and environmental works. Stages 2 and 3 of the ECQ Retail Development have been the subject of a Site Audit Statement (SAS 0503-1301-AI, JBS&G 20171), certifying the site was suitable for commercial/industrial use. It is also understood that historic remediation undertaken at the site circa 2017 was mainly related to fill impacted by asbestos containing materials (ACM), although potential for additional impacted areas to be encountered was noted in the Site Audit Report (SAR).

An environmental management plan (EMP, WSP 2017) was prepared for the broader ECQ development site, in part, to ensure appropriate steps are followed in the event that further contamination is uncovered during the future site development and/or ground disturbance works following development. The provisions of the EMP are legally enforceable, since they form a condition of the Site Audit statement (SAS, JBS&G 2017). Subsequently, a remedial works plan was developed (JBS&G, 2023) to provide a plan to resolve contamination issues identified on site during the construction phase. Whilst this plan identified the presence of asbestos and other building and demolition material to be remediated, the potential exists for other contaminants to be present on site. This management plan provides a protocol to manage unexpected contaminants identified during the construction phase.

1.2 Development Consent Requirements

Consent condition C17 of the development consent conditions (SSD 31515622) require a Construction Environmental Management Plan (CEMP) to be prepared for the development including an unexpected finds protocol (UFP) . Consent condition C31 'Remediation – Unexpected Finds Protocol' details the requirements of the document, as follows:

> *Prior to the commencement of any earthwork or remediation works, the Applicant must submit to the satisfaction of the Certifier an Unexpected Finds Protocol which has been reviewed and endorsed by an EPA accredited site auditor. The protocol must outline contingency measures and the procedures to be followed in the event unexpected finds of contaminated material are encountered during works.*

The UFP, including contingency measures and procedures as well as an associated communication procedure is presented in **Section 3** of this document.

1.3 Site Description

1.3.1 Site Identification

The site location, site layout and associated cadastral boundaries are shown on **Figure 1** (**Appendix A**). The site details are summarised in Table 1-1 and described in detail in the following sections.

Table 1-1 Summary of Site Details

Lot/Deposited Plan	Part Lot 1 in DP1260111 and part Lot 12 in DP 1245264
Address	Lot 3 of the Eastern Creek Business Hub, 141 Rooty Hill Road South, Eastern Creek, Blacktown NSW
Local Government Authority	Blacktown City Council
Site Area	Approximately 8.0 hectares
Approximate MGA Coordinates (GDA94 – MGA56)	E: 301302 N: 6259915
Site Zoning	Unzoned Land — Western Parklands (2021).
Current Use	Vacant lot
Previous Use	Former market gardens and residential dwellings
Proposed Use	Commercial/retail precinct, carparking, and landscaping

The following site description has been adapted from JBS&G (2023):

The Stage 3 site comprises a large property of vacant land, gently sloping down from the northwest to southeast. The majority of the site comprised thickly vegetated undulating terrain with silty topsoils, with long grass and areas of dense tree and scrubland in the west and southern portions of the site. A large portion in the northwest of the site comprised bare ground with orange clay at the surface with sparse surface vegetation and a ground surface level approximately 0.3 m lower than surrounding areas.

Primary physical features currently identified on site follow:

- A constructed earthen watercourse, adjacent an access road and earthen mound were present in the south-western portion of the site abutting the ECQ Shopping centre.
- Several large stockpiles of material were observed, which are understood to have been generated as part of the previous stages of the ECQ development. These stockpiles were previously assessed in JBS&G (2021) and were not subject to further assessment in this investigation.
- Several piles of building and demolition waste (sheet metal, metal pipes, bricks, timbers etc.) were observed, along with areas of dumped waste (fly-tipping along the site boundaries, particularly the Beggs Road, Rooty Hill South and Church Street boundaries.
- A raised and levelled earthen area was observed in the central portion of the site, with a row of trees along its eastern extent.
- The north-western and western extents were level with the surrounding ground surface, and the eastern and south eastern extents were raised by approximately 1.5-2.5m above the surrounding ground surface.

1.3.2 Soil Contamination Summary

Contamination remediation works have previously been undertaken on the site. Based on a review of historical environmental reports and aerial imagery), the former extent of remediation undertaken circa 2017 appear to be within the Stage 3 site boundary (JBS&G 2023). Following on from these initial remedial works, further environmental investigative works were undertaken with additional soil contamination identified; resulting in a remedial works plan (JBS&G, 2023).

The remedial works plan identified two areas of environmental concern (AEC1 and AEC2). The areas of the two AECs are presented in **Figure 2** and the primary contamination elements of each AEC is summarised below (JBS&G, 2023 p.6):

- AEC1: Ground Surface/Near -Surface Fill with Bonded ACM/Building and Demolition Waste:
  - Identified contaminants appeared to be limited to bonded asbestos containing material (ACM)
  - Fly tipping and other building material identified in soil

- AEC2: Fill Material of Unknown Origin
  - Identified contaminants appeared to be limited to bonded ACM. No friable material was identified.
  - Building and demolition waste materials were identified in soils

The extent of AECs 1 and 2 are presented in **Figure 2** (**Appendix A**).

1.4 Purpose

The purpose of this procedure is to provide information and guidance on how to safely conduct works when there is an Unexpected Contamination find. This procedure is to be read in conjunction with the Environmental Management Plan (EMP, WSP 2017) for the greater ECQ Development. The overall Environmental Management Plan for the greater ECQ Development align with the standards below.

1.5 Scope of the Plan

This procedure applies to all works relating to the Stage 3 ECQ Development construction works. The objective of this procedure is to document the management responsibilities, controls, and procedures to mitigate potential environmental and human health impacts associated with unexpected contamination finds that may be encountered during construction works.

2 Environmental Requirements

This UFP has been prepared and informed by the following legislation and guidelines:

- Australian Standard – AS 1726-2017 Geotechnical Site Investigation. Contaminated Land Management Act 1997 (CLM Act, 1997).
- Heads of the Environment Protection Authority (HEPA), 2020. Per- and Poly-fluoroalkyl Substances (PFAS) National Environmental Management Plan, revision 2, as published February 2020 (PFAS NEMP, 2020).
- Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia, Department of Water and Environmental Regulation, 2021
- Heritage Act 1977.
- Historical Archaeology Code of Practice, Department of Planning, December 2006.
- National Acid Sulfate Soils Guidance: National acid sulfate soils sampling and identification manual and National acid sulfate soils identification and laboratory methods manual, Department of Agriculture and Water Resources, 2018.
- National Environment Protection Council (NEPC), 1999. National Environment Protection (Assessment of Site Contamination) Measure, 1999 as amended in May 2013 (NEPM, 2013).
- NSW EPA, 2020. Consultants Reporting on Contaminated Land, Contaminated Land Guidelines, as revised May 2020. NSW EPA, 2017. Contaminated Land Management – Guidelines for the NSW Site Auditor Scheme (3rd Edition), as published October 2017.
- NSW Acid Sulfate Soils Manual (Stone et al., 1998).
- Protection of the Environment Operations (Waste) Regulations 2014.
- The National Acid Sulphate Soils Guidance, 'Guidance for the dewatering of acid sulphate spoils in shallow groundwater environments, June 2018, Department of Agriculture and Water Resources.
- National Strategy for the Management of Coastal ASS, 2000, Department of Agriculture and Water Resources.
- Work Health and Safety Act 2011Work Health and Safety Regulations 2017

3 Unexpected Finds Protocol

Previous environmental investigations have been undertaken to characterise the site. The site characterisation has resulted in a RWP (JBS&G, 2023). It is understood that the RWP has identified the contamination on site that requires remediation (refer AEC 1 and AEC 2 in **Figure 2**, **Appendix A**), however there may be some areas that are exposed during excavation works, where contamination maybe identified.

The following contingencies relating to the soil remediation will be enacted if and when required:

- If, during excavations unexpected asbestos, contaminated 'hotspots', underground storage tanks (USTs) and/or waste pipes are uncovered, the Unexpected Finds Protocol' presented below will be carried out.
- If unusual odours are generated during development works, the Environmental Consultant / Occupational Hygienist will make an assessment and provide management recommendations;
- If during excavations there are visual or olfactory indicators of potential contamination not anticipated based on previous investigations, the 'Unexpected Finds Protocol' presented below will be carried out.

3.1 Unexpected Finds Protocol

This UFP has been developed to provide guidance on processes to follow if an unexpected find is encountered during remediation or future civil works to be carried out during the Stage 3 construction works. The general procedure when encountering an unexpected find is outlined below and in the flow chart below.

The possibility exists for contamination hazards that have not been identified to date to be present within fill materials or soils on the site. The nature of hazards which may be present, and which may be discovered at the site are generally detectable through visual or olfactory means, for example:

- The presence of aggregates of friable asbestos materials (visible) fibre bundles in soil; and/or
- Excessive quantities of Construction/Demolition Waste (visible); and/or
- Hydrocarbon impacted materials (visible/odorous); and/or
- Drums, waste pits, former pipework or underground storage tanks (USTs) (visible); and/or
- Oily Ash and/or oily slag contaminated soils/fill materials (visible/odorous); and/or
- Tarry like impacted soil/fill material (visible/odorous); and/or
- Potential chlorinated hydrocarbon impact (soils having a sweet or solvent type odour).

As a precautionary measure to ensure the protection of the workforce and surrounding community, should any of the abovementioned substances (or any other unexpected potentially hazardous substance) be identified, the procedure summarised below is to be followed.

The sampling strategy for each "unexpected find" shall be designed by a suitably qualified environmental consultant. The strategy will, however, be aimed at determining the nature of the substance — that is, is it hazardous and, if so, is it at concentrations which pose an unacceptable risk to human health or the environment. The sampling frequency of the identified substance/materials shall meet the minimum requirements. The minimum requirements will be established by the environmental consultant and will be informed by NSW EPA sampling guidelines.

3.2 Procedure

The following sub-sections outline the procedures to be implemented for unexpected finds scenarios. It is noted that these works should be undertaken in alignment with the Asbestos Management Plan (AMP) prepared for the works.

1) STOP WORK

a) Leave the area and alert nearby workers.
b) Report the incident to your Supervisor, Site Manager, or Safety Coordinator/Manager.
c) Workers or the person controlling the workplace who believe a worker or workers have or may have been exposed to asbestos, ACM, or other contaminant must ensure they are decontaminated as soon as possible.
d) In certain cases, such as finding asbestos, clothing must be treated as waste and disposed of in the appropriate waste bags with any disposable personal protective equipment (PPE) and the wet wipes used for decontamination. Any item that can't be decontaminated such as socks must also be disposed of asbestos waste; and
e) Workers suspected of being exposed to asbestos, ACM, or other contaminant should undertake a baseline medical examination as soon as practical after the exposure.

2) INFORM WORKERS AND ISOLATE AREA

a) Inform workers to clear the workplace until the hazard has been contained.
b) Establish a suitable exclusion zone using barricades and warning signs to restrict access. The size of the zone should be based on the nature of the disturbance and advice from asbestos assessor, occupational hygienist or competent person. For asbestos, an exclusion zone less than 10 metres will require asbestos air monitoring to be conducted at the exclusion zone boundary. For other contaminants, this will be based on the advice of the occupational hygienist or relevant competent person.
c) Consult a licensed asbestos assessor, occupational hygienist or competent person for advice should access within the exclusion zone be unavoidable (for example for essential maintenance), prior to entering the exclusion zone.
d) Minimise disturbance of the material; and
e) Workers must wear minimum PPE of P2 respirator (P3 preferred), disposable coveralls and boot covers should emergency access to the exclusion zone be required.

3) INSTALL WARNING SIGNAGE

a. Asbestos/ACM or other appropriate warning signs must be positioned at all points of entry to the contaminated area.
b. If NO warning signs are onsite, use danger flags or normal warning signs as a temporary measure;
c. If asbestos/ACM or other contaminants are assumed or confirmed, warning signs will be obtained for use when asbestos or ACM or other contaminants are being removed or used in the case of an unexpected find.

4) REPORT TO REGULATOR

a) Evaluation of the incident by an environmental consultant will determine if the Regulator should be notified such as in incidences of uncontrolled escape, spillage, or leakage of liquids, and
b) Notify the regulator immediately or within a maximum of 24 hours after becoming aware of the incident if the environmental practitioner determines it is required.

5) ASSESSMENT, REMOVAL AND DECONTAMINATION

a) Engage a licensed asbestos assessor, occupational hygienist or competent person who will inspect, test, and assess the area and the material and provide advice for remediation/decontamination;

b) Engage a licensed hazard removalist to safely remove the contaminated material and decontaminate the area in accordance with WHS regulations.

7) AIR MONITORING

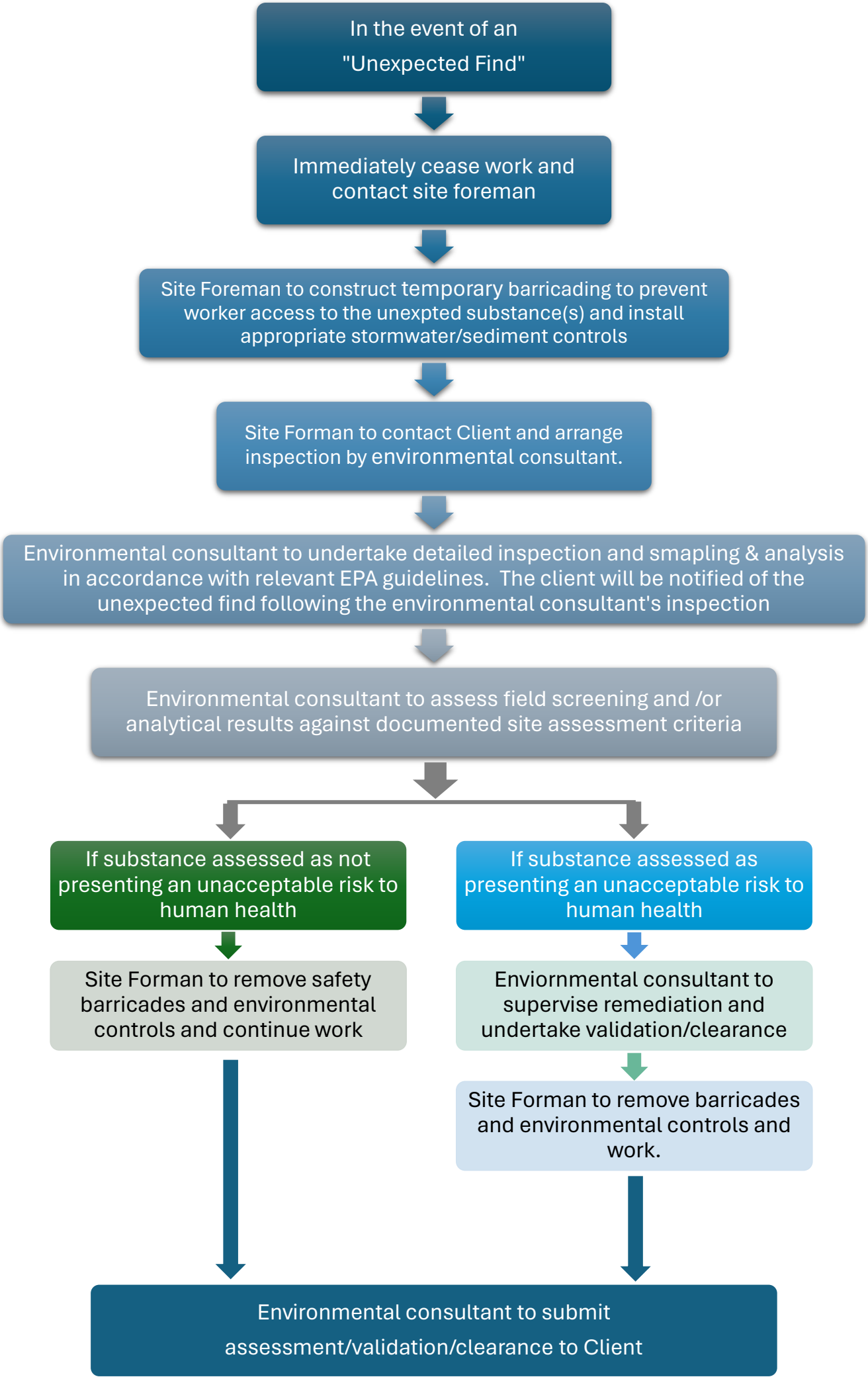
a) Air monitoring should be conducted by a licensed asbestos assessor, occupational hygienist or competent person with the analysis conducted by a NATA accredited testing facility.

8) CLEARANCE AND REOCCUPATION

a) No persons are permitted into the affected area (except asbestos removalists) prior to a Clearance Certificate[1] being issued, and

b) After decontamination (where required) and air monitoring has been completed a licensed asbestos assessor, occupational hygienist or competent person can conduct a clearance inspection and issue a Clearance Certificate prior to reoccupation.

[1] Clearance Certificates typically are prepared for remediation of asbestos impacted soils only.


In the event of an "Unexpected Find"
Immediately cease work and contact site foreman
Site Foreman to construct temporary barricading to prevent worker access to the unexpted substance(s) and install appropriate stormwater/sediment controls
Site Forman to contact Client and arrange inspection by environmental consultant.
Environmental consultant to undertake detailed inspection and smapling & analysis in accordance with relevant EPA guidelines. The client will be notified of the unexpected find following the environmental consultant's inspection
Environmental consultant to assess field screening and /or analytical results against documented site assessment criteria
If substance assessed as not presenting an unacceptable risk to human health
If substance assessed as presenting an unacceptable risk to human health
Site Forman to remove safety barricades and environmental controls and continue work
Enviornmental consultant to supervise remediation and undertake validation/clearance
Site Forman to remove barricades and environmental controls and work.
Environmental consultant to submit assessment/validation/clearance to Client

4 Compliance

4.1 Roles and Responsibilities

Roles and responsibilities specific to this plan are outlined in **Table 4-1** below.

Table 4-1 Roles and responsibilities to the UFP

Role	Responsibility
Project Manager	• Ensure that this UFP and its management and control measures are adhered to during the proposed workers • Ensure that all licenses, clearances, permits, and approvals are in place as required • Ensure that any worker, contractor, and site maintenance personnel (who are under the control of the Principal Contractor) are aware of this UFP and understand its requirements • Ensure that compliance with the UFP is a condition of any works undertaken • Ensure any third parties commissioned are provided with this UFP and required to adhere to its requirements • Complete daily toolbox talks • Complete daily pre-start equipment inspections • Complete regular visual inspections of the Site to determine compliance with this UFP • Ensure subcontractors and vehicles used are appropriately licensed for carrying of designated plant, equipment etc. • REVIEW AND/OR UPDATE THE UFP AS REQUIRED IF SITE CONDITIONS OR WORKS CHANGE, AND INFORM ALL PARTIES OF THE CHANGES
Site Manager/ Project Engineer	• Assist the Environmental Site Supervisor with the daily inspections of environmental control measures • Notify the Principal Contractor of any non-conformances with this UFP and the action needed and/or taken to rectify • Undertake relevant contingency corrective actions when required • REPORTS TO THE PRINCIPAL CONTRACTOR
Environmental Site Supervisor / Site Engineer	• Complete daily inspections of environmental control measures • Undertake relevant contingency corrective actions when required • Ensure records are kept on Site during the Works which will include documentation arising from the implementation of the UFP and environmental / occupational hygiene management • Maintain a register of complaints and record any actions taken • Report non-conformances to the Site's Project Manager and Principal Contractor and record in a Non-Conformance and Corrective Action Report • Initiate corrective actions and record details in a Non-Conformance and Corrective Action Report • Notify the Project Manager of any complaints • Conduct environmental awareness training for all project personnel undertaking the Works on Site • REPORTS TO THE PRINCIPAL CONTRACTOR AND THE SITE'S PROJECT MANAGER
Additional Contractors / Site Workers	• Comply with the UFP for all Site Works including relevant legislation and guidance • Inform the Principal Contractor if conditions or Works change from those documented in the UFP • Onsite implementation of the UPF including monitoring schedule required for the works • TEMPORARY SUSPENSIONS OF RELEVANT SITE WORKS IF THE ENVIRONMENT IS AT RISK, AND NOTIFYING THE PRINCIPAL CONTRACTOR AND APPROPRIATE EXTERNAL BODIES (SUCH AS REGULATORY AUTHORITIES) IN THE EVENT OF AN ENVIRONMENTAL INCIDENT

4.2 Training and Induction

All employees, subcontractors, and utility staff working on site will undergo site induction training relating to soil, water and contamination management issues. Training will address elements related to contamination management, which may include:

1. Existence and requirements of this sub-plan
2. Relevant legislation and consent conditions
3. EPL conditions
4. Roles and responsibilities for contamination management
5. Contamination identification, mitigation and management measures
6. Procedure to be implemented in the event of an incident (e.g. unexpected find of asbestos pipe buried in soil).

Targeted training in the form of toolbox talks or specific training will also be provided to personnel with a key role in environmental and contamination management.

4.3 Monitoring and Inspection

Monitoring and inspection should be undertaken in alignment with the Asbestos Management Plan (AMP) prepared for the works and may include the following:

- All soil disturbance works associated with asbestos shall be undertaken in accordance with the Work Health and Safety Regulation (2017), SafeWork NSW (2022a) *Code of Practice: How to Manage and Control Asbestos in the Workplace*, and SafeWork NSW (2022b) *Code of Practice: How to Safely Remove Asbestos*.
- In accordance with SafeWork NSW (2022b), asbestos air monitoring for soil disturbance activities is not mandatory for bonded asbestos related works, however where the risk of asbestos fibre generation is increased, particularly during slashing works, asbestos air monitoring is recommended as best practice to ensure appropriate protection of site workers and surrounding receptors.
- If friable asbestos is identified, or where airborne air monitoring is required to be undertaken, asbestos air monitoring will be conducted in accordance with eh requirements of the National Occupational Health and Safety Commission (NOHSC) Asbestos Code of Practice and Guidance Notes, in particular the *Guidance note for the estimation of airborne asbestos dust* [NOHSC 3003:2005].
- Remediation works involving the handling of bonded asbestos impacted soils at the site are required to be undertaken by a licensed Class B Asbestos Removalist contractor.

4.4 Reporting

At the completion of site remediation works, a validation report will be prepared in general accordance with NSW EPA's *Guidelines for the NSW Site Auditor Scheme* (2017) and the NSW EPA (2020) *Guidelines for Consultants Reporting on Contaminated Site,* documenting the works as completed.

This report will contain information including:

1. details of the remediation works conducted;
2. present all sampling field notes and laboratory data including calibration certificates for field monitoring equipment, environmental monitoring ,etc.;
3. undertake an assessment of QA/QC of analytical data generated by the works and identify data that is dependable for use in characterising the site;
4. sort data into data sets as required by the decision rules;

5. assess whether sufficient data has been obtained to meet required limits on decision error;
6. undertake assessment to the decision rules and identify any environmental data which causes decision rules to be failed;
7. information demonstrating compliance with appropriate regulations and guidelines;
8. any variations to the strategy undertaken during the implementation of the remedial works;
9. results of all environmental monitoring undertaken during the course of the remedial works;
10. details of any environmental incidents occurring during the course of the remedial works and the actions undertaken in response to these incidents;
11. verification of regulatory compliance;
12. provide a summary of waste disposal activities and volumes of waste removed from the Site including supply of all waste disposal dockets confirming final waste disposal/landfill destination;
13. provide a summary of material importation activities (general fill soil/crushed rock, growing media, earthwork aggregates, drainage backfill, etc), including material source, type, assessment of suitability, approximate quantities, date of importation, and final placement location;
14. identify the requirements for the AMP or EMP (where appropriate) including inclusion of a survey clearly identifying the extent of the retained impacted material and associated capping; and
15. provide a comment on the suitability of the Site (or portions thereof) for the proposed use and requirements for any ongoing monitoring/management (where applicable).

The report will serve to document the remediation works for future reference.

4.5 Audits

Audits (both internal and external) will be undertaken to assess the effectiveness of environmental controls, compliance with this sub-plan, development consent conditions and other relevant approvals, licenses, and guidelines.

Audit requirements are detailed in the CEMP.

4.6 Licenses and Permits

Appropriate licences for asbestos removal and disposal will be detailed in the AMP for the site.

5 Limitations and Disclaimer

This report has been prepared for the exclusive use of the client and is limited to the scope of the work agreed in the terms and conditions of contract (including assumptions, limitations and qualifications, circumstances and constraints). ADE has relied upon the accuracy of information and data provided to it by the client and others.

ADE has used a degree of care and skill ordinarily exercised in similar investigations by reputable members of the environmental industry in Australia. No other warranty, expressed or implied, is made or intended. No one section or part of a section of this report should be taken as giving an overall idea of this report. Each section must be read in conjunction with the whole of this report, including its appendixes and attachments. The report is an integral document and must be read in its entirety.

To the fullest extent permitted by law, ADE does not accept or assume responsibility to any third party (other than the client) for the investigative work, the report or the opinions given.

The scope of work conducted, and report herein may not meet the specific needs (of which ADE is not aware) of third parties. ADE cannot be held liable for third party reliance on this document. Any third party who relies upon this report does so at its own risk.

ADE does not verify the accuracy or completeness of, or adopt as its own, the information or data supplied by others and excludes all liability with respect to such information and data. To the extent that conditions differ from assumptions set out in the report, and to the extent that information provided to ADE is inaccurate or incomplete or has changed since it was provided to ADE, the opinions expressed in this report may not be valid and should be reviewed.

ADE's professional opinions are based upon its professional judgement, experience, training and results from analytical data. In some cases, further testing and analysis may be required, thus producing different results and/or opinions. ADE has limited its investigation to the scope agreed upon with its client.

This Limitation and Disclaimer must accompany every copy of this report.

6 References

JBS &G 2023 Eastern Creek Quarter – Stage 3. Remedial Works Plan. 17 August 2023. Prepared for Frasers Property Australia Pty Ltd

WSP 2017 Western Sydney Parklands Trust Easter Creek Business Hub – Site Environmental Management Plan, Beggs Road, Rooty Hill, NSW. August 2017

Appendix A – Figures

REGIONAL MAP
SOURCE: http://www.whereis.com/

LEGEND

STAGE 3 SITE BOUNDARY

NOTE:
ALL LOCATIONS ARE APPROXIMATE
DIMENSIONS IN METRES.

AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM, 13 MAR 2024.

revision	no.	description	drawn	approved	date
	A	FIRST ISSUE	MC	EG	09/05/24

0 50 100 150 200 250
SCALE 1:5000 @A3 METRES

drawn	MC
approved	EG
date	09/05/2024
scale	AS SHOWN
original size	A3

client: MOITS PTY LTD

project: EASTERN CREEK QUARTER - STAGE 3,
UNEXPECTED FINDS - CONTAMINATION
41 GRAND AVENUE, EASTERN CREEK, NSW

title: SITE LOCATION PLAN

project no: A1010240214.00 | figure no: FIGURE 1 | rev: A

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LEGEND

- SITE BOUNDARY
- AEC1 - GROUND SURFACE/NEAR-SURFACE WITH BONDED ACM/B&D WASTE
- AEC2 - FILL MATERIAL OF UNKNOWN ORIGIN
- STOCKPILE LOCATIONS
- RAISED EARTHERN AREA
- EARTHEN WATER COURSE
- EARTHEN MOUND
- ACCESS ROAD

NOTE:
ALL LOCATIONS ARE APPROXIMATE
DIMENSIONS IN METRES.

AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM, 13 MAR 2024.

revision	no.	description	drawn	approved	date
	A	FIRST ISSUE	MC	EG	09/05/24

0 20 40 60 80 100
SCALE 1:2000 @A3 METRES

drawn	MC
approved	EG
date	09/05/2024
scale	AS SHOWN
original size	A3

client: MOITS PTY LTD

project: EASTERN CREEK QUARTER - STAGE 3,
UNEXPECTED FINDS - CONTAMINATION
41 GRAND AVENUE, EASTERN CREEK, NSW

title: AREAS OF CONCERN AND HISTORICAL SITE FEATURES

project no: A1010240214.00 | figure no: FIGURE 2 | rev: A

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Appendix 1.9 – Unexpected Finds Protocol (Aboriginal / Non-Aboriginal Heritage)

Unexpected Finds Protocol Heritage - Aboriginal Heritage and European

Aim

The of this document is to eliminate or minimise the risk of significant environmental harm or damage as a result of unlawful or unapproved impacts to sites and objects of heritage significance.

Critical Controls

- Permit(s) and approvals are to be in place where known heritage areas are to be disturbed or removed. Permit or approval mitigation measures are incorporated into civil works methodology.
- Native Title obligations have been assessed and the requirements addressed
- Investigation, assessment and clearance surveys/activities have been undertaken in all project areas prior to disturbance or access for construction activities
- Salvage operations, where required have been completed and records documented
- All known heritage sites/areas have physical delineation including physical barriers such as fencing, flagging tape and sign posted (where culturally appropriate)
- Vibration shall not exceed 3mm/sec at any heritage structure without approval from the State's heritage body (note: lower limits may be specified in the project-specific documentation)
- Pre-condition/dilapidation surveys have been undertaken for heritage structures to be retained and a vibration monitoring program has been developed, including vibration monitoring when vibration generating activities are undertaken within 30 metres of a heritage structure

Local Controls

- Known Aboriginal and or European cultural heritage sites and requirements are documented in project management plans
- Procedures for unexpected finds of cultural heritage items have been developed and communicated to all site personnel

Identifying Cultural Heritage Sites

Investigation, assessment and clearance surveys and activities must be undertaken in all project areas prior to disturbance or access for construction activities. This includes undertaking a heritage search for registered sites (state/territory and commonwealth search). This may have been completed in the assessment phase prior to works commencing. Consultation with all Registered Aboriginal Parties must also be undertaken as and when required.

Known heritage sites and requirements are to be detailed in construction documentation. This includes:

- Project Risk Assessment (PRA) including predictions of the potential heritage impacts
- Environmental Management Plans (EMP)
- Cultural Heritage Action Plan (where required)
- Methodology statements
- Safe Work Method Statements (SWMS)
- Site inductions

Construction Activity

All known heritage sites and areas are to be physically delineated, including the use of physical barriers such as fencing and flagging tape, and sign-posted.

Permits and approvals must be in place for known heritage areas to be disturbed or removed prior to works commencing.

Unexpected Cultural Heritage Finds

Procedures for unexpected finds of cultural heritage items must be developed and communicated. This includes:

- Halting all operations in the immediate area upon discovery of culturally significant material or sites
- Reporting to the site supervisor and project manager any unexpected finds
- Not recommencing work until directed by a specialist heritage consultant

Records of all cultural heritage finds are to be maintained. Consultation with the relevant regulatory authority and specialist heritage consultant to determine the significance of cultural heritage findings.

Should suspected heritage or archaeological items including human remains be found during the works, the following procedure applies:

- Discovery of human skeletal remains must be reported to the site supervisor in the first instance who will then report it to police
- Work is to cease in the area immediately and management notified
- The matter is to be referred to the client
- The object is to be left in place
- GPS coordinates of the item are to be noted
- Photographic records of the item and its location are to be made

Appendix 1.10 – Communications Management Plan

Communications Management Plan

Frasers Property
Eastern Creek Quarter Stage 3
MOITS Project No. 24-002

MOITS
ABN: 76 074 571 510

Address: 142 Wicks Road Macquarie Park NSW 2113
Correspondence: PO Box 4037, Macquarie Centre, North Ryde NSW 2113

Contents

Register of Amendments					
Date	**Page/Form No.**	**Version No.**	**Description of Amendments**	**Prepared by**	**Approved by**
Nov 23	All	2	Initial version of plan	D. O'Dea	D. O'Dea

Distribution Register			
Version No.	**Date of Issue**	**Name of Recipient**	**Position / Organisation**
1	TBC	Peter Stocker	Senior Project Manager / Frasers Property

1 PURPOSE

The overall objective of a Communications Management Plan is to promote the success of a project by meeting the information needs of project stakeholders and outline the goals of the communications efforts to reach and inform each group.

The Purpose of this document is to define the specific communication goals and strategies of Eastern Creek Quarter (ECQ) Stage 3 project and to provide an overall framework that defines the project's structure and methods of collecting Project Information, screening, formatting and distributing the information in a structured way outlining the actions and processes necessary to facilitate the distribution of information and ideas to relevant stake holders and project team members to contribute to Project's success.

The intended audience of the ECQ Stage 3 Works CMP is the project manager, project team, project sponsor and any senior leaders whose support is needed to carry out communication plans.

This plan is developed in accordance with the Company's SEQ Management Plan and forms part of ECQ Stage 3 Works Project Management plan.

2 SCOPE OF WORKS

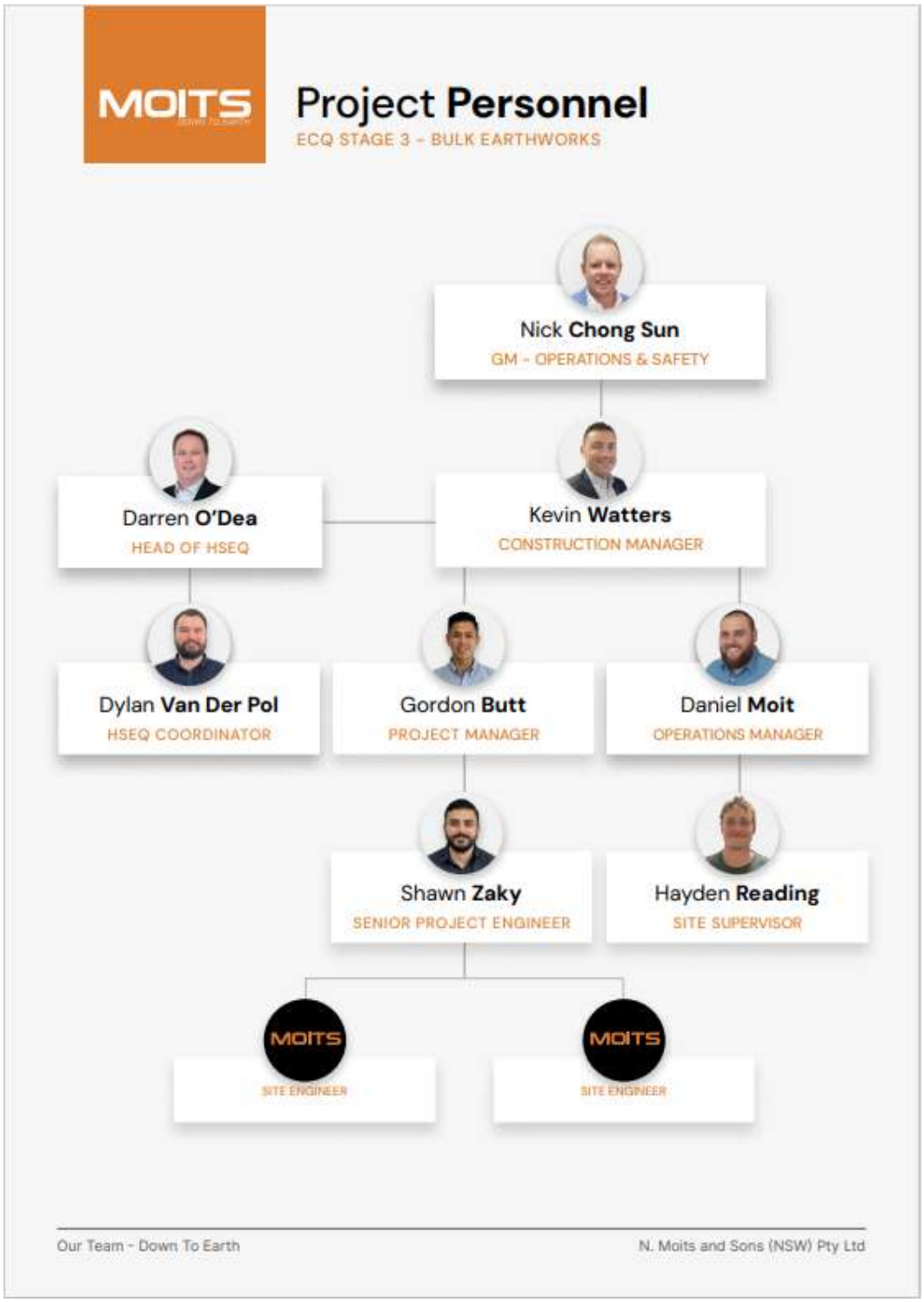
The site (Rooty Hill Rd South, Eastern Creek) is located on the northern side of the Eastern Creek Quarter retail precinct (ECQ Lot 3) and is directly adjacent to a fully leased and operational retail centre. The development comprises of approximately 100 retail tenancies located within a single large shopping centre extension with both basement and on-grade parking.

The scope of works consists of the following;

- Clear & Grub (incl. Tree Removal)
- Asbestos Remediation Works
- Bulk & Detailed Earthworks
- Cut & Fill (with a balance of Import material)
- Culvert Structures
- Stormwater Drainage (Incl. GPT Installation)
- Block & Dincel Retaining walls (Incl. Footings)
- Construction of 2 x Temporary Basins.

Figure 1 - Site Locality Plan

3 PROJECT ORGANISATION CHART



4 PROJECT ROLES AND RESPONSIBILITIES

Role	Responsibility
Project Sponsor	The project sponsor is the champion of the project and has authorized the project by signing the project charter. This person is responsible for the funding of the project and is ultimately responsible for its success. Since the Project Sponsor is at the executive level communications should be presented in summary format unless the Project Sponsor requests more detailed communications.
Head of Projects	The Head of Projects oversees the project at the portfolio level and owns most of the resources assigned to the project. The Head of Projects is responsible for overall program costs and profitability as such they require more detailed communications than the Project Sponsor.
Key Stakeholders	The Key Stakeholders includes executive management with an interest in the project and key users identified for participation in the project.
Customer	The customer for this project is Frasers Property and the customer's representative is Peter Stocker & Brendan Sharp, ECQ Stage 3. Senior Project Manager and Project Manager respectively. Representatives of customer who will be accepting the final deliverable of this project they will be informed of the project status including potential impacts to the schedule for the final deliverables.
Project Manager	The Project Manager has overall responsibility for the execution of the project. The Project Manager manages day to day resources, provides project guidance and monitors and reports on the projects metrics as defined in the Project Management Plan. As the person responsible for the execution of the project, the Project Manager is the primary communicator for the project distributing information according to this Communications Management Plan. The Project Manager is responsible for establishing communication requirements for the project, chairing all project meetings, and submission of all written reports. The Project Manager may delegate communication tasks to appropriate technical representatives or subject matter experts (SMEs) but is responsible for the timely completion of such tasks. The Project Manager is responsible for all information dissemination.
Project Team	The Project Team is comprised of all persons who have a role performing work on the project. The project team needs to have a clear understanding of the work to be completed and the framework in which the project is to be executed. Since the Project Team is responsible for completing the work for the project they played a key role in creating the Project Plan including defining its schedule and work packages. The Project Team requires a detailed level of communications which is achieved through day to day interactions with the Project Manager and other team members along with weekly team meetings.

4.1 Stakeholder Identification and Analysis

Effective communication is the ECQ3 project's primary tool for promoting cooperation, participation, coordination and understanding between all stakeholders. ECQ3 has 2 primary stakeholder groups and has specific communications goals for each.

Stakeholder Groups	Goal
Management, staff, customers, media, community, finance	Required information dissemination for Broader management on Company's projects dashboard, Account & marketing management, management of interfaces with community & Customers
Project Manager Project team members Upper management Project customer Resource Managers Group Managers	Effective management of information dissemination to relevant stake holders for collaborative work and achieving project goals

Key Team Members/Stake Holders	Name	Contact Info
Senior Project Manager (Client)	Peter Stocker	0400 368 813
Project Manager (Client)	Brendan Sharp	0473 818 292
Construction Manager	Kevin Watters	0466 579 885
Project Manager	Gordon Butt	0468 569 977
Senior Project Engineer/Manager	Shawn Zaky	0478 269 949
Contracts Administrator	Yash Kulkarni	0469 798 716
Site Supervisor	Hayden Reading	0457 009 294
HSEQ Manager	Darren O'Dea	0417 674 262

5 PROJECT COMMUNICATONS

5.1 Project Communication Matrix

Communication Type	Description Purpose	Frequency	Owner	Distribution Vehicle	Participants/ Distribution	Comments
Status Report	One page communication of project progress and deliverable status	Weekly	Project Manager,	Email	Project Sponsor, Team and Stakeholders	This report shows task accomplishments, milestones, upcoming tasks, and issues.
Team Meeting	Review status of Action/Issue Register	Weekly	Project Manager,	Face-to-Face Meeting	Project Team	Updated in Action/Issue Register
Technical Design Review	Review of any technical designs or work	As needed	Project Manager,	Face-to-Face Meeting	Relevant stake holders	Involve required Project team members and technical personnel
Project Review	Project Metrics and status	Monthly	Project Manager,	Face-to-face Meeting	Project Sponsor, Team and Stakeholders	Included are discussions on any variations submitted

5.2 Project Planning and Control Documents

There are several project documents used to control or plan certain activities that will also be used for communicating with project stakeholders:

Project Management/Execution Plan

Defines the project scope, project goals and objectives, assumptions and constraints, methodology and deliverables, resources, roles and responsibilities, project-reporting structure, and project guidelines. This serves as is a formal agreement between the principle sponsors and the project team.

Issues List

Tracks issues through formal issue statements, which include impacts, responsibility assignments and plans for resolution.

5.3 Project Meetings

The Project Manager will distribute a meeting agenda at least 2 days prior to any scheduled meeting. All participants are expected to review the agenda prior to the meeting. During project meetings the timekeeper will ensure that the group adheres to the time allotted for a given topic and the recorder will take all notes to be distributed to the team upon completion of the meeting. It is imperative that all participants arrive to each meeting on time and all cell phones and blackberries should be turned off or set to vibrate mode to minimize distractions. Meeting minutes will be distributed no later than 24 hours after each meeting is completed.

Key Stakeholders for Consultation:

Key Stakeholders throughout the Design and Construction process include Henry & Hymas (H&H) Designers who will be responsible for ensuring the Design has achieved CC. Currently the design is at 50% as per Tender issued drawings.

Furthermore, Acoustic Logic will be involved throughout the Noise & Vibration monitoring process in an effort to reduce the potential of any noise complaints raised by neighbouring communities.

EI Australia intend to be consulted to ensure requirements of the RAP prepared by JBS&G has been adhered too which will ensure Clearance Certificate issue upon completion of the remedial works.

The Principal will be consulted during the design and construction process for regular updates also.

Set-out procedure & distribution:

Moits will be utilising Project Management software, such as Aconex, for all formal correspondence / transmittals.

Moits will utilise their in-house Moits Central Management System for management of key documentation & Data Tracking, including all Materials Tracking Registers, SWMS, Company Procedures, Site Diaries, etc.

Procedures / Mechanisms to resolve an issue and mediate any disputes

In the event of disputes/complaints/issues that arise on site during construction, the issues must be escalated to the supervisor for mediation. If the issue cannot be resolved by this stage the issue will then be escalated to the Project Manager who will in turn manage the situation and escalate to Moits Senior Leadership Team where required.

6 Community Relations

The plan below describes our approach to customer, community and stakeholder management including policy, objectives principles, process description, and program specific planning processes and tools, training, roles and responsibilities and evaluation.

Keeping community and stakeholders well informed, being responsive to their issues and making every effort to minimize impacts will maintain Frasers Property Australia's image and reputation and contribute to the development of goodwill and the timely delivery of the program's packages of work.

6.1 Our Community Relations Management

Project Manager

Roles and Responsibilities

The Project Manager is the primary point of contact with customers on project works and work activities that will significantly impact customers. They will co-ordinate with FPA notifications, enquiries and complaints ensuring timely responses and accurate record keeping. The Project manager will also ensure implementation of all customer, community and stakeholder management procedures and protocols on site.

The Project Manager is responsible for:

- Delivering the program's community and stakeholder engagement requirements
- Development and management of community and stakeholder management and engagement plans in line with FPA requirements, corporate values and project requirements.
- Managing escalation of customer and stakeholder issues and complaints according to Moits Complaints Management System in cooperation with FPA representatives
- Providing regular detailed updates on all outstanding customer and stakeholder issues and to ensure resolution in a very timely manner.
- Reviewing site risks associated with impacts to customers, the community and other stakeholders and will ensure the Moits delivery teams implement appropriate mitigation approaches.
- Co-ordinating and scheduling in house training relating to customer, community and stakeholder engagement for relevant team members and new staff to ensure they have the necessary community relations awareness and communication skills to support their role.
- Supporting the Site team in the delivery of onsite inductions and toolbox talks.
- Liaising with the Community Relations Officers in the resolution of customer enquiries and complaints.
- Identification of customer and stakeholder issues or complaints.

Site Supervisors and Work Crew Leaders

Roles and Responsibilities

The site Supervisors and Work Crew Leaders are the primary point of contact with customers on all reactive "emergency" work. With support from the administration staff they will manage notifications, enquiries and complaints ensuring timely responses and accurate record keeping. The site supervisors and work crew leaders will also ensure implementation of all customer, community and stakeholder management procedures and protocols on site, relevant and feasible, to the reactive "emergency" work that is occurring.

Site Supervisors and Work Crew Leaders responsibilities include:

- Resolving a broad range of customer concerns and complaints by direct communication.

- Ensuring the implementation of all relevant and feasible customer, community and stakeholder management procedures and protocols on site.
- Alerting the Project Manager to any complaints or complex enquiries for resolution.
- Issuance of all customer notifications that can be achieved and relating to the reactive “emergency” work. Examples of this are letters, phone calls and on-site discussions.
- Collection and collation of all customer data, referred to the administration team for recording and reporting.
- Identification of customer issues or complaints that need to be escalated to the Project Manager
- Support to project manager with the raising, management and closing of customer complaints.

Enquiries

If any Moits team member is asked any questions by customers, the community or other stakeholders, they MUST:

- Answer the question only if sure of the answer
- If unable to answer the question, explain that the Project Manager or Site Supervisor will contact the resident and provide further details. Alternatively, if the resident prefers to directly contact the Project Manager or Community relations representative, the team member will provide them with the relevant contact details:
- Record the person’s contact details and the nature of their enquiry where possible; and
- Contact the Project Manager or Supervisor to follow through the enquiry.

Parking

Moits team members and all subcontracted staff and consultants MUST NOT and WILL NOT block driveway access or other access points unless necessary and coordinated with Frasers Property Group. Furthermore, Moits team members and all subcontracted staff and consultants MUST NOT park in Eastern Creek Quarters Stage 1 shopping centre.

Personal Presentation

Moits team members MUST present a professional image at all times when communicating and dealing with customers as they are representing Moits and are the public face of Frasers Property.

Appropriate occupational health and safety attire and PPE MUST be worn at all times.

Signage

Where practicable, erect signage at compounds, power poles and other suitable locations around the work area. The signage should include a brief description of the work, the benefits of it being done, project dates and contact information.

6.2 Community Liaison

Moits is committed to developing strong relationships with the community and stakeholders at all stages of our work under the Eastern Creek Quarter Stage 3 Project. As part of Moits commencement process, the team, with the support of the Frasers Client team, will actively begin to engage with stakeholders and the community to identify the community’s needs and ensure that the construction solution addresses these needs as best as possible.

Prior to commencing, the team will prepare an information leaflet for the neighbors/retailers to provide clarity about the upcoming changes, potential short-term impacts and the timings associated with the project work. Further to this an information session will be held for the students and the community.

As part of the ongoing project, the Moits team will ensure that a regular liaison session is held for the precinct and the community and that concerns are itemized and addressed where possible

6.3 Complaints Management Procedure

If a customer indicated (via face to face discussions, letter , telephone, email) dissatisfaction with a service provided by Moits, or a matter connected to the service provided (e.g. noise from bulk earthworks, traffic, odors from site, etc.) the team member must acknowledge the complaints.

The team member should attempt to resolve the complaint immediately following the same process as an enquiry. If complaints made by the public to Moits staff cannot be immediately resolved, they will be recorded and dealt with promptly using Moits complaint register "FO-063 Project Complaints Register". It should be referred on to the supervisor or project manager.

While complaints will be managed and resolved largely by Moits on-site. Frasers Property Australia will be proactively advised of all complaints and provided with detailed briefings on any actual or potential high-risk complaints – Particularly if there is threatened or potential media or government involvement. In this situation Moits Project Manager will advise Frasers Property Australia and where appropriate work with Frasers Property Australia to resolve the matter

Complaints will be investigated by Moits Community relations Team. This will be done using an approach to ascertain if the complaint is Avoidable or Unavoidable.

Avoidable Complaint – We didn't deliver what we said we would do.

Unavoidable – We delivered what we said we would do but the customer is still dissatisfied.

All avoidable complaints will require corrective actions to be identified and implemented to ensure there are no repeat complaints.

Contact with Customers

Contact refers to communication initiated by face-to-face encounter, phone contact, e-mail, letter, text, and meeting.

Initial contact from customers is most likely to be received by the Moits field staff. All contact with the community related to complaints must be referred to the site-based Customer Relations Officer or Engineer who will record the contact information in the Customer Contact Log as soon as practical after the enquiry or complaint.

The majority of enquiries or complaints from customers will be easily closed out in the field by the Supervisors and Customer Relations Officer or Engineer; this may involve liaising with the relevant Moits team member to resolve an issue. The logged contact will be submitted to the Community relations team for data entry into the Moits Customer Contacts Database.

In the event of a more complex enquiry or complaint from customers, the issue will be escalated to the Site Supervisor and Project Manager, who will follow the protocols for resolution or referral to FPA Representative.

Issue Management Escalation for Significant Events that may impact Image and Reputation

Where appropriate the Supervisor and/or engineer will manage and resolve issues/complaints directly with the customer. Where additional or specialist support is required, the Supervisor and/or engineer will liaise directly with the Project Manager and/or FPA Community Relations Representative

If necessary, the Project Manager will manage escalated issues and will advise FPA Community Relations Representative, as well as Moits' Executive, immediately of any actual or potential high-risk complaints – particularly if there is threatened or potential media or government involvement.

Managing Enquiries and Complaints

All contact with customers and stakeholders will be managed in accordance with Fraser Property Australia requirements.

7 Communications Management Plan approval

The undersigned acknowledge they have reviewed the ECQ Stage 3 Works Communications Management Plan and agree with the approach it presents. Changes to this Communications Management Plan will be coordinated with and approved by the undersigned or their designated representatives.

Signature:		Date:	01/03/2024
Print Name:	Kevin Watters		
Title:	Construction Manager		

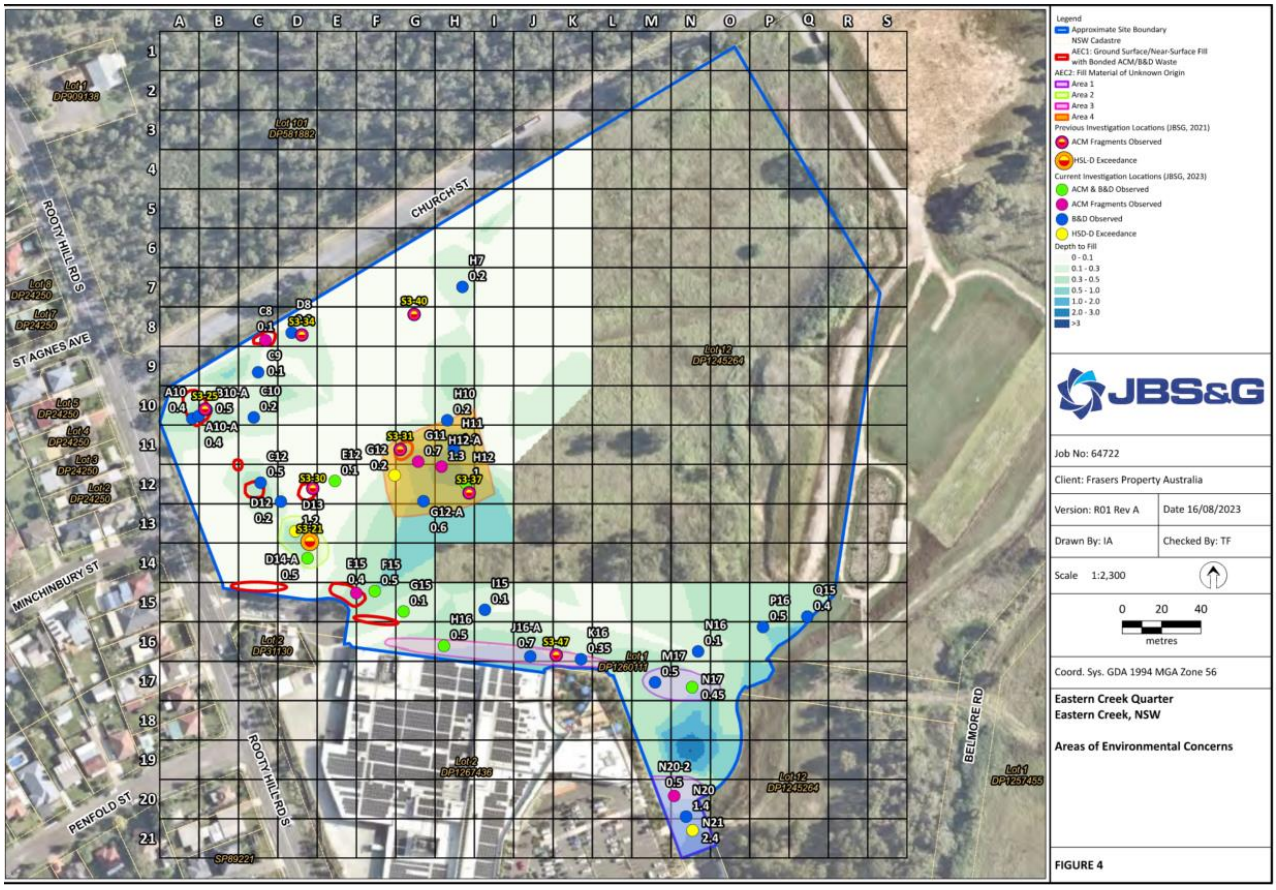
Signature:		Date:	01/03/2024
Print Name:	Gordon Butt		
Title:	Project Manager		

Signature:		Date:	01/03/2024
Print Name:	Darren O'Dea		
Title:	HSEQ Manager		

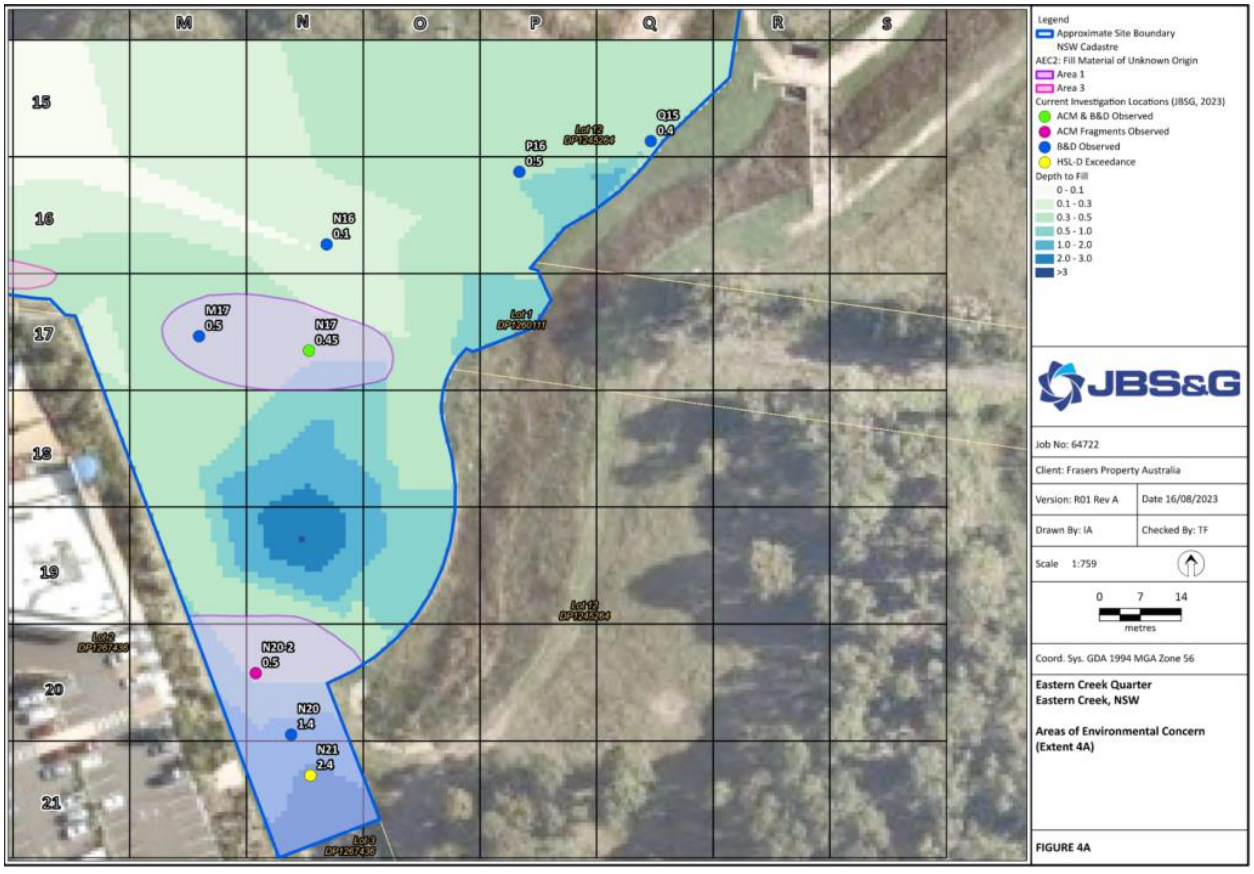
24-002 – ECQ3 – Project Complaints Register

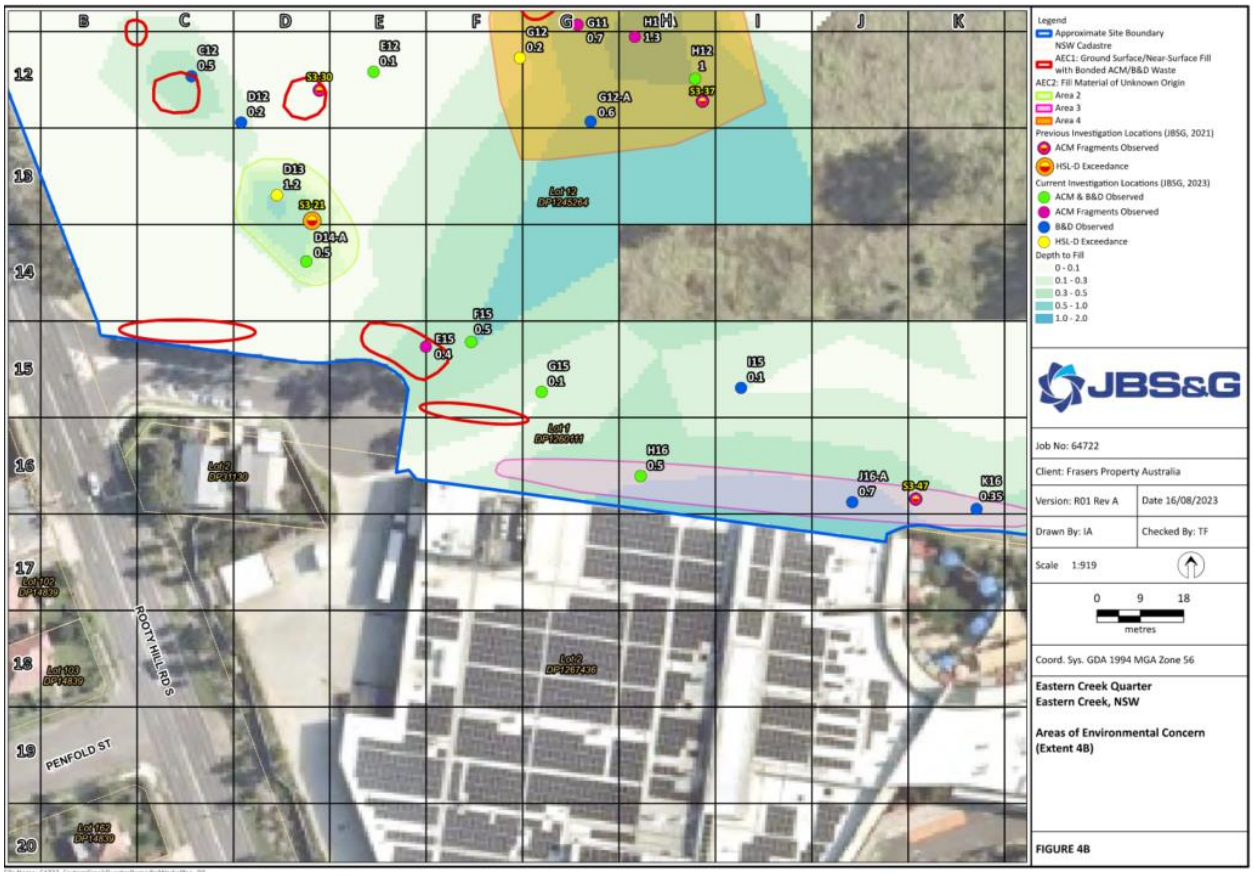
Date	Name of Person Making Complaint	Contact Details (email / Phone)	Complaint / Issue	Classification (Env, Safety, General)	Action Taken	Reported to HSEQ Manager

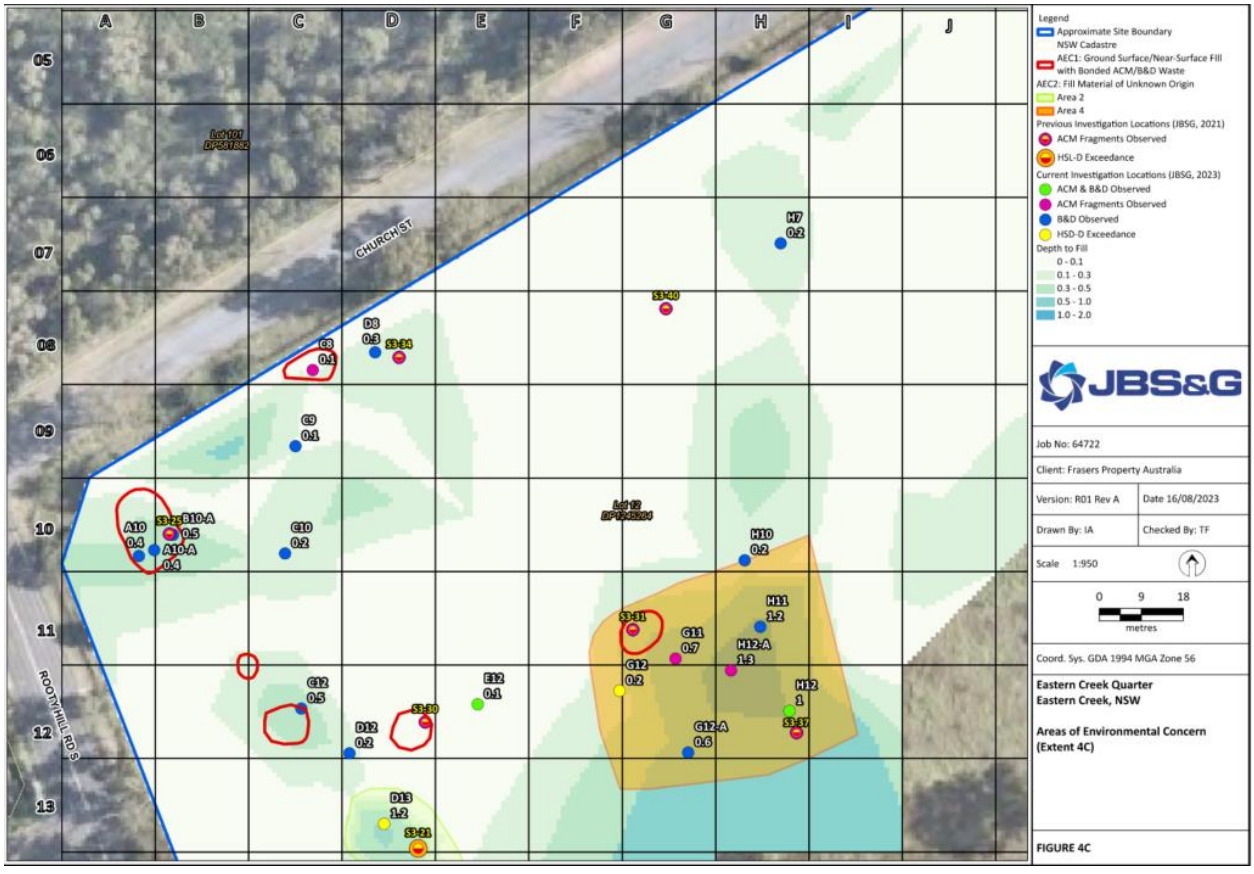
40 Appendix 2 – Project Environmentally Sensitive Areas



Environmentally sensitive Areas as per JBS&G Contamination Report




B C D E F G H I J K
12 18 14 15 16 17 18 19 20
G12 0.5
E12 0.1
S3-10
D12 0.2
G12 0.2
G11 0.7
H1 1.3
H12 1
S3-37
G12-A 0.6
D13 1.2
S3-21
D13-A 0.5
F15 0.5
E15 0.4
G15 0.1
I15 0.1
H16 0.5
J16-A 0.7
S3-47
K16 0.35
ROOTY HILL RD S
PENFOLD ST
Legend
Approximate Site Boundary
NSW Cadastre
AEC1: Ground Surface/Near-Surface Fill with Bonded ACM/B&D Waste
AEC2: Fill Material of Unknown Origin
Area 2
Area 3
Area 4
Previous Investigation Locations (JBSG, 2021)
ACM Fragments Observed
HSL-D Exceedance
Current Investigation Locations (JBSG, 2023)
ACM & B&D Observed
ACM Fragments Observed
B&D Observed
HSL-D Exceedance
Depth to Fill
0 - 0.1
0.1 - 0.3
0.3 - 0.5
0.5 - 1.0
1.0 - 2.0
JBS&G
Job No: 64722
Client: Frasers Property Australia
Version: R01 Rev A
Date 16/08/2023
Drawn By: IA
Checked By: TF
Scale 1:919
0 9 18
metres
Coord. Sys. GDA 1994 MGA Zone 56
Eastern Creek Quarter
Eastern Creek, NSW
Areas of Environmental Concern
(Extent 4B)
FIGURE 4B


A B C D E F G H I J
05 06 07 08 09 10 11 12 13
CHURCH ST
ROOTY HILL RD S
H7 0.2
S3-10
D8 0.3
S3-04
C8 0.5
C9 0.1
A10 0.4
S3-25
B10-A 0.5
A10-A 0.4
C10 0.2
H10 0.2
H11 1.2
S3-31
G11 0.7
H12-A 1.3
G12 0.2
H12 1
S3-37
G12-A 0.6
E12 0.1
G12 0.5
S3-20
D12 0.2
D13 1.2
S3-21
Legend
Approximate Site Boundary
NSW Cadastre
AEC1: Ground Surface/Near-Surface Fill with Bonded ACM/B&D Waste
AEC2: Fill Material of Unknown Origin
Area 2
Area 4
Previous Investigation Locations (JBSG, 2021)
ACM Fragments Observed
HSL-D Exceedance
Current Investigation Locations (JBSG, 2023)
ACM & B&D Observed
ACM Fragments Observed
B&D Observed
HSD-D Exceedance
Depth to Fill
0 - 0.1
0.1 - 0.3
0.3 - 0.5
0.5 - 1.0
1.0 - 2.0
JBS&G
Job No: 64722
Client: Frasers Property Australia
Version: R01 Rev A
Date 16/08/2023
Drawn By: IA
Checked By: TF
Scale 1:950
0 9 18
metres
Coord. Sys. GDA 1994 MGA Zone 56
Eastern Creek Quarter
Eastern Creek, NSW
Areas of Environmental Concern
(Extent 4C)
FIGURE 4C

41 Appendix 3 – Hold Points

Moits or TFNSW	Process Held	Submission Details
Moits	Person working on a Worksite	Record of Induction
TFNSW	Delivery of Services not listed in TFNSW G34/D or in a sensitive area.	DA Matrix CC1 3151 and Site-Specific CEMP
TFNSW	Presence of subcontractor on any worksite	Duties, Audit of CEMP of Contractor
Moits	Subcontractor's non-complying process.	Close-out of CAR
TFNSW	Process for which a CAR has been issued for an Environmental Incident	Close-out of CAR

42 Appendix 4 – Spill Prevention and Containment Procedures

42.1 Spill Prevention

Purpose

Top fulfil Moits commitment to providing a work site free from the risk of environmental incidents.

Scope

This procedure outlines the actions that will be followed to prevent and contain spills at the worksite. It outlines the measures to be employed to control and remove chemical, fuel and lubricant spillage.

The activities covered by this procedure include:

- Refueling, maintenance or cleaning of plant and equipment including concrete agitators, bitumen spray bars and asphalt pavers
- Mixing of cutting oil and additives with bitumen and
- Application of liquid membranes, including paint and thermoplastic, resin, emulsion, pre-coat agent and curing compound.

Procedure - preventing spills

No hazardous material will be stored within 50 metres of a waterway.

All Moits trucks will carry the SDS as described in the Environmental Emergency Procedure. These are also available at the 24-hour contact number.

All hazardous liquids will be stored in imperviously bonded areas.

The bonded areas:

- Will conform with applicable Australian Standards
- Will each have a capacity (after allowing for the reduction in bund capacity caused by containers sitting on the floor of the bund) of not less than 120% of the volume of the largest container stored in the bonded area.

A register is maintained of all chemicals kept on site.

Empty chemical containers will be removed from site and either:

- Returned to the supplier (where possible) or
- Disposed of in accordance with the relevant legislation

All staff will be made aware of this procedure.

42.2 Minor Spill Procedure

If a spillage occurs the following procedure will be followed.

- Immediately identify the spilled material and notify the Supervisor
- Subcontractors are to notify Moits site personnel.
- Refer to SDS for Personal Protective Clothing needed.
- Assess the need for containment
- If containment is required, contain using earth mound and/or absorbent socks/spill kit.
- Use the relevant clean up procedure in SDS to clean the pavement, shoulders and other affected areas and structures.
- Dispose of material using a licensed contractor and keep records of disposal on site.
- Complete an Incident Reporting Form and forward it to the HSEQ Manager

43 Appendix 5 – Environmental Emergency Plan

43.1 Preface

Scope of this Plan

This Environmental Emergency Plan (“EEP”) sets down Moits management of environmental emergencies during the services.

It deals with:

- Being prepared for emergencies and

- Responding to and managing emergencies.

The following are of particular significance:

- Incidents and accidents (including vehicle fires) on the Network,
- Refuelling, maintenance or cleaning of plant and equipment including concrete agitators, bitumen spray bars and asphalt pavers.
- Mixing of cutting oil and additives with bitumen, and
- Application of liquid membranes, including paint and thermoplastic, resin emulsion, pre-coat agent and curing compound.

This Plan is part of Moits Contract Construction Environmental Management Plan and complements Moits Safety Incident Plan. It should be read with them.

The Plan addresses requirements of the Protection of the Environment Operations Act, 1997 (PoEO Act) and TFNSW QA specification G34.

Should a conflict exist between any of Moits Plans and the RMCC then the RMCC will prevail.

Principle

In the event of an emergency the first consideration is the safety of Moits and TFNSW personnel and the public. Following the safety of the staff and the public the next consideration is the minimisation of damage to the environment.

Purposes of this Plan

This Plan aims to make staff aware of the requirements for the timely planning and safe response to incidents in order to minimise damage to the environment.

43.2 Moits Key Response Personnel

The Project Manager and Supervisor will be the first point of contact when an incident or spill occurs. They can be contacted 24 hours a day.

Back up for the Project Manager and Supervisor will be provided by the Construction Manager and HSEQ Manager

In the event of Moits finding or being notified of an incident or accident or environmental emergency on the Network or in the Services to which Moits is required to respond any one of these people will mobilise Moits emergency people and their equipment and ensure the relevant Procedure, Communication Strategy and Reporting is being followed.

The names and contact numbers for these people will be given to all staff and contractors at their induction. They will also be displayed in the site offices and crib rooms together with the numbers of emergency services (e.g. ambulance, fire brigade, spill clean-up services).

A copy of the Environmental Emergency Procedure & Communication Strategy flowchart will be kept in every Moits vehicle.

43.3 Emergency Contacts

Reproduced from Moits Contract Management Plan.

Name	Position	Mobile phone No.
Hayden Reading	Supervisor / Site Manager	0457 009 294
Shawn Zaky	Senior Project Engineer	0478 269 949
Gordon Butt	Project Manager	0468 569 977
Kevin Watters	Construction Manager	0466 579 885
Darren O'Dea	HSEQ Manager	0417 674 262

43.4 Safety Data Sheets

Moits Supervisor will maintain an up-to-date master file ("Register") of Safety Data Sheets ("SDS") for all materials used by Moits in performing the services and for materials it reasonably expects could be spilt or be found burning in vehicle fires on the network e.g. bitumen, fuels, pesticides, strong acids and alkalis, paint.

Controlled, updated copies of these SDS will be immediately to hand:

- To each of Moits 24-hour Emergency Contacts,
- Prominently available on all worksites.

43.5 Containment Measures

In the event of spillage of fuels (Refer to Appendix 3), paint and/or chemicals on the Network Moits will:

1. Identify the spilled material and, from its Safety Data Sheet ("SDS"), determine what precautions need to be taken e.g. wearing Personal Protective Equipment,
2. Stop the source of the spill,
3. Use containment equipment/kits to contain the spill in accordance with the SDS,
4. Block nearby drainage channels with earth or sandbags,
5. If the spill occurs in the vicinity of a natural watercourse or in an environmentally sensitive area take immediate extra precautions such as construction of earth mounds downstream of the spill, blocking-off natural drainage channels with earth or sandbags,
6. Treat any chemical spill according to the SDS,
7. If the spill is large or if the above measures appear to be inadequate, call the Fire Brigade and give them location, UN number and Hazchem code and size of spill
8. Excavate and store (in labelled drums) contaminated material and transport it to an approved waste management facility.
    - Moits will be implementing a cap and contain strategy using a Burrow Pit for all Bonded ACM on-site. However, any identified Friable ACM will need to be removed off Site.

9. Raise an Environmental Incident Report and report the incident to the Senior Project Engineer and HSEQ Manager,
10. Notify the TFNSW / Council Representative then the DECC in accordance with the requirements of the Protection of the Environment Operations Act 1997 ***IF*** :
    - Actual or potential non- trivial harm to the health or safety of people has been done or,
    - Non-trivial damage to ecosystems has been done or
    - Actual or potential loss or property damage (including clean-up charges) exceeds $10,000.

43.6 Collecting, Cleaning and Disposal

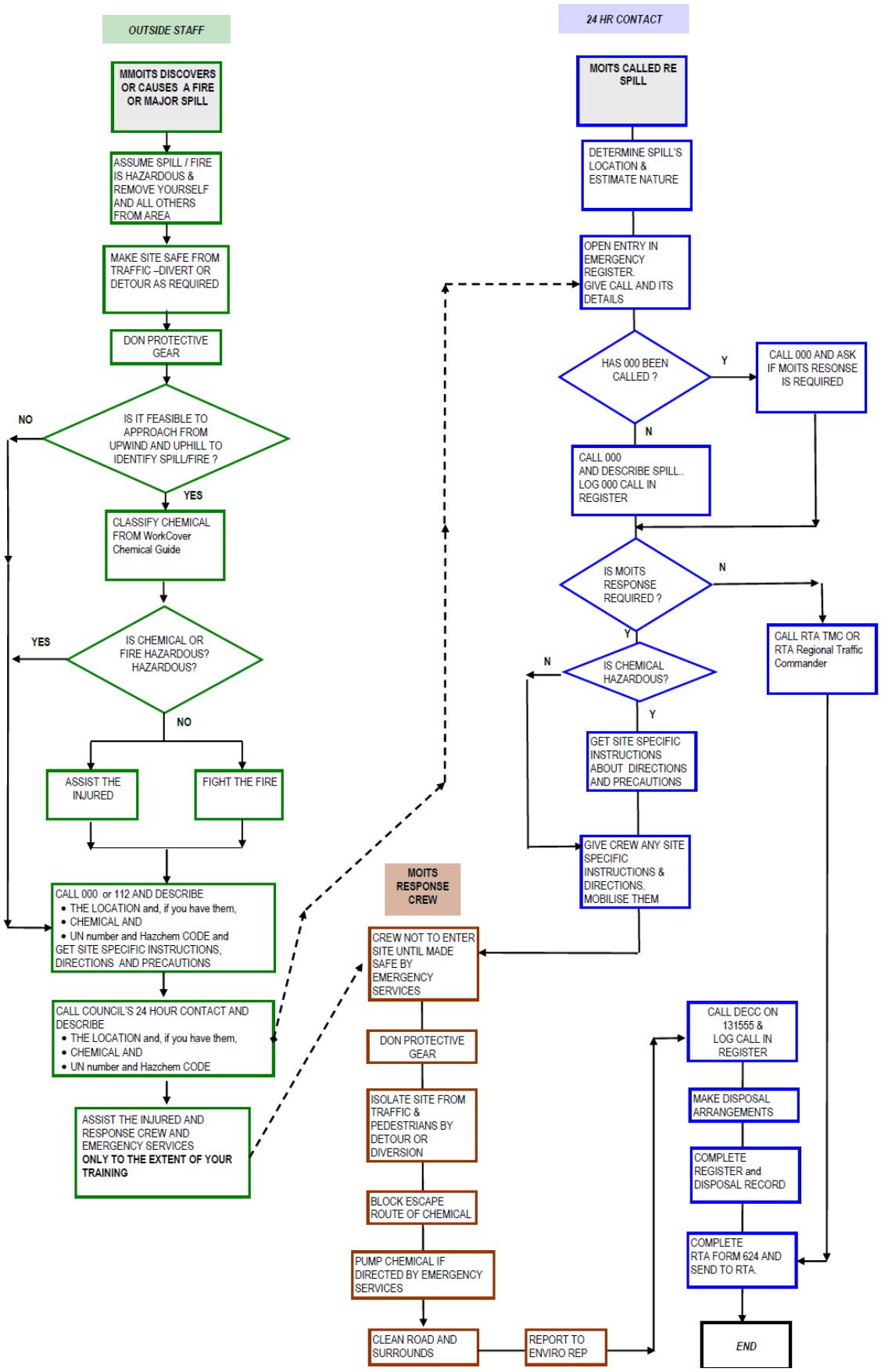
Activity	Material	Method
Collecting	Liquid Powders	Pump into tank or drum Shovel or suck into tanks or drums
Cleaning	Liquids (water soluble)	Hose down with water-do not use more than necessary Pump into tank or drum
	Liquids (non-water soluble)	Hose down with high pressure water jet-do not use more than necessary Pump into tank or drum
	Powders	Shovel. Use a broom to pick up remainder.
	If in doubt about what to use as a cleaning agent, contact DEC	
Disposal	All	By a "controlled waste facility" ("Controlled Waste Facility" is defined to mean a waste facility of a class specified in the regulations)

TFNSW Environmental Incident Classification and Management Procedure (“Pn025p”)

Moits will cooperate with the TFNSW / Council in applying PN025P (which is reproduced as **Error! R eference source not found.**.9 and respond as set down there.

43.7 Follow-Up Action

1. Send any staff exposed to hazardous materials, including smoke or fumes, to health authorities to assess any effect upon their health,
2. Restore Emergency Equipment to original state,
3. Advise the HSEQ Manager of any improvements to this Plan


OUTSIDE STAFF
MMOITS DISCOVERS OR CAUSES A FIRE OR MAJOR SPILL
ASSUME SPILL / FIRE IS HAZARDOUS & REMOVE YOURSELF AND ALL OTHERS FROM AREA
MAKE SITE SAFE FROM TRAFFIC –DIVERT OR DETOUR AS REQUIRED
DON PROTECTIVE GEAR
IS IT FEASIBLE TO APPROACH FROM UPWIND AND UPHILL TO IDENTIFY SPILL/FIRE ?
NO
YES
CLASSIFY CHEMICAL FROM WorkCover Chemical Guide
IS CHEMICAL OR FIRE HAZARDOUS? HAZARDOUS?
YES
NO
ASSIST THE INJURED
FIGHT THE FIRE
CALL 000 or 112 AND DESCRIBE
• THE LOCATION and, if you have them,
• CHEMICAL AND
• UN number and Hazchem CODE and
GET SITE SPECIFIC INSTRUCTIONS, DIRECTIONS AND PRECAUTIONS
CALL COUNCIL'S 24 HOUR CONTACT AND DESCRIBE
• THE LOCATION and, if you have them,
• CHEMICAL AND
• UN number and Hazchem CODE
ASSIST THE INJURED AND RESPONSE CREW AND EMERGENCY SERVICES ONLY TO THE EXTENT OF YOUR TRAINING
24 HR CONTACT
MOITS CALLED RE SPILL
DETERMINE SPILL'S LOCATION & ESTIMATE NATURE
OPEN ENTRY IN EMERGENCY REGISTER. GIVE CALL AND ITS DETAILS
HAS 000 BEEN CALLED ?
Y
CALL 000 AND ASK IF MOITS RESONSE IS REQUIRED
N
CALL 000 AND DESCRIBE SPILL.. LOG 000 CALL IN REGISTER
IS MOITS RESPONSE REQUIRED ?
N
CALL RTA TMC OR RTA Regional Traffic Commander
Y
IS CHEMICAL HAZARDOUS?
N
Y
GET SITE SPECIFIC INSTRUCTIONS ABOUT DIRECTIONS AND PRECAUTIONS
GIVE CREW ANY SITE SPECIFIC INSTRUCTIONS & DIRECTIONS. MOBILISE THEM
MOITS RESPONSE CREW
CREW NOT TO ENTER SITE UNTIL MADE SAFE BY EMERGENCY SERVICES
DON PROTECTIVE GEAR
ISOLATE SITE FROM TRAFFIC & PEDESTRIANS BY DETOUR OR DIVERSION
BLOCK ESCAPE ROUTE OF CHEMICAL
PUMP CHEMICAL IF DIRECTED BY EMERGENCY SERVICES
CLEAN ROAD AND SURROUNDS
REPORT TO ENVIRO REP
CALL DECC ON 131555 & LOG CALL IN REGISTER
MAKE DISPOSAL ARRANGEMENTS
COMPLETE REGISTER and DISPOSAL RECORD
COMPLETE RTA FORM 624 AND SEND TO RTA.
END

Intent

To provide a clear framework for classifying, managing and effectively responding to environmental incidents and to consistently provide accurate KPI information.

Relevant Policy and Legislation

This procedure relates to:

- TFNSW Environment Policy
- Protection of the Environment and Operations Act 1997
- National Parks and Wildlife Act 1972
- Environmental Protection and Biodiversity Conservation Act 1999
- *Environment Planning and Assessment Act 1999*
- *Heritage Act 1977*
- *Fisheries Management Act 1994*

Definitions and Acronyms

Environment	Surrounding in which an organisation operates, including air, water land, natural resources, flora, fauna, humans and their interrelation.
Environmental Incident	A discrete (one-off) occurrence that may result in an adverse impact (or impacts) on the environment or a breach of legislation.
Environmental Incident Management	Is the provision of a response in a timely and efficient manner to minimise adverse impacts on the environment.
EPI	Environmental Performance Improvement Section.
DECC	Department of Environment and Climate Change.
DoP	NSW Department of Planning.
Senior Environmental Officer	Regional Senior Environmental Officers; Environment Branch Senior Environmental Officers; Road Services Environment Manager; Pacific Highway Environmental Services Manager; Hume Highway Senior Environmental Officer.
POEO Act	Protection of the Environment (Operations) Act 1997
EP&A Act	Environment Planning and Assessment Act 1999
NPW Act	National Parks and Wildlife Act 1972
EPBC Act	Environmental Protection and Biodiversity Conservation Act 1999
FM(G) Reg	Fisheries Management (General) Regulation 1994

Procedural Text

- Environmental incidents will be classified using the TFNSW's Environmental Incident Classification in accordance with Table 1. The level of incident can be escalated or downgraded by the Manager Environmental Performance Improvement.
- Environmental incidents shall be managed using the TFNSW's Environmental Incident Management Response in accordance with Table 2.
- An Environmental Incident Report form as found on the Environment Intranet Site shall be raised for each reported environmental incident and forwarded to Environment Branch.
- Road & Fleet Services shall manage environmental incidents in accordance with TFNSW responses.

Table 1: TFNSW's Environmental Incident Classification

Category	Incident type	Primary Legislative Requirements
Category 1	Material, odour or noise that travels beyond site boundary causing or potentially causing adverse impact to the environment.	s.120 POEO Act – water pollution, sediment laden water, chemical/oil spill and sewage/septic overflow; s.129 POEO Act - offensive odour; s.126 POEO Act - dust exceeding reasonable levels without active management measures in place. s.139 POEO Act - offensive noise
	Discharge of waters from site not in accordance with any applicable DA determination / approval / licence condition.	s.120 and s.64 POEO Act; s.75D *EP&A Act*
	Unauthorised damage or interference to threatened species, endangered ecological communities or critical habitat.	*NPW Act par*ticularly s.118A, s.118C and s.118D.
	Unauthorised damage, disturbance, destruction or works to heritage items.	*Heritage Act 1977* particularly s. 57, s.119, s.139 and s.156. *EPBC Act 1999 s.15A, B & C*
	Unauthorised damage, disturbance or destruction to Aboriginal objects or places.	NPW Act particularly s.86 and s.90. EPBC Act 1999 s.15A, B & C
	Failure to comply with DA CC1 Matrix determination / approval / licence condition.	*EP&A Act* particularly s.75D; *POEO Act* particularly s.64; *FM(G) Reg* particularly

		s.337A., *NPW Act* particularly s.90 and s.141.
	Works without required approval.	*EP&A Act* particularly s.75D and s.111.
	Material harm to the environment or persons as per Part 5.7 of POEO Act (including harm on site).	*POEO Act* particularly s.148.
Category 2	Spills that do not leave the site boundary and are cleaned up without material environmental harm or residual environmental impact.	*POEO Act* including s.120 and s.142A.
	Failure to implement component of Environment Management Plan that does not result in a Category 1 incident.	*EP&A Act* particularly s.111
Environmental Hazard	Issues that may lead to an incident or adverse environmental impact if not attended to.	
	An action, failure to act or a management issue that has the potential to cause or result in adverse environmental impact.	

Notifiable Events	Material travelling beyond site boundary, and where it can be demonstrated that the management control plan has been designed appropriately (in consultation with a soil consultant if required), the controls have been installed appropriately, are being maintained well, and the weather (rain, wind etc) event exceeds the design capacity of the controls.
	A complaint from a Regulatory Agency

Table 2: TFNSW's Environmental Incident Management Response

Category 1 Management Response		TFNSW Response	Moits Response
1	If necessary, stop Services in relevant area and/or take immediate actions to prevent adverse impact to the environment or community.	✓	✓
2	As soon as TFNSW staff become aware of a category 1 incident, advise relevant SEO who in turn advises Environment Branch (GM Environment, Manager Environmental Performance Improvement or Manager Environmental Policy).	✓	✓ (Advise Contract Manager)
3	Notify DECC either as required under *Protection of the Environment Operations Act 1997* or as part of the TFNSW's commitment to advise DECC of environmental incidents. Notify other Regulatory Authorities if required (eg Notify Dept of Planning for projects approved under Part 3A or Division 4 Part 5 of the EP&A Act.).	✓	✓
4	Complete environmental incident report form and submit to Environment Branch.	✓	
5	Review the cause, nature and management response to the incident by Senior Project Engineer and Senior Environmental Officer, appropriately experienced regional environmental officers and/or a representative of Environment Branch and recommend improvements to processes where appropriate.	✓	✓
6	Review and check implementation of recommended improvement measures.	✓	✓
Category 2 Management Response		TFNSW Response	Moits Response
1	If necessary, stop Services in relevant area and/or take immediate actions to prevent adverse impact to the environment or community.	✓	✓
2	Complete environmental incident report form and submit to Environment Branch.	✓	
3	Review the cause, nature and management response to the incident by Senior Project Engineer and Senior Environmental Officer, or appropriately experienced regional environmental staff and recommend improvements to processes where appropriate.	✓	✓

4	Review and check implementation of recommended improvement measures.	✓	✓
Environmental Hazard		TFNSW Response	Moits Response
1	Detail hazard in Environmental Inspection Report and manage in accordance with inspection guidance	✓	
Category 3 Notifiable Event		TFNSW Response	Moits Response
1	SEO to advise Manager Environmental Performance Improvement.	✓	✓
2	Review the cause and nature of the event by Senior Environmental Officer and advise outcome of review to Manager Environmental Performance Improvement within 5 working days of event.	✓	

44 Appendix 6 – Legislation

Note: References to Acts include references to Regulations and instruments made under them

Environmental Planning Legislation

- Environmental Planning and Assessment Act, 1979 (NSW) (and instruments made under it)
- Environmental Planning and Assessment Amendment Act, 2008 (NSW)
- Local Government Act, 1993 (NSW)
- Roads Act, 1993 (NSW)
- Soil Conservation Act, 1938 (NSW)
- Native Vegetation Act, 2003 (NSW)
- Environment Protection and Biodiversity Conservation Act, 1999 (Cth)
- Land and Environment Court Act, 1979 (NSW)
- Native Title Act, 1993 (Cth)

Conservation and Heritage Legislation

- Dams Safety Act, 1978 (NSW)
- Native Vegetation Act, 2003 (NSW)
- Coastal Protection Act, 1979 (NSW)
- National Parks and Wildlife Act, 1974 (NSW)
- National Parks and Wildlife Amendment Act, 2001 (NSW)
- Threatened Species Conservation Act, 1995 (NSW)
- Environment Protection and Biodiversity Conservation Act, 1999 (Cth)
- Fisheries Management Act, 1994 (NSW)
- Fisheries Management Amendment Act, 2000 (NSW)
- Marine Pollution Act, 1987 (NSW)
- Noxious Weeds Act, 1993 (NSW)
- Water Act, 1912 (NSW)
- Water Management Act, 2000 (NSW)
- Heritage Act, 1977 (NSW)
- Wilderness Act, 1987 (NSW)
- Plantations and Reafforestation Act, 1999 (NSW)
- Australian Heritage Commission Act, 1975 (Cth)
- Aboriginal and Torres Strait Islander Heritage Protection Act, 1984 (Cth)
- Sydney Water Catchment Management Act, 1998 (NSW)
- Surveying Act, 2002 (NSW)

Pollution and Waste Management Legislation

- Ozone Protection Act, 1989 (NSW)
- Protection of the Environment Operations Act, 1997 (NSW)
- Protection of the Environment Operations Amendment (Scheduled Activities and Waste) Regulation, 2008 (NSW)
- Sydney Water Act, 1994 (NSW)
- Pesticides Act, 1999 (NSW)
- Waste Avoidance and Resource Recovery Act, 2001 (NSW)
- Protection of the Environment Operations (Clean Air) Regulation, 2002 (NSW)

Contaminated Land Legislation

- Contaminated Land Management Act, 1997 (NSW)

Fire Control

- Rural Fires Act, 1997 (NSW)

Hazardous Substances

- Environmentally Hazardous Chemicals Act, 1985 (NSW)
- Road and Rail Transport (Dangerous Goods) Act, 1997 (NSW)
- Radiation Control Act, 1990 (NSW)

State Environmental Planning Policies

- SEPP No. 14 – Coastal Wetlands (gazetted 12.12.85)
- SEPP No. 26 – Littoral Rainforests (gazetted 5.2.88)
- SEPP No. 44 – Koala Habitat Protection (gazetted 6.1.95)
- SEPP No. 58 – Protecting Sydney's Water Supply (gazetted 24.12.98)
- SEPP (Infrastructure) 2007 – (gazetted 21.12.85)

45 Appendix 7 – Procedures

Procedures

- Biodiversity Procedure
- Contaminated-Land Procedure
- Heritage-Aboriginal-European Procedure
- Waste & Resource Recovery Procedure
- Noise-Vibration Procedure
- Asbestos Procedure
- Dewatering Procedure
- Discharges-to-Air Procedure
- Erosion-Sedimentation Procedure